

How Timor-Leste Is Using the National Adaptation Plan (NAP) Process to Scale Up Ecosystem-Based Adaptation (EbA)

Country Brief

1. Introduction

Momentum for Ecosystem-based Adaptation (EbA) approaches—which are a type of Nature-based Solutions (NbS)—has been growing globally. In developing countries in particular, EbA offers an adaptation strategy that simultaneously enhances the resilience of both ecosystems and livelihoods—which are closely linked and face serious threats from climate change. For national governments seeking to broaden the uptake of EbA, the National Adaptation Plan (NAP) process can be an effective mechanism and driver for mainstreaming and scaling up EbA (Terton & Greenwalt, 2020).

Timor-Leste communicated its first NAP document to the United Nations Framework Convention on Climate Change (UNFCCC) on March 31, 2021. The country's NAP recognizes EbA as a foundational element in supporting a systems approach to climate adaptation, disaster risk reduction, and long-term peace and prosperity. Accordingly, Timor-Leste has identified EbA as a guiding principle in its NAP process to connect ecosystem protection and climate action.

This case study discusses how the Timor-Leste government embraced this opportunity. It will also share lessons for other countries seeking to use the NAP process to mainstream and implement EbA.



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Box 1. What are EbA and NbS?

The Convention on Biological Diversity (CBD) defines **Ecosystem-based Adaptation (EbA)** as “the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change. It aims to maintain and increase the resilience and reduce the vulnerability of ecosystems and people in the face of the adverse effects of climate change” (CBD, 2009).

Nature-based Solution (NbS) is an umbrella concept for various ecosystem-related approaches. It covers actions to protect, sustainably manage, and restore natural or modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits (Cohen-Shacham et al., 2016). EbA represents just one approach under the NbS umbrella. This means all EbA solutions are NbS, but not all NbS are EbA.

2. Overview of Timor-Leste’s NAP Process

Situated in Southeast Asia, Timor-Leste is classified as both a Small Island Developing State and a least-developed country (LDC). Its total population is approximately 1.2 million people, and the country has one of the highest population growth rates in Southeast Asia. As an LDC, Timor-Leste had an annual per capita income of approximately USD 1,299 in 2019. It is the newest country in Asia—gaining independence in 2002 after decades of civil unrest and conflict—and its social and economic policies have primarily focused on post-conflict nation building, poverty alleviation, and addressing the needs of its most vulnerable communities (Government of Timor-Leste, 2021; Green Climate Fund, 2019).

Timor-Leste is highly vulnerable to climate change due to its geographical location, densely populated coastlines, a largely agrarian community, and the importance of natural resources to its main economic sectors (including tourism and fishery). Coupled with a

lack of infrastructure due to historical conflict, Timor-Leste faces food and water security challenges and is particularly vulnerable to extreme climate events and sea level rise. Climate change and its associated impacts on communities and ecosystems pose major barriers to Timor-Leste achieving post-conflict nation building and its Strategic Development Plan 2011–2030 (Government of Timor-Leste, 2021).

To fulfill international commitments and the urgent need to adapt to climate impacts, Timor-Leste initiated its NAP process on September 27, 2019, with support from the joint United Nations Development Programme (UNDP)–UN Environment Programme National Adaptation Plan Global Support Programme (NAP–GSP). The National Directorate for Climate Change (NDCC) is the lead agency for Timor-Leste’s NAP process.

The first step in Timor-Leste’s NAP process was a stocktaking of existing adaptation work programs and projects in order to assess the level of implementation and results to date, and understand future adaptation needs



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(Government of Timor-Leste, 2021).¹ This has helped the NDCC bring together existing adaptation efforts under the umbrella of the NAP process to maximize synergies and avoid duplication.

Another important step in Timor-Leste's NAP process included conducting local vulnerability assessments through field visits and consultations with villages most vulnerable to climate change impacts, especially those situated in the western part of the country (UNDP, 2021). The NDCC also hosted "Open NAP" national consultation workshops between March and June 2020 with stakeholders from different ministries, agencies, sectors, and the LDC Expert Group. At the workshop, the NDCC solicited inputs and insights on how to link the NAP with Timor-Leste's Strategic Development Plan 2011–2030 and build the processes necessary to implement the NAP (Government of Timor-

Leste, 2021). A major outcome of these engagement activities is the development of 14 mutually reinforcing guiding principles for the NAP (see Box 2).

These principles demonstrate Timor-Leste's commitment to mainstream social and environmental resilience and leverage the NAP process to build a sustainable future. They informed the overall development of the NAP and will be integrated into the different policies and work programs that stem from the NAP. A monitoring, evaluation, reporting, and learning (MERL) framework will be developed by 2022 (Government of Timor-Leste, 2021; UNDP, 2021).

Timor-Leste's NAP was ratified in September 2020 and submitted to the UNFCCC's NAP Central in March 2021. The country began implementing its NAP in early 2021.

¹ Timor-Leste's NAP process was designed to align with existing climate programs and policies such as Timor-Leste's National Adaptation Programmes of Action (NAPAs), its Intended Nationally Determined Contribution (INDC) and any future enhanced Nationally Determined Contributions, and the Green Climate Fund Country Programme.

Box 2. Timor-Leste's NAP at a Glance

- Led by the National Directorate for Climate Change (NDCC)
- 107 adaptation action items
- 10-year time horizon (2020–2030)
- Seven priority programs: risk management capacity-building; addressing the needs of vulnerable communities; ecosystem-based coastal disaster risk reduction; effective water resource management; sustainable land management; improved public health services; climate-resilient livelihoods
- Seven priority sectors: infrastructure; biodiversity and ecosystem; health; agriculture; water; disaster risk reduction; tourism
- 14 Guiding Principles of the NAP:
 1. National Ownership
 2. Demography, Gender, and Social Inclusion Considerations
 3. Nationally Appropriate Climate Actions
 4. Development of Human Capital
 5. Youth Engagement
 6. Whole-of-Government Approach
 7. Nexus between Nation-Building Priorities and Low-Carbon Growth Pathways
 8. Integration of Climate, Resilience, and Livelihood Approaches
 9. Climate Responsive Planning and Budgeting
 10. Community-Based Adaptation Approach
 11. Ecosystem-Based Adaptation Approach
 12. Innovation
 13. Conflict Sensitivity and Social Cohesion
 14. Transfer and Adoption of the Best Appropriate Technology

3. EbA in Timor-Leste's NAP Process

Timor-Leste's NAP identifies EbA as one of the 14 guiding principles underpinning the NAP process and its future adaptation strategies in order to “maximize co-benefits between adaptation efforts and environmental protection” (Government of Timor-Leste, 2021). The NAP document emphasizes the importance of ecosystems and biodiversity and their integral role in livelihoods and community resilience.

Timor-Leste's NAP demonstrates how giving ecosystems and EbA a central role in adaptation planning can yield long-term positive results for both climate adaptation and ecosystem resilience, as well as contributing to post-conflict development and peacebuilding. To illustrate Timor-Leste's experience in mainstreaming EbA, the following section identifies the practical actions taken by Timor-Leste along the eight guiding principles outlined in the [NAP Global Network guidance note on maximizing EbA through NAP processes](#) (Terton & Greenwalt, 2020).

Guiding Principle 1: Emphasize the role of ecosystems in vulnerability reduction for people, their livelihoods, and socio-economic development.

- Timor-Leste's NAP **places EbA at the centre of its goal to build “a climate resilient development trajectory for the country and its people”** (Government of Timor-Leste, 2021, p. 1).

EbA has been identified as serving an essential role in the nexus between climate resilience and socio-economic development—improving rural livelihoods and food security and safeguarding the provision of ecosystem services for the most vulnerable groups.

- The NAP emphasizes the role of ecosystems in disaster risk reduction in coastal areas and coral reefs to protect coastal infrastructure and the livelihoods of communities dependent on healthy fisheries.

Guiding Principle 2: Take an ecosystem-level approach to vulnerability and risk assessment using the best available science, as well as Indigenous and Traditional Knowledge.

- The NAP describes in detail the existing and anticipated impacts of climate change on ecosystems, biodiversity, and communities dependent on natural resources. The information is **grounded in vulnerability assessments undertaken at multiple levels of governance**, including integrated vulnerability assessments at the village level and the national vulnerability assessment for the Second National Communication.² In addition, sectoral vulnerability assessments were conducted for coastal and coral reef ecosystems (funded by UNDP and the Global Environmental Facility).

² A National Communication (NC) is a report that each party to the UNFCCC prepares periodically to present their national inventory of anthropogenic emissions by sources and removals by source of all greenhouse gases, as well as the steps planned or taken by the party to implement the UNFCCC domestically (UNFCCC, 2009). Timor-Leste submitted its Second National Communication on November 17, 2020.

- These vulnerability assessments stressed that the “cross-sectoral nature, diversity, complexity and richness of shoreline protection and coastal management impose the need for an integrated approach,” and served as a crucial means to inform EbA decisions and actions (Pacific Islands Fisheries Science Center, 2017; UNDP, 2018).

Guiding Principle 3: Adopt an integrated approach that considers ecosystems across all sectors in the NAP process.

- Timor-Leste’s NAP prioritized EbA as a guiding principle for implementation, allowing for **an integrated approach to adaptation planning and cross-sectoral coordination to “maximize synergies between environmental conservation and rehabilitation efforts and the NAP process”** (Government of Timor-Leste, 2021, p. 15).
- The NAP underscores the importance of adopting “a systems approach to adaptation with respect to natural capital” to build the resilience of biodiversity and ecosystem resources and “incorporating ecosystem-based adaptation into planning and regulatory frameworks” (Government of Timor-Leste, 2021, pp. 3, 50).
- The NAP considers all natural ecosystems present in Timor-Leste for implementing EbA approaches. These include the five generalized ecological zones in the country: marine and coastal; arid lowland; mountainous; highland plains; and wetlands and lakes.

Guiding Principle 4: Embrace global policy alignment by considering synergies with other relevant international commitments that EbA solutions contribute to.

- Timor-Leste’s NAP **established clear linkages between adaptation under the NAP process and the country’s mitigation and biodiversity protection efforts**. A robust ecosystem and EbA component in the NAP helps Timor-Leste identify synergies to other international conventions and implement a well-coordinated approach to achieve multiple commitments domestically and internationally, including the Paris Agreement, the Sendai Framework on Disaster Risk Reduction, and the Agenda 2030 Sustainable Development Goals (SDGs).
- The NAP also sought to **create a close coordination mechanism between adaptation efforts (including mainstreaming EbA approaches) and relevant work programs under the National Biodiversity Strategy and Action Plan (NBSAP) and the Sendai Framework for Disaster Risk Reduction**. This coordination ensures holistic coordination at both the technical and political levels among relevant agencies and engages civil society actors in exploring synergetic means of implementation.



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Guiding Principle 5: Make use of the participatory and inclusive nature of the NAP process to design the most appropriate and effective EbA solutions.

- Timor-Leste's NAP embraces a **participatory and inclusive adaptation approach through community-based actions, robust youth engagement, and strong demographic, gender, and social inclusion considerations.** This approach ensures transparency in implementing EbA solutions and secures buy-in from multiple stakeholders when identifying long-term adaptation goals and implementing “community-centric and community-driven approaches in which communities are empowered to build their adaptive capacity and enhance adaptation mechanisms” (Government of Timor-Leste, 2021, p. 3).
- The NAP **places the traditional customary rule—*Tarabandu*—at the centre of its local engagement and implementation strategy.** It serves as an important entry point for “strengthening engagement with and involvement of local communities in resilience building efforts,” especially for realizing the co-benefits of EbA measures (see Box 3) (Government of Timor-Leste, 2021, p. 21).
- A strong gender-based analysis component was incorporated into the NAP to address the differential impacts of climate change and mainstream gender into Timor-Leste's EbA measures. Furthermore, the NAP established a focal point on gender and climate change to ensure the gender responsiveness of the NAP process.

Box 3. Implementing the NAP: Community EbA through *Tarabandu*

Tarabandu is a traditional customary rule system that enforces peace and reconciliation at the sub-national level through public agreement, mediation, and social consensus. Since independence, *Tarabandu* has contributed to Timor-Leste's nation building and reconciliation by "preventing community conflict, protecting the environment, managing natural resources, and improving community welfare" (Government of Timor-Leste, 2021, p. 20). The traditional practice is used to "regulate a range of social and environmental relationship" at the village or sub-village level where communities come together to perform rituals, consultations, and negotiations on various local regulations, including those related to agricultural harvesting, environmental conservation, and resource allocation (Ide et al., 2021). Then, a team of ritual leaders and community members would enforce these agreed-upon rules and regulations through communally agreed material fines or other punishments.

Timor-Leste's NAP identified *Tarabandu* as an important entry point for local communities to "plan and implement locally-appropriate climate change adaptation measures," including EbA actions that provide co-benefits to sustainable agriculture and the enhancement of ecosystem services that improve local communities' livelihoods and well-being (Government of Timor-Leste, 2021, p. 21). The NAP prioritizes integrating climate risk information into traditional disaster risk management approaches and relies on *Tarabandu* and Traditional Knowledge to inform adaptation decision making. Local communities could use *Tarabandu* to conduct an inclusive and participatory consultation process and implement community rules that seek to implement EbA measures while protecting local ecosystems and biodiversity (Ide et al., 2021). With *Tarabandu*, Timor-Leste's EbA actions seek to "bring people together, ensuring that all groups in targeted communities are included to maintain and further improve the existing efforts for improving social cohesion" and promote long-term, climate-responsive peace and prosperity (Government of Timor-Leste, 2021, p. 3).



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Guiding Principle 6: Use the NAP process to engage sub-national and local-level governments in the design and implementation of regional and local EbA solutions.

- Effective EbA works toward **collaboration between multiple levels of government and institutions**. Timor-Leste's NAP recognizes the localized nature of adaptation and the critical role of sub-national actors and local governments in planning and implementing localized EbA measures.
- The NAP serves as one of the mechanisms that will help “**strengthen vertical coordination and sub-national mainstreaming in alignment with Timor-Leste's decentralization trajectory**” to gradually increase the capacity and responsibilities of local governments and improve coordination between national line agencies and municipal counterparts on adaptation and EbA implementation (Government of Timor-Leste, 2021, p. 61).

Guiding Principle 7: Adopt a long-term approach and ensure sufficient resources for the implementation of EbA solutions.

- Timor-Leste's NAP document emphasizes **the need to support the long-term human and institutional capacity development for implementing adaptation programs**, including EbA projects. It emphasizes developing the capacity of local communities (especially the most vulnerable groups) in using both natural and grey infrastructure to manage climate risks and generating knowledge

and data to support regional adaptation planning and disaster risk reduction.

- The NAP also recognizes that **adequate, sustainable, and long-term financing is crucial to implementing the NAP and EbA projects**. The NAP outlines the domestic institutional arrangements that would ensure climate-conscious budgeting for implementing adaptation actions. Furthermore, a comprehensive financing plan to support the implementation of the NAP will be developed in the near future that considers both domestic and international adaptation financing.
- Timor-Leste acknowledges **the private sector's important role in supporting the implementation of the NAP**. This includes supporting the private sector in mainstreaming climate-smart agriculture as well as aquaculture and mariculture techniques, working with the private sector to develop a NAP costing and financing plan by 2022.

Guiding Principle 8: Ensure accountability and performance by building an evidence base for EbA solutions as part of an overall NAP monitoring and evaluation (M&E) system.

- The NAP acknowledges that the lack of continuous observation and monitoring networks poses a barrier to building an evidence base for adaptation actions, including EbA. The NAP team will seek to **establish a national monitoring, evaluation, reporting, and learning (MERL) framework in 2022** and develop specific indicators and targets for each sector, including the biodiversity and ecosystems sector, to track progress and ensure accountability.

4. Lessons Learned

Timor-Leste's approach to EbA in the NAP process provides important opportunities and lessons learned for other practitioners and NAP teams, including:

- **Timor-Leste's NAP process puts people at the centre of adaptation planning and establishes an important mandate of mainstreaming EbA to protect people's livelihoods and ecosystems.** The NAP acknowledges the importance of healthy ecosystems and the local communities' dependency on ecosystem services. It identifies EbA as a guiding principle throughout the different phases (planning, implementation, and MERL) of NAP to strengthen communities' resilience and protect its most vulnerable population. The NAP document also places this principle alongside a strong gender-responsive and rights-based approach to adaptation planning and implementation that demonstrates Timor-Leste's commitment to a socially inclusive and participatory NAP process.
- **Timor-Leste's NAP document links climate adaptation objectives with biodiversity and ecosystem protection goals.** It does so by recognizing the vulnerability of its ecosystems and biodiversity due to climate change while drawing clear synergies between the National Biodiversity Strategy and Action Plan and the NAP: it thus facilitates integrating ecosystem conservation considerations into climate adaptation planning (and vice versa).
- **Experience from Timor-Leste shows that EbA implemented in conjunction with Indigenous and traditional practices could yield positive results for adaptation programming, as well as for post-conflict peacebuilding and reconciliation.** The integration of traditional customary rules into the NAP allows the direct participation of local communities in carrying out EbA activities. Indigenous and traditional governance provides a critical entry point to ensure inclusive, culturally sensitive, and effective community engagement, consultation, and implementation, especially in post-conflict regions.
- **Timor-Leste's NAP document accentuates the urgency of building institutional and human capacity to better carry out effective EbA actions.** Strengthening the capacities of local communities and different stakeholders is a goal within an iterative NAP process with a long-term vision for resilience building and ecosystem protection using EbA. Sectoral focal points who will guide adaptation implementations are identified to facilitate the capacity-development efforts, and dedicated budgets are earmarked for capacity development.
- **The Government of Timor-Leste, through its NAP process, is integrating adaptation and ecosystem considerations into its strategic development plan and post-conflict nation-building priorities to support a resilient and sustainable economy.** The NAP's focus on mainstreaming EbA helps link resilience building and ecosystem protection with economic and social development priorities, such as developing green infrastructures, building a resilient economy, and increasing social cohesion. The NAP aligns with the country's Strategic Development Plan 2011–2030, providing a clear linkage between EbA and poverty eradication as well as economic development objectives. It also establishes mandates for high-level coordination and synergetic collaborations with all relevant stakeholders.



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The NAP Global Network was created in 2014 to support developing countries in advancing their NAP processes, and help accelerate adaptation efforts around the world. To achieve this, the Network facilitates South-South peer learning and exchange, supports national-level action on NAP development and implementation, and develops analysis, communications, and knowledge products. Financial support for the Network has been provided by Austria, Canada, Germany, the United Kingdom and the United States. The Secretariat is hosted by the International Institute for Sustainable Development (IISD).

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info@napglobalnetwork.org

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