



Land and  
Maritime  
Boundary  
Office



# **BLUE ECONOMY: POLICY AND ACTION PLAN FOR THE PROMOTION OF A RESILIENT AND SUSTAINABLE ECONOMY OF THE SEA IN TIMOR-LESTE [2025-2035]**

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**BLUE ECONOMY: POLICY AND ACTION PLAN FOR THE PROMOTION OF A  
RESILIENT AND SUSTAINABLE ECONOMY OF THE SEA IN TIMOR-LESTE  
[2025-2035]**

**This document was prepared by the Land and Maritime Boundaries Office/Prime Minister's Office in consultation with the ministerial lines of the IX Constitutional Government and is intended for public consultation, prior to its final approval by the Council of Ministers.**

**Draf for public consultation  
September 10, 2025**

## INDEX

<b>PREAMBLE .....</b>	<b>12</b>
<b>PART I .....</b>	<b>16</b>
1. INTRODUCTION.....	16
2. THE BLUE ECONOMY IN THE WORLD AND IN TIMOR-LESTE .....	20
2.1. THE BLUE ECONOMY AND ECONOMIC GROWTH .....	22
3. GENERAL FRAMEWORK.....	24
3.1. GEOGRAPHIC CHARACTERISATION .....	25
3.1.1. MORPHOLOGY .....	28
3.1.2. WATER RESOURCES .....	29
3.1.3. FOREST RESOURCES .....	34
3.1.4. COASTAL AND MARINE RESOURCES .....	36
3.1.5. NATIONAL MARITIME SPACE .....	37
3.1.5.1 MARITIME BOUNDARIES .....	39
3.1.6. CLIMATIC CHARACTERISATION .....	42
3.2. DEMOGRAPHIC CHARACTERISATION .....	44
3.2.1. ADMINISTRATIVE DIVISION OF THE TERRITORY .....	45
3.3. SOCIOECONOMIC CHARACTERISATION.....	46
3.3.1. TOURISM.....	49
3.3.2. BIODIVERSITY .....	50
3.3.3. FISHERIES AND AQUACULTURE .....	56
3.3.4. PORTS AND MARITIME TRANSPORT .....	62
3.3.5. PETROLEUM SECTOR .....	62
3.3.6. HEALTH AND BASIC SANITATION .....	62
3.3.7. EDUCATION AND VOCATIONAL TRAINING.....	63
3.3.8. MARITIME SURVEILLANCE AND SECURITY .....	65
3.4 HISTORICAL AND CULTURAL CHARACTERISATION .....	67
3.5 POLITICAL AND LEGAL CHARACTERISATION.....	69
3.5.1 GOVERNANCE FRAMEWORK .....	70
3.5.2 NATIONAL AND INTERNATIONAL LEGAL FRAMEWORK .....	70
3.5.3 GOVERNANCE PARTNERS.....	71
<b>PART II .....</b>	<b>72</b>
4. STRATEGIC FRAMEWORK FOR TIMOR-LESTE'S BLUE ECONOMY .....	72
5. AXES, PILLARS, AND STRATEGIC OBJECTIVES OF THE BLUE ECONOMY .....	74
5.1. AXIS 1: RESEARCH, EDUCATION, AND COMMUNICATION (KNOWING THE SEA) 76	
5.1.1. Pillar 1: Marine Scientific Research .....	77
5.1.1.1. Legal Framework for International Marine Scientific Research .....	78
5.1.1.2. Survey and Study of Timor-Leste's Marine Biodiversity .....	80
5.1.2. Pillar 2: Education, Training, and Strategic Communication .....	84
5.1.2.1. Education and Vocational Training .....	84
5.1.2.2. Marine Research and Education Centres.....	89

5.1.2.3. Marine and Underwater Cultural Heritage .....	91
5.1.2.4. Strategic Communication and Ocean Literacy .....	94
<b>5.2. AXIS 2: MARINE BIODIVERSITY PRESERVATION AND CONSERVATION (RESPECTING THE SEA) .....</b>	<b>98</b>
5.2.1. Pillar 3: Maritime and Coastal Management and Protection .....	99
5.2.1.1. Maritime Spatial Planning and Management .....	101
5.2.1.2. Marine Protected Areas .....	104
5.2.1.2.1. National Park of Ataúro.....	109
5.2.1.3. Transboundary Cooperation .....	114
5.2.1.4. Strengthening Environmental Impact Assessment (EIA) Regimes .....	116
5.2.2. PILLAR 4: MARINE BIODIVERSITY CONSERVATION .....	118
5.2.2.1. Coral Reefs .....	119
5.2.2.2. Mangroves .....	121
5.2.2.3. Seaweeds and Seagrasses .....	123
5.2.2.4. Cetaceans, Sea Turtles, Sharks, Dugongs and Other Marine Species.....	126
5.2.3. PILLAR 5: COMBATING MARINE POLLUTION AND WASTE MANAGEMENT..	131
5.2.4. PILLAR 6: CARBON SEQUESTRATION .....	137
<b>5.3. AXIS 3: SUSTAINABLE USE (LIVING WITH THE SEA).....</b>	<b>142</b>
5.3.1. PILLAR 7: BLUE TOURISM .....	142
5.3.1.1. Coastal Tourism .....	144
5.3.1.2. Maritime or Nautical Tourism .....	147
5.3.1.3. Nature Tourism .....	149
5.3.2. PILLAR 8: LIVING RESOURCES EXPLOITATION .....	150
5.3.2.1. Fisheries and Aquaculture.....	151
5.3.2.2. Marine Biotechnology .....	157
<b>5.3.3. PILLAR 9: EXPLORATION OF NON-LIVING RESOURCES AND ENERGY PRODUCTION .....</b>	<b>158</b>
5.3.3.1. Hydrocarbon Production .....	159
5.3.3.2. Renewable Energy .....	162
5.3.3.3. Salt Production .....	165
5.3.3.4. Seabed Mining .....	167
5.3.3.5. Desalination .....	170
5.3.4. PILLAR 10: TRANSPORT, MARITIME PORTS AND COMMUNICATIONS .....	171
5.3.4.1. Infrastructure.....	171
5.3.4.2. Port and Logistics Development .....	172
5.3.4.3. Maritime Transport and Navigation .....	175
5.3.4.4. Shipbuilding and Ship Repair .....	178
5.3.5. PILLAR 11: MARITIME SECURITY .....	179
5.3.5.1. Capacity Building, Surveillance and Enforcement.....	181
5.3.5.2. Monitoring and International Cooperation.....	184
<b>5.4. AXIS 4: SUPPORTING THE IMPLEMENTATION OF THE BLUE ECONOMY (CROSS- CUTTING MEASURES).....</b>	<b>187</b>
5.4.1. PILLAR 12: WATER AND BASIC SANITATION .....	187
5.4.2. PILLAR 13: MANAGEMENT AND CONSERVATION OF WETLANDS AND TRANSITIONAL ZONES .....	189
5.4.3. PILLAR 14: RURAL DEVELOPMENT, TRADE AND INDUSTRY .....	191
5.4.4. PILLAR 15: MARINE SATELLITE ACCOUNT.....	195

5.4.5. PILLAR 16: PLANNING, FINANCING AND MONITORING INSTRUMENTS .....	197
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<b>PART III .....</b>	<b>203</b>
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<b>6. ACTION PLAN FOR THE PROMOTION OF A RESILIENT AND SUSTAINABLE ECONOMY OF THE SEA IN TIMOR-LESTE.....</b>	<b>203</b>
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<b>DEFINITIONS .....</b>	<b>303</b>
--------------------------	------------

<b>BIBLIOGRAPHY .....</b>	<b>304</b>
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## ACRONYMS AND ABBREVIATIONS

**SEA** - Strategic Environmental Assessment

**JPDA** - Joint Petroleum Development Area

**BBNJ Agreement** - Agreement on the Conservation and Sustainable Use of Marine Biodiversity in Areas Beyond National Jurisdiction

**EIA** - Environmental Impact Assessment

**AIS** - Forum of Archipelagic and Insular States

**NMA** - National Maritime Authority (AMN)

**AMP** - Marine Protected Area

**AMPs** - Marine Protected Areas

**AMR** - Antimicrobial resistance

**AND, I.P.** - National Authority Designated to Combat Climate Change

**ANLA, I.P.** - National Environmental Licensing Authority

**ANPM, I.P.** - National Petroleum and Minerals Authority

**ASEAN** - Association of Southeast Asian Nations

**ATS** – Arafura and Timor Seas

**ATSEA** - Action Program for the Ecosystem of the Arafura and Timor Seas

**ATTIL, I.P.** - Timor-Leste Tourism Authority, I.P.

**C4ISR** - Command, Control, Communications, Computers, Cybersecurity, Intelligence, Surveillance, and Reconnaissance

**CCI-TL** - Chamber of Commerce and Industry of Timor-Leste

**UNCDB** - United Nations Convention on Biological Diversity, also known as the Biodiversity Convention

**CFDI** - Coral Fish Diversity Index

**CITES** - Convention on International Trade in Endangered Species of Wild Fauna and Flora

**CMS** - Convention on Migratory Species of Wild Animals (Bonn Convention)

**CNEFP** - National Center for Employment and Professional Training

**UNCLOS** - United Nations Convention on the Law of the Sea.

**COLREG** - Convention on the International Regulations for Preventing Collisions at Sea

**COMPAC-TL** - Combating Malnutrition and Poverty through Aquaculture in Timor-Leste

**CPLP** - Community of Portuguese Language Countries

**PSC** - Production Sharing Contract

**CTI** – Coral Triangle Initiative

**CTI-CFF** - Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security

**DGPO** - Directorate-General for Budget

**DLNG** - Darwin Liquefied Natural Gas

**EBSA** - Ecologically or Biologically Significant Marine Area

**ENSO** - El Niño-Southern Oscillation

**FAO** - Food and Agriculture Organization of the United Nations

**FEDA** - Ataúro Special Development Fund

**FEMAT / ATSEF** - Arafura and Timor Seas Experts Forum

**F-FDTL** - Timor-Leste Defense Forces

**GEE** - Greenhouse Gases

**LMBO** - Land and Maritime Borders Office

**GIZC** - Integrated Coastal Zone Management

**GMA** - Global Mangrove Alliance

**TLNG** - Timor-Leste Liquefied Natural

**INCT** - National Institute of Science and Technology

**INDMO** - National Institute for Manpower Development

**INETL** - National Statistics Institute of Timor-Leste

**INTC** - National Institute of Technology and Science

**INTERFET** - International Force for Timor-Leste (1999 multinational military mission)

**IPBES** - Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.

**IPCC** - Intergovernmental Panel on Climate Change

**IPG, I.P.** - Petroleum and Geology Institute

**ISPS** - International Ship and Port Facility Security Code

**EITI** - Extractive Industries Transparency Initiative

**IWC** – International Whaling Commission

**MAE** - Ministry of State Administration

**MALFF** - Ministry of Agriculture, Livestock, Fisheries, and Forestry

**MARPOL** - International Convention for the Prevention of Pollution from Ships

**MESCC** - Ministry of Higher Education, Science, and Culture

**MJ** – Ministry of Justice

**MJDAC** - Ministry of Youth, Sports, Arts, and Culture

**MNEC** - Ministry of Foreign Affairs and Cooperation

**MPIE** - Ministry of Planning and Strategic Investment

**MTA** - Ministry of Tourism and Environment

**Murak Rai, S.A.** - Mining Company of Timor-Leste

**NOAA** – National Oceanic and Atmospheric Administration, USA

**OECD** - Organization for Economic Cooperation and Development

**SDGs** - Sustainable Development Goals

**OHI** - Ocean Health Index

**IMO** - International Maritime Organization



**WTO** - World Trade Organization

**PADTL** - Partnership for the Development of Aquaculture in Timor-Leste.

**NAPA** - National Adaptation Program for Climate Change

**SIDS**- Small Island Developing States

**PEMSEA** - Partnership for the Environmental Management of the Seas of East Asia

**IUU Fishing** - Illegal, Unreported, and Unregulated Fishing

**GDP** - Gross Domestic Product

**LDCs** - Least Developed Countries

**PNOT-TL** - National Land Use Plan of Timor-Leste

**UNDP** - United Nations Development Program

**PPP** - Public-Private Partnership

**RAEOA** - Special Administrative Region of Oe-Cusse Ambeno

**RDTL** - Democratic Republic of Timor-Leste

**SAM** - Maritime Authority System

**SJV** - Greater Sunrise Development Consortium

**SNAP** - National System of Protected Areas

**SOLAS** - International Convention for the Safety of Life at Sea

**SSF** - Small-Scale Fisheries

**STCW** - Standards of Training, Certification, and Watchkeeping for Seafarers

**TIMOR GAP, E.P.** - National Oil and Gas Company

**UFM** - Maritime Training Unit

**IUCN** – International Union for Conservation of Nature

**UNESCO/UNC** - United Nations Educational, Scientific and Cultural Organization/UNESCO National Commission

**UNFCCC** - United Nations Framework Convention on Climate Change

**UNTAET** - United Nations Transitional Administration in East Timor (UN mission between 1999–2002)

**UNTL** - Timor Lorosa'e National University

**EEZ** - Exclusive Economic Zone

**ZEPAE** - Special Environmental and Ecological Protection Areas

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## FIGURES:

Figure 1: *Key Sectors of the Blue Economy*

Figure 2: *Educational and promotional materials from the Ha'u Nia Tasi, Ha'u Nia Timor campaign*

Figure 3: *Map of Timor-Leste and the region*

Figure 4: *Map of Timor-Leste with Banda Sea, Savu Sea, Ombai and Wetar Straits and Timor Sea*

Figure 5: *Map of Timor-Leste's river basins (Source: National Directorate of Forest Management, River Basins, and Mangrove Areas)*

Figure 6: *Maritime Zones in accordance with UNCLOS*

Figure 7: *Composition of Territory and Sovereignty Limits*

Figure 8: *Administrative Map of Timor-Leste (2022 Census)*

Figure 9: *Economic growth in Timor-Leste (2025 Budget)*

Figure 10: *Timor-Leste's Ocean-Based Economy, 2015*

## TABLES:

Table 1: *Hydrological Units and Major River Basins*

Table 2: *Inland Waters and Wetlands*

Table 3: *Potential impacts of Climate Change*

Table 4: *Petroleum and Non-Petroleum Sector Share of Total GDP*

Table 5: *Terrestrial Protected Areas*

Table 6: *Marine Protected Areas*

Table 7: *Fishing Licences, MALFF*

Table 8: *Estimated Potential of Fishery Resources, 2018-2021, MALFF*

Table 9: *Small-Scale Fisheries Data, MALFF*

Table 10: *Fish Species by Zone*

Table 11: *Impact of IUU Fishing in the Country*

Table 12: *Geographic and Socioeconomic Indicators of Timor-Leste*

Table 13: *Strategic Framework for the Blue Economy of Timor-Leste*

## PREAMBLE

The “*Policy and Action Plan for the Promotion of a Resilient and Sustainable Economy of the Sea in Timor-Leste*” aims to establish the political vision and action strategy of the Ninth Constitutional Government for this sector over next ten years (2025-2035).

In promoting a resilient and sustainable economy of the sea, fundamentally grounded in an ecosystem-based approach, the aim is to enhance the value of the ocean and marine resources through balanced planning of their use and the development of economic activities, taking into account the capacity of marine ecosystems to support such activities and to recover.

There is no single definition of the Blue Economy. The approach adopted here fundamentally seeks a paradigm shift in the economic development of Timor-Leste through the adoption of an integrated approach that balances the sustainable use of marine resources, the improvement of people’s living conditions, and the protection of marine ecosystems, while simultaneously promoting, in an inclusive way, job creation, the eradication of poverty and the mitigation of the impacts of climate change.

The Blue Economy encompasses three pillars: the social pillar, aimed at reducing poverty, generating income, and improving living standards; the economic pillar, which includes consumption, production, trade, services and investment; and the environmental pillar, which focuses on the protection of ecosystems and natural resources<sup>1</sup>.

The Blue Economy will be an important and innovative component of Timor-Leste's economy, incorporated into cross-cutting policies and actions implemented by various institutions and specialised sectors, to harness the advantages and potential of the ocean for the sustainable development of the country. This will create jobs for all citizens, including women, men, and people with disabilities, promote equality and reduce gender-based discrimination.

*“At the core of the new Blue Economy concept is the de-coupling of socioeconomic development from environmental degradation... of sustainable livelihoods.”*

*Mark J. Spalding, February 2016*

Timor-Leste is a half-island state surrounded by crystal-clear waters teeming with biodiversity. It is in the Coral Triangle Region, which is home to the highest concentration of marine species on the planet.

The Coral Triangle comprises 30% of the world's coral reefs. This region, which harbours around 76% of known coral species, also contains the greatest diversity of reef fish, with 2,500 species or 37% of the world's reef fish species.<sup>2</sup> The Coral Triangle extends across 6,000,000 km<sup>2</sup> of land and sea, encompassing the territories of Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands, and Timor-Leste, and is home to six of the world's seven marine turtle species, as well as blue whales, sperm whales and dugongs.

Timor-Leste, surrounded by rich coral reefs and dense mangrove forests, has an important national maritime area and vast marine resources, valued by its people since time immemorial. The Timorese people's long-standing relationship with the ocean means that environmental sustainability is embedded in Timorese culture, with traditional ceremonies such as Tara Bandu often used to ensure environmental conservation and future sustainability.

The Blue Economy – a resilient and sustainable economy of the sea – calls for the sustainable use of oceans, seas, and coastal areas for economic growth, improved social conditions and environmental preservation. As such, it is a strategic area of political intervention for national development that respects the legal, cultural and identity principles that underpin the creation of the Timorese State.

The development and implementation of policies and initiatives within the scope of the Blue Economy falls under the direct leadership and coordination of the Prime Minister, as set out in the Organisational Structure of the Ninth Constitutional Government.<sup>3</sup>

This leadership choice reflects the importance of the close relationship between Timor-Leste and the adjacent maritime spaces over which it exercises sovereign and jurisdictional rights (hereinafter referred to as the “national maritime area”), aiming to create a legal framework in line with international best practice that ensures a healthy environmental status and provides legal security and certainty.

The Prime Minister is directly supported through the Blue Economy Unit of the Land and Maritime Boundary Office, which, in addition to supporting negotiations on land and maritime boundaries, also has the mandate to support the development and implementation process of the Blue Economy Policy and Action Plan, in close cooperation with all public State agencies, as well as development partners,

international organisations and agencies, civil society and national non-governmental organisations, and the private sector.

The Political Framework and Action Plan for the Blue Economy in Timor-Leste is guided by the following principles and objectives:

— **Good ocean governance:** The establishment of an appropriate political and administrative framework for the development of the Blue Economy, including the revision and creation of a necessary and suitable legal framework, along with associated policies to ensure coordinated, integrated, cross-sectoral, and multidisciplinary management. Good ocean governance includes the necessary land-sea interaction, requiring good inter-sectoral coordination and political and technical articulation between land and maritime spatial planning.

— **Protection, preservation, and conservation of the marine environment:** The assessment of current measures for the protection, preservation and conservation of marine ecosystems, considering their adequacy and efficiency, and the development of new measures aimed at ensuring sustainability and resilience of marine ecosystems. These biodiversity studies and inventories must be supported by a robust scientific basis.

— **Intergenerational responsibility:** The marine environment must be safeguarded for the benefit of future generations. Consequently, for a secure and lasting investment in the future of the national Blue Economy, it is crucial to foster a ‘blue generation’ now – a generation of citizens who are aware of the importance of the ocean and marine resources. It is also important to raise awareness of the value of the sea as a strategic asset and its importance for the sustainable economic development of the Timorese people.

— **Sustainable development:** The success of the Blue Economy depends on the planning, monitoring and evaluation of policies, programs and projects that promote balanced economic development, where “use” does not equate to “exhaustion” of resources, considering the principles of environmental, social, and economic sustainability.

— **Support for innovation:** The Blue Economy is associated with technological innovation and the creation of new business opportunities, encouraging research and the development of recent technologies and practices. In Timor-Leste, a young and fragile State, investing in technological innovation is a challenge not only due to the scarcity of financial resources but also to the limited capacity of human resources with expertise in specific areas related to the development of the Blue Economy.

— **National cooperation, from central to local government:** The implementation of the Blue Economy in Timor-Leste requires the participation of all components of society – central and local government, public and private entities, civil society, women's organisations, associations of persons with disabilities and the media. These strategic partners are crucial in identifying threats and challenges, as well as the opportunities that the Blue Economy presents. As such, the process requires full exercise of the rights to information and public participation. Local communities' privileged knowledge is essential in defining and implementing suitable policies for the development of the Blue Economy. Their active participation, in close collaboration with the Government and public and private partners, both national and international, is a vital condition of this political and strategic vision.

— **International and regional cooperation:** Fostering international and regional cooperation initiatives to promote the Blue Economy in Timor-Leste, to overcome global and regional threats and challenges, it vital as marine resources know no borders and their protection and conservation requires a global and regional approach. Moreover, the sharing of knowledge and experiences, as well as the pursuit of best practices and technical capabilities from friendly and cooperative countries, will be crucial in the initial phase of Blue Economy development. Timor-Leste will participate in various international fora and make use of the international cooperation platforms in which it participates, with the dual objectives of developing strategic partnerships and participating actively in the global framework for ocean and sea governance.

## PART I

### 1. INTRODUCTION

*«To look to the sea is to look to the future. To look after the sea is to guarantee a sustainable future. »*

Xanana Gusmão

On 1 July 2023, during the inauguration of the Ninth Constitutional Government, the Prime Minister pledged to diversify the economy for the sustainable growth of the nation.

A new Government strategy to achieve this objective involves optimising the use of the national maritime space and marine natural resources in a sustainable way, as a new paradigm for national development.

The Programme of the Ninth Constitutional Government identifies the key public policies to be adopted to strengthen and optimise the governance sectors and their resources, thereby shortening the path to transforming the vision of prosperity and sustainable development into reality. The Government will continue to invest in the productive sectors now with a focus on the Blue Economy potential for the economic diversification.

This strategy will enable the transformation of the country's natural wealth into food security, health, productivity, and job creation opportunities. This includes recognising the importance of marine ecosystem services, where nature is a capital to be preserved, considering the dividends humanity gains from the services it provides.

**Marine ecosystem services** are the benefits that ecosystems provide to humans<sup>4</sup>. These benefits can be classified as:

- Supporting services: maintenance of genetic diversity, primary production, food webs, photosynthesis, and the water and nutrient cycles;
- Provisioning services: marine-sourced water and food, medicinal and pharmacological resources, genetic resources, raw materials (oil, natural gas, and minerals), renewable energy and maritime space;
- Regulating services: climate regulation, carbon sinks, mitigation of extreme events, shoreline stabilisation and coastal erosion prevention, and the recycling of nutrients and waste; and



- Cultural services: tourism, sport, recreation, leisure, scientific and educational activities, historical and cultural heritage, aesthetic appreciation, artistic inspiration, and spiritual and psychological benefits.

Timor-Leste is committed to the United Nation's 2030 Agenda for Sustainable Development, and to the 17 Sustainable Development Goals (SDGs), developed with the aim of promoting sustainable practices across various dimensions, particularly the five key areas: planet, people, prosperity, peace, and partnerships.

This international framework also acts as a catalyst for the Blue Economy, particularly regarding SDG 14, which aims to *"conserve and sustainably use the oceans, seas and marine resources for sustainable development."*

In addition to SDG 14, the Blue Economy will facilitate progress towards other SDGs, namely SDG 1 – "End poverty in all its forms everywhere"; SDG 2 – "End hunger, achieve food security and improved nutrition"; SDG 8 – "Promote inclusive and sustainable economic growth and full and productive employment"; and SDG 13 – "Take urgent action to combat climate change and its impacts."

Furthermore, within the context of the "Decade of Ocean Science for Sustainable Development", promoted by United Nations Educational, Scientific and Cultural Organisation (UNESCO) through the Intergovernmental Oceanographic Commission, Timor-Leste aims to benefit from the mobilisation of the global scientific community, global policymakers, and initiatives from businesses and civil society, to participate in the development of ocean science and to seek innovative solutions to ensure the conservation and sustainable use of the ocean, seas and marine resources.

Timor-Leste is also a party to the Kunming-Montreal Global Biodiversity Framework, established under the United Nations Convention on Biological Diversity, which reflects the country's commitment to actively engage in global efforts to conserve and sustainably use biodiversity. This commitment not only reaffirms Timor-Leste's determination to implement actions that protect its biodiversity but also creates opportunities for access to international funding, technical assistance, and the exchange of knowledge and technology for biodiversity projects – crucial for developing countries.

In short, the international mechanisms in which Timor-Leste participates allow common environmental challenges to be tackled collectively, benefiting both national and global populations and ecosystems over the long term.

Aligned with this ambition for economic, social, and environmental sustainability is the goal of achieving full sovereignty over Timor-Leste's maritime territory, which requires the delimitation of boundaries with neighbouring States. To this end, Timor-Leste has recently delimited its maritime boundaries with Australia and is currently negotiating with Indonesia.

Timor-Leste successfully concluded the maritime boundary delimitation process with Australia through the compulsory conciliation procedure under the United Nations Convention on the Law of the Sea (UNCLOS), to which Timor-Leste is a State Party. The outcome of the conciliation led to the signing of the *"Treaty between the Democratic Republic of Timor-Leste and Australia Establishing Their Maritime Boundaries in the Timor Sea,"* in March 2018, which was ratified in August 2019.

The Maritime Boundary Treaty ensures a median line in the Timor Sea, with only a slight adjustment to achieve an equitable outcome, as required by international maritime law. Most of the median line is established "for all purposes", meaning that it includes the continental shelf (covering rights to search for and exploit seabed resources such as oil) and the exclusive economic zone (covering rights to exploit resources in the water column, such as fishing).

These rights will be further expanded through decisions on the development of the Greater Sunrise fields together with Australia, and with the recognition of Timor-Leste's full rights over those resources through the delimitation of maritime boundaries with Indonesia.

The delimitation of maritime boundaries is, therefore, intrinsically linked to the importance of the maritime territory for Timor-Leste, including the Blue Economy.

In conclusion, the sea is fundamental to providing employment and livelihoods for Timorese people through a range of economic sectors linked to the ocean including traditional activities such as fishing, maritime tourism and maritime transport activities such as shipbuilding and repair. It also provides jobs in activities involving greater technological innovation, such as offshore oil and gas extraction, the development of offshore renewable energies and marine biotechnology.

The sea is also part of our intergenerational legacy. As such, it is essential to invest in literacy, education, and training for all generations, to raise awareness of the need to preserve and protect the marine environment, including the designation and management of marine protected areas, among other activities.



Figure 1: Key Sectors of the Blue Economy

In December 2019, the Chief Negotiator for the Definitive Delimitation of Maritime Boundaries was also appointed as Special Representative of the Government of Timor-Leste for the Blue Economy, to provide coordinated advocacy at national and international level and to support and lead matters related to the Blue Economy of Timor-Leste.<sup>5</sup>

In 2021, the Special Representative for the Blue Economy launched an awareness-raising program on the importance of Timor-Leste's maritime areas. This maritime sovereignty awareness campaign, entitled *Ha'u nia Tasi, Ha'u nia Timor (My Sea, My Timor)*, is a campaign to unite national support around maritime boundary negotiations and strengthen the country's position in the fight for maritime sovereignty. It also publicises and promotes Timor-Leste's marine resources and their potential for the country's development.

***"Far and away, the greatest threat to the ocean, and thus to ourselves, is ignorance."***

*Sylvia Earle, Blue Mission*

The campaign also aims to raise awareness about the importance of ocean health and to foster understanding of the ocean's irreplaceable influence on human beings, through its economic, social, environmental, and political benefits.

As part of the campaign, numerous educational and promotional resources have been produced, which have been published in books, under the title *Ha'u Nia Tasi, Ha'u Nia Timor* (children's books and photography books), or in audio visual format, as well as awareness kits on the importance and need to conserve the marine environment, particularly aimed at children and young people.



Figure 2: Educational and promotional materials from the *Ha'u Nia Tasi, Ha'u Nia Timor* campaign

In summary, the political and strategic framework is an innovative pathway to sustainable development – bringing the environment, people, and the economy together with a common goal.

## 2. THE BLUE ECONOMY IN THE WORLD AND IN TIMOR-LESTE

*«As the world evolves, the content surrounding the Blue Economy must grow without limitations, knowing that we have the responsibility to navigate between fantasy and reality, towards the vision.»*

Gunter Pauli

Gunter Pauli, the “*Steve Jobs of Sustainability*,” visionary and founder of the Blue Economy concept, inaugurated this innovative approach that seeks the development of economic solutions based on sustainable practices derived from the efficiency of natural systems. This idea of using locally available resources to solve problems, inspired by the

way in which natural ecosystems work, where nothing is wasted and everything has value, is intricately linked to the Timorese way of life over hundreds of years.

The Blue Economy concept has grown rapidly around the world in recent years. This is because it is scientifically accepted that a healthy ocean provides solutions to many of today's global challenges.

The sea shaped Timor-Leste's past and is one of the pillars of its vision for the future. For the people of the island of Timor-Leste, the sea is an integral part of our way of life and have a spiritual meaning for the Timorese people. According to legend, the Timorese are the grandchildren of the crocodile – *“after its death, its body became the land of Timor, the ridges on its back became the mountains and valleys, and the oceans its final resting place.”*

Many Timorese rely on the sea for their sustenance and livelihood, fishing and gathering marine species. The rich coral reefs, with the greatest biodiversity in the world, and the steep underwater cliffs surrounding Timor-Leste, are a growing attraction for tourists.

The warm waters and beautiful tropical beaches, the annual migration of blue whales, dolphins and dugongs, the region's distinctive culture and the welcoming nature of the people, are the ideal conditions to develop community-based tourism, which contributes to job creation and poverty reduction, without reducing the quantity or diversity of marine wealth.

Fishing is a fundamental activity for Timor-Leste's economy. However, Timor-Leste's lack of capacity to exercise effective surveillance over its national maritime space has allowed illegal fishing by foreign commercial fleets, causing great economic and environmental damage. Solutions must be found to put an end to this situation and to ensure the sustainability of fish species that are being exploited in an uncontrolled and illegal manner.

Moreover, there are development opportunities to explore, including aquaculture, maritime transport and infrastructure, port facilities and activities, and marine renewable energy. These opportunities must be supported by an ocean sustainability plan regulating the maritime area under Timorese jurisdiction, in which long-term economic and social development includes protection of the marine ecosystem.

The concept of the Blue Economy that serves Timor-Leste is one that associates the economic potential of marine resources with the necessary national sustainable development, without neglecting nature conservation and environmental resilience. Thus, the **concept** of the Blue Economy for Timor-Leste is:



*The set of integrated policies and actions that, with a focus on the sea, support the country's economic and social development, based on sound environmental practices, in a diversified, sustainable, and inclusive manner, ensuring the long-term balance of marine ecosystems and resources.*

## **2.1. THE BLUE ECONOMY AND ECONOMIC GROWTH**

Today, we are all, and everywhere, more dependent than ever on the ocean for economic, social, and physical well-being.

The Blue Economy seeks to promote sustainable development through economic activities that use the sea and its resources in a sustainable manner, aiming to balance economic growth, job creation and environmental preservation. It is an approach within the broader context of the ocean economy, that has a strong focus on environmental conservation and the responsible use of marine resources. The 'ocean economy,' which covers all economic activities related to the ocean, includes both sustainable practices and activities that do not necessarily follow the principle of sustainability.

For example, sectors such as shipping, the oil and gas industry, and seabed mining, among others, can exploit ocean resources without consideration to potential negative environmental consequences.

A 2016 OECD report states that maritime activities, from global trade to tourism, exceed \$3 trillion annually. From submarine cables to shipping, fishing and aquaculture, humans are increasingly dependent on the ocean-based economy. In fact, around 20% of the animal protein we consume comes from marine fish.<sup>6</sup>

More recently, in 2025, a report states that if the ocean were a country, its economy would be the fifth largest in the world. However, environmental pressures and geopolitical dynamics threaten the future growth of this economy, on which hundreds of millions of people depend<sup>7</sup>.

The report highlights that more than 75% of global ocean economic growth between 1995 and 2020 originated in Asia-Pacific countries. East Asia alone accounted for 56% of the global ocean economy's expansion.

Tourism and offshore oil and gas extraction generated about two-thirds of the total gross value added. On the other hand, maritime and coastal tourism was the largest employer. Offshore oil and gas extraction generated high economic returns but low employment. Shipbuilding and offshore wind energy production also expanded rapidly.

However, there are warnings of a possible stagnation in the transition to an ocean economy, mainly due to a combination of lack of investment in productivity and the growing negative effects of climate change in many parts of the ocean economy.

For this reason, according to OCDE, four strategic priorities will promote a productive and environmentally sustainable ocean economy; strengthening ocean governance, promoting technological innovation, improving ocean data collection, and ensuring the inclusion of developing countries in global value chains.

To strengthen ocean governance, we need scientific ocean management tools that balance economic and environmental priorities, such as maritime spatial planning and marine protected areas.

With national territorial claims expanding to cover more than 39% of the global oceans, national positions on ocean issues can be strengthened by pragmatic international cooperation through agreements such as the World Trade Organisation (WTO) Agreement on Fisheries Subsidies and the Agreement on the High Seas (BBNJ). These efforts can help close regulatory and enforcement gaps (e.g. by reforming harmful subsidies that often lead to overfishing) and align economic incentives with sustainability goals.

Governments are also encouraged to promote technological innovation and digital transformation, including through automation and robotics to increase productivity and competitiveness and reduce environmental externalities.

Improving ocean observation data collection and scientific research is essential. Given that only 25% of the seabed is mapped, ocean exploration and observation networks should be expanded using new digital technologies. These efforts should improve science-based decision-making and resource management. To support these developments, better policies on access to public and private ocean data will be essential.

The report considers it important to broaden the participation of developing countries in the ocean economy, while safeguarding against environmental damage by encouraging policies such as sustainable fisheries management and incentives for eco-tourism. In addition, the promotion of new international partnerships will facilitate knowledge sharing and strengthen financial support and technology transfer.<sup>8</sup>

### 3. GENERAL FRAMEWORK

*«The sea is crucial to human life. It gives us practically everything we need: food, health, connectivity, entertainment, inspiration, and prosperity.»*

Xanana Gusmão

The ocean covers around 70% of the Earth's surface. Knowing and understanding the importance of the ocean for human beings, as well as human influence on the ocean, are determining factors for the planet's future sustainability.

For this reason, the concept of ocean literacy has been developed, based on the following seven key principles<sup>9</sup>:

1. *Earth has one big ocean with many features.*
2. *The ocean and life in the ocean shape the features of Earth.*
3. *The ocean has a major influence on weather and climate.*
4. *The ocean makes Earth habitable.*
5. *The ocean supports a great diversity of life and ecosystems.*
6. *The ocean and humans are inextricably interconnected.*
7. *The ocean is largely unexplored.*

Scientists believe that the earliest life on Earth evolved in the ocean. Ocean ecosystems are vast and diverse. These include, for example, polar regions, coral reefs, the deep ocean, mangroves, and kelp forests. These ecosystems are primarily defined by environmental factors and the organisms that live within them.

Marine biodiversity refers to the variety of living organisms in the ocean: microbes, fish, invertebrates, marine mammals, plants, and birds. The biota (the collective term for living organisms) is intrinsically linked to the environmental conditions in which it occurs, and to each other through the flow of energy (food) within the ecosystem.<sup>10</sup>

Some oceanic regions are considered biodiversity hotspots due to the richness of species living there. The sea surrounding Timor-Leste is one such region, with the country located within a biodiversity hotspot known as Wallacea, which hosts several globally significant ecosystems and endemic species.

The sea is deeply connected to the history and identity of the Timorese people. Timor-Leste has, since prehistoric times, been a place of convergence for peoples of diverse cultural, linguistic, and ethnic origins. It was by crossing the sea that various ethnic groups from the Asian region and the South Pacific settled in Timor-Leste. In earlier times, many Timorese were coastal fishers, living in close relationship with the sea and nature.



This strong connection with the sea remains part of Timorese culture today, along with the belief in Na'i-Tasi, the God of the Sea. This belief embraces the sea and its creatures, such as fish, crocodiles, turtles, octopi, sharks, and other marine beings.

Later, it was also by sea that the Portuguese arrived in Timor-Leste, leaving an indelible mark on the nation's future. From this encounter, Timor-Leste inherited distinct cultural and linguistic traits in the region, as well as membership of the Community of Portuguese Language Countries (CPLP), whose member states are spread across the world.

Proximity to the sea also makes archipelagic and island states, especially in Asia and the Pacific, natural partners for Timor-Leste, given shared development challenges and ambitions.

The sea is a vital strategic resource for the food security of Timorese people, for job creation, and for enhancing the connectivity and mobility of people and goods. It is also an inexhaustible source of culture, leisure, enjoyment, and health.

In conclusion, the sea holds significant importance in addressing major global challenges, from globalisation to energy, security, environmental protection, and climate change. Timor-Leste, in considering its identity, history and geographical location, cannot help but see the sea as an integral and inseparable part of its future.

It is therefore intended to define public policies and management tools that contribute to the protection, conservation, use and sustainable development of marine resources, maritime, coastal, and inland water areas, while also acting urgently to mitigate environmental degradation, biodiversity loss and climate change.

### **3.1. GEOGRAPHIC CHARACTERISATION**

Timor-Leste is a coastal and island State in Southeast Asia, northwest of Australia and at the eastern end of the Indonesian archipelago.



*Figure 3: Map of Timor-Leste and the region*

The country has a total area of approximately 15,000 km<sup>2</sup>, comprising four areas; the eastern part of the island of Timor (13,954 km<sup>2</sup>); the Oe-Cusse Ambeno region, a semi-enclave in the Indonesian part of the island, (814 km<sup>2</sup>); and, the islands of Atauro, (140 km<sup>2</sup>) and Jaco (11 km<sup>2</sup>) located respectively to the north and east of the island.

Timor-Leste is bordered to the south by the Timor Sea, which separates it from Australia. The coasts of Timor-Leste and Australia are parallel and lie between 250 and 400 nautical miles apart. The Timor Sea is relatively shallow except for a narrow trench on the edge of the continental shelf, known as the Timor Trough.

There is a significant sedimentary basin, rich in oil and gas reserves, located off the southern coast of the country, known as the Bonaparte Basin. This includes the gas condensate fields of Sunrise and Troubadour (jointly referred to as "Greater Sunrise"). Further to the southwest is the Bayu-Undan field. North and east of Bayu-Undan, there are other oil and gas fields, including Laminaria, Corallina, Buffalo, Kitan, Elang and Kakatua.

To the east, north and west, Timor-Leste is bordered by Indonesia. A chain of small Indonesian islands, including Pulau Kisar, Leti, Moa, and Lakor, as well as the island and reef of Meatij Miarang, extends to the east of Timor-Leste.

Timor-Leste is bordered to the northwest by the Savu Sea, which separates it from the islands of Sumba, Flores, and Solor, and to the north by the Wetar Strait, which separates the country from the island of the same name.

It is important to highlight the strategic importance of the Ombai and Wetar Straits, together referred to as the Ombai-Wetar Strait, which forms part of a water corridor linking the Philippines and the Banda Sea to the Indian Ocean. This corridor is part of the Indonesian throughflow current system that influences the global climate by transporting warm waters from the Pacific Ocean to the Indian Ocean.

The Ombai-Wetar Strait and the importance of its deep waters must not be underestimated. It is the only trench of its kind within the regional maritime networks and the fourth most strategically important seaway, after the Straits of Malacca, Sunda, and Lombok.<sup>11</sup>



Figure 4: Map of Timor-Leste with Banda Sea, Savu Sea, Ombai and Wetar Straits and Timor Sea

Timor-Leste is located within the so-called Banda Outer Arc, which comprises the non-volcanic islands situated between the Australian Plate and the Banda Volcanic Arc. Timorese territory is non-volcanic, except for the island of Atauro, which is of volcanic origin, resulting from the collision and convergence of the Australian and Eurasian plates.<sup>12</sup>

From a geographical standpoint, it is also important to highlight that the land border with the Republic of Indonesia is almost fully demarcated, except for two segments in

the Oe-Cusse Ambeno region: Citrana, at the north-western extremity, and Bijael-Sunan/Oben at the southern extremity. Permanent maritime boundaries with Indonesia remain undelimited, despite the efforts made by the Timorese State in this regard.

Sovereign rights over the sea are of utmost importance to the country, as they also encompass economic rights over the territorial sea – i.e., 12 nautical miles (22 km) from the coastal baseline – and over the Exclusive Economic Zone (EEZ), which extends up to 200 nautical miles, except where overlaps exist with zones defined by neighbouring countries.

### **3.1.1. MORPHOLOGY**

Despite its small size, the territory of Timor-Leste does not display uniform morphology. The centre of the country is formed by a mountain range, where the highest elevations are found in the western part. Between the municipalities of Ermera and Ainaro lies Mount Ramelau (or Tata Mai Lau), at 2,960 metres, which divides the country into north and south, and Mount Cablaque at 2,340 metres, the second highest point in the country.

Further to the central-eastern part of the country, between Baucau and Viqueque, are Mount Matebian, which reaches 2,316 metres, and Mundo Perdido, around 1,770 metres, which stands out as an extension of the western mountain range.

The northern coast is characterised by rugged terrain, steep slopes, and an almost complete absence of flat areas. The southern coast, by contrast, has more varied relief, with gentler slopes, extensive coastal plains, and alluvial formations near the shore.

The relief of Oe-Cusse Ambeno is characterised by predominantly low altitudes, below 600 metres, with plains and gently sloping terrain. The highest point is Mount Nipane, at 1,253 metres.

The island of Ataúro features very rugged relief with steep slopes, culminating in its highest point, Mount Manucoco, at 995 metres. The strait separating this island from the opposite coast near Dili, the Wetar Strait, reaches depths of up to 3,500 metres. Its volcanic origin sets it apart from the rest of Timorese territory.

The steep slopes throughout Timor-Leste constrain land use, as 30% of the territory has gradients exceeding 30%, and only 13% of the land has slopes of less than 3%.

### 3.1.2. WATER RESOURCES

Most of Timor-Leste's watercourses originate in the central mountain range of the territory. With a southwest–northeast orientation, most of these rivers flow either northwards or southwards. They are not navigable, not even near their mouths, but they do form a dense hydrographic network.

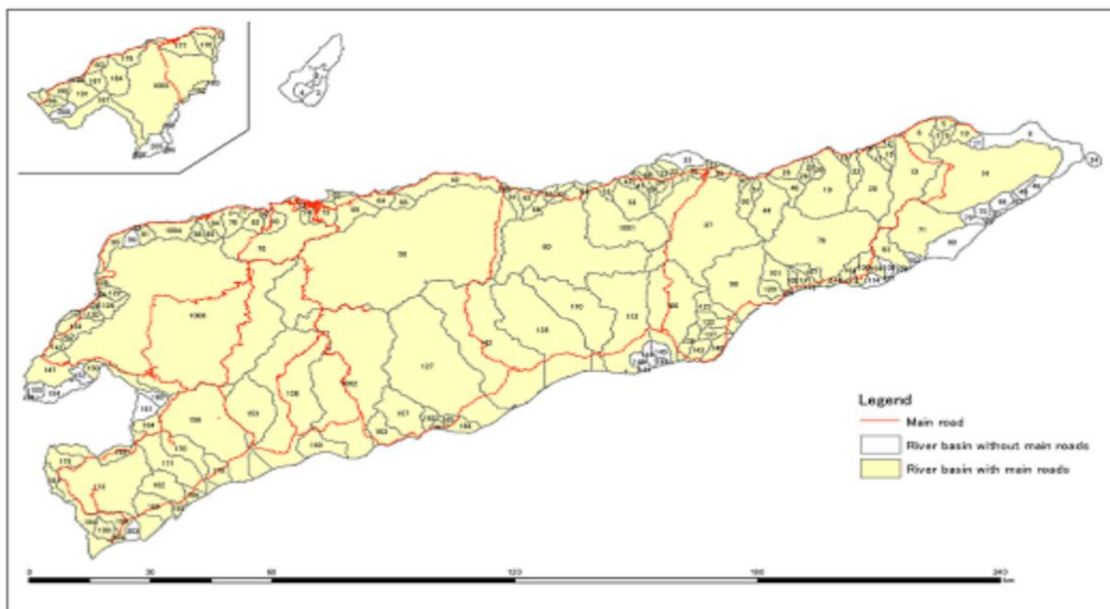


Figure 5: Map of Timor-Leste's river basins (Source: National Directorate of Forest Management, River Basins, and Mangrove Areas)

For planning purposes, the country is divided into 12 major Hydrological Units (HUs), including the Oe-Cusse Ambeno enclave and the islands of Ataúro and Jaco. In total, there are approximately 190 river basins in the country. Among these, 29 basins have catchment areas larger than 10,000 hectares and are considered major or priority basins. There are also high-priority basins – specifically 14 out of the 29 priority basins – that hold high value in terms of their ecosystem services, particularly the protection of water sources, soil conservation, biodiversity preservation and the provision of forest resources to communities.<sup>13</sup>

Table 1: Hydrological Units and Major River Basins<sup>14</sup>

HU no.	Hydrological Unit (HU)	River Basin	Area (km <sup>2</sup> )	Length of Watercourses (km)
1	Loes	Loes	2418	116
2	Laclo	Laclo	1297	98
		Comoro	248	33
3	Laleia	Laleia	533	55
		Vemassee	210	48

4	Seical	Seical	489	45
		Uaimuhi	137	31
		Laivai	170	31
		Raumoco	191	30
		Malailada	170	36
5	Vero	Ira Lalara	423	25
6	Lifau & Tono Besi	Tono	499	50
		Besi	338	45
7	Irabere	Namaluto	153	24
		Irabere	341	29
		Bebui	193	33
		Cuha	268	37
8	Tukan & Sahaen	Tuco (Wetuai)	266	36
		Luca	238	40
		Dilor	225	43
		Sahem	294	54
9	Clerec & Belulik	Clerec	288	51
		Laclo do Sul	216	49
		Caraulum	554	52
		Belulik	379	46
10	Mola & Tafara	Mola	277	39
		Loumea	318	36
		Raiketán	111	27
		Tafara	360	45
11	Jaco (Isle)	-	11	-
12	Ataúro (Isle)	-	141	-

The hydrographic network is composed of watercourses whose flow is greatly reduced during the dry season and increases considerably during the rainy season (October to December). Most of these water lines are not considered rivers, but rather streams or brooks, referred to in Tetum as *mota*.

Permanent rivers are mainly located in the southern part of the island, where a humid tropical climate prevails, with higher average annual rainfall and a longer rainy season. In this region, the most notable rivers – due to the size of their catchment areas – are the Caraulum, Belulik, Tafara (shared with Indonesia), and Irabere rivers.

The northern slope, encompassing the municipalities of Liquiçá, Dili and Manatuto, is characterised by a dry tropical climate. The hydrographic network here is primarily made up of small, non-permanent water lines, with their sources in the coastal mountain range. The main rivers with permanent flow, along which agricultural activities are concentrated, include the Loes, Laclo, Tono, Seical and Comoro rivers (the latter approximately 33 km in length and the main river crossing Dili).

In Oe-Cusse Ambeno, the most important streams are the Tono (Nono Tono) and Besi (Noel Besi) streams, both of which are partially shared with Indonesia.

Due to their size, the Loes and Laclo river basins are particularly noteworthy, both having areas exceeding 1,000 km<sup>2</sup>. They originate in the island's central mountain range, where the country's highest elevation is found, at Mount Ramelau. The Loes River is the longest in the country (116 km), with part of its basin lying within Indonesian territory. The Laclo River, which rises in Aileu and flows into the sea at Manatuto, is the second longest (approximately 100 km).

During the rainy season, rivers and streams carry intense flows with strong erosive power, transporting sand and sediment to lowland alluvial areas and the coastal zone. These sediment deposits give rise to shallow brackish lagoons, ponds, and swamps. Examples include *Tasi Tolu* (three lagoons) in Dili, the Laga lagoon near Baucau, and the lagoon system of Liquiçá/Maubara.

The largest lagoon in Timor-Leste is located at the eastern tip of the island: the Ira Lalaro Lagoon, approximately 25 km from Lospalos. It lies within the Nino Konis Santana National Park and is rich in biodiversity.

A survey published in 2007, identified twenty-four wetland areas of significant environmental importance that require protection and inclusion in protected areas (see Table 2).<sup>15</sup> These wetland areas may consist of swamps, ponds, estuaries, or mangroves. These vital ecosystems are threatened by sedimentation linked to increased soil degradation, the disposal of liquid and solid waste, and construction along frequently flooded banks.

Nevertheless, wetlands are ecologically crucial. They support a high diversity of flora and fauna; they contribute to flood control by absorbing excess rainwater and reducing flood risk; they filter water by removing sediments and pollutants before they reach rivers, lakes and aquifers; and they play a role in climate regulation, helping to moderate climate and absorb carbon.

Moreover, these areas provide water, timber and natural resources used by local communities. They offer suitable environments for fishing and subsistence agriculture, and they also contribute to the promotion of tourism, as well as to the advancement of education and scientific research.

There are also natural springs with sulphurous water and therapeutic properties in Timor-Leste, the most well-known being those of Marobo, near Bobonaro. During the rainy season, numerous waterfalls appear, which disappear in the dry season. However,



some remain permanent along the road linking Ermera to Bobonaro, such as the Mota Bandeira waterfall and others in the Ermera area.

Table 2: Inland Waters and Wetlands<sup>16</sup>

Municipality	Name	Classification and Habitats	Area (Ha)
1. Aileu	<b>Seloi</b>	Lagoon (freshwater marsh)	29,10
	Lagoa Leholuli		
	Mota Remexiu		
2. Ainaro	Mota Maului		
	Mota Tanhuk		
	Bikantiden	Lagoon (brackish water)	16,70
	Saran-Heu	Lagoon (fresh water)	2,37
3. Baucau	<b>Seical</b>	Estuary (mangrove and mudflat)	48,90
	<b>Laga</b>	Saltwater lake (beach)	
	Lake Badotula		
	Lake Ogabuiloi		
	Lake Masin Fatuk		
4. Bobonaro	<b>Ribeira de Be'e Malae</b>	Saltwater lagoon, estuary	94,19
	Leometik (Batugade)		
	Mota Fatumolin (Atabae)		
	Marobo	Sulphurous waters	
	Mota Nunura		
5. Covalima	Kora	Lagoon	
	Mauhau	Lagoon	
	Haok	Lagoon	
	Lebomulua	Lagoon	
6. Dili	<b>Tasitolu</b>	Saltwater lakes (mudflat and beach)	
	<b>Estuário de Comoro</b>	Stream, beach, gravel river channel	24,80
	<b>Mangal Hera</b>	Mangrove, mudflat, sandbanks	
	<b>Mangal Areia Branca</b>	Mangrove, mudflat, and beach	
	<b>Tibar</b>	Mudflat, mangrove, and fishpond	
	<b>Orla Marítima de Dili</b>	Beach and estuary	
	<b>Esgotos de Dili</b>	Treatment lagoons	
7. Ermera	<b>Eraulo</b>	Freshwater marsh	
	Magapu (Atsabe)		
	Gleno or Lauveli River		
8. Lautém	<b>Iralalaro</b>	Freshwater lagoon (swamp and stream)	4.831,64



	<b>Costa de Lore</b>	Beach and exposed reef	
	<b>Raumoko</b>	Estuary (beach and exposed reef)	
	Sica		
	<b>Vero</b>	Stream (beach and exposed reef, small estuary)	
	River Irasiquero		
	Lake Utchanira		
	Lake Umunira		
	<b>Ilha de Jaco</b>	Beach and exposed reef	
9. Liquiçá	<b>Loes</b>	River (stream, estuary, and mudflat)	241,800
	Mangal de Tibar	Mangrove	
	<b>Maubara</b>	Saltwater lagoon	
10. Manatuto	Laclo	Stream	129,700
	Lake Wilisair		
	Lake Lamessana		
	Mota Laleia		
	Mota Sumasi		
	Mota Wekore		
	Mota Liheu		
	Mota Lacló		
11. Manufahi	<b>Modo Mahut</b>	Freshwater lake	118,35
	Sue		
	Cier		
	Mota Laclo Sul		
	Wetanas		
	<b>Welada</b>	Freshwater lake	
	<b>Welenas</b>	Freshwater lake	
	Lake Lamussa		
	Lake Lada		
	Mota Sahe		
12. RAEOA	Tono	Stream	49,90
	Besi	Stream	33,80
13. Viqueque	<b>Irabere</b>	Beach and estuary	
	Dilor		
	Luka River		
	Loihuno		
14. Ataúro			
<b>TOTAL</b>			

There are three main types of hydrogeological units in Timor-Leste: localised aquifers (typically found in mountainous regions); intergranular aquifers (with greater water storage capacity and productivity); and fissured karst aquifers (limestone formations with high groundwater productivity).

Thus, the availability of groundwater varies across the territory, depending not only on geology, but also on rainfall patterns and the recharge rate of each region. Most aquifers have medium productivity, with high productivity found in the Hydrological Units of Laleia and Vero, and in some small areas along the south coast. Areas with low productivity are mainly located inland.

According to studies conducted by the Asian Development Bank in 2004, the Seical and Loes hydrological units are those with the greatest irrigation water needs, while the Lacle and Loes units present the highest demand for water supply to the population, mainly due to population concentration. In fact, there are areas of the country that face water scarcity, particularly during dry years.

As for water in Timor-Leste more broadly, there are no major sources of contamination, except in urban or rural areas where the lack of sanitation and solid waste management compromises water quality through the presence of contamination hotspots caused by various infectious agents responsible for disease. These hotspots are mainly associated with the drainage and infiltration of rainwater, which carries untreated wastewater and contaminates water sources, particularly groundwater.

This situation is further exacerbated by the intermittent nature of the watercourses, which can become torrential during the rainy season, and by ongoing deforestation, which is degrading or even rendering water use unfeasible. In coastal areas, particularly in the north of the country, saltwater intrusion must also be noted, as this may become a fundamental problem for the water supply of communities and economic activities, especially agriculture and livestock.<sup>17</sup>

### **3.1.3. FOREST RESOURCES**

Timor-Leste has a significant diversity of forest ecosystems that vary according to geography. Dry forests predominate in the northern region, with the exception of the easternmost part of Lautém, where there is a higher density of vegetation. In the south of the country, low-altitude humid forests predominate, interspersed with cultivated areas and coastal forests.

Although about 50% of the national territory is covered by forest areas, Timor-Leste experienced rapid loss of vegetation cover, especially between 2003 and 2012, when dense forests decreased by 35.3% and areas of sparse vegetation decreased by 2.6%. The main causes include burning for agriculture, unsustainable logging and firewood collection, as well as poor agricultural practices. This degradation results in biodiversity loss, increased erosion, landslides and growing environmental risks for the population.

It is important to emphasize that environmental degradation disproportionately affects women, people with disabilities and the elderly, who depend on the forest for their

livelihoods. As such, sustainable management and climate adaptation strategies that take gender needs into account should be included, promoting the active participation of women and young people in environmental management and decision-making, ensuring equitable benefits and the preservation of natural resources.

Aware of this scenario, to structure a strategic response for this sector the Government has established priority measures for 2023-2028. These include:

- Reforestation and agroforestry – continued implementation of the national forest conservation plan, including sustainable reforestation and agroforestry practices, inventory and mapping of forest species throughout the territory.
- Consolidation of the legal framework – enforcement of robust frameworks, including the Basic Forest Law, for the management and protection of forest resources.
- Investment in the forestry sector – promotion of strategic forestry investments, with a focus on identifying high value-added markets and products, such as certified timber, sandalwood essential oil and bamboo.
- Forestry research institute – creation of an institution dedicated to forestry research and agricultural development to support evidence-based policies.
- Community and permanent nurseries – expansion of forest nursery centers, providing technical support and seedlings to micro-industrial communities and local carpentry workshops.
- National planting target – commitment to plant at least 1 million trees per year throughout the country.
- Promotion of bamboo – implementation of a policy for the commercialisation of bamboo as a strategic resource and continued investment in its production, recognizing its ecological role in erosion control and its economic value.
- Professional forestry training – promotion of technical and administrative training for professionals in the sector, with a view to modern and efficient resource management.
- Sustainable intersectoral management – strengthening coordination with other sectors in the integrated management of natural resources and implementation of the National System of Protected Areas.

- Mangrove rehabilitation – rehabilitation of mangroves along the coast to protect ecosystems and coastal communities.
- Watershed management – promotion of community-based watershed management with a focus on soil, forest and water resource conservation.
- Equipment modernization – acquisition and maintenance of specialised machinery to support surveillance, firefighting and planting activities.
- Integrated management of parks and botanical gardens – approval and implementation of integrated management plans for the “Nino Konis Santana” and “Xanana Gusmão” national parks and the “Francisco Xavier do Amaral” botanical garden.

Historical data reveal that mangrove forests have suffered dramatic losses. In 1940, the mangrove area in Timor-Leste totalled 9,000 hectares. By 2008, the areas had decreased to only 1,802 hectares, representing a loss of 80%, with 40% of coverage lost between 2000 and 2008.

Species such as *Avicennia*, *Rhizophora*, *Bruguiera*, and *Sonnerattia* play a vital role in protecting the coastline and the reproduction of marine species.

Overexploitation and unsustainable use of natural resources, along with habitat degradation and fragmentation, are the main drivers of biodiversity loss in Timor-Leste. This is caused primarily by deforestation, relentless extraction of sand and stones from rivers, unsustainable farming practices, and land conversion for other uses. Pollution, invasive alien species, and climate change are also contributing factors to biodiversity loss.<sup>20</sup>

#### 3.1.4. COASTAL AND MARINE RESOURCES

The habitats along Timor-Leste’s coastline, which spans approximately 800 km, are influenced by human settlement and vary according to rainfall, local geology and topography, river discharges, and regional oceanographic characteristics.

Wave activity generated by wind on the northern coast is of low amplitude, almost always below 1 metre and for most of the year remaining under 0.5 metres. On the southern coast, while wave height is still low, it is greater than that on the northern coast. Further studies are needed to quantitatively substantiate this observation.<sup>21</sup>

The surface current in the Timor Sea flows south-westwards for most of the year (October to March), while the current in the north-eastern part of the Timor Sea moves in a north-easterly direction<sup>22</sup>.

Aside from the presence of hydrocarbons in the sea to the south of the island, marine resources are primarily of economic relevance for fisheries and tourism development.

In terms of marine biodiversity conservation, the following biotopes (areas within an ecosystem with uniform environmental conditions that support a specific community of living organisms) are particularly noteworthy.<sup>23</sup>

- Oceanic and subtidal marine environment (the coastal zone situated below the low tide level, always submerged), which includes pelagic water columns, deep seabeds, rocky seabeds in shallower areas, sandy and muddy bottoms, seagrass beds, and coral reefs;
- Intertidal zones (the coastal area between the mean high tide and mean low tide levels), which include rocky, sandy, and muddy areas as well as mangroves. These mangroves protect coral reefs from erosion and sedimentation and are important breeding grounds for various species of fish and crustaceans;
- Coastlines, including sandy beaches, dunes, cliffs, limestone outcrops, estuaries, and brackish lagoons;
- Littoral zones (which may extend several kilometres inland from the coastline), including drylands, natural forests and wetlands;
- Seagrass and mangrove habitats of the northern coast.

#### **3.1.5. NATIONAL MARITIME SPACE**

Within the framework of international law of the sea, the maritime territory over which Timor-Leste exercises sovereignty and jurisdictional rights is considerably larger than its land territory. This implies the existence of vast marine natural resources and significant potential for the development of maritime activities.

After the delimitation of boundaries between Timor-Leste and Australia, Timor-Leste's Exclusive Economic Zone (EEZ) in the Timor Sea has a size of 58,500 km<sup>2</sup>. When the maritime boundary delimitation process with Indonesia is concluded Timor-Leste's maritime boundary area could expand by an additional 27,000 km<sup>2</sup>.

Timor-Leste's coastline stretches for approximately 800 km, according to cartographic data based on satellite imagery from Geoseas. This enables the development of key economic activities in coastal and land-sea interface zones, such as aquaculture,

seaweed farming, bivalve cultivation, and pearl farming, among other potential ventures.

The total national maritime space has a minimum potential extent of 103,800 km<sup>2</sup>, with an additional 30,500 km<sup>2</sup> still under dispute with the Republic of Indonesia. Part of this maritime area corresponds to Timor-Leste's territorial sea (12 nautical miles or 22 km), which represents 14,510 km<sup>2</sup> that are secured, and approximately 996 km<sup>2</sup> under dispute.

Two islands in Timor-Leste stand out for their natural beauty and biodiversity: Ataúro and the small island of Jaco.

Jaco is located at the eastern tip of Timor-Leste. It is separated from the island of Timor by a narrow channel, which can only be crossed by small boats. Jaco has an area of 11 km<sup>2</sup> and its highest elevation is approximately 100 metres.

This island is uninhabited as it is considered sacred by the Timorese people. Visiting is permitted only during the day, and overnight stays are not allowed. In addition to its natural beauty, with pristine white-sand beaches, Jaco is home to several endemic bird species, including the pink-headed imperial pigeon and the fawn-breasted whistler. It has been recognised as an Important Bird and Biodiversity Area by BirdLife International.<sup>24</sup>

Due to its rich biodiversity, Jaco was included in the Nino Konis Santana National Park – the first national park in Timor-Leste's National Protected Areas Network – established by the Government on 1 August 2007 and inaugurated a year later. This park, which covers a total area of 1,236 km<sup>2</sup>, nearly half of which comprises a marine area rich in coral formations, will be submitted for consideration as a UNESCO Biosphere Reserve. The waters surrounding Jaco are full of coral and marine fauna and form part of the Coral Triangle. In addition to a large, forested region, the Nino Konis Santana National Park also includes the Ira Lalaro lagoon.

The island of Ataúro, which lies approximately 25 kilometres from Dili and covers an area of about 140 km<sup>2</sup>, is small and geologically unstable, with steep terrain subject to frequent landslides with limited access to freshwater, especially during the dry season. The island's freshwater sources are located about 2 km north of Berau, with small reservoirs near Macadade and the eastern slopes of Mount Manucoco, the highest point on the island at 995 metres.

The waters around Ataúro have been described as containing one of the most significant marine biodiversity in the world in terms of coral reef and reef fish species.<sup>25</sup> This

presents enormous potential for fishing activities, maritime tourism, and scientific research. Applying the Coral Fish Diversity Index (CFDI) methodology, the area revealed the presence of reef fish, coral reefs, mangroves, seagrass beds, as well as habitats for dugongs and sea turtles.

The designation of Ataúro as a marine protected area is therefore a priority for the Government, as set out in the *Strategic Development Plan 2011-2030*. In that plan, Ataúro is identified for protection with the aim of conserving its valuable ecosystems and safeguarding the well-being of its inhabitants.

The territory of Timor-Leste comprises the land territory and the maritime territory defined by national boundaries, as well as its airspace. The law establishes and defines the extent and limits of the National Maritime Space.<sup>26</sup>

The law of the sea recognises the rights of States over their respective maritime zones, including the right to exploit the resources of the water column, the seabed, and the subsoil. Alongside these rights, however, comes the responsibility of each State to care for its seas, including the conservation of the marine environment and living resources in its EEZ and in the high seas.

#### **3.1.5.1 MARITIME BOUNDARIES**

Timor-Leste relied on the international system to secure its independence and is therefore a strong advocate of international law and the rules-based order. Timor-Leste upholds that all States must comply with their obligations under international law and respect the rights of other States, based on the principle that all States – whether large or small, rich, or poor – are equal before international law.

The UNCLOS, also known as the ‘Constitution for the Ocean’, identifies and distinguishes between the maritime zones that form part of the sovereignty of coastal states, i.e. the territorial sea, and those that do not form part of this sovereignty, but in which states exercise sovereign rights or jurisdiction, respectively the continental shelf and the exclusive economic zone.

The high seas and the Area - seabed, seabed and its subsoil beyond the limits of national jurisdiction – are maritime zones that are not susceptible to appropriation by states and over which all states exercise a certain set of rights and freedoms.

Coastal states do not have full or absolute sovereignty over the territorial sea, the EEZ or the continental shelf, and there are various uses and activities that can take place in them and which they cannot oppose, such as, for example, innocent passage and freedom of navigation, the laying of submarine cables and ducts, or marine scientific research.

The national maritime space of Timor-Leste includes:

**Territorial sea:** 12 nautical miles (M) from the baselines;

**Contiguous zone:** 24M, where Timor-Leste may take the necessary supervisory measures to prevent infringements of customs, fiscal, immigration or sanitary laws and regulations in its territory or territorial sea, and to repress infringements of laws and regulations in its territory or territorial sea;

**Exclusive economic zone (EEZ):** 200M, where East Timor exercises sovereign rights for the purposes of exploration and exploitation, conservation and management of the natural resources, living or non-living, of the waters overlying the seabed, the seabed and its subsoil and with regard to other activities aimed at exploring and exploiting the zone for economic purposes, such as the production of energy from water, currents and winds; and also jurisdiction with regard to (i) the placement and use of artificial islands, installations and structures; (ii) marine scientific research; and (iii) the protection and preservation of the marine environment; and

**Continental shelf up to 200M:** where Timor-Leste exercises sovereign rights in relation to the exploration and exploitation of sedentary species and mineral and other non-living natural resources existing in the seabed and subsoil.

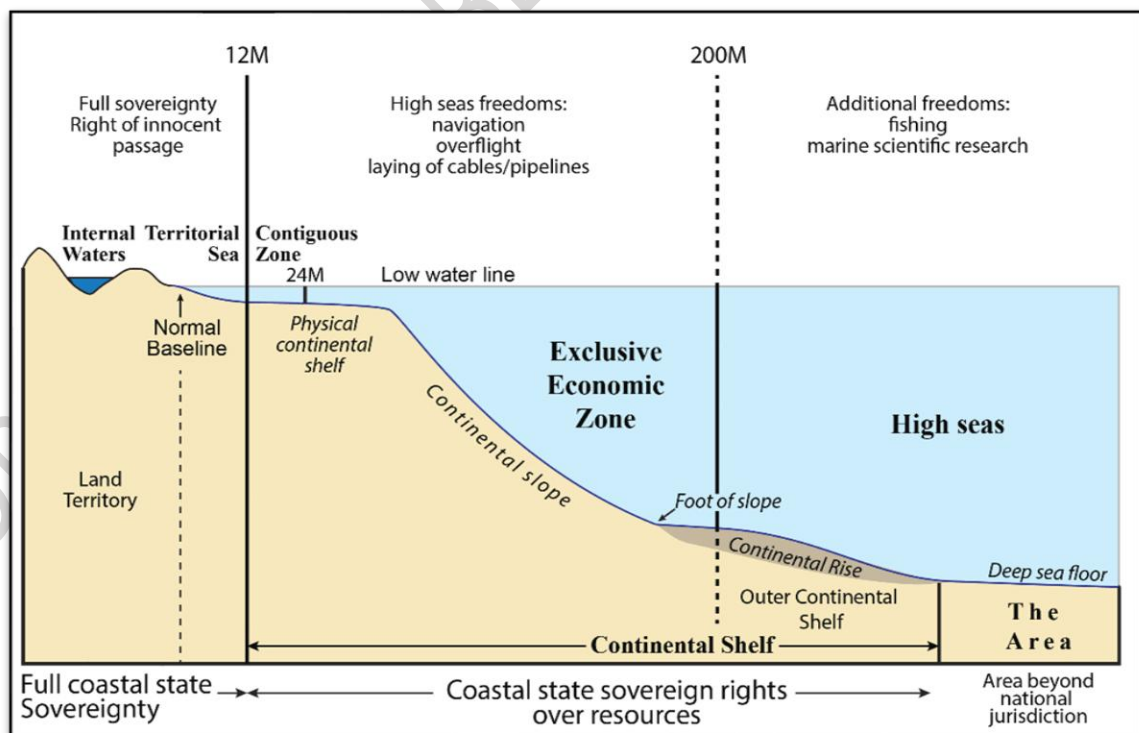


Figure 6: Maritime Zones in accordance with UNCLOS



Following the compulsory conciliation process under UNCLOS, initiated by Timor-Leste in April 2016, Timor-Leste and Australia signed a historic maritime boundary delimitation treaty at the United Nations headquarters on 6 March 2018. The Maritime Boundary Treaty established, for the first time, definitive maritime boundaries between Timor-Leste and Australia in the Timor Sea.

The Maritime Boundary Treaty was, in many respects, extraordinary. Firstly, it resulted from the first-ever use of the compulsory conciliation procedure under UNCLOS. Secondly, the Parties were able to overcome a long, complicated, and difficult history to close the “Timor Gap” and reach agreement on permanent maritime boundaries, thus peacefully resolving a longstanding dispute. This was possible by setting aside the contentious question of ownership of the Greater Sunrise field, and through the establishment of provisional boundaries that would only be adjusted once the field is fully depleted. Thirdly, the agreement established a special regime for Greater Sunrise, enabling joint management and development of the field, with most of the revenues allocated to Timor-Leste.

Under the agreement, the resources of Greater Sunrise are shared between Timor-Leste and Australia. As most of the Greater Sunrise field is in Timor-Leste’s maritime area, most of the revenues will also accrue to Timor-Leste.

The agreed maritime boundaries place all resource fields from the former Joint Petroleum Development Area (JPDA) within Timor-Leste’s continental shelf. This means that, unlike under previous revenue-sharing agreements, all future revenues from the Bayu-Undan and Kitan fields will be transferred entirely to Timor-Leste. To the west, the agreed seabed boundary extends further west than that of the former Joint Petroleum Development Area, thereby transferring the Buffalo oil field from Australia to Timor-Leste.

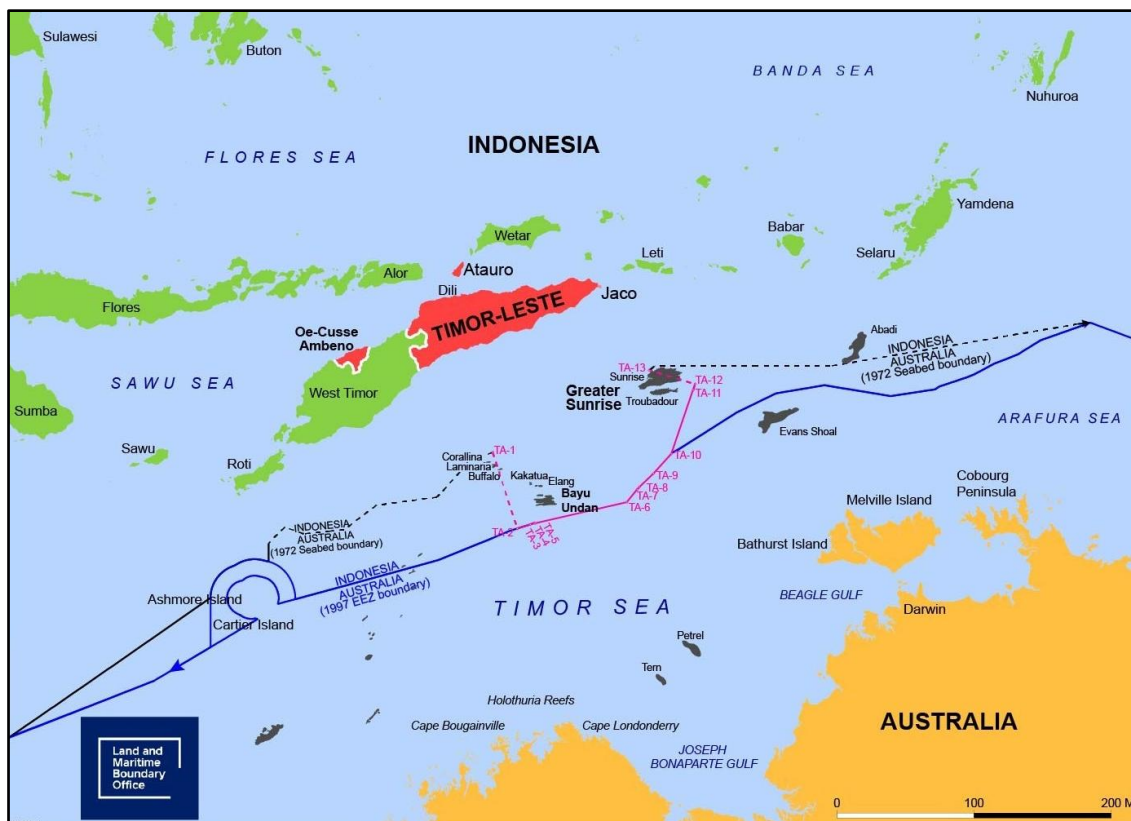


Figure 7: Composition of Territory and Sovereignty Limits

### 3.1.6. CLIMATIC CHARACTERISATION

Climate and variable weather patterns pose significant threats to Timor-Leste, whose population faces rising temperatures, extreme rainfall events, and sea level rise – all of which exacerbate the risks of flooding, storms, and landslides, with additional negative impacts on food security.

The country is among the most vulnerable in the world to natural disasters, due to its elevated risk of earthquakes, tsunamis, cyclones, and heavy rainfall, combined with fragile infrastructure.

Timor-Leste is predominantly agrarian, and food security remains a major challenge due to low agricultural yields and post-harvest losses – factors that are likely to be worsened by rising temperatures, increased rainfall intensity, and sea level rise. The growing population along the country's northern coast increases the number of people and amount of infrastructure at risk from flooding and storm surges associated with rising sea levels. Overall risk is further influenced by how climate change affects the El Niño Southern Oscillation, which drives significant drought and flood events across the country.<sup>27</sup>

Timor-Leste's tropical climate, influenced by the Western Pacific monsoon and mountainous topography, shapes its temperature and rainfall patterns. The monsoon brings a marked wet season from December to May, followed by a dry season from June to November. The rainy season is longer in the south (seven to nine months). Annual rainfall varies widely across the country, from 565 mm in Manatuto on the northern coast to 2,837 mm in the central-western mountains. Rainfall levels are higher in the south and decrease towards the north, with some northern areas receiving little to no rainfall for as much as eight months of the year.<sup>28</sup>

The country's climate is characterised by significant year-to-year variability in rainfall, as well as by intense rainfall events and periods of drought. The average annual temperature ranges from 27°C at sea level to 15°C in the mountains. Seasonal temperature variation is small, with July being the coolest month and October the warmest. The El Niño Southern Oscillation has a strong influence on climate, with El Niño years bringing drier conditions and shorter wet seasons, while La Niña years bring increased rainfall, even during the dry season.<sup>29</sup>

The *Strategic Development Plan 2011-2030* provides guidance for the national response to climate change, and various instruments have since been developed, including the National Adaptation Programme of Action, which aims to make the country more resilient to climate change.

*Table 3: Potential impacts of Climate Change<sup>30</sup>*

PARAMETERS	CHANGES
Temperature	Global increase with no significant seasonal variation
	Episodes of extreme storms are expected to become more intense and prolonged
Precipitation	Average precipitation levels are expected to increase
	The dry season is expected to become drier
	Episodes of extreme rainfall are expected to become more intense but less frequent
Sea Level Rise	Increase in accordance with global projections
Tropical Cyclones	Episodes are expected to decrease in frequency and duration, but become more intense in nature
Ocean	Expected to become more acidic

Tropical Cyclone Seroja, which struck Timor-Leste in April 2021, served as a test case for the impacts of climate change. It coincided with a period in which the country, like all others, was already facing a global pandemic. Historically, cyclones have rarely affected Timor-Leste, but climate change is shifting this trend.

Like other Southeast Asian countries and Pacific Island nations, Timor-Leste is already experiencing the effects of climate change. As an island nation, it ranks among the most

vulnerable. Projections from the Asian Development Bank and the World Bank in 2021 for Timor-Leste are concerning.<sup>31</sup>

The country has seen more intense rainfall and an increase in flooding, which is particularly problematic in the capital, Dili, due to a drainage and sewage system that remains inadequate for the needs of an urban population. In addition, the shifting timing of the rainy season is disrupting harvest cycles, contributing to food insecurity. Timorese communities living along the coast are vulnerable to sea level rise, which threatens livelihoods – meaning that future impacts will be not only environmental but also economic.<sup>32</sup>

Finally, it is important to highlight that CO<sub>2</sub> emissions are one of the main contributors to global warming and climate change. These emissions are linked to a country's economic activity, as industrial, transport, and energy generation processes involve the burning of fossil fuels. However, according to 2022 data, Timor-Leste produced 0.573 megatons of CO<sub>2</sub> emissions. Timor-Leste is therefore categorised among the low-emission countries, according to the global CO<sub>2</sub> emissions ranking.<sup>33</sup>

This means that, despite an increase in emissions as development progresses in Timor-Leste, the country's annual cumulative emissions represent less than 0.003% of global emissions.<sup>34</sup>

### **3.2. DEMOGRAPHIC CHARACTERISATION**

From a demographic perspective, according to the results of the 2022 Census, the population of Timor-Leste is estimated at approximately 1,341,737 people, with about one quarter of the population residing in the capital, Dili (around 324,000 inhabitants). Ermera follows, with around 138,000 inhabitants (10.2%), Baucau, with approximately 133,000 (10%), and Bobonaro, with around 106,000 (7.9%). The least populated region of the country is Ataúro, with 10,302 inhabitants (0.7%).

Among all Southeast Asian countries, Timor-Leste has the highest annual population growth rate – 1.8% between 2015 and 2022. In addition to being one of the youngest countries in the world, Timor-Leste has a very youthful population, with around 65% under the age of thirty, and only 6% over the age of sixty-five. The 2022 Census also indicates that the unemployment rate is higher among the youth.

All municipalities have experienced population growth, with Dili seeing the most significant increase, at an annual growth rate of 2.7%. It is also the only municipality to have gained population through internal migration from other municipalities.

According to the same report, 492,752 people live in urban areas, while 847,682 live in rural areas. The urban population represents 36.8% of the total population of Timor-Leste. The most urbanised municipality is Dili, where 95.8% of the population lives in urban zones. All other municipalities are predominantly rural. Ataúro, for example, is entirely rural.

It is also important to note that around 30% of the Timorese population lives in coastal zones, particularly in Ataúro, Liquiçá, Oe-Cusse Ambeno, Covalima, and Viqueque, which are the main municipalities in terms of coastal population. According to the National Coastal Vulnerability Assessment and Development of an Integrated Strategic Plan for Coastal Management and Adaptation for Timor-Leste (UNDP, 2018), this percentage of the population increases to 66% if coastal zones and plains below an altitude of 500 meters are taken into account.

### 3.2.1. ADMINISTRATIVE DIVISION OF THE TERRITORY

The territory of the Democratic Republic of Timor-Leste is divided into twelve municipalities, the Special Administrative Region of Oe-Cusse Ambeno, and Ataúro.

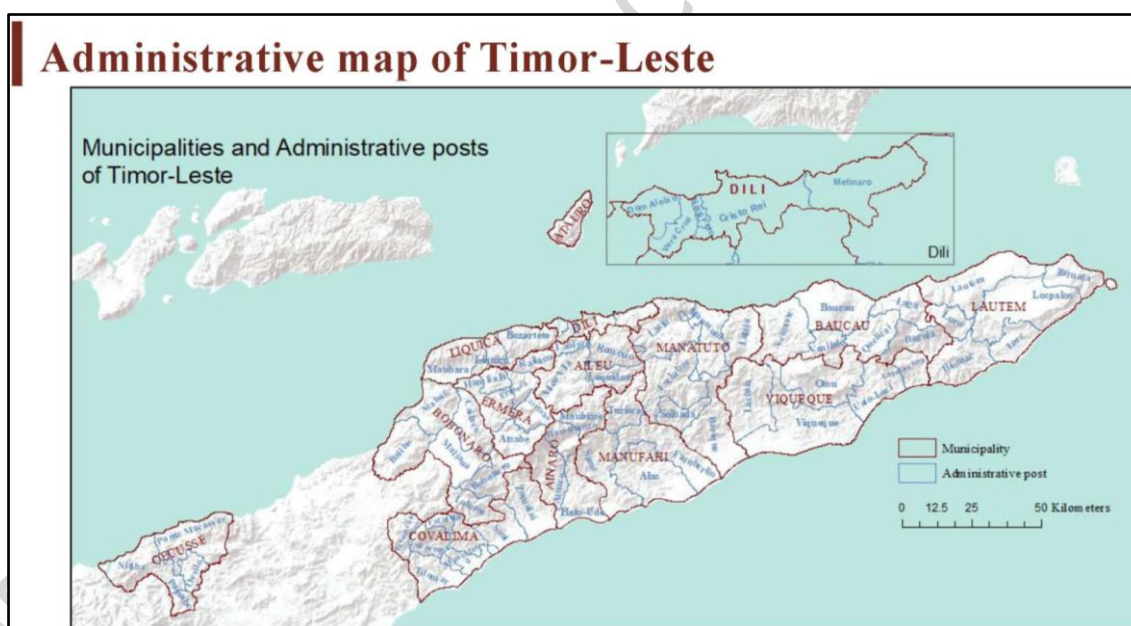


Figure 8: Administrative Map of Timor-Leste (2022 Census)

The 12 municipalities (Aileu, Ainaro, Baucau, Bobonaro, Covalima, Dili, Ermera, Lautém, Liquiçá, Manatuto, Manufahi, and Viqueque) and Ataúro serve as administrative divisions for the organisation of local State administration and form the territorial basis for local authorities in the Democratic Republic of Timor-Leste<sup>35</sup>.

*Of the fourteen first-level administrative divisions, only two – Aileu and Ermera – do not have access to the coast.*

The first-level administrative divisions are subdivided into sixty-nine administrative posts, which constitute the second-level territorial divisions. These, in turn, are divided into 461 sucos and 2,233 aldeias (villages)<sup>36</sup>.

### **3.3. SOCIOECONOMIC CHARACTERISATION**

Since the restoration of independence on 20 May 2002, Timor-Leste has made considerable progress in its transition from fragility to resilience, establishing itself as a peaceful, free, and democratic country with an open and growing economy.

Timor-Leste, due also to its geographical location, is vulnerable to disasters triggered by natural causes, climate change, and external economic shocks. Its economy is driven by public expenditure funded by petroleum and gas revenues. Therefore, economic diversification and the development of key sectors through the sustainable use of its coastal and marine resources are priorities to the Government.

According to the “Poverty in Timor-Leste” report (2014), produced by the Ministry of Finance with technical support from the World Bank, although poverty levels remain high, improving living standards has had some progress. The proportion of Timorese living in poverty, measured by the national poverty line, fell from 50% in 2007 to an estimated 42% in 2014.<sup>37</sup> More recently, according to the Asian Development Bank, the proportion of the employed population living on less than \$2.50 per day was 29.7%, based on 2023 data.<sup>38</sup>

Given the relatively low level of employment in the petroleum sector, total GDP is not the most appropriate indicator for measuring Timor-Leste’s economic performance. Instead, it is more useful to monitor performance using non-oil GDP, which more accurately reflects the real impact of economic changes on the population of Timor-Leste.

The following chart shows the values for economic growth based on non-oil GDP between 2019 and 2023, along with projections for 2024 to 2029, as presented in the 2025 Budget Book.



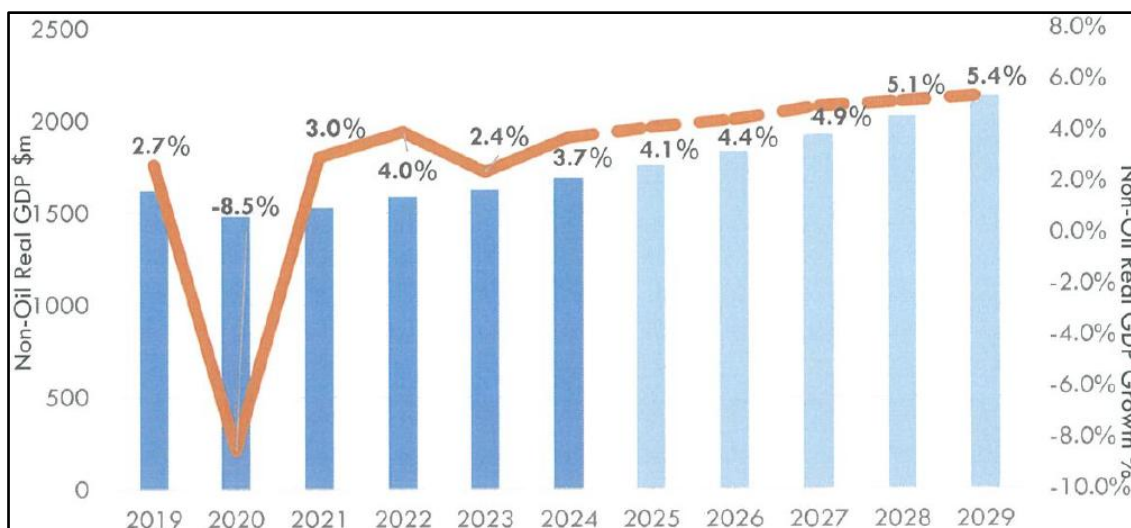


Figure 9: Economic growth in Timor-Leste (2025 Budget)

In 2024, GDP is projected to increase by 3.7%. This forecast is based on strong public expenditure execution in the final quarter of the year and continued development of the private sector, driven by increased public activity and the arrival of tourists. In 2025, GDP is expected to grow by 4.1%, with growth driven by an increase in public spending. Regarding inflation, the consumer price rate between January 2024 and January 2025 was -0.2%.

The following table summarises the relative contribution of the petroleum and non-petroleum sectors to total GDP over the past five years.

Table 4: Petroleum and Non-Petroleum Sector Share of Total GDP

Petroleum Sector Share of Total GDP (%)	2019	2020	2021	2022	2023
Total GDP (%)	100	100	100	100	100
Petroleum Sector %	17.3	42.6	43.9	26.5	8.2
Non-Petroleum Sector %	82.7	57.4	56.1	73.5	91.8

Although Timor-Leste's ocean economy accounts for approximately 87% of GDP, this derives primarily from offshore oil and gas.

The management of these resources has been notably responsible, with particular emphasis on the establishment of the Petroleum Fund in 2005. The creation of this fund was a key investment strategy that ensured transparency and sound management of Timor-Leste's petroleum resources. It is an essential reference point in the historical and cultural characterisation of the nation, as successive Timorese governments have worked to instil a culture of transparency and accountability in the management of national natural resources.

The Petroleum Fund does not flow directly into the General State Budget, despite being its main source of revenue. This structure helps prevent macroeconomic instability, as withdrawals from the Fund are based on what is sustainable in the long term, rather than short-term fluctuations in petroleum revenues. Thus, in addition to ensuring macroeconomic stability and avoiding the so-called “resource curse,” the fund has been used to invest in national basic infrastructure and in key development sectors such as education and health.

Related to this, it is important to recall that in 2007, Timor-Leste joined the Extractive Industries Transparency Initiative. With only a decade of independence at the time, the country developed a world-class system for revenue management, becoming the first country in the Asia-Pacific region – and the third in the world – to be granted compliance status with the Initiative in July 2010, in terms of revenue reporting and transparency in the oil and gas sector.

Furthermore, in 2011, with the amendment of the Petroleum Fund Law, following a long and rigorous public consultation process, it became possible to implement a diversification strategy for the Petroleum Fund, which has delivered an important and valuable return for the Timorese state.<sup>39</sup>

In terms of economic activities, agriculture remains the main livelihood for most of the population, primarily through subsistence crops such as maize, rice and coffee, which also have export potential. However, agricultural practices remain largely traditional, limiting the efficiency and productivity of the sector.

Coastal livelihoods are primarily derived from fishing, including large tuna, several species of pelagic fish in open coastal waters, a wide variety of coral reef and mangrove fish – including those found in estuaries and, to some extent, rivers and inland lakes. Mangrove coastal areas and seaweed beds also support local populations with marine species such as fish, molluscs, and crustaceans.

Coastal communities also sustain a subsistence economy based on salt production, tourism, and ecosystem provisioning services such as bamboo, mangroves, and honey, in addition to fish. However, with well-coordinated and effective policies, tourism, fisheries, and aquaculture could become key drivers of job creation, environmental sustainability, and food security.

The most recent study on the national ocean-based economy by the Ministry of Agriculture and Fisheries and the Partnerships in Environmental Management for the Seas of East Asia, used data from 2015. This study has not yet been updated, and current GDP statistics do not provide sufficient information to accurately assess the contribution



of the marine sectors to the country's economic growth – an issue to be addressed from 2025 onwards.

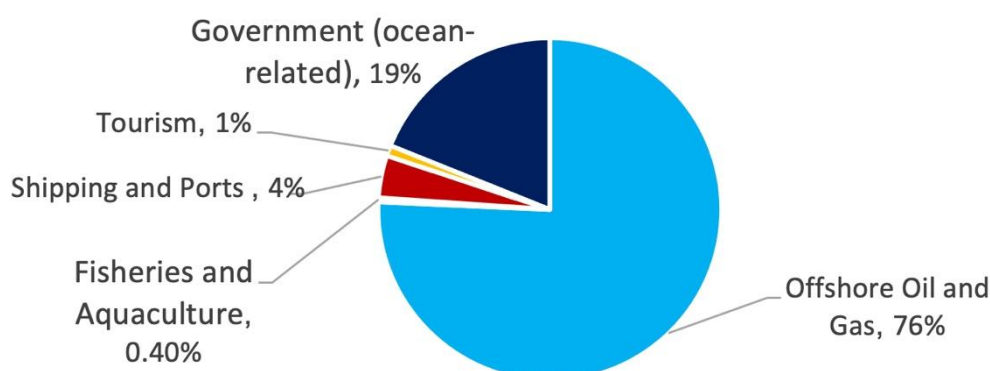


Figure 10: Timor-Leste's Ocean-Based Economy, 2015<sup>40</sup>

### 3.3.1. TOURISM

Although tourism is the third most relevant sector for the national economy, it represents only 2% of Timor-Leste's GDP (2024 data). Nonetheless, the country's marine and coastal conditions offer significant potential for the development of ecotourism and related activities, such as recreational fishing, diving, and whale watching. The Nino Konis Santana National Park, the country's first protected area, and Ataúro Island, which will also be protected, have considerable tourism potential, particularly within the scope of ecotourism.

In 2017, the Government approved the National Tourism Policy 2030 – a call for collective action to achieve Timor-Leste's true potential as an international tourist destination with bold and dynamic growth. The policy has five thematic principles, Priority, Prosperity, People, Protection, and Partnership. The policy set a strategic goal for Timor-Leste to receive 200,000 international tourists per year by 2030, with US\$150 million in annual revenue and direct employment for 15,000 workers.

To boost Timor-Leste's image, the Government has approved a destination branding campaign, "Explore the Undiscovered". The campaign will promote Timor-Leste in the global market and encourage the inclusive development of the sector. The campaign logo is a representation of the country's national heritage featuring a Uma-Lulik (sacred house) unique to Timor-Leste and a rising sun synonymous with the country's name.

In 2024, international arrivals grew by 26% to 26,912, compared to 2023, when there were only 21,370 arrivals, reflecting renewed confidence in the post-pandemic period and contributing to the expansion of services such as hospitality and retail.<sup>41</sup>

By 2030, the Government aims to develop a vibrant and attractive tourism industry that is economically, socially, and environmentally sustainable, significantly increasing employment and enhancing Timor-Leste's international image. The ecotourism sector is leading efforts to increase tourism revenue. The whale watching season significantly boosts the local economy compared to non-active seasons. The National Statistics Directorate of the Ministry of Tourism has recorded a notable increase in visitor arrivals during the months between October and December.

The increase in ecotourism visitors also translates into higher hotel occupancy rates, greater use of local services (such as restaurants, transport, and consumer goods), and the creation of temporary employment opportunities, especially for women and young people during the whale-watching season.

Notwithstanding the need to invest in infrastructure to support tourism development, nature-based activities – aimed at protecting and enjoying the country's biodiversity – offer unique opportunities for the development of the national tourism sector, including activities carried out in the maritime space.

Ecotourism plays a significant role within this strategy, as by definition it promotes environmentally sustainable practices and preserves Timor-Leste's rich biodiversity.

Promoting Timor-Leste's unique marine ecological assets, due to its location in the Coral Triangle and whale-watching opportunities from October to December, is vital for nature-based tourism in the region.

### **3.3.2. BIODIVERSITY**

According to the report of the National Biodiversity Strategy and Action Plan of Timor-Leste, prepared in 2011 and revised in 2015, a total of 2,448 species of flora and fauna have been identified in Timor-Leste. These include both marine and terrestrial species, categorised as follows: vertebrates (amphibians: 10; fish: 334; birds: 258; mammals: 97; reptiles: 63); invertebrates (molluscs and crustaceans: 319; cnidarians and corals: 14; insects: 488); and plants (865). Within the country, 31 species are classified as threatened, including 4 critically endangered species (White-bellied Sea eagle, Yellow-crested cockatoo, Hawksbill turtle and Leatherback turtle), 8 endangered species (mainly turtles and birds), and 19 vulnerable species (notably sandalwood, teak and rosewood).<sup>42</sup>

The national list of protected species includes eighty-one species of birds and forty-four species of terrestrial fauna, covering mammals, amphibians, reptiles, insects, and freshwater fish. Among these protected species is the saltwater crocodile, which inhabits rivers, estuaries, and coastal marine areas. Despite some conflict with the

human population – there have been reports of attacks in recent years – the crocodile is a revered species among Timorese people. For this reason, and because it holds touristic interest, a Crocodile Park is planned for construction through the Infrastructure Fund.

Regarding marine fauna, 14 protected species have been identified, including: all turtle species; dugong; whale; dolphins; seals; sea lions; whale shark; coral; and nautilus.<sup>43</sup>

In addition, all other species listed in Annexes I and II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)<sup>44</sup>, and those on the IUCN Red List of Threatened Species, are protected<sup>45</sup>.

Declaring Protected Areas across the country is therefore of great importance, not only to preserve these species and ecosystems, but also because this preservation supports the development of sustainable tourism projects, particularly ecotourism, creating local income and encouraging communities to become active participants in this mission for long-term sustainability.

The Government, through the Infrastructure Fund, has planned studies and design concepts for the construction of a Flora and Fauna Species Conservation Centre in Hera, Metinaro. In addition, ecotourism projects are underway or planned for Maubara Lagoon, as well as other sustainable development initiatives in lagoons and beaches in the municipalities of Aileu, Lautém, Bobonaro (Marobo), and Venilale.

While protected areas are primarily intended to safeguard nature from human impact, activities such as tourism, scientific expeditions, and educational actions, if properly regulated and aligned with environmental preservation, may benefit conservation.

Protected areas aim to protect specific areas that represent entire ecosystems and critical habitats for endemic, migratory, or otherwise legally protected species, implementing an ecosystem-based approach and ensuring the resilience and capacity of these areas to contribute to mitigation and adaptation to both natural and human-induced pressures, particularly those related to climate change.<sup>46</sup>

With this framework in mind, the following protected areas have been defined, as shown in the table below.

*Table 5: Terrestrial Protected Areas<sup>47</sup>*

No.	Protected Area	Municipality	Administrative Post	Sucos	Estimated Area (Ha)	km <sup>2</sup>	Updated Area <sup>48</sup>	km <sup>2</sup>
1		Lautém	Tutuala	Tutuala	123.600	1,236	68,000 (terrestrial)	680
				Mehara				

	Nino Konis Santana National Park		Lospalos	Muapitino	(terrestrial and maritime)			
				Lore I				
				Bauro				
			Lautém/Moro	Com				
2	Monte Legumau	Lautém	Luro	Vairoke	35,967	359.67	17,882	178.82
				Afabubo				
				Baricafa				
		Baucau	Laga	Atelari				
			Baguia	Uakala				
3	Lagoa Maurei	Lautém	Iliomar	Tirilolo	500	5	4376	43,76
		Viqueque	Uato Carbau	Irabin de Baixo				
4	Be Matan Irabere	Viqueque	Uato Carbau	Bahatata				
				Irabin de Baixo				
				Irabin de Xima				
5	Monte Matebian	Baucau	Quelicaí	Lai sorulai	24,000	240	24,000	240
				Uaitame				
				Afaca				
				NamaNei				
				Guruca				
				Sagadati				
			Laga	Atelari				
				Baguia				
			Lavateri					
			Alawa Kraik					
			Defa Uassi					
			Osoo-Huna					
			Afaloicaí					
			Samalari					
		Haeconi						
		Viqueque	UatuLari	Babulo				
				Vessoro				
				Afaloicaí				
			UatuCarbau	Afaloicaí				
				Uani Uma				
6	Monte Mundo Perdido	Viqueque	Ossu	Osoo de Cima	25,000	250	25,000	250
				Loihuno				
				Liaruca				
				Builale				
7	Monte Laretame	Viqueque	Ossu	Uaguaia	16,429	164.29	16,429	164.29
				Ua Bubu				
		Baucau	Venilale	Waioli				
				Watu-Hako				
8	Monte Builo	Viqueque	Ossu	Loihuno	8,000	80	8,000	80
				Uaguaia				
				Ossu Rua				
			UatuLari	Matahoi				
9	Monte Burabo’o	Viqueque	Uatu Carbau	Afaloicaí	18,500	185	18,500	185

				Uani Uma				
				Irabin de Baixo				
10	Monte Aitana	Viqueque	Lacluta	Ahik	17,000	170	17,000	170
				Lalini				
11	Monte Bibileo	Manatuto	Laleia	Cairui	19,000	190	19,000	190
		Viqueque	Lacluta	Bibileo				
				Dilor				
12	Monte Diatuto	Manatuto	Soibada	Fatu Makerek	15,000	150	15,000	150
				Samoro				
			Laclubar	Funar				
				Fatu Makerek				
				Mane Lima				
13	Monte Kuri	Manatuto	Laclo	Uma Kaduak				
14	Parque Nacional Kay Rala Xanana Gusmão	Manufahi	Same	Holarua	18,000	180	9,231	92.31
				Letefoho				
				Rotutu				
		Ainaro	Ainaro	Mauciga				
				Soru Kraik				
				Leolima				
15	Ribeira de Clere	Manufahi	Fatuberliu	Uma Berloik	30,000	300	30,000	300
				Dotik				
				Caicasa				
16	Lagoa Modomahut	Manufahi	Fatuberliu	Fatukahi	22	0.22	4,059	40.59
17	Lagoa Welenas	Manufahi	Fatuberliu	Fatukahi	20	0.20	20	0.20
18	Monte Manucoco	Dili	Atauro	Makili	4,000	40	2,137	21.37
				Vila				
				Manumeta				
				Makadade				
				Beloi				
19	Cristo Rei	Dili	Cristo Rei	Hera	1,558	15.58	1,754	17.54
				Camea				
				Metiaut				
20	Lagoa Tasitolu	Dili	Dom Aleixo	Comoro				
21	Monte Fatumasin	Liquiçá	Bazartete	Metagou	4,000	40	4,973	49.73
				Loerema				
				Fatumasin				
22	Monte Guguleur	Liquiçá	Maubara	Lisadila	13,159	131.59	157.54	157.54
				Maubarlista				
				Guguleur				
23	Lagoa Maubara	Liquiçá	Maubara	Vatuvou			1,426	14.26
24	Monte Tatamailau	Ainaro	Hatobuilico	Nunumogue	20,000	200	8,554	85.54
			Ainaro	Manutasi				
		Ermera	Lethefoho	Bobo Leten				
				KatraiKraik				
				Malabe				
25	Monte Talobu/ Laumeta	Ainaro	Ainaro	-	15,000	150	15,000	150

26	Monte Loelako	Bobonaro	Bobonaro	Kilatlau	4,700	47	4,700	47
			Maliana	Ritabou				
				Odomau				
			Cailaco	Raiheu				
				Atudara				
				Manapa				
				Goulolo				
		Ermera	Atsabe	Bobo Leten				
				Paramin				
27	Monte Tapo/Saburai	Bobonaro	Lolotoe	Gildapil	5,000	50	5,000	50
				Lontas				
				Oeleu				
			Bobonaro	Tapo				
				Leber				
			Maliana	Saburai				
				Odomau				
28	Lagoa BeMalae	Bobonaro	Balibó	Sanirin				
				Leolima				
				Aidabaletem				
29	Korluli	Bobonaro	Maliana	Ritabou				
				Tapo/Memo				
			Caicalo	Manapa				
30	Monte Lakus/Sabi	Bobonaro	Lolotoe	Lontas				
				Gildapil				
				Leber				
				Guda				
				Lupal				
				Opa				
				Deudet				
31	Monte Taroman	Covalima	Fatululik	Taroman	19,155	191.55	4,255	42.55
				Fatululik/Bedasi				
			Fohorem	Dato Rua				
				Dato Tolu				
				Laktos				
32	Reserva Tilomar	Covalima	Tilomar	Maudemo	7,000	70	5,707	57.07
				Lalawa				
				Kasabauk				
				Beseuk				
33	Cutete	Oe-Cusse	PanteMakassar	Costa	13,300	133	9,525	95.25
				Nipane				
				Bobokase				
				Cunha				
				Lalisu				
34	Monte Manoleu	Oe-Cusse	Nitibe	Usitaco	20,000	200	20,000	200
				BeneUfe				
35	Área Mangal Citrana	Oe-Cusse	Nitibe	BeneUfe	1,000	10	455	4.55
36	Oebatan	Oe-Cusse	Nitibe	SuniUfe	400	4	400	4

37	Ek Oni	Oe-Cusse	Nitibe	Lela-Ufe, Bana Afi	700	7	700	7
38	UsMetan	Oe-Cusse	PanteMakassar	Taiboko	200	2	1,353	13.53
39	Makfahik	Manatuto	Barique	Manehat				
40	Área Mangal Metinaro	Dili		Metinaro			905.24	9.05
41	Área Mangal Hera	Dili	Cristo Rei	Hera			116.3	1.16
42	Lagoa Foun&OnuBot	Covalima	Tilomar	Maudemu	12	0.12	12	0.12
				Lalawa				
				Beiseuk				
43	Lagoa BikanTidi	Ainaro	Leolima		110	1.10	652	6.52
44	SamikSaron	Manatuto	Barique	Barik				
			Soibada Laclubar	Cribas				
				Orlalan				
				Manlala				
TOTAL						4,287.82		3,798.76

Table 6: Marine Protected Areas<sup>49</sup>

No.	Protected Area	Municipality	Administrative Post	Sucos	Estimated Area (Ha)	km <sup>2</sup>	Updated Area	km <sup>2</sup>
45	Aquatic Nature Reserve	Bobonaro	Balibó	Batugadé	112.59	1.13	112.59	1.13
46	Aquatic Nature Reserve	Dili	Ataúro	Suco da Vila	50.85	0.51	13,252.22 <sup>50</sup>	132.52
47	Liquiçá Samba Sembilan <sup>51</sup>	Liquiçá	Bazartete	Suco Mota Ulun e Suco Ulmera			8,372.20	83.72
48	Nino Konis Santana Marine National Park	Lautém	Tutuala	Lore, Muapitine, Tutuala, Mehara and Com	58,225	582.25	58,899	588.99
<b>TOTAL</b>						<b>583.88</b>		<b>806.36</b>

Government Resolution No. 34/2015 of 23 September, on SDGs, among other initiatives, recognises the need to achieve Aichi Target 11 of the United Nations Convention on Biological Diversity (by 2020, conserve at least 17% of terrestrial and inland water areas, and 10% of coastal and marine areas). Although these Aichi Targets were updated in 2022 through the Kunming-Montreal Global Biodiversity Framework (to protect 30% of global terrestrial and marine areas by 2030 through protected areas and other effective area-based conservation measures), and Timor-Leste is a party to the Convention on Biological Diversity, current conservation targets remain far from being met.

In practice, and in accordance with what is regulated by legal decree, there are four marine and coastal protected areas totalling 806.36 km<sup>2</sup> (about 5.56% of the territorial

sea or 1.38% of the already defined EEZ), and 44 terrestrial protected areas, including inland waters, covering a total of 3,798.76 km<sup>2</sup> (approximately 25%).

To date, no management approved by Government Resolution have been prepared for the country's protected areas. This means that national protected areas are not yet effectively implemented, preventing a reliable evaluation in terms of systematic goals and measures. In other words, preventing appropriate monitoring.

It should be noted, however, that at the 13<sup>th</sup> Conference of the Parties to the Convention on Biological Diversity in 2016, the island of Ataúro and the Nino Konis Santana National Park, meeting the established scientific criteria, were designated as Ecologically or Biologically Significant Areas (EBSAs). These are marine areas identified based on their importance for biodiversity and the health of marine ecosystems.<sup>52</sup>

### **3.3.3. FISHERIES AND AQUACULTURE**

Regarding the fisheries and aquaculture sector, despite the abundance of fish stocks and a variety of coastal and marine habitats, 90% of fishing in Timor-Leste is traditional or non-mechanised (subsistence or semi-subsistence), representing just 0.4% of GDP.

According to the survey carried out by the Government in the preparation for National Spatial Planning for Timor-Leste, the main fishing communities are located in the municipalities of Dili, Baucau, Bobonaro, Liquiçá, Manatuto, and Lautém on the northern coast, and Covalima on the southern coast, as well as on the island of Ataúro and in Pante Macassar, in Oe-Cusse Ambeno.

Fishing is coastal and artisanal, with no deep-sea fishing, or long-distance fishing, conducted by Timorese fishers. Data from the 2019 Agricultural Census indicates that 7,768 households engage in fishing or aquaculture activities, with around half dedicating themselves exclusively to fishing. Furthermore, one quarter of these households, fish without the use of a boat or any kind of vessel, which highlights the precarious nature of the fishing sector.

Given this context, it is difficult to estimate the contribution of fishing to the national economy due to the informal nature of the sector, as is the case in many other island and developing nations. However, it generates significant additional income and provides a valuable source of food for coastal communities.

As for fish products, they are usually sold fresh and on the same day, in local coastal markets, as the sector remains unorganised and faces a series of challenges in developing an effective value chain strategy.



According to the same report, foreign capital is limited. In 2016, 18 fishing licences were granted to foreign vessels, but according to information from the time, these operations are no longer active in the country, with all catch being exported and not entering the Timorese market.

As for data on commercial fishing licences between 2018-2025, provided by the Ministry of Agriculture, Livestock, Fisheries and Forestry (MALFF), licences have been granted for commercial fishing in accordance with the table below:

*Table 7: Fishing Licences, MALFF*

No.	Year	Artisanal	Non-Commercial	Commercial
1	2018	15	9	
2	2019	18	9	
3	2020	18	11	
4	2021	223	2	
5	2022	215	2	
6	2023	170	11	61
7	2024	168	20	132
8	2025 (march)	3	1	21
<b>TOTAL</b>		<b>830</b>	<b>65</b>	<b>214</b>

Although information is scarce, it can be concluded that fish consumption is low compared to other coastal nations. Approximately 60% of households engaged in fishing consume fish, but most of the general population does not, despite fish being an important source of dietary protein. In Dili, most of the population consumes fish (63%), but outside this municipality the figures vary, ranging from 11% in Ermera to 33% in Aileu and Bobonaro.

In most Pacific Island countries and territories, fish contributes 70-90% of the animal protein in the diet. In Timor-Leste, the main source of animal protein is chicken (54%), while fish accounts for only 31%. Preliminary results from a 2025 survey indicate consumption of 8.7 kg/person/year (National Fish Consumption Survey). Data from 2011 indicate a per capita fish consumption of 6.1 kg/year, which is very low when compared to other coastal countries, such as Portugal (55.6 kg) or Indonesia (38.87 kg)<sup>53</sup>

In addition to the dietary habits of Timorese people, fish consumption is also limited by high prices and the lack of availability in the market (especially in non-coastal areas). Contributing to this is the lack of logistical and processing infrastructure, as well as inadequate equipment and technology.

These are also the main reasons why there is no structured value chain for the collection, production, and commercialisation of seaweed at a commercial level, despite its potential for export, particularly at the regional level.

Regarding the country's fishery resources, according to the Ministry of Agriculture, Livestock, Fisheries and Forestry, there is significant potential for pelagic fish, demersal fish, tuna, and lobster, along both the northern and southern coasts, as well as within the country's EEZ.

More recently, studies conducted between 2018 and 2021 revealed the following data:

*Table 8: Estimated Potential of Fishery Resources, 2018-2021, MALFF*

No.	Reference	Fish Stock (t)	Legal Artisanal and Industrial Fishing (t)	%
1	Fish potential in the EEZ (UNDP, 2011)	691,600.00		
2	Fish potential in Territorial Sea and EEZ *	704,322.00		
3	Legal fishing activities – artisanal and industrial (2018-2021)		23,397.00	3.32
4	Illegal fishing (2018-2021)		15,960.00	2.22
<b>TOTAL</b>			<b>39,087.00</b>	<b>5.54</b>

\* Estimate calculated based on data from the MALFF: the calculation is as follows: Timor-Leste's jurisdictional area of 77,398 km<sup>2</sup> × 9.1 tonnes/km<sup>2</sup> = 704,322 tonnes of fish per year.

The MALFF has also released the following updated data for 2025 regarding the fisheries sector in the country.

*Table 9: Small-Scale Fisheries Data, MALFF*

Number of Fishers	6,876.00
Fisher Groups	1,140
Fisher Centres	162
Fish Landing Sites	9
% of Small-Scale Fisheries	99.5%
Use of Artisanal Boats and Motorboats (5–15 hp)	(5-15 hp)
Total Boats	4,437
Total Motorboats	1,923
Total Non-Motorised Boats	2,514

The volume of fish found along the coastal waters of the country is approximately 1,624.4 kg/ha, which indicates a situation where overfishing is not currently occurring.

The zones of commercial fishing interest, according to local knowledge and fishers' perceptions based on actual sales, are represented in the following zones:

Zone 1: Baucau, Manatuto, Lautém and Viqueque

Zone 2: Manufahi, Ainaro and Covalima

Zone 3: Mainland Dili, Liquiçá and Bobonaro

Ataúro: Island of Ataúro

RAEOA: Special Administrative Region of Oe-Cusse Ambeno

*Table 10: Fish Species by Zone<sup>54</sup>*

Name (Tetum)	Name (English)	Zone 1	Zone 2	Zone 3	Ataúro	RAEOA	Timor- Leste
Sardina	Sardine	52	60	60	0	60	52
Bainar mutin	Mackerel	36	73	27	60	93	50
Tongkok/kasareta	Bullet tuna	56	13	13	0	20	27
Samber	Needlefish	32	0	20	0	7	26
Koku	Trevally	32	7	20	47	33	24
Garopa/Kerapu	Grouper	32	0	33	53	0	23
Sera/Tengiri	Spanish mackerel	20	33	20	7	0	21
Ikan Manu	Flying fish	12	0	60	0	13	20
Ikan Mean/Kamera	Snapper	20	13	13	47	27	19
Ikan Daun	Halfbeak	16	0	0	13	0	6

The average total biomass of reef fish in Timor-Leste is 41.1 g/m<sup>2</sup>, which is slightly higher than in other populated areas of the Pacific (30.6 g/m<sup>2</sup>), although it remains more comparable to those populated areas than to remote ones.

Reef fish biomass (a measure of the mass of live fish in a given area), used as an indicator of reef health and fishing intensity in each location, was measured by NOAA (United States National Oceanic and Atmospheric Administration). It found that the western coast of Ataúro Island has the highest average fish biomass (75.9 g/m<sup>2</sup>), and the sectors of Dili/Manatuto (23.4 g/m<sup>2</sup>) and Bobonaro (23.0 g/m<sup>2</sup>) have the lowest. The high biomass along the western coast of Ataúro may be related to the high structural complexity of the reef, which is dominated by a steep wall.<sup>55</sup>

Timor-Leste's greatest challenge remains the presence of illegal fishing activities within its sovereign waters, resulting not only in financial losses but also in environmental damage, particularly in terms of irregular exploitation and even destruction of the national marine environment and its ecosystems. The pending delimitation of the maritime boundary between Timor-Leste and Indonesia and the resulting legal uncertainty hinder the effective application of the law and proper oversight by the competent authorities.

This is especially relevant considering that Timor-Leste does not have a national commercial/offshore fishing fleet. Fishing activities within Timor-Leste's EEZ, particularly in the south-southwestern area at some distance from the mainland, are allegedly conducted by foreign commercial vessels – illegally, considering that no licences have been issued by the Government of Timor-Leste.

Annual losses to the country from illegal, unreported, and unregulated fishing were estimated at USD 20 million in 2003 and around USD 40 million in 2013. In 2016, semi-industrial fishing licences were granted to Chinese vessels, but these were suspended when the vessels were found to be fishing selectively and illegally for sharks in 2017.<sup>56</sup>

More recently, the economic loss to the State of Timor-Leste continues to be significant, as shown in the table below.

*Table 11: Impact of IUU Fishing in the Country*<sup>57</sup>

Year	Total Vessels (Unit)	Illegal Exploitation (Tonnes)	Financial Loss (USD)
2018	107	6,420	136,104,000,00
2019	69	4,141	87,056,000,00
2020	48	2,880	61,694,000,00
2021	42	2,520	53,424,000,00
2022	21	1,260	26,712,000,00
2023	17	1,020	21,624,000,00
2024	16	960	20,352,000,00
<b>Total</b>	<b>320</b>	<b>19,200</b>	<b>406,966,000,00</b>

Aquaculture is a new sector in Timor-Leste, and the Government has adopted a program to encourage its growth to tackle widespread poverty and malnutrition.

During the Indonesian occupation (1975-1999), freshwater fish hatcheries were established in some municipalities to cultivate common carp, while brackish aquaculture ponds were used to raise tiger prawns and milkfish. All these activities ceased during the 24 years of conflict. Since independence, the Government has gradually resumed aquaculture activities in collaboration with development agencies, restoring fish hatcheries and coastal aquaculture ponds, and distributing fingerlings to selected households.<sup>58</sup>

The *Strategic Development Plan 2011-2030* recognises the importance of this sector and emphasises that aquaculture activities “can offer income-generating opportunities for coastal communities.” In 2012, the Ministry of Agriculture and Fisheries, with technical assistance from WorldFish, launched the National Aquaculture Development Strategy of Timor-Leste (2012-2030).

One of the specific short-term objectives was to increase per capita fish consumption from 6.1 kg to 15 kg by 2020, while in the long term, the expectation was that the aquaculture sector would contribute 40% of the national fish supply by 2030.

One of the most significant initiatives for aquaculture development was the project “Combatting Malnutrition and Poverty through Aquaculture in Timor-Leste” (COMPACTL), carried out between 2013 and 2016 with the support of WorldFish, Mercy Corps and Hivos (funded by the Norwegian Ministry of Foreign Affairs) across six rural municipalities (Lautém, Baucau, Viqueque, Manufahi, Ainaro, and Covalima).

Additionally, and complementarily, the Partnership for Aquaculture Development in Timor-Leste (PADTL), funded by the New Zealand Ministry of Foreign Affairs and Trade, supported sustainable small-scale aquaculture programs. Other significant initiatives include projects by Catholic Relief Services and efforts by the Ministry of Agriculture and Fisheries, aimed at building one hectare of ponds in each of the following ten selected sites: Sare (Ermera), Meligo (Bobonaro), Lactos (Covalima), São (Manatuto), Edemumo (Viqueque), Com (Lautém), Sebagulau (Ainaro), Gariwai (Baucau), Caisaca (Manufahi), and Lisadila (Liquiça).<sup>59</sup>

The most farmed freshwater species are tilapia and carp. Brackish water aquaculture may have growth potential if the existing milkfish and shrimp pond infrastructure is rehabilitated, although there are currently no fingerlings available for this type of production in Timor-Leste. Care must be taken when collecting wild fingerlings or larvae from coastal habitats, such as mangroves, to avoid harming the sustainability of these ecosystems.

Marine aquaculture, or mariculture – such as seaweed farming – is primarily conducted in Ataúro. However, the Government could also promote the cultivation of crab and grouper to compete with products exported in the region.

In fact, domestic aquaculture production remains low in comparison to its estimated potential yields, partly due to competition from more accessible and affordable sources of protein.

It can be concluded that information on the numerous aquaculture development projects needs to be consolidated, as do national statistics on the number of households involved in aquaculture, as well as areas under production and yields.

#### **3.3.4. PORTS AND MARITIME TRANSPORT**

Maritime transport, ports, and shipbuilding currently represent around 4% of GDP. Port infrastructure is crucial, as 90% of international trade is conducted via maritime routes. Strategic investment in more efficient transport and port management systems will contribute to the import and export of goods, thereby promoting economic growth.

A new port has been built near the capital, Dili, the port of Tíbar, Liquiçá, and the development of another is planned in Suai, on the south coast, primarily to serve the oil sector. The development of national ports is essential to promote national integration and to serve the oil, tourism, and broader economic development industries. Therefore, a port system must be developed as an integral part of the country's infrastructure development, especially considering that 95% of Timor-Leste's external trade volume – most of which are imports – is managed via maritime routes, with the Port of Tíbar being the country's only international port.

By the end of December 2024, 372 vessels had docked at the port since its inauguration, generating revenues for the State of Timor-Leste. The project's concessionaire employs 200 Timorese workers and 250 temporary workers, compared to just three expatriates. The Tíbar Port also hosts various relevant government departments, including the National Maritime Authority.

In light of Timor-Leste's accession to the World Trade Organization (WTO) in 2024, and with full membership in the Association of Southeast Asian Nations (ASEAN) in October 2025, there is a national ambition to increase export products (beyond petroleum and green coffee beans), including through the growth of industrial production, such as the processing of marine products and expansion of the fisheries sector.

#### **3.3.5. PETROLEUM SECTOR**

Regarding the petroleum sector, there are several active Production Sharing Contracts (PSCs) in Timor-Leste as of March 2025, both onshore and offshore, involving various designated operators. The environmental licensing requirements have been met, particularly in relation to offshore marine areas.

#### **3.3.6. HEALTH AND BASIC SANITATION**

The Government is aware of the importance of environmental health for the promotion of the marine environment and for public health. It is essential to raise awareness of the danger of biological and toxic waste entering water systems, in particular syringes and materials contaminated with blood, antibiotics, disinfectants, and pharmaceuticals, which must be disposed of safely.

The dumping of hospital waste in open dumps near coastal areas or directly into watercourses poses a serious threat to marine and human ecosystems and promotes antimicrobial resistance (AMR), an emerging risk to global health.

Basic sanitation is essential to ensure improvements in public health and is also a pillar of the Blue Economy. Access to health and sanitation services is crucial for women, especially in rural areas, where they take on domestic and family care responsibilities. Improvements in these services contribute to women's health, well-being, and empowerment.

Basic sanitation is fundamental to improving public health and is also a pillar of the Blue Economy. It consists of four main components, all of which are currently being improved by the Government:

- Drinking water – treatment and supply of safe drinking water;
- Sewage – collection and treatment of domestic and industrial wastewater;
- Drainage – urban stormwater drainage; and
- Solid waste – cleaning, collection, and proper disposal of solid waste, including rubbish.

Currently, access to basic level water services in the country stands at 87% (98% in urban areas and 82% in rural areas). However, it should be noted that the rate of access to piped water is significantly lower. Basic sanitation coverage stands at 58% (72% in urban areas and 52% in rural areas). Budget allocations for water and sanitation have increased in recent years, as has the execution of that budget, which is essential to improving these indicators.

Drainage and water supply infrastructure projects in Dili are nearing completion. Other water supply and sanitation projects are underway in all municipal capitals. A waste discharge centre (for used oils) is currently being established in Tíbar, as well as a Liquid Waste Management Centre in the suco of Mahakidan, administrative post of Alas.

Through the Infrastructure Fund, several projects are planned and/or ongoing in this sector, including hydrographic surveys, water supply and sanitation projects, river and stream containment and rehabilitation throughout the country, as well as the sanitation and drainage master plan for Dili.

### **3.3.7. EDUCATION AND VOCATIONAL TRAINING**

Education and vocational training are fundamental for the development and sustainability of the Blue Economy. Beyond basic training in general environmental

protection and economic development in the maritime sector, there is a need to develop skills in innovative technologies and practices to diversify industries linked to the Blue Economy, such as sustainable fisheries, aquaculture, coastal tourism, and marine science.

Moreover, scientific understanding of marine ecosystems and the ability to implement sustainable management practices depends on adequate education in marine sciences, biology, environmental management, and other related fields. This also helps to raise awareness about the importance of the ocean and the environmental challenges faced by the country.

To foster the development of the Blue Economy, it is crucial to invest in education and training programs at all levels, from basic environmental science education to advanced programs in scientific research and ocean technology development. This will help prepare the next generation of Timorese to face the challenges associated with the sustainable use of ocean resources and contribute to a bluer, greener, and more resilient economy.

The Government will ensure that gender equality and social inclusion principles are embedded in all Blue Economy initiatives.

In addition, the National Centre for Employment and Vocational Training (CNEFP), through its Maritime Training Unit, established in November 2012 under German Development Cooperation in Timor-Leste, was created in response to the need to train and prepare Timorese citizens to enter and develop the national maritime industry. The centre has been providing training to current and future maritime professionals in accordance with international standards and in compliance with the recommendations and models of the International Maritime Organization (IMO).

The CNEFP, accredited by National Institute for Workforce Development (INDMO), ensures the quality of its training programs and, to date, has benefited 2,306 trainees in the development of skills and qualifications in the maritime sector between 2012 and 2025.

Since 2013, CNEFP-MTU has been offering specialised training courses tailored to the needs of public and private sectors in the maritime area, aiming to update and improve maritime and port operations (843 beneficiaries).



### 3.3.8. MARITIME SURVEILLANCE AND SECURITY

As part of the country's socioeconomic profile, it is important to highlight that maritime surveillance and security are essential components for the sustainable development of Timor-Leste's Blue Economy.

Maritime security helps protect marine and coastal resources from illegal activities and the unauthorised extraction of national resources. In addition, the surveillance and security measures in national maritime space contribute to mitigating international threats such as piracy, drug trafficking, human trafficking, and other maritime crimes. Lastly, by ensuring a safe environment, maritime security and surveillance enhance the development of trade and economic activities in the country, attracting both domestic and international investment, including environmental protection and the prevention of damage that could harm the health of the ocean and coastal areas.

In Timor-Leste, the Surveillance and Control System for Maritime and Aerial Spaces, owned by the Ministry of Defence, is a unique and innovative system that has the capacity to monitor the country's maritime and aerial space, using artificial intelligence. Although the system still lacks radar technology capable of effectively capturing all movements, and requires further development and optimisation, including a database to record all fishing and vessel movements, Timor-Leste has implemented a National Border Surveillance System.

The Timor-Leste Defense Forces (F-FDTL) are fundamental to the Blue Economy. The F-FDTL are responsible for maritime sovereignty, surveillance, security of waters under national jurisdiction, and the prevention of illegal fishing, maritime trafficking and environmental degradation. The Naval Component of the Timor-Leste Defence Force is an essential part of the Blue Economy investing in naval vessels, specialised training and infrastructure to support maritime mobility and logistics.

The F-FDTL can also play an important role in maritime education and citizenship programs, particularly with young people, through civic and patriotic training projects, ocean literacy, and involvement in coastal and island activities, strengthening the link between security, youth, and sustainable development.

Timor-Leste thus finds itself at a crucial moment in its development, where effective policies to address the challenges of sustainable development, economic diversification, and improvement of living conditions for its people – together with mechanisms for transparency and institutional strengthening – can contribute to achieving the objectives set out in the *Strategic Development Plan* ahead of schedule.

Table 12: Geographic and Socioeconomic Indicators of Timor-Leste

INDICATOR	LATEST DATA
Land Area	Approx. 15 000 km <sup>2</sup>
Coastline Length	Approx. 800 km
Exclusive Economic Zone (EEZ) (excluding future agreement with Indonesia)	Approx. 58 500 km <sup>2</sup> to the south
Territorial Sea of Timor-Leste (excluding disputed area)	Approx. 14 510 km <sup>2</sup>
Total Maritime Area of Timor-Leste (excluding disputed area)	103 800 km <sup>2</sup>
Population	1 341 737 (Census 2022)
Coastal Population	30% (MoF)
Gross Domestic Product (GDP) (USD, 2023)	2.24 billion <sup>60</sup>
GDP per Capita (USD, 2023)	1,648.6 <sup>61</sup>
Annual GDP Growth (2024)	3.7% <sup>62</sup>
Human Development Index (2023/2024)	0.566 Ranked 155 out of 193 countries <sup>63</sup>
Life Expectancy at Birth (2022)	69 <sup>64</sup>
Access to Drinking Water (2022)	87% <sup>65</sup>
Access to Basic Sanitation (2022)	58% <sup>66</sup>
National Hygiene Coverage (2022)	28% <sup>67</sup>
Acute Food Insecurity (2023/2024)	27% <sup>68</sup>
Child Stunting under 5 years (2024)	47% <sup>69</sup>
Population Employed in Agriculture (%)	70% <sup>70</sup>
Protected Terrestrial and Marine Areas (% of total surface) (2022)	5.2% <sup>71</sup>
Marine Protected Areas (% of territorial waters) (2022)	1.4% <sup>72</sup>
Ocean Health Index (OHI)	57 (below global average of 69) Timor ranks 205th out of 220 EEZs <sup>73</sup>
% of Coastline under Integrated Coastal Management	30.49% <sup>74</sup>
Share of Maritime Activities in GDP (including oil and gas)	87% <sup>75</sup>
Share of Maritime Activities in GDP (excluding oil and gas)	20% <sup>76</sup>
Contribution of Maritime Transport and Ports to GDP (2015)	4%
Contribution of Fisheries to Non-Oil GDP	2-3% <sup>77</sup>

### 3.4 HISTORICAL AND CULTURAL CHARACTERISATION

The sea is an inseparable element of the history and identity of the Timorese people. Maritime activities – whether traditional fishing, salt production, or sustainable practices linked to beaches and coral reefs – as well as ancestral rites and traditions practiced by both women and men, deeply shape Timor-Leste's culture.

This historical and pragmatic connection with marine resources contributes not only to cultural diversity but also to the economic and environmental sustainability of Timor-Leste.

According to legend, where today is the island of Timor-Leste was born from a crocodile. Because of this legend, which describes the formation of Timor-Leste as the result of a bond between nature and humans, many Timorese consider the crocodile sacred. The crocodile is often affectionately referred to as “grandfather.”

Like other countries that have experienced occupation and/or long periods of instability and conflict, Timor-Leste also developed its unique culture and identity through various historical periods, from Portuguese colonisation (1515-1975) to occupation during World War II by Australia and Japan, despite Portugal's declared neutrality (from December 1941 to 1945), and the illegal invasion and annexation by Indonesia (1975-1999).

This five-century-long experience shaped the Timorese character and nurtured a deep desire for freedom and independence. These sentiments manifested in multiple moments throughout Timor's history – from insurgencies and uprisings during colonisation to the final resistance and guerrilla movement during the illegal Indonesian occupation, which lasted about 24 years.

Beyond its advocacy for peace and reconciliation on an international scale, Timor-Leste has increasingly embraced ocean culture, recognising that understanding and preserving the ocean is fundamental to humanity.

Internationally, Timor-Leste is part of the global movement for the ocean, committing to multilateral goals and targets and seeking multisectoral and multidisciplinary partnerships for innovative and sustainable solutions for ocean health. Indeed, Timor-Leste recognises that this global challenge can only be overcome through global cooperation.

***“It's not about the UN, it's not about governments, it's not about civil society, the private sector, or the scientific community. We're all in this together.”***

*Peter Thomson, UN Special Envoy for the Ocean*

As one of the Small Island Developing States (SIDS) and Least Developed Countries (LDCs), Timor-Leste depends heavily on its maritime space and ocean resources for survival and prosperity.

Timor-Leste is particularly engaged with the Small Island Developing States (SIDS), as the countries comprising this group share the common challenge of vulnerability to environmental changes and natural disasters, geographical isolation and remoteness from global markets, as well as the well-known susceptibility – given their reliance on a limited number of sectors – to fluctuations in global markets and economic pressures.

The Blue Economy Policy aims to integrate ocean culture into all spheres of Timorese life, not only in traditional maritime areas and marine/environmental sciences, but also in education, youth, arts, and culture. This will in turn encourage the engagement of individuals from all sectors of society.

Through the campaign *Ha'u Nia Tasi, Ha'u Nia Timor* ("My Sea, My Timor"), the Government has been fostering a civic relationship with the sea and ocean, especially among the youth.

As part of this campaign, the Ministry of Education has distributed over 40,000 copies of a children's book in Portuguese and Tetum, along with colouring books, to schools nationwide. Furthermore, the themes of ocean protection and marine sustainability have been integrated into the 9<sup>th</sup> grade school curriculum in subjects such as Portuguese, Tetum, English, Natural Sciences, Physical Education, Human Fraternity, Morals and Ethics, and Arts and Culture.

The Ministry of Education has also developed interdisciplinary projects and complementary educational activities, such as recycling campaigns and marine pollution awareness, exhibitions, and cultural activities using recyclable materials, along with the creation of educational content on environmental best practices. These efforts reaffirm cultural and artistic practices aligned with marine sustainability, including musical projects dedicated to the sea and marine environmental protection, serving as a national anthem for this essential theme.

Maritime policies must consider the unique characteristics of marine space, which distinguish it from terrestrial territory – namely its interconnectivity (the links between marine ecosystems, ocean currents, fisheries, and ecosystem services) and three-dimensionality (complex underwater topography that connects all seas as part of a global ocean). This three-dimensional nature allows for multiple human activities to

coexist throughout the water column – from surface use to seabed exploitation – essential for the country’s ecology and economy.

*“The sea may now be considered one of the new strategic identity factors of vital importance, and it must be recognised as an element of national identity for a nation whose geography clearly emphasises the sea – holding within it a multitude of opportunities for national development.”*

*Donaciano Gomes in “Timor-Leste and the Challenges of the 21<sup>st</sup> Century – The Sea Project”*

### 3.5 POLITICAL AND LEGAL CHARACTERISATION

The Government’s program sets out the overarching objectives for achieving the vision of a Blue Economy. The Government’s organisational structure defines the responsibilities of each ministry in terms of governance, outlining specific areas of intervention, including the governance of the marine space and sectors connected to the development of the Blue Economy.

For the successful implementation of Blue Economy policies, it is crucial to remove barriers to progress, such as excessive bureaucracy and overlapping mandates, to ensure the creation of clear and enforceable legal frameworks, and to optimise financial and human resources. It is also essential for all government stakeholders to have a solid understanding of the concepts involved and to express a coherent and united vision of national Blue Economy goals, to attract private investment, both domestic and international.

A holistic and integrated approach to governance is required at the national level, going beyond environmental protection and conservation, and including public awareness and ocean literacy, as well as cross-sectoral coordination in areas such as education, economy, public infrastructure, private sector development and entrepreneurship, as well as maritime surveillance, security and defence. This integrated approach also helps to avoid conflicts arising from multiple or unsustainable uses of the ocean, given its simultaneous use for navigation, energy exploration, fishing, and other purposes.

Lastly, international cooperation is vital. The ocean has no visible boundaries, and thus, challenges such as marine pollution, fisheries management, climate change, and maritime security must be addressed through collaboration between States to ensure effective solutions.

### **3.5.1 GOVERNANCE FRAMEWORK**

The policy and action plan will be implemented by each government institution, in accordance with their respective responsibilities and powers. Within the scope of the Blue Economy and related areas, without prejudice to the specific organisational structure of each institution, the Prime Minister shall be responsible for leading the negotiation process with Indonesia on land and maritime borders, and for leading and coordinating the development and implementation of the Blue Economy Policy.

Reporting to the Prime Minister, the Land and Maritime Boundaries Office has the following responsibilities: i) Develop the Blue Economy Policy of Timor-Leste and its implementation strategy; ii) Coordinate all matters related to the implementation of the Blue Economy Policy of Timor-Leste; iii) Disseminate information and promote consultations and dialogues that contribute to the national effort to promote and develop the Blue Economy of Timor-Leste, with all State bodies, services and agencies, civil society and the private sector, and all national and international stakeholders, in accordance with the priorities defined by the Government.

The Ministry of Tourism and Environment, according to the Organic Law of the Government, is also responsible for supporting the implementation of the Blue Economy development strategy. However, as already mentioned, for the implementation of the Blue Economy to have an impact on people's lives, a multisectoral approach is needed, both in its definition and planning, and in its implementation, monitoring, and evaluation.

The national strategy for the Blue Economy sector should be seen as a new national cause involving all sovereign bodies, but also political parties, the country's scientific, academic and educational community, all public or private organisations, including non-governmental organisations, the media, religious and associative movements, local communities and, finally, individuals.

### **3.5.2 NATIONAL AND INTERNATIONAL LEGAL FRAMEWORK**

The Constitution of the Republic of Timor-Leste states that 'Everyone has the right to a humane, healthy and ecologically balanced living environment and the duty to protect and improve it for the benefit of future generations', while the state also recognises the need to preserve and enhance natural resources and promote actions in defence of the environment and the sustainable development of the economy (Article 61).

It also stipulates that: "The resources of the soil, the subsoil, the territorial waters, the continental shelf and the exclusive economic zone, which are essential to the economy, shall be owned by the State and shall be used in a fair and equitable manner in

accordance with national interests” (Article 139(1)). The exploitation of these resources aims at the establishment of mandatory financial reserves and must preserve the ecological balance and prevent the destruction of ecosystems (Article 139(2) and (3)).

Based on the Constitution of the Republic, the country has developed a legal framework that promotes activities related to the Blue Economy and that protects and values the maritime areas and coastal zones of the country, as well as the environmental issues associated with them. This legal framework must, however, be improved to support the definition and implementation of a national strategy for the promotion of a resilient and sustainable ocean economy in Timor-Leste.

### **3.5.3 GOVERNANCE PARTNERS**

The Government collaborates with a range of national and international partners in the preservation and conservation of coastal and marine areas, as well as in the sustainable development of Timor-Leste based on marine resources.

The mission to protect and conserve marine resources and to develop Timor-Leste's Blue Economy requires the joint effort of governments, non-governmental organisations, scientists, local communities, and the private sector. Ensuring cooperation among these entities is fundamental to guarantee the preservation of marine ecosystems and the sustainability of natural resources for present and future generations, as well as for the sustainable economic development of the Timorese people.

Also, within the framework of the Blue Economy, Timor-Leste will continue to strengthen bilateral and multilateral cooperation. Intensifying partnerships and sharing knowledge about Blue Economy challenges and opportunities with nations in the CPLP, the g7+, ASEAN, the Pacific Islands Forum, the Small Island Developing States group, the Coral Triangle Initiative, and the UN. International organisations such as the World Bank, the Asian Development Bank and the World Trade Organization, are also important for the realisation of Timor-Leste's ambition for national and global sustainable development.

## PART II

### 4. STRATEGIC FRAMEWORK FOR TIMOR-LESTE'S BLUE ECONOMY

**«The Blue Economy revolves around the wealth generated and the employment created, but also around sustainability. A thriving Blue Economy depends on the enhancement of biodiversity, renewable and geological resources, technological development and scientific innovation, as well as the expansion of maritime transport and ports, and tourism.»**

Oceano Azul Foundation (International Ocean Advocacy)

The Blue Economy encompasses all aquatic spaces, including ocean, seas, coasts, lakes, rivers and groundwater, bearing in mind that most ocean problems originate on land, namely through marine litter (including plastic); pollution from industrial and domestic effluents and agricultural waste, and the growth of coastal urban areas. This adds pressure on the ocean, which is also affected by the challenges of overfishing, illegal, unreported and unregulated fishing, water warming, acidification, eutrophication and deoxygenation of the ocean, with the consequent loss of marine biodiversity and degradation of marine and coastal ecosystems.

Economic growth cannot be achieved and sustained on a planet in ecological crisis. Society cannot divorce itself from nature and its understanding. In this sense, there is a need for a more global, holistic and cross-cutting vision that contributes to a “scientific revolution” of integration, provided by ecology.<sup>78</sup>

The reports of the Intergovernmental Panel on Climate Change (IPCC) describe the negative impacts and warn of the need for society and public authorities to adapt to a changing climate. The warnings from the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) have also highlighted the role of humans as landscape modellers and species managers in ecosystems, as well as being responsible for the environmental and social problems we face globally today.<sup>79</sup>

Humans are responsible for the negative impact on ecosystems and biodiversity on the planet, which places us in a potential new geological era, the Anthropocene (a term proposed to describe the current geological era, characterised by the significant impact that human activities have on the Earth's climate and ecosystems).

The Policy and Action Plan for the Promotion of a Resilient and Sustainable Blue Economy in Timor-Leste aims to contribute to positive change to achieve quantitative and tangible results (outputs) and qualitative results, namely in changing behaviours (outcomes), by bringing people and society in general together around its implementation.



Based on the Blue Economy concept adopted for Timor-Leste, the Government has defined a **vision**, an objective and a mission.

The Government of Timor-Leste thus shares the **vision** that:

*Investing in the growth of coastal, marine, and maritime sectors ensures the sustainable and inclusive development of all Timorese, while promoting a healthy ocean based on scientific knowledge.*

And if this is Timor-Leste's vision, the accompanying motto is: **Timor is TASI**—Timor, Azul, Sustentável e Inovador (Timor, Blue, Sustainable and Innovative).

The main **objective** of the Policy and Action Plan for the Promotion of a Resilient and Sustainable Ocean Economy in Timor-Leste is:

*To define and implement strategic and integrated policies and initiatives, utilising scientific and community knowledge, that transform the maritime and coastal area under Timorese jurisdiction into a source of economic, social, and environmental development opportunities – sustainable and inclusive.*

This objective is even more pertinent considering that, in addition to the existing challenges faced by the country as a Least Developed Country (LDC) and a Small Island Developing State (SIDS), Timor-Leste confronts the escalating challenges of climate change.

Therefore, the Government of Timor-Leste assumes the **mission** to:

*Promote the knowledge, protection, conservation, and sustainable use of marine and coastal natural resources at both national and international levels, to ensure the dual goals of climate change resilience and the economic, social, and environmental development of current and future generations.*

Table 13: Strategic Framework for the Blue Economy of Timor-Leste

<b>Vision</b>	Investing in the growth of coastal, marine, and maritime sectors ensures the sustainable and inclusive development of all Timorese
<b>Objective</b>	To define and implement strategic and integrated policies and initiatives, utilising scientific and community knowledge, that transform the maritime and coastal area under Timorese jurisdiction into a source of economic, social, and environmental development opportunities – sustainable and inclusive

<b>Mission</b>	To promote the knowledge, protection, conservation, and sustainable use of marine and coastal natural resources at both national and international levels, to ensure the dual goals of climate change resilience and the economic, social, and environmental development of current and future generations
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## 5. AXES, PILLARS, AND STRATEGIC OBJECTIVES OF THE BLUE ECONOMY

*«The urgent challenge to protect our common home includes a concern to bring the whole human family together to seek a sustainable and integral development, for we know that things can change.»*

Pope Francis (Encyclical Letter *Laudato Si'*, 2015)

This implementation strategy for the Policy and Action Plan for the Promotion of a Resilient and Sustainable Ocean Economy in Timor-Leste is structured around four main axes of action that support the overall vision, each underpinned by guiding pillars and specific objectives.

### AXIS 1: RESEARCH, EDUCATION, AND COMMUNICATION (KNOWING THE SEA)

#### Pillar 1: Marine Scientific Research

- Legal Framework for International Marine Scientific Research
- Survey and Study of Timor-Leste's Marine Biodiversity

#### Pillar 2: Education, Training, and Strategic Communication

- Education and Vocational Training
- Marine Research and Education Centres
- Marine and Underwater Cultural Heritage
- Strategic Communication and Ocean Literacy

### AXIS 2: PRESERVATION AND CONSERVATION OF MARINE BIODIVERSITY (RESPECTING THE SEA)

#### Pillar 3: Marine and Coastal Management and Protection

5. Maritime Spatial Planning and Management
6. Marine Protected Areas
7. Transboundary Cooperation
8. Strengthening Environmental Impact Assessment Regimes

#### **Pillar 4: Marine Biodiversity Conservation**

- Coral Reefs
- Mangroves
- Algae and Seagrasses
- Cetaceans, Sea Turtles, Sharks, Dugongs, and Other Marine Species

#### **Pillar 5: Combating Marine Pollution and Waste Management**

#### **Pillar 6: Carbon Sequestration**

### **AXIS 3: SUSTAINABLE USE (LIVING WITH THE SEA)**

#### **Pillar 7: Blue Tourism**

- Coastal Tourism
- Maritime or Nautical Tourism
- Nature-Based Tourism

#### **Pillar 8: Exploration of Living Resources**

- Fisheries and Aquaculture
- Marine Biotechnology

#### **Pillar 9: Exploration of Non-Living Resources and Energy Production**

- Hydrocarbon Production
- Renewable Energy
- Salt Production
- Mining
- Desalination

#### **Pillar 10: Maritime Transport, Port and Logistics Development**

- Infrastructure
- Port and Logistics Development
- Maritime Transport and Navigation
- Shipbuilding and Ship Repair

#### **Pillar 11: Maritime Security**

- Capacity Building, Surveillance, and Enforcement

- Monitoring and International Cooperation

#### **AXIS 4: SUPPORTING THE IMPLEMENTATION OF THE BLUE ECONOMY (CROSS-CUTTING MEASURES)**

**Pillar 12: Water and Basic Sanitation**

**Pillar 13: Management and Conservation of Wetlands and Transition Zones**

**Pillar 14: Rural Development, Trade and Industry**

**Pillar 15: Ocean Satellite Account**

**Pillar 16: Planning, Financing and Monitoring Instruments**

### **5.1. AXIS 1: RESEARCH, EDUCATION, AND COMMUNICATION (KNOWING THE SEA)**

*«Education can, and must, contribute to a new vision of sustainable global development.»*  
UNESCO

To protect, conserve, and promote the marine and coastal environment, it is necessary to understand the natural capital and the importance of ecosystem services in fostering economic development that uses natural resources sustainably.

The balance between sustainable economic development and the ocean's resilience to support different human activities is the very definition of the Blue Economy. In this sense, only through sound science will it be possible to better understand the sea (Tasi) adjacent to the national territory—the national maritime space. Only by knowing the ocean, which belongs to all of us, can we make informed decisions that lead to effective public policies.

Furthermore, to contribute to sustainable development, it is essential to educate children and young people about the ocean's importance and its relevance to planetary health and balance. It is crucial that children and youth — and all citizens — have access to the knowledge, skills, and values that promote respect for nature, particularly the marine environment.

Creating a blue generation requires not only the integration of these topics into school and academic curricula, but also the promotion of training initiatives for teachers (with adequate educational resources and materials) to build knowledge, critical thinking, and ultimately shift behaviours.

Finally, communicating knowledge and deepening ocean literacy will allow Timorese people to reconnect with the sea and explore the full range of opportunities it offers — both upstream and downstream — not only in terms of income generation and employment, but also in the sustainable use of marine resources.

Communication about the Blue Economy will foster greater national understanding, cooperation, and management of existing marine resources, so that they may be safeguarded for future generations.

#### **5.1.1. Pillar 1: Marine Scientific Research**

***«Knowing more about the ocean and the life it supports is fundamental to our survival and the health of the planet. The ocean is our life-support system.»***

Sylvia Earle

According to the OECD, “science has been, and will continue to be, a powerful driver of economic development in the seas and oceans”.<sup>80</sup> In this regard, promoting the sustainable development of the ocean economy requires a clear understanding of the state of the ocean — both now and in the future.

UNCLOS enshrines the right of all States and competent international organisations to conduct marine scientific research. One of UNCLOS’s key objectives is to promote international cooperation in marine research — among States, between States and international organisations, and among international organisations.

In this context, it is essential to strengthen Timor-Leste’s national scientific and technological capacities and stimulate the development of new areas of action that enhance ocean knowledge.

The Government will therefore work to build national capacity to research, understand, and protect the marine environment. This will be done particularly through international cooperation, whether with States or with international organisations.

To this end, the Government will invest in generating knowledge about its marine territory by supporting scientific research projects grounded in robust science, led by multidisciplinary teams and supported by appropriate technology. These efforts will guide decision-making on the sustainable use of marine resources—including fisheries—and improve understanding and conservation of the country’s unique biodiversity.

Marine scientific research will also support risk assessments related to climate change and help identify strategies to mitigate this pressing threat.

Given the institutional weaknesses in this area, Timor-Leste will continue to rely on international cooperation to achieve its goals, drawing on the experience and expertise of international partners — including universities, agencies, NGOs, and the private sector.

The Government recognises the need to develop and adopt a legal framework to guide and regulate international scientific research in the marine environment, aiming to strike a balance between scientific exploration and environmental protection, while safeguarding Timor-Leste's sovereign rights.

Accordingly, the Government will establish the legal framework required to regulate the authorisation process for marine scientific research activities conducted by foreign States or international organisations within Timor-Leste's maritime space. This framework will comply with Timor-Leste's international commitments and will be distinct from the legal regime governing the National Maritime Space Planning and Management.

#### **5.1.1.1. Legal Framework for International Marine Scientific Research**

*«Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries.»*

Sustainable Development Goal 14.a

UNCLOS, to which Timor-Leste is a State Party, establishes in Article 238 the right of all States and competent international organisations to conduct marine scientific research. It also explicitly states in Articles 239 and 242 that States and competent international organisations must promote and facilitate the development and conduct of marine scientific research, as well as international cooperation in marine scientific research for peaceful purposes.

In addition, the Agreement under UNCLOS on the Conservation and Sustainable Use of Marine Biological Diversity of Areas Beyond National Jurisdiction (BBNJ Agreement) — for which Timor-Leste deposited its instrument of ratification with the United Nations on 26 September 2024 — strengthens Timor-Leste's commitment to marine biodiversity protection. The Agreement provides that States must promote international cooperation in the field of marine scientific research, scientific capacity-building, and the development and transfer of marine technology, in line with UNCLOS and in support of the objectives of the BBNJ Agreement.

In accordance with Articles 2 and 3 of the BBNJ Agreement, its objective is to ensure the conservation and sustainable use of marine biodiversity in areas beyond national jurisdiction, now and in the long term, through the effective implementation of relevant provisions of UNCLOS and through enhanced international cooperation and coordination.

Notably, Article 12(1) of the BBNJ Agreement — concerning the notification of activities related to marine genetic resources in areas beyond national jurisdiction and associated digital sequence information — requires States to take necessary legislative, administrative, or policy measures to ensure that such information is reported to the Clearing-House Mechanism, as provided in the Agreement.

Furthermore, the Programme of the Ninth Constitutional Government of Timor-Leste identifies the fulfilment of the United Nations 2030 Agenda for Sustainable Development as one of its top priorities. This includes Sustainable Development Goal 14: “Conserve and sustainably use the oceans, seas and marine resources for sustainable development,” which calls for increased i) scientific knowledge, ii) research capacity, and iii) marine technology transfer to improve ocean health and enhance the contribution of marine biodiversity to the development of developing countries — particularly small island developing States and least developed countries, such as Timor-Leste.

The Government Programme also reinforces the need for internal coordination to promote the growth of Timor-Leste’s Blue Economy, including the development of a broad range of activities such as marine scientific research.

In addition, Decree-Law No. 6/2020 of 6 February, which establishes the legal regime for biodiversity protection and conservation, stipulates that marine scientific research is subject to specific legislation.

Accordingly, the Government will begin by implementing its international commitments under the United Nations framework and by pursuing the national goal of strengthening cooperation and enhancing Timor-Leste’s scientific and technological capacity.

**Strategic Objectives:**

- Contribute to achieving United Nations Sustainable Development Goal 14.
- Stimulate the development of new areas of action that promote ocean knowledge in Timor-Leste and the training of Timorese scientific personnel, especially young researchers, by fostering international cooperation and knowledge exchange about the ocean — particularly concerning Timor-Leste’s maritime space, which, due to its size, natural resources, and marine biodiversity, constitutes a unique natural laboratory of global significance.
- Promote ocean knowledge to combat the loss and degradation of ocean biodiversity caused especially by the impacts of climate change on marine ecosystems — such as ocean warming and deoxygenation, acidification, pollution (including plastics) and unsustainable use.

- Regulate the authorisation process for marine scientific research activities carried out by foreign States or international organisations within Timor-Leste's maritime space, taking into account international recommendations and best practices for marine scientific research, while safeguarding Timor-Leste's sovereign rights and jurisdiction.

#### **Measures and Actions:**

- Draft and submit for approval the Legal Framework for Marine Scientific Research applicable to research activities carried out within the national maritime space at the request of foreign States or international organisations, with the aim of advancing ocean knowledge in Timor-Leste.
- Promote the training of Timorese scientific personnel — especially young researchers — by fostering cooperation and international knowledge exchange related to the ocean, and particularly to Timor-Leste's maritime space.
- Define administrative procedures to facilitate the implementation of the Legal Framework for International Marine Scientific Research.

#### **5.1.1.2. Survey and Study of Timor-Leste's Marine Biodiversity**

*«Challenge 2: Protect and restore ecosystems and biodiversity: Understand the effects of multiple stressors on ocean ecosystems, and develop solutions to monitor, protect, manage, and restore ecosystems and their biodiversity under changing environmental, social, and climate conditions.»*  
Ocean Decade 2030

In Timor-Leste, scientific research and studies in coastal and marine areas have been conducted by international nature conservation organisations, in collaboration with the Timorese Government and local NGOs. Noteworthy among these — though not exhaustively — are the following studies and reports:

- The Timor-Leste Coastal/Marine Habitats Mapping for Tourism and Fisheries Development Project, 2009.<sup>81</sup>
- *National Ecological Gap Assessment for Timor-Leste 2010.*<sup>82</sup>
- *Marine Megafauna Surveys in Timor Leste: Identifying Opportunities for Potential Ecotourism*, 2012.<sup>83</sup>
- *A Rapid Marine Biological Assessment of Timor-Leste 2013.*<sup>84</sup>
- *Compilation of the Relevant Scientific information submitted by parties to CBD, 2015 (Timor-Leste, p.65-76).*<sup>85</sup>



- *Interdisciplinary baseline ecosystem assessment surveys to inform ecosystem-based management planning in Timor-Leste: Final Report, 2017.*<sup>86</sup>
- *Marine Rapid Assessment of the Ataúro Island and Liquiçá District of Timor-Leste* (CTC-MAP, 2017, unpublished).
- National Coastal Vulnerability Assessment and Designing of Integrated Coastal Management and Adaptation Strategic Plan for Timor-Leste.<sup>87</sup>
- National State of Oceans and Coasts 2018: Blue Economy Growth of Timor-Leste.<sup>88</sup>
- *Status of Marine Information for Conservation Management in Timor-Leste, 2018.*<sup>89</sup>

These reports provide baseline information on fisheries and marine resources for ecosystem-based management of Timor-Leste's coastal waters, as well as surveys on marine biodiversity. These studies have informed management decisions and contributed to evaluating the effectiveness of actions undertaken for the sustainable management of coastal fisheries and the long-term benefits for the people of Timor-Leste (food security, sustaining ocean-based livelihoods, and ensuring coastal protection).

Moreover, most of the reports produced on Timor-Leste in this area conclude that the waters surrounding Timor-Leste support high fish diversity and areas of high localised coral cover. However, they also identify areas of concern that require continuous monitoring of potential impacts from ocean acidification, which leads to reduced coral growth and survival in the region.

They also provide recommendations and best practices, particularly regarding the use of data as a baseline for long-term monitoring of the status and trends of Timor-Leste's habitats, marine resources, and biodiversity, as well as the implementation of area-based management tools for the use of Timor-Leste's coastal habitats and ecosystem resources.

In light of these reports and other important findings — and taking into account the existing knowledge gap regarding Timor-Leste's marine biodiversity and the general lack of capacity and resources — it is evident that Timor-Leste must strengthen its internal capabilities. In fact, Timor-Leste plays a key role in conserving marine biodiversity within the Coral Triangle, particularly concerning the country's own maritime area.

Therefore, for Timor-Leste to adequately protect, manage, and restore the marine biodiversity within its national maritime space, it is necessary to carry out a comprehensive survey and study of existing marine biodiversity, to ensure that decision-making and legislative processes are based on sound scientific knowledge — without which good ocean governance is not possible.

In connection with these issues, the Government will also seek to develop a meteorology and geophysics system to support biodiversity assessment and climate change impact needs in the country, recognising that such systems are fundamental to cross-cutting areas within the Blue Economy, particularly maritime navigation, agriculture, livestock, tourism, and other public services.

It is within this context, and with the understanding that the ocean is a vast interconnected marine ecosystem, that Timor-Leste seeks to promote international and multidisciplinary research based on global and regional scientific partnerships.

**Strategic Objectives:**

- Conduct the first comprehensive survey and study of Timor-Leste's marine biodiversity.
- Establish a system of international scientific and technological partnerships to carry out the first comprehensive survey and study of Timor-Leste's marine biodiversity.
- Build a framework for scientific and technological collaboration and exchange, working towards the adoption and implementation of sound ocean governance policies and measures within Timor-Leste's maritime space.
- Conduct studies to assess the feasibility of establishing a meteorology and geophysics laboratory, including institutional and human capacity-building needs, through international partnerships and cooperation.
- Encourage research projects within Timor-Leste's maritime domain and the Coral Triangle, addressing global, regional, and national challenges and threats.
- Support early-career researchers and promote the development of scientific knowledge in Timor-Leste by integrating traditional and local knowledge into the research process.
- Facilitate scientific and technological exchange through international cooperation and researcher mobility.
- Ensure the participation of young people, women and people with disabilities in scientific research and national and international exchange activities.
- Conduct studies and research that benefit the situation of women in the Blue Economy and have a direct impact on the future of the population in an inclusive manner.

- Create conditions to ensure that the Marine Biodiversity Survey and Study mechanism of Timor-Leste is continuously updated, including a monitoring and evaluation system that can effectively measure the conservation status of marine biodiversity in the national maritime area.
- Invest in the mechanism for surveying and studying Timor-Leste's marine biodiversity with the long-term goal of becoming a Centre of Excellence for the Blue Economy, as a hub for innovation, training and consulting for the sector.

#### **Measures and Actions:**

- Plan and establish, with relevant stakeholders, the mechanism for the first comprehensive Marine Biodiversity Survey and Study of Timor-Leste.
- Identify research gaps in existing reports and develop a database of specialised literature on Timor-Leste's biodiversity, ensuring its continuous update.
- Design the scientific marine research program and schedule with short-, medium-, and long-term objectives, including the selection of indicators to achieve a reliable system for monitoring and reviewing marine biodiversity, allowing for proper data assessment and reporting on its status.
- Establish an international network of multidisciplinary, regional, and international scientific partners, based in Timor-Leste and led by a Timorese institution with recognised research and scientific competence, which will form the basis of a centre of excellence for the national Blue Economy.
- Identify and collaborate in seeking funding opportunities to support the establishment and development of the Marine Biodiversity Survey and Study of Timor-Leste, along with associated projects.
- Conduct feasibility studies for the creation of a national meteorology and geophysics system.
- Develop international cooperation and strategic partnerships and/or investment plans for institutional, technological, and human resource capacity-building to ensure the regular and reliable production of meteorological and geophysical data, for relevant institutions and, in due course, for the general public.
- Promote innovation, training and consulting in the Blue Economy sector through concrete support.
- Allocate resources to research and development projects in identified priority areas, with a view to knowledge management and the application of innovative solutions to national challenges in the sector.
- Strengthen Timor-Leste's participation in regional and international initiatives related to the Blue Economy, such as ASEAN, the Coral Triangle Initiative, the CPLP and other cooperation platforms, where common challenges and opportunities can be addressed.

### **5.1.2. Pillar 2: Education, Training, and Strategic Communication**

**«Raising children with an awareness of the importance of contributing to ocean conservation—which is now seriously affected by the negative impacts of exploitation and climate change—is crucial if it is to remain the planet’s primary life support system.»**

Oceano Azul Foundation

Education, vocational training, and strategic communication are essential pillars for the development of the Blue Economy. These three components not only enable the empowerment of individuals and communities but also raise awareness among key national stakeholders about the need for an integrated and sustainable approach to the use of ocean resources.

Investing in people by equipping them with the right tools to take charge of their own development is an investment in achieving the goals of the Blue Economy and, in turn, in driving economic growth that respects nature and promotes broad participation and social equity.

The Blue Economy will also open new pathways for employment, including self-employment, leading to improved living standards, poverty reduction, and — most importantly — social development.

#### **5.1.2.1. Education and Vocational Training**

**«Education and vocational training are indeed a means to achieve a more sustainable future, as they provide the foundation for development that respects the planet’s limits and promotes social justice.»**

UMCLA, Universidade Aberta

The Government will develop programs that teach about marine biodiversity and its conservation needs. This goal can be achieved through both formal and informal education, including the facilitation of specific skills and qualifications through vocational training in areas of the Blue Economy — ranging from marine biology and water resource management, to fisheries and aquaculture, sustainable tourism, and renewable energy technologies, among others.

Accordingly, the Government will develop a National Ocean Literacy Programme, whose core objectives include promoting Timor-Leste’s maritime identity in all its dimensions — from social and natural sciences to the promotion of tourism activities and water sports, all of which are essential components of the maritime tourism sector.

This approach goes beyond educating or informing the public or stakeholders in marine and maritime sectors about the ocean’s importance. It aims to foster an inclusive approach that engages society as a whole to promote sustainable actions for the

protection and use of the sea and ocean. To this end, integrating ocean literacy into school curricula is fundamental so that students can understand the ocean's importance, its physical, chemical, and geological features, as well as human interactions with it.<sup>90</sup>

The Government will also develop the Blue Economy Youth Ambassadors Programme, supporting knowledge and capacity-building among emerging young leaders in this field. This program aims to establish a platform enabling young people to contribute to sustainable development and to drive meaningful change in Timor-Leste and globally, through increased participation in the formulation and implementation of public policies that foster innovation and a balance between economic opportunities and ecological stewardship.

Investing in children and youth is a strategic investment in Timor-Leste's sustainable future. By empowering young professionals, the country is cultivating a generation capable of advancing science-based solutions, promoting the responsible use of resources, and inspiring broader community engagement in Blue Economy initiatives.

To ensure the development of the Blue Economy, the Government will make a significant effort to develop professionals in the various blue growth sectors, providing Timor-Leste with a cadre of qualified human resources capable of supporting this strategic development policy.

In this regard, and also as a way of overcoming one of the main obstacles to national development, the Government is committed to developing an integrated and multifaceted plan for the qualification of professionals in the maritime sector, in all municipalities of the country and in all cross-cutting areas, aware that this is a medium to long-term ambition that requires considerable strategic investment.

From a non-exhaustive point of view, the following areas of specialisation are considered critical for the training of the new Blue Economy Professional Framework:

#### **1. Sustainable Aquaculture and Mariculture:**

- Focus: Techniques for the environmentally responsible and economically viable farming of marine and freshwater species (fish, shellfish, algae).
- Sub-areas: Marine biotechnology applied to aquaculture, aquaculture systems engineering, aquatic organism health and nutrition, aquatic farm management.
- Relevance to Timor-Leste: Increased food production, economic diversification, reduced pressure on wild fisheries.

## **2. Coastal and Marine Resource Management (CMRM):**

- Focus: planning, management and conservation of coastal and marine ecosystems, including fishery resources, protected areas and coastal development zones.
- Sub-areas: marine ecology, oceanography, law of the sea, marine spatial planning, environmental impact assessment, fisheries management, sustainable coastal tourism.
- Relevance to Timor-Leste: biodiversity protection, climate change adaptation, sustainable use of fisheries and tourism resources.

## **3. Marine Renewable Energy:**

- Focus: development and implementation of technologies for energy generation from the oceans (waves, tides, currents, ocean thermal gradients).
- Sub-areas: ocean engineering, renewable energy, marine energy resource assessment, environmental impact of ocean infrastructure.
- Relevance to Timor-Leste: reduction of dependence on fossil fuels, energy security, development of new industries.

## **4. Blue Biotechnology and Bioprospecting:**

- Focus: research and development of products and processes from marine organisms for applications in various industries (pharmaceutical, cosmetics, food, energy).
- Sub-areas: marine molecular biology, marine microbiology, marine natural product chemistry, marine pharmacology.
- Relevance to Timor-Leste: discovery of new compounds and high value-added products from the rich marine biodiversity.

## **5. Logistics and Value Chain of the Blue Economy:**

- Focus: optimisation of production, processing, transport and marketing processes for marine-related products and services.
- Sub-areas: supply chain management, port logistics, processing and conservation of marine products, marketing of marine products.
- Relevance to Timor-Leste: improving the efficiency and competitiveness of the fisheries and aquaculture sectors, adding value to local products.

## **Strategic Objectives:**

- Develop and implement the National Ocean Literacy Programme.

- Ensure that the national core curriculum for lower and upper secondary education includes content that promotes ocean literacy and climate resilience.
- For pre-school, and the first and second cycles of basic education, given that curriculum revisions are not feasible in the short or medium term, prepare teaching materials and supplementary content to be distributed to schools and teachers, promoting ocean literacy and climate resilience.
- Develop school projects during the academic year through an integrated approach combining teacher training and student education, delivered through supplementary materials.
- Develop higher education programs and postgraduate courses in the fields of marine sciences and the Blue Economy.
- Promote links between education and research by building national knowledge and capacity and investing in innovation in technologies and practices essential to the exploration and conservation of marine resources.
- Strengthen alignment with the UN Decade of Ocean Science for Sustainable Development 2021–2030, contributing to the achievement of SDG 14 and the commitments made at the UN Conferences of the Parties on Oceans, Climate, and Biodiversity.
- Ensure skilled human resources and trained labour in Blue Economy-related industries, through sustainable practices — including fisheries and aquaculture, maritime transport, tourism, renewable energy, and waste management, especially in coastal and wetland areas.
- Build the capacity of other Government stakeholders in promoting the country's Blue Economy, namely public administration agents, the private sector, and civil society.
- Train a new generation of professionals to drive the sustainable development of the Blue Economy over the next 5 to 10 years, focusing on areas of expertise crucial to the growth and sustainable management of marine resources.
- Strengthen the capacities of the National Vocational Training Centre—Becora, I.P. and the National Employment and Vocational Training Centre, I.P., and create opportunities for training and professional internships in Timor-Leste and abroad.
- Promote the skills and qualifications of Timor-Leste's future leaders through the Blue Economy Youth Ambassadors Programme, including national scientists, diving professionals, conservationists, and a technical workforce across the public and private sectors.

#### **Measures and Actions:**

- Design and implement the National Ocean Literacy Programme.
- Educate for blue literacy through the development and revision of lower and upper secondary curricula.

- Develop supplementary teaching materials for pre-school, and the first and second cycles of basic education.
- Prepare didactic materials for teachers and deliver “blue curriculum” training-of-trainers programs.
- Promote the introduction of content on the ocean and sustainable marine development into the curricula of higher education institutions, particularly in natural sciences, engineering, economics, law and education.
- Develop curricula and study programs in collaboration with universities and technical education institutions in Timor-Leste to develop and adapt undergraduate and postgraduate programs in the identified areas of specialisation.
- Create higher education programs (bachelor's, master's and doctoral degrees) in strategic areas of the Blue Economy.
- Introduce research projects in higher education and establish partnerships with renowned international universities and research centres to promote knowledge exchange, course development and teacher training.
- Promote research centres and laboratories in higher education, in coordination with the mechanism created for the Survey and Study of Marine Biodiversity in Timor-Leste.
- Develop a Human Resources Development Plan for the Blue Economy of Timor-Leste (medium and long term). This Plan will give priority to sectors that contribute to food production, economic diversification, biodiversity protection, climate change adaptation, energy security and renewable energy, and the sustainable use of fisheries and tourism resources.
- Develop vocational training activities, building the capacity of relevant national entities for the administration and management of Timor-Leste's Blue Economy.
- Create and/or invest in existing vocational and technical training centres specialising in the Blue Economy, offering short and medium-term courses for fishers, aquaculture farmers and workers in the sector, as a short/medium-term response.
- Implement ‘train the trainers’ programs to train local instructors in priority areas.
- Launch scholarship programs for Timorese students to study priority areas at national and foreign universities (create special programs to identify potential candidates or the best students from all municipalities for the creation of human resources at the territorial level).
- Encourage exchange programs with international institutions so that students and professionals from Timor-Leste can gain practical experience and advanced knowledge.
- Foster collaboration between the government, academia and the private sector to identify labour needs and develop internship and apprenticeship programs.



- Encourage companies linked to the Blue Economy to invest in the training and qualification of their employees.
- In addition to training professionals typically employed in the sector, also train professionals in public health, microbiology, infectious diseases and epidemiology to ensure that there are specialised technical staff available to manage medical and drug emergencies and to monitor diseases related to contact with or proximity to marine resources.
- Conduct training activities under the Blue Economy Leadership Programme for specific target groups.

#### 5.1.2.2. Marine Research and Education Centres

*«Marine Research and Education Centres will tell the story of Timor-Leste's rich marine biodiversity and the responsibility each of us has to conserve it for future generations.»*

Kay Rala Xanana Gusmão

The Government will establish and promote a network of Marine Research and Education Centres dedicated to the study, research, and promotion of knowledge about marine and coastal ecosystems. These centres, in addition to supporting studies on marine biodiversity, ecology, and climate change, will serve to educate and empower diverse audiences — with a priority on youth and communities — about the country's natural wealth and the related needs for environmental conservation.

The centres will operate as a network in close collaboration between the Government, public administration, universities and research institutions, local communities and non-governmental organisations.

Timor-Leste's extensive and diverse marine biodiversity is expected to attract scientists, researchers, academics, students, and conservationists from around the world who wish to gain a better understanding of the country's ocean resources, and their global significance and contribution to biodiversity.

The Marine Research and Education Centres will complement the development and implementation of the National Ocean Literacy Programme and the Survey and Study of Marine Biodiversity of Timor-Leste. They will also contribute to decentralising government policies and measures and incorporating local knowledge and community practices into Blue Economy processes.

The Marine Research and Education Centres, strategically located near terrestrial and marine protected areas, may also serve as monitoring hubs for marine species — including cetaceans and dugongs — as well as other important migratory species.

The aim is to combine educational and public awareness actions with the establishment of marine science study centres and laboratories for research, knowledge, and conservation.

Priority will be given to the establishment of the first centre on Ataúro Island, to raise national and international awareness of the urgent threat of decline or even extinction of endangered marine species, including ecosystems and habitats such as coral reefs and mangrove zones on Ataúro.

#### **Strategic Objectives:**

- Promote knowledge and prevent the collapse of marine biodiversity, pollution, and degradation of the marine environment.
- Provide the necessary conditions to host “marine research laboratories” for conducting biodiversity studies.
- Promote and support the work of researchers, academics, and students.
- Support the sustainable development of local communities.
- Promote sustainable tourism and the expansion of community-based maritime spaces, including recreational activities such as snorkelling and diving.
- Develop content within the framework of the National Ocean Literacy Programme with local involvement and adapted to local contexts.
- Support the creation of marine protected areas and the development and monitoring of their management plans.
- Support maritime sovereignty, the sovereign rights and jurisdiction of Timor-Leste, including through coordinated government and local community actions for the surveillance and security of maritime areas.

#### **Measures and Actions:**

- Establish the first Marine Research and Education Centre on Ataúro Island, determining its specific location, concept, and design, including its financing plan.
- Identify other areas of interest for establishing Marine Research and Education Centres, with priority given to national protected areas.
- Establish national and international partnerships, including international cooperation projects, for the planning and financing of the Marine Research and Education Centres, with the involvement of relevant government agencies, including entities responsible for the National Ocean Literacy Programme and the Survey and Study of Marine Biodiversity of Timor-Leste.

- Conduct informational and training sessions across all municipalities with various stakeholders in Timor-Leste, including government officials, civil society organisations, students and youth, and coastal communities.
- Support UNTL to create an advanced teacher training program with international universities, with an emphasis on applied research into marine sustainability and climate change, liaising with Marine Research and Education Centres, as advanced laboratories close to the core of studies, and contributing to the Survey and Study of Biodiversity in Timor-Leste, the future Centre of Excellence in Blue Economy.

### 5.1.2.3. Marine and Underwater Cultural Heritage

*«Marine cultural heritage is not only a testimony to the history of humanity, but also a vital resource for education and the preservation of cultural traditions.»*

Gregory W. McIntosh

Timor-Leste possesses a rich cultural heritage, including its creation myth that tells the story of a friendship between a young boy and an old crocodile, which transformed into the island of Timor so that the boy and his descendants could live and benefit from abundant land and marine resources.

Validating existing cultural knowledge and practices in the development of the Blue Economy in Timor-Leste will ensure that development initiatives are rooted in the values and aspirations of the people.

Timor-Leste's coastal and fishing communities possess valuable knowledge and skills passed down through generations. This is evident during low tide along the coastline, where rock formations create pools that trap fish and other crustaceans, which are then used for local consumption or small-scale sale. This is an example of how Timorese people interact with their marine ecosystems.

Cultural values and beliefs can be applied in today's context to intersect with environmental conservation practices. This would allow prevailing attitudes to be reshaped, which can lead to better natural resource management and improved biodiversity conservation outcomes in Timor-Leste.

The Government will therefore establish a Museum of the Sea in Dili, in the former Port of Dili, dedicated to exhibiting and interpreting themes related to the sea and ocean. This museum will be created in coordination with the Marine Research and Education Centres, to represent various parts of the country, and will include the following topics:

- The maritime history of Timor-Leste, including the arrival of the first inhabitants of the island from the Asia-Pacific region, the construction of traditional boats, traditional marine resource exploitation, and all cultural areas associated with the sea, including dance, song, gastronomy, and art.
- The marine ecology of Timor-Leste, including permanent and temporary exhibitions on biodiversity.
- Local communities most dependent on the sea and water resources, including coastal communities as well as those living near river basins and hydrographic resources (streams, lagoons, waterfalls, and other wetlands), showcasing their ways of life and traditions.
- Educational and social activity spaces, including interactive and social engagement activities for visitors of all ages, both national and international.

While Timor-Leste is not a State Party to the Convention on the Protection of the Underwater Cultural Heritage — which defines “underwater cultural heritage” as “all traces of human existence having a cultural, historical or archaeological character which have been partially or totally, periodically or continuously, submerged for at least 100 years” — it does have domestic legal provisions applicable to national cultural heritage through Decree-Law No. 33/2017 of 6 September. These provisions aim to ensure the legal protection, preservation, safeguarding, and enhancement of Timorese cultural heritage.

According to Decree-Law No. 33/2017, “underwater archaeological heritage” refers to “movable or immovable remains and surrounding areas that attest to human life, located entirely or partly in underwater environments, obtained through scientific archaeological research or isolated finds, which constitute testimony with civilisational or cultural value and of relevant cultural interest.”

The same decree-law also states that “underwater archaeological heritage, consisting of all movable or immovable property and surrounding areas, located fully or partially in underwater environments and recovered within Timor-Leste’s jurisdiction, is the property of the Timorese State,” and that its management shall be defined in specific legislation.

The protection, management, study, and promotion of underwater cultural heritage is an essential component of the development of the Blue Economy in Timor-Leste and must therefore be addressed from the outset.

To this end, and with a view to the proper organisation of maritime space as a whole, the Government will promote coordination between legal frameworks, ensuring compatibility between the preservation and management of underwater archaeological heritage and the planning and management of maritime space, as well as with other aspects that require harmonisation, such as the protection and preservation of the marine environment.

The Museum of the Sea and the Marine Research and Education Centres will serve as repositories and training hubs for underwater archaeology and preservation techniques of underwater cultural heritage, stimulating international cooperation, including the identification of heritage sites located in the maritime space, inland waters, or other water resources.

#### **Strategic Objectives:**

- Provide a space for the exhibition, education, and entertainment focused on objects and artefacts related to the sea, aimed at safeguarding cultural heritage and strengthening national maritime identity.
- Raise awareness of environmental issues and promote the conservation of the ocean, inland waters, and other water resources.
- Promote and safeguard the history and traditions of Timorese communities.
- Promote the development of underwater archaeology and the underwater cultural heritage in the country.
- Collect and preserve remains, movable or immovable property, and surrounding areas that attest to human life, located entirely or partly in underwater environments, obtained through scientific archaeological research or isolated finds, which constitute testimony with civilisational or cultural value and are of significant cultural interest.

#### **Measures and Actions:**

- Identify a suitable location for the future Museum of the Sea, in the former Dili Port, and develop a concept note and corresponding procurement processes for the design and conception/adaptation of the space, which should ensure accessibility and interaction for all visitors in the most inclusive way possible.
- Research and document relevant themes to produce content with creative narratives and language tailored to various audiences.
- Collect, conserve, and treat exhibition materials (including artefacts) with community involvement.
- Gather audiovisual material from communities, including documents, testimonials, and oral history.

- Establish national and international partnerships for the design and development of the Museum of the Sea, including anthropologists, ethnographers, and other specialists, such as marine archaeologists and divers, as well as scientists and academics in the marine field.
- Accede to the Convention on the Protection of the Underwater Cultural Heritage.
- Develop domestic legal rules applicable to national cultural heritage, aimed at the legal protection, preservation, safeguarding, and enhancement of Timorese cultural heritage, with a focus on the underwater environment.
- Promote the training of divers to identify underwater cultural objects.
- Basic training on diving equipment.
- Equip and train personnel in the field of underwater culture.

#### 5.1.2.4. Strategic Communication and Ocean Literacy

*«The development of a national Blue Economy requires people and capital. Their mobilisation and engagement depend on a common solution — communication.»*

Álvaro Sardinha, Blue Economy Competence Centre

Strategic communication is essential to promote a resilient and sustainable ocean economy in Timor-Leste.

In addition to public policies defined by the Government — including education and vocational training, as previously noted — strategic communication and civic education must also be incisive and continuous to drive the desired change through tangible outcomes: changes in societal behaviour.

Moreover, strategic communication not only ensures stakeholder engagement — from governments to civil society, the private sector, and communities — but also fosters trust and transparency, especially concerning public investment and cooperation or partnerships among various actors.

The Government has developed community engagement programs and campaigns, including the following:

- The **“My Sea, My Timor” Campaign** (*Ha’u nia Tasi, Ha’u nia Timor*), aimed at promoting the development potential of the Blue Economy in the country, with a focus on the preservation, conservation, and sustainable use of marine resources, while also encouraging initiatives and programs for sustainable national economic development.

- ***“The Sea Starts Here! The Blue Economy from Mountain to Sea” Campaign***, which seeks to instil a holistic and interconnected approach to Timor-Leste’s Blue Economy, linking terrestrial and marine ecosystems. The campaign is based on the premise that economic practices and activities in mountainous and inland water areas affect ocean health — and vice versa.
- ***“National Ocean Week Programme— 5 to 8 June”***, designed to raise awareness and celebrate ocean-related issues annually. These dates are intended to celebrate World Environment Day and Ataúro Marine Environment Day on 5 June, and United Nations World Oceans Day on 8 June.
- ***“Blue Economy Youth Ambassadors Programme”***, which involves motivated and qualified young voices in the sustainable development of the nation’s Blue Economy.
- ***“Peixe Azul”*** (Blue Fish) campaign, to be extended to all municipalities, with the aim of raising awareness among communities across the country about plastic pollution affecting the seas and oceans, as well as promoting improvements in plastic waste collection and management systems.

These programs will foster shared understanding and collective responsibility for the benefits of the Blue Economy and to implement the national motto: **Timor is TASI— Timor, Azul, Sustentável e Inovador** (in English: Timor, Blue, Sustainable and Innovative).

Through strategic communication targeting specific audiences, it is possible to cultivate a sense of ownership and responsibility for implementing this transformation, as well as engaging people with diverse skills and values.

It is also possible to promote ocean literacy, as described in Part I of this document — namely, the advancement of its seven internationally recognised fundamental principles — while simultaneously strengthening international cooperation in this area.

In addition to supporting the inclusion of ocean literacy in school curricula, knowledge about the ocean can also be enhanced through other public and private institutions. This includes educational and social initiatives that allow everyone to learn about the ocean and marine resources, as well as the complexities and challenges they face, to promote more sustainable behaviours.

### **Strategic Objectives:**

- Strengthen national maritime identity and its fundamental culture and values, which include respect for nature and people: sustainable and inclusive development.
- Promote Timor-Leste's image nationally and internationally as a nation that upholds environmental preservation and conservation, also contributing to climate change mitigation.
- Promote international and regional cooperation in matters relating to the Blue Economy and the promotion and preservation of the ocean.
- Promote the fight against marine pollution, especially plastic waste, and promote the improvement of plastic collection and management systems.
- Foster economic diversification by developing investment opportunities, particularly in new sectors and economic industries — both to encourage Timorese citizens to actively participate in their development and to attract foreign direct investment into Timor-Leste, in compliance with national laws and regulations in force, including coastal protection regulations.
- Validate existing cultural knowledge and practices in the development of the Blue Economy in Timor-Leste, ensuring that development initiatives are rooted in the values and aspirations of the Timorese people.
- Encourage broad public participation and promote good governance and transparency in public policy.
- Mobilise and inspire people and organisations to promote and protect nature.
- Develop and implement public awareness campaigns on Blue Economy policies, initiatives and objectives.
- Promote digital platforms for access to information and monitoring of data on the Blue Economy: Digital Blue Economy Platform - Tasi Link.

### **Measures and Actions:**

- Develop a Strategic Communication Plan in coordination with relevant entities, to institutionalise the programs and various campaigns mentioned ("My Sea, My Timor"; "The Sea Starts Here! The Blue Economy from Mountain to Sea"; "National Ocean Week"; "Young Ambassadors for the Blue Economy" and "Blue Fish").
- Develop the public awareness campaign 'Tasi Timor Nia Futuro' (Timor Sea Our Future), which aims to educate coastal communities, salt producers and fishermen about the benefits of the Blue Economy, to be developed by the government department responsible for media communications.
- Develop educational programs for the community press in coastal areas such as Ataúro, Manatuto, Viqueque and Lautém.



- Develop digital platforms for monitoring Blue Economy activities (fishing, maritime tourism and energy).
- Support the development of open data content on coastal areas and marine resources.
- Provide access to the internet and communication networks in strategic coastal areas.
- Approve a “National Sea Day” through a government resolution, with the date to be decided by the government.
- Create and launch the Timor-Leste Blue Economy Portal: Timor is TASI, and update it regularly.
- Promote and participate in national and international events related to Blue Economy themes, and develop strategic regional and international partnerships.
- Conduct nationwide awareness campaigns in coordination with relevant partners.
- Promote the use of Tara Bandu, traditional customary law, to help preserve terrestrial and marine ecosystems.
- Support talent competitions and cultural and artistic events in collaboration with relevant agencies, engaging young people.
- Support the Blue Economy Youth Ambassadors Programme, as key advocates for sustainable ocean governance, through regular workshops, capacity-building sessions, and community engagement initiatives, as well as participation in international events related to climate and oceans.
- Promote seminars and workshops in each municipality on topics related to ocean literacy.
- Launch a “Blue Prize” initiative to recognise and reward individual, group, organisational, or private sector actions that promote sustainability and marine protection.
- Produce and distribute publications, newsletters, fact sheets, and promotional merchandise.
- Implement the use of QR Codes on all Blue Economy-related publications to promote more sustainable practices and reduce environmental impact.
- Invest in a digital platform called ‘Tasi Link’, linked to the Blue Economy Portal, which, in the long term, will bring together all the relevant components of the Blue Economy, from the provision of data and information, to interactive maps of the country's biodiversity and other activities in accordance with national maritime spatial planning, the issuing of fishing licences and other maritime and coastal activities, training and capacity-building options, etc.

## 5.2. AXIS 2: MARINE BIODIVERSITY PRESERVATION AND CONSERVATION (RESPECTING THE SEA)

*«We are all part of the web of life. The loss of biodiversity threatens the balance of ecosystems and the services they provide, which are essential for human well-being.»*

Convention on Biological Diversity

There is an intrinsic and ancestral connection between culture and marine ecosystems in Timor-Leste, which is an asset for the nation's sustainable development processes, and for the achievement of the goals of the Policy and Action Plan for the Promotion of a Resilient and Sustainable Ocean Economy in Timor-Leste.

As stated in Part I, Timor-Leste is committed to the protection of the ocean and the preservation of marine biodiversity at national, regional, and global levels.

The core principles enshrined in the Constitution, the guiding principles outlined in the current legal framework, and the international commitments undertaken by Timor-Leste, reflect the synergy between the country's cultural knowledge and practices related to the sea, the values and aspirations of the Timorese people, and the political commitment to environmental conservation and the sustainable use of natural resources.

The legal recognition of Tara Bandu, a traditional custom that is part of Timor-Leste's culture regulating the relationship between humans and their surrounding environment — and used to protect both terrestrial and marine ecosystems — reflects this context.

Environmental and marine biodiversity protection refers to measures taken to preserve and conserve natural resources, flora, fauna, and marine habitats, and involves awareness, preservation, and sustainable use of the ocean, seas, rivers, estuaries, and associated ecosystems.

It is within this framework that marine and coastal protection and management will be implemented — typically defined as the set of practices, policies, and strategies aimed at conserving and sustainably using marine resources and coastal areas.

Appropriate measures will be adopted to strengthen the preservation and conservation of marine biodiversity, particularly through marine spatial planning and management of the national maritime area — considered the backbone of the Blue Economy in terms of an integrated and ecosystem-based approach to maritime space, ensuring land-sea interaction — and the revision of Marine Protected Areas in the country, formalising their designation and implementing their respective management plans.

The Legal Framework for Maritime Spatial Planning and Management will serve as a fundamental pillar for the development of a sustainable ocean economy in Timor-Leste, in coordination with other relevant sectoral areas, such as environment, economy, energy, and tourism.

Marine Protected Areas are an essential tool for promoting and preserving the marine environment and should be used in a complementary manner — first and foremost — within the legal framework on maritime spatial planning and management.

In summary, biodiversity conservation is a central element of the Policy and Action Plan for the Promotion of a Resilient and Sustainable Ocean Economy in Timor-Leste and represents a cross-cutting pillar of good governance.

#### **5.2.1. Pillar 3: Maritime and Coastal Management and Protection**

*«The State must ensure the integrated management of the marine coast as a basis for the conservation, protection and sustainable use of marine resources, ecosystems and species.»*

Environmental Framework Law of Timor-Leste

Maritime and coastal management is fundamental to ensuring the health of marine and coastal ecosystems, the preservation of biodiversity, the provision of ecosystem services, as well as the protection and development of coastal communities and human well-being.

In this context, it is essential to take into account Integrated Coastal Zone Management (ICZM), a continuous and dynamic process involving the participation of various sectors of society and government, local communities and the private sector, to define and implement policies and actions aimed at the sustainable use of coastal resources, namely through the coordinated implementation of planning instruments, such as Coastal Zone Management Plans (POOC).

#### **Strategic Objectives:**

- Conserve biodiversity by protecting marine species and their habitats, including coastal areas and complex ecosystems rich in biodiversity such as coral reefs and mangroves.
- Ensure the sustainable use of marine resources, particularly through fisheries and tourism, to avoid compromising the health and sustainability of these resources for future generations.
- Ensure current and future food security through the sustainable management of marine and coastal resources.

- Promote economic diversification through ocean-based economic activities, such as fisheries and tourism, which depend on healthy and resilient oceans and coasts.
- Develop a national plan for the effective management of the National System of Protected Areas, integrated with all other national policies and spatial planning instruments, and based on sound scientific data — with particular emphasis on marine protected areas.
- Contribute to the 2022 Kunming-Montreal Global Biodiversity Framework, in particular the target of protecting 30% of the world's terrestrial and marine areas by 2030 through protected areas and other effective conservation measures.
- Combat negative environmental impacts by reducing pollution and the destruction of marine and coastal species, habitats and ecosystems — thereby also contributing to climate change mitigation and adaptation.
- Ensure proper coordination between the preparation of Maritime Spatial Planning and Management and other legislation, such as the Basic Law on Spatial Planning, for Integrated Coastal Zone Management (ICZM), including specific planning instruments such as Coastal Zone Management Plans (POOC).
- Involve coastal communities — including key stakeholders in economic activities such as fisheries, aquaculture, agriculture and tourism — in decision-making processes for the management of marine resources, by validating their knowledge and traditional practices.
- Support and promote the practice of Tara Bandu.
- Invest in sound science through research, monitoring and investigation, linking knowledge to the planning, monitoring and evaluation of traditional practices and public policies, in line with Axis 1 and its corresponding pillars.
- Promote education, training and strategic communication to empower and raise awareness among the population about the importance of marine and coastal conservation, aligning active citizenship with planning and ensuring sustainable economic growth for communities — in line with Axis 1 and its corresponding pillars.

#### **Measures and Actions:**

- Draft and adopt the Legal Framework for the National Maritime Spatial Planning and Management.
- Develop Maritime Spatial Planning and Management in coordination with Integrated Coastal Zone Management (ICZM) and Coastal Zone Management Plans (POOC).
- Draft and adopt the Legal Framework for Marine Protected Areas.
- Establish Transboundary Protected Areas in regional cooperation.

- Draft and adopt the Integrated Coastal Zone Management Plan, including the definition of coastal zones and associated concepts and Coastal Zone Management Plans (POOC).
- Promote community involvement in marine and coastal protection and management through capacity building, training and awareness-raising activities.
- Encourage, with concrete support, Tara Bandu and community practices that promote and ensure the sustainable use of ecosystem services.
- Promote the development of community-based associations, organisations and small-scale private sector actors, through financial incentives, small capital investments, and technical and specialised support.
- Review the National Biodiversity Strategy and Action Plan (2011–2020), updating the guiding framework for biodiversity conservation based on current science and reports, and aligning it with the targets of the Kunming-Montreal Global Biodiversity Framework.

#### 5.2.1.1. Maritime Spatial Planning and Management

*«Maritime Spatial Planning is indeed a management framework that uses a defined area to meet multiple objectives. It's not a single tool, but rather an approach that guides decision-making about how to use marine spaces and resources.»*

Secretariat of the Convention on Biological Diversity

Interconnectivity and three-dimensionality are two fundamental characteristics that distinguish maritime space from terrestrial space. This distinction significantly impacts the planning and management of maritime space, as it is composed of surface, water column, seabed and subsoil, which allows for different uses or activities to occur simultaneously in the same area or volume.

Therefore, maritime spatial planning and management must be guided by the paradigm of space utilisation, whereby maritime space is organised as a whole, aiming at the sustainable, rational and efficient economic development of marine resources and ecosystem services, while ensuring the preservation, protection and restoration of natural values and coastal and marine ecosystems, and maintaining the good environmental status of the marine environment and coastal and transitional waters.

In this regard, maritime spatial planning and management must be informed by a strategic vision of different spaces and their existing and potential uses and activities, including, where applicable, cross-border cooperation and coordination with legal regimes on land and the coastal zone, as well as with other water resources such as inland and transitional waters.

Such coordination must take into account existing legislation, in particular the Environmental Framework Law, the Land Use Planning Framework Law, and the legal regime for territorial planning instruments, especially the National Land Use Plan.

Maritime spatial planning and management must organise, over time and space, the various uses and activities at sea through planning instruments that are legally binding and serve as the basis for the allocation of exclusive usage rights over specific areas or volumes. Indeed, marine uses and activities tend to be capital and time intensive and high-risk, which makes legal certainty and procedural clarity essential, as well as the coordination of overlapping maritime activities.

A lack of coordination between different uses and activities inevitably leads to conflicts and may therefore contribute to the low number of maritime uses and the weak development of the ocean economy in Timor-Leste.

The Government will always act with the goal of enhancing the value of Timor-Leste's maritime space and marine natural resources, in accordance with Article 139(1) of the Constitution, which states: "The resources of the soil, the subsoil, the territorial waters, the continental shelf and the exclusive economic zone, which are essential to the economy, shall be owned by the State and shall be used in a fair and equitable manner in accordance with national interests."

The new legal regime will define the system for maritime spatial planning and management, based on planning instruments that must take into account land-sea interactions — particularly in relation to terrestrial land-use instruments and those applicable to coastal and transitional waters.

As regards management, the new legal framework will distinguish between common and exclusive use of the national maritime space. Common use refers to the general public's shared enjoyment, which must comply with applicable planning instruments and must not harm the good environmental status of the marine environment and coastal zones. Exclusive use, by contrast, involves reserving a specific area or volume of maritime space for environmental, marine resources or ecosystem services that exceed the benefits of common use and offer a public interest advantage. Such use may only take place under an exclusive use title.

The granting of exclusive use titles will depend on whether the uses or activities are foreseen in the relevant planning instruments and will follow a rigorous legal decision-making process, ensuring legal certainty, transparency, and safeguarding the rights of stakeholders to participation and access to information.

It will also be essential to define the rules and criteria for resolving conflicts between competing uses and activities, including the need for relocation and the resulting rights and obligations.

This legal act will also include a dedicated economic and financial regime, enshrined in law, which will define cases of exemption. It is important to note that the maritime spatial planning and management regime will not apply to fisheries, international marine scientific research activities conducted under international law, or to defence, security or civil protection activities.

The law will also set out the procedures for amending, reviewing, or partially or fully suspending planning instruments — for example, whenever required to serve the national interest, due to evolving environmental conditions, changing maritime safety requirements, or in light of economic and social development prospects, or following the designation of a marine protected area (MPAs) or adoption of a management plan.

A working group will be established to support and monitor the development and implementation of the maritime spatial planning and management regime, promoting appropriate coordination of interests.

#### **Strategic Objectives:**

- Promote the implementation of the Blue Economy in Timor-Leste through the National Maritime Space Planning and Management.
- Ensure that the planning and management of national maritime space is carried out through a participatory process, both in the planning phase and in the implementation and management of resources.
- Plan the protection and use of “inland areas” in an integrated manner with water resource management, taking into account impacts on coastal areas as well as the specific needs of the coastline and marine ecosystems.
- Ensure compliance with Law No. 6/2017, of 19 April 2017, which establishes the general framework for public land-use planning policy and refers to the integrated management of coastal zones, based on the POOC, which cover a coastal strip with a maximum limit of 500 metres from the high tide line and a maritime zone extending to the 30-metre barometric line.
- Improve the use of national maritime space and help prevent conflicts between coastal uses and activities, ensuring an appropriate land-sea interaction.
- Ensure proper coordination between the preparation of Maritime Spatial Planning and Management and other legislation, such as the Basic Law on Spatial Planning, for Integrated Coastal Zone Management (ICZM), including specific planning instruments such as Coastal Zone Management Plans (POOC).

- Prevent both natural degradation and degradation caused by human activities, as well as support the recovery of degraded areas and enhance natural, historical, cultural, and landscape heritage.
- Stimulate socio-economic activities compatible with the sustainable development of coastal areas, ensure and promote the compatibility between different uses and activities in coastal zones, and minimise environmental, economic, and social risks and impacts.
- Coordinate maritime spatial planning and management with the national plan for the National Protected Areas System, in an integrated way with all other national policies and land-use planning instruments.
- Contribute to the implementation of the National Adaptation Programme of Action on Climate Change as a planning tool that identifies priority areas for immediate action, including proposals for adaptation measures, such as protecting coastal ecosystems from the impacts of climate change.

#### **Measures and Actions:**

- Establish a working group with the relevant stakeholders for the drafting of the Legal Framework for the National Maritime Space Planning and Management.
- Develop a questionnaire to be applied to all relevant stakeholders for a situational analysis and needs assessment relating to the maritime spatial planning and management process.
- Consider the use of tools to support the development of national maritime space management that ensure the promotion of participatory planning, such as "SeaSketch".
- Draft and approve the Legal Framework for National Maritime Space Planning and Management, which will include planning tools and a public process that analyses and allocates the spatial and temporal distribution of uses and activities, based on a comprehensive and transparent decision-making process.
- Develop appropriate coordination and cooperation mechanisms among different national agencies and entities, ensuring stakeholder participation and safeguarding traditional and strategic uses and activities.

#### **5.2.1.2. Marine Protected Areas**

*«Marine protected areas are like biological savings accounts. They ensure that the richness of marine life is preserved in a world where we are witnessing the rapid loss of marine ecosystems and species.»*

Sylvia Earle



There is no single, universally recognised definition of Marine Protected Areas (MPAs) under international law, although several related concepts are defined in various ways.

For example, Article 2 of the Convention on Biological Diversity defines a "protected area" as a *"geographically defined area which is designated or regulated and managed to achieve specific conservation objectives"*.

The Food and Agriculture Organization of the United Nations defines an MPAs in the context of the Code of Conduct for Responsible Fisheries as *"any marine geographical area that is afforded greater protection than the surrounding waters for biodiversity conservation or fisheries management purposes."* According to this definition, a fisheries management zone may be considered an MPA, even if it is not created specifically for conservation but to manage certain fish stocks.

Although they are not always designated as MPAs, the designation of marine and coastal zones for the purpose of marine environmental protection and conservation has long been a common practice. Initially, the protected zones that would now be described as MPAs were established in territorial seas. With the expansion of coastal State jurisdiction in the EEZ, MPAs have been established further offshore, though still within national jurisdiction.

Over the years, significant regional and multilateral efforts have been made to establish MPAs and related concepts. Establishing an MPA can be a starting point for protecting a given marine area from pollution or preventing the adverse effects of other threats such as climate change. It is not an end in itself or a catch-all solution to threats facing the marine environment.

This means that certain threats require different types or combinations of responses. Therefore, when an MPA is established, regulations should address multiple factors and threats and include the effective implementation of management and monitoring programs.

MPAs also require a comprehensive approach and appropriate coordination and cooperation at regional and multilateral levels. This aspect is critical to avoid conflicts between States and organisational mandates. Today, ocean governance entails complex challenges at various levels and jurisdictions, potentially leading to overlaps and gaps. These challenges are amplified by institutional fragmentation and the lack of a holistic approach to ocean governance, which hinders integrated ecosystem management.

Timor-Leste is strategically located within the Coral Triangle, which carries added responsibility for conserving marine biodiversity in the region, noting that Ataúro Island is one of the world's most biodiverse marine areas.

Thus, the classification, management, and monitoring of MPAs in the seabed, subsoil, water column, and surface of Timor-Leste's maritime space is a national priority. It represents the country's fulfilment of international obligations and its commitment to placing the protection and conservation of the marine environment at the core of social and economic progress.

Accordingly, the designation of an MPA should confer a legal protection status suitable for maintaining biodiversity and ecosystem services and must be legally binding for all public and private entities, incorporating coordination mechanisms based on an ecosystem approach.

The designation of an MPA must also comply with the principles and objectives provided in current environmental legislation, particularly the Environmental Framework Law, and safeguard other instruments, such as the National Biodiversity Strategy and Action Plan and the National Protected Areas System, which includes the aquatic nature reserves of Bobonaro (Balibó) and Dili (Ataúro), as well as the important Nino Konis Santana National Park, recognised for its significance within the Coral Triangle.

To this end, the Government will draft the legal regime for the classification, management, and monitoring of MPAs, which will define the State bodies and services responsible for designating MPAs and preparing their respective management and monitoring plans, to be approved by a Resolution of the Council of Ministers.

Beyond these plans and ensuring alignment with existing legal frameworks, the law will define the authority to carry out MPAs inspections, supervision, and enforcement of sanctions for any legal violations. The drafting of the sanction regime will be coordinated with laws on marine pollution and the civil or criminal liability of offenders, in accordance with legislation in force.

The law will also provide for cases in which the suspension of plans and MPAs management measures is allowed. Note, however, that suspension may only occur in exceptional, well-justified circumstances and after consultation with a working group, to be created under the same legal instrument.

The working group will be responsible for supporting the classification and management of MPAs, monitoring and supervising MPAs management plans and measures, assisting in activities aimed at increasing marine biodiversity knowledge, sharing, consolidating, and disseminating technical and scientific information, and ensuring coordination

among entities with responsibilities for assessing and maintaining biodiversity and ecosystem services.

The working group will be coordinated by members of Government responsible for maritime and environmental affairs and may include other entities or individuals deemed relevant by the Government, including national and international experts. Its operational rules will be defined by a decree from the ministers responsible for maritime and environmental matters.

The working group will also prepare and submit to the relevant ministers an annual report on the status of MPAs classification and management, including recommendations, suggestions, and proposals for improvement.

Furthermore, the working group will ensure cross-border and regional cooperation and coordination in the classification and management of MPAs that border international maritime zones or maritime areas under the jurisdiction or sovereignty of other coastal States, in coordination with Government bodies responsible for foreign policy.

In coordination with foreign affairs authorities, the commission will also promote the technical coordination of Timor-Leste's representation in international processes related to MPAs and, more broadly, to marine biodiversity conservation. This coordination will extend to other relevant sectors such as fisheries. Through this measure, the Government seeks to ensure national and international decision-making mechanisms are underpinned by effective coordination among competent State agencies and services.

Another Government objective is to create a National MPAs Network, integrated into the National Protected Areas System (NPAS), that ensures an ecosystem-based approach and appropriate interaction with existing land protection regimes and those covering coastal zones and transitional waters.

**Strategic Objectives:**

- Contribute to UN SDG 14, which set as a target the conservation of at least 10% of coastal and marine areas.
- Contribute to the international commitment adopted at the 15<sup>th</sup> Conference of the Parties to the Convention on Biological Diversity, in 2022, the “Kunming-Montreal Global Biodiversity Framework,” which introduced new, more ambitious and updated targets in response to the global biodiversity crisis — namely, to protect at least 30% of global terrestrial and marine areas through protected areas and other effective conservation measures by 2030.
- Protect and maintain endangered marine species and their habitats, as well as coastal and marine ecosystems, to ensure the health of the seas and ocean.

- Support the sustainable management of marine resources, particularly by regulating economic activities such as fishing, aquaculture, and the harvesting of marine species (algae, molluscs, etc.), also as a means of ensuring the sustainability of present and future coastal communities.
- Support national and international scientific research to obtain technical and scientific surveys that identify protection needs, critical areas for the reproduction and development of marine species, the state of their habitats and associated ecosystems, providing data for the formulation of public policies that create an enabling environment for species to survive and thrive.
- Contribute to increased resilience and adaptation to climate change, reinforcing the implementation of the National Adaptation Programme of Action (NAPA).
- Contribute to sustainable economic development, particularly through sustainable and community-based ecotourism associated with MPAs.
- Contribute to food security by ensuring the stocks and health of marine species, particularly fish, thereby improving the socio-economic conditions of Timorese communities.

#### **Measures and Actions:**

- Establish a working group with relevant stakeholders to draft the Legal Framework for MPAs.
- Develop a questionnaire to be distributed to all relevant actors to assess the current situation and needs concerning the classification, management, and monitoring of MPAs in the seabed, subsoil, water column, and surface of Timor-Leste's maritime space.
- Develop appropriate coordination and cooperation mechanisms among different national agencies and entities, ensuring stakeholder contributions and safeguarding traditional and strategic uses and activities.
- Analyse and implement the national adoption of scientific and technical criteria that describe Atauro Island and the Nino Konis Santana National Park as Ecologically or Biologically Significant Marine Areas (EBSA), in accordance with the 13<sup>th</sup> Conference of the Parties to the Convention on Biological Diversity, held in 2016.
- Analyse and implement the findings and recommendations from the audit of protected areas by the Audit Chamber conducted between 2021 and 2022, within the framework of biodiversity and nature conservation policy and international commitments.
- Draft and approve the Legal Framework for MPAs.
- Plan the creation of a National Network of MPAs, integrated into the National System of Protected Areas.

- Identify marine protected areas already formally or informally created in Timor-Leste and integrate them into the National Network of MPSs defining typologies and corresponding management plans.
- Identify, beyond Tutuala, Jaco and Atauro, other coastal areas around Timor-Leste requiring increased protection, including areas already identified such as Behau, Batugadé, Balibó, Manufahi, Manatuto, Viqueque, Baucau, Com and Liquiçá.
- Invest in the necessary human resources, science and technology to achieve the objectives related to the classification, management, and monitoring of MPAs.
- Identify, promote and support Locally Managed Marine Areas (LMMAs), based on local community knowledge and practices, notably in Atauro, also supporting traditional practices such as Tara Bandu.
- Establish national, regional and international partnerships and cooperation for managing existing MPAs and establishing new ones.
- Resume efforts already initiated to have the Nino Konis Santana National Park recognised as a Biosphere Reserve site, through its nomination under UNESCO's "Man and the Biosphere" Programme.
- Ratify the Convention on International Trade in Endangered Species of Wild Fauna and Flora, in order to address the illegal harvesting, transport and sale of species listed under CITES and originating from Timor-Leste.

#### 5.2.1.2.1. *National Park of Atauro*

*«The oceans are vast and mysterious, and marine nature parks are like windows into a dazzling underwater world. In them, we discover the infinite diversity of marine species and the importance of protecting these fragile ecosystems. These protected areas are true treasures for humanity, a constant reminder of the incredible beauty and power of nature. »*

Jacques -Yves Cousteau

According to the National System of Protected Areas, a national park is an area that contains one or more ecosystems comprising plant and animal species, natural and human-shaped landscapes, geomorphological zones, and habitats of scientific, socio-economic, ecological, scenic, recreational, cultural, or educational interest, or where there is a natural landscape of remarkable aesthetic value.

The classification of a national park, which may include terrestrial and marine areas, aims to holistically protect the integrity of the mentioned ecosystems by adopting measures that: protect and restore species, ecosystems and ecological processes within the area; promote recreational and leisure activities that enable people to interact with the surrounding nature in a sustainable manner that preserves the integrity of the area; regulate resource exploitation and construction activities, taking into account local

community needs; and ensure the sustainable use of natural resources through activities that provide sustainable local development alternatives.

There are currently two national parks in the country:

- Nino Konis Santana National Park, established in 2007, a terrestrial and marine park. The marine part includes the coastal areas of Com, Tutuala and Lore. It has been designated as a Category V area by the International Union for Conservation of Nature —Protected Landscapes/Seascapes; and
- Kay Rala Xanana Gusmão National Park, established in 2015 in Ainaro, a natural and cultural/historical terrestrial park.

The island of Ataúro, home to one of the most significant marine biodiversity hotspots in the world and recognised as an Ecologically or Biologically Significant Marine Area, meets the necessary requirements for the establishment of an Ataúro National Park. On the other hand, there are terrestrial areas of environmental interest that require protection, and areas of international ornithological importance have been identified in Ataúro, which must also be protected. For this reason, the Government will create the Ataúro National Park, a national park for terrestrial and marine protection, thus also including the preservation of Monte de Manucoco, the highest point on the island of Ataúro, promoting sustainable tourism throughout the island and integrating the protection of the sea and the land.

Ataúro's ecosystems provide essential habitats for many threatened species, such as marine turtles, cetaceans, dugongs, and reef sharks, and the region is recognised as an *Important Marine Mammal Area* — a critical migratory corridor for large whales, pelagic sharks, sea turtles and other marine megafauna. Its reefs are also considered *climate refugia*, areas likely to be more resilient to climate change due to natural upwelling, making them crucial for global marine conservation efforts.<sup>91</sup>

The Government's goal of establishing an Ataúro National Park benefits from the fact that local communities on the island have already played a significant role in natural resource management through Locally Managed Marine Areas. These communities have not only demonstrated a deep understanding of the need for protection, but have also actively defended Ataúro's ecosystems, recognising their vital importance to sustaining local livelihoods.

Studies show that locally protected reefs around Ataúro exhibit significantly higher fish diversity and coral health than unprotected areas. However, some reefs still show signs of blast fishing and overfishing, and research has identified many rare and endangered species.

Currently, there are 15 locally managed marine protected areas around Ataúro Island, governed by the communities through Tara Bandu. Despite their commendable efforts, these areas often remain limited in size. The Government has been working to consolidate these locally managed MPAs under a unified management framework. However, they remain narrow in scope, typically extending only 500–1,000 metres from the shoreline, and are not always based on rigorous scientific or biodiversity data to ensure long-term viability.

Furthermore, the Tara Bandu system in Ataúro faces management and funding challenges, both for the local communities and for the preservation of marine ecosystems — similar to the difficulties faced by the Nino Konis Santana National Park.

In response, by establishing the Ataúro National Park, the Government aims to reinforce and support the existing community-led Locally Managed Marine Areas by providing legally enforceable protections. However, further scientific and technical studies and extensive community consultations in Ataúro are needed to balance conservation needs with socio-economic realities.

Considering the varying levels of protection—ranging from minimal protection to fully protected no-take zones—based on scientific data, the implementation of the Ataúro National Park may require support for alternative livelihoods to ensure that communities have the opportunity to thrive while securing long-term benefits.

To this end, the Government of Timor-Leste will support the development of sustainable marine tourism (diving, snorkelling, whale watching) and community-based ecotourism, both of which hold strong growth potential. It will also promote sustainable and high-value fisheries and aquaculture alongside investment in nature-based solutions, including support for women's and youth entrepreneurship.

This investment will include the development of sustainable seaweed farming and fisheries, with cold-chain storage, drying, and seaweed processing facilities.

With targeted investments, Ataúro could transition to a high-value sustainable fisheries and aquaculture sector, establishing small-scale community-based fish processing and cold-storage facilities. This would help consolidate fish supply across the island and ensure a consistent supply of quality seafood to local and national tourism operators.

A key part of this strategy includes strengthening institutional capacity, education, and vocational training for local residents in areas linked to the development of Ataúro.



As part of the creation of the Ataúro National Park, the Government will also invest in ecological infrastructure, such as renewable energy systems, rainwater harvesting, and waste management, to enable sustainable, community-based economic development. Finally, improving communications, transportation, and connectivity infrastructure will be essential to attract new high-value tourist segments and increase overall visitor numbers.

Following the creation of the Ataúro National Park, Timor-Leste may join the UNESCO World Heritage Marine Programme, whose mission is to ensure the effective conservation of existing and potential marine areas of Outstanding Universal Value, safeguarding their continued survival and prosperity for future generations. Established under the World Heritage Convention, the program enables effective management of marine sites as part of an international network.

**Strategic Objectives:**

- Establish the Ataúro National Park as a legally protected area, composed of multiple zones with different categories of protection and MPA usage, based on a balance between the best available scientific knowledge and local and traditional knowledge.
- Invest in a model of environmental protection and sustainable development for Ataúro, combining marine conservation and community-based tourism with nature-based solutions: a small island with a big heart.
- Promote the Ataúro National Park as a flagship biodiversity laboratory and conservation platform supported by strong governance capable of attracting donor funding and support, as well as scientists and scholars from around the world.
- Promote nature-based solutions and ecosystem conservation projects with integrated land-sea interaction, including mangrove restoration, seaweed and seagrass conservation, and reforestation projects, in partnership with local communities.
- Create sustainable income for local communities through sustainable revenue generation and benefit-sharing mechanisms, drawing from international best practices and visitor-centred research insights, and ensuring cultural adaptation.
- Generate economic and employment opportunities in environmental protection, ecotourism, and the Blue Economy sectors, building a growing economy in harmony with the natural environment.
- Consider nominating the Ataúro National Park for the UNESCO World Heritage Marine Programme. Such designation would offer Timor-Leste a significant advantage in attracting international attention, both for tourism and for drawing the interest of the international scientific community in conducting marine research and studies on Ataúro Island, including the possibility of securing



funding, with the ultimate goal of building capacity for effective marine area management.

#### **Measures and Actions:**

- Finalise the Strategic Development Plan for Ataúro for approval by the Council of Ministers.
- Conduct scientific assessments and studies to develop a baseline biodiversity study for Ataúro, as part of the National Marine Biodiversity Survey and Study of Timor-Leste, mentioned above.
- Carry out surveys and extensive community consultations, linked to the National Marine Biodiversity Survey and Study, to help define the relevant protection typologies and categories required for the declaration, management, and monitoring of MPAs and to identify and protect high conservation value areas.
- Establish institutional agreements and international partnerships to support the creation of a dedicated Ataúro National Park, in coordination with the Ataúro Administrative Authority.
- Develop and implement local community education and capacity-building initiatives, including under the National Ocean Literacy Programme, supporting local qualifications that lead to employment creation — such as Ataúro National Park rangers, fisheries, aquaculture and mangrove sector workers, tourism service providers, educators and facilitators, scientists, and researchers, among others.
- Define the protection typologies/categories of Ataúro's MPAs in an integrated manner with the rest of the country, under the Legal Regime for Marine Protected Areas, including management and monitoring mechanisms, while taking into account existing regulations and management systems used for Nino Konis Santana National Park.
- Define and administer entry fees (for international tourists) to sustainably fund ongoing park management and enable the hiring of community members to enforce protections within the Ataúro National Park, through transparent systems for collecting and distributing National Park fees with local community involvement.
- Ensure the proper integration between the Ataúro National Park and the creation of the Ataúro Marine Research and Education Centre, supported by the National Ocean Literacy Programme and the Marine Biodiversity Survey and Study of Timor-Leste, ensuring the inclusion of local knowledge, practices, and stakeholders in the process, and leveraging existing human and material resources within the Ataúro communities.

### 5.2.1.3. Transboundary Cooperation

*«The sustainable management of common resources, including marine resources, requires collaboration among different groups and countries, as the challenges we face transcend national borders. »*

Elinor Ostrom

The National System of Protected Areas contemplates the establishment of transboundary protected areas across certain terrestrial, marine, or combined regions, aimed at the protection and maintenance of biodiversity and associated natural and cultural resources, in accordance with international law.

These areas extend beyond a single country and are essential for biodiversity conservation and ecosystem preservation, enhancing the need for a true ecosystem-based approach. Transboundary areas may include national parks, nature reserves, or other types of protected zones co-managed by neighbouring countries.

In the specific case of MPAs, such zones may also be referred to as “Natural Parks” or even “Peace Parks”, as they are developed through bilateral, regional, or multilateral cooperation. Their aim is to protect and sustainably manage the terrestrial and marine environment and living resources through the creation of transboundary protected areas, while also contributing to socio-economic development and the promotion of a culture of peace and cooperation.

Examples of such environmental cooperation include:

- Red Sea Marine Peace Park, which includes the management of marine areas along the Red Sea (a collaboration involving Egypt, Sudan, Saudi Arabia, and others);
- Pelagos Sanctuary, focused on the conservation of cetaceans and their ecosystems (France, Italy, and Monaco);
- International Peace Park, a protected area symbolising peace, friendship, and landscape protection, including lakes, forests, and wilderness areas (United States and Canada); and
- Iguazu National Park, known for its stunning waterfalls and rich biodiversity (Brazil and Argentina).

In the case of Timor-Leste, cooperation with neighbouring countries such as Australia and Indonesia could greatly benefit marine biodiversity conservation and the fight against pollution and ecosystem degradation, especially in preserving migratory species such as turtles, tuna, whales, dolphins, and manta rays.

Several regional mechanisms are already in place, such as the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security, aimed at safeguarding the coastal and marine resources of the waters surrounding Timor-Leste, Indonesia, Papua New Guinea, the Philippines, and the Solomon Islands. The Coral Triangle Center, an independent nonprofit organisation, also promotes marine conservation in the region by enhancing capacity and education, and by offering training and support for MPA management.

Likewise, the Arafura and Timor Seas Ecosystem Action Program promotes the conservation and sustainable use of the Arafura and Timor Seas, which are shared by Australia, Indonesia, Papua New Guinea, and Timor-Leste. These seas lie at the southern edge of the Coral Triangle and at the intersection of the Indian and Pacific Oceans.

Finally, the Partnerships in Environmental Management for the Seas of East Asia is a regional partnership focused on the sustainable development of coastal and ocean areas in East Asia. This includes a broader set of countries interacting with the East and South China Seas and others.

Partnerships in Environmental Management for the Seas of East Asia promotes integrated and sustainable coastal and marine management in East Asia and supports conservation and sustainable use practices that go beyond political boundaries. Its approach focuses on capacity building and policy development, aligning with the goals of CTI and the Timor Seas Ecosystem Action Program, and reinforcing regional cooperation and sustainable management practices.

The Government of Timor-Leste will therefore strengthen bilateral and regional cooperation to improve transboundary marine management, with a long-term vision, planning, guidelines, and regulations to implement MPAs — recognising that national marine environmental conservation plans alone are insufficient to ensure the health of the ocean, its ecosystems, and marine species.

**Strategic Objectives:**

- Promote bilateral cooperation between Timor-Leste and neighbouring countries, not only for the conservation and promotion of MPAs but also to foster peace and friendship.
- Protect and preserve biodiversity and natural and cultural resources associated with shared ecosystems and migratory marine species.
- Share knowledge and experiences from local communities in neighbouring countries and promote the sustainable development of communities.

- Facilitate the transfer of know-how, science, and technology between neighbouring countries to enhance the effectiveness and success of marine conservation efforts.

#### **Measures and Actions:**

- Conduct a comprehensive assessment of all bilateral and regional cooperation projects related to marine areas, including existing or proposed agreements and memorandums of understanding.
- Review the content, goals, and commitments of such cooperation, ensuring consistent messaging and documentation (including maps), to safeguard Timor-Leste's maritime sovereignty.
- Assess ongoing cooperation mechanisms and projects under the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security, the Timor Seas Ecosystem Action Program and Partnerships in Environmental Management for the Seas of East Asia, ensuring that marine and coastal conservation efforts do not compromise Timor-Leste's maritime sovereignty.
- Establish a national mechanism for planning and monitoring projects in these areas, to be overseen by the Office of the Prime Minister and the Blue Economy Unit from Land and Maritime Boundary Office.
- Identify new areas for joint protection (e.g., Batugadé, due to the presence of manta rays and important coral reefs), and develop new partnerships and cooperation agreements.

#### **5.2.1.4. Strengthening Environmental Impact Assessment (EIA) Regimes**

The Government of Timor-Leste, aware of the importance of the country's marine biodiversity—notably its relevance within the Coral Triangle—and of the international obligations assumed under UNCLOS and other instruments, will, in coordination with the Environmental Framework Law, and in particular the regime applicable to Strategic Environmental Assessment (SEA), reinforce the legal framework governing Environmental Impact Assessment (EIA).

While SEA is “a preventive instrument of environmental policy, based on the analysis and prediction of potential impacts of policies, strategies, and plans on the environment to support decision-making regarding their environmental viability”, EIA is an instrument focused on a specific project, use, or activity.

As such, EIA is an essential tool for the prior verification of the environmental compliance of any project, use, or activity planned to take place within the terrestrial or

maritime territory of the country that is likely to have significant environmental effects. When legally required, EIA constitutes a mandatory and determining precondition for the development of such projects, uses, or activities, and must follow international best practices.

Therefore, any licensing authority or entity competent to grant rights for a project, use, or activity within the national terrestrial or maritime territory must reject applications that have not obtained a prior Environmental Impact Assessment decision, where this is legally mandatory, or when it has been determined that the project, use, or activity should be subject to an Environmental Impact Assessment decision.

In regard to projects, uses, and activities located in the marine environment, the objective is to protect the area's environmental status. Accordingly, such developments must comply with strict environmental criteria and follow the highest international standards in this regard.

The new legal regime will clarify the roles and responsibilities of the various entities involved in the Environmental Impact Assessment process and reinforce coordination among them to ensure procedural consistency.

It will also safeguard applicants' rights, define procedural timelines, identify cases in which an Environmental Impact Assessment is waived or not applicable, establish the relevant fees, duration and expiry terms, a sanctioning framework, and procedures for public participation and information rights, in order to guarantee transparency throughout the process.

#### **Strategic Objectives:**

- Improve the national legal framework concerning Strategic Environmental Assessment and Environmental Impact Assessment, in accordance with the Environmental Framework Law.
- Develop environmental management and assessment mechanisms that address potential gaps in national legislation, particularly regarding marine environmental impacts.
- Promote, in an integrated manner, marine biodiversity within the national maritime space, in line with international best practices and in accordance with international law obligations under UNCLOS.
- Introduce legislation promoting standards for the use of public property, including the coastline, with a focus on regulatory solutions for the preservation of the marine environment.

## Measures and Actions:

- Review all existing legal instruments under the Environmental Framework Law to identify gaps and improve the legal framework in the field of environmental protection, with particular emphasis on marine biodiversity protection.
- Revise the legal regime for environmental impact assessment.
- Draft supporting legislation and regulations related to environmental law and ensure their broad dissemination.
- Promote public awareness and online access to information on environmental licensing, through the competent Ministries and the Blue Economy Portal.
- Define activities for disseminating legislation on environmental protection, in order to inform citizens about the law and clarify and raise awareness of their rights and duties.
- Establish legislative measures to amend criminal law regarding environmental crimes, proposing fines for non-compliance, thereby preventing environmental crimes and contributing to state revenue.
- Propose measures to speed up the trial of environmental crimes in the courts, as well as the training of justice actors.

### 5.2.2. PILLAR 4: MARINE BIODIVERSITY CONSERVATION

*«Oceans are the primary source of life on Earth, generating oxygen, regulating the climate, and providing food and essential resources for human survival. It is our responsibility to protect and preserve marine ecosystems, as the health of the ocean is directly linked to the health of the planet.»*

Sylvia Earle

As previously mentioned, marine ecosystems are essential for ecological balance, food supply, climate regulation, air and water purification, and are also a key economic resource through tourism, fishing, maritime transport, and other sectors.

In addition to the measures described above, protecting the environment and marine ecosystems requires further actions such as pollution reduction, solid waste management, and reduction of plastic waste in the sea and ocean. Environmental education is a vital factor in achieving these objectives.

Moreover, the active involvement of the Government, along with the participation of international organisations, local communities, scientists, and civil society, is crucial to ensure the implementation and enforcement of environmental protection laws and biodiversity preservation regulations. These actions are fundamental to ensuring a balance between human development and the preservation of the planet's natural resources.

Considering the interconnected nature of the ocean and the fact that the marine environment is impermeable to political or legal borders, marine biodiversity conservation measures adopted within the national maritime space must also take into account legal regimes applicable to areas beyond national jurisdiction — particularly the recent BBNJ Agreement, ratified by Timor-Leste on 26 September 2024, placing the country among the first to ratify this important instrument.

Timor-Leste, in order to preserve its biodiversity, will propose measures to combat trafficking in fauna and flora and establish international cooperation agreements on combating trafficking in fauna and flora.

#### 5.2.2.1. Coral Reefs

*«The future of coral reefs is in our hands. If we don't care for them, we will lose a vital part of our ocean ecosystems.»*  
David Attenborough

Coral reefs are tropical zone ecosystems composed of coral species and a wide variety of fish. Although they cover only 1% of the ocean, coral reefs are home to over a quarter of all marine fish species. These shallow-water ecosystems, in addition to their biological richness, protect seagrass meadows and mangrove forests from wave action.

Corals grow up to two centimetres per year and may take over 10,000 years to form reefs like those found in Australia.

Coral reefs are highly diverse and valuable marine ecosystems that play a vital role in Timor-Leste, contributing notably to:

- **Biological diversity:** Timor-Leste's coral reefs host a rich array of marine species, including colourful fish, corals, molluscs, and crustaceans. They serve as habitats for a wide variety of marine life, making them essential for the conservation of local marine biodiversity.
- **Fisheries and related activities:** Coral reefs are vital for fishing and the livelihoods of coastal communities in Timor-Leste. They provide habitats for fish and other marine species, supporting local fishing populations and contributing to food security as an important source of protein.
- **Coastal protection:** Coral reefs also play a key role in protecting Timor-Leste's coastlines. They reduce wave energy and coastal erosion, acting as natural barriers that shield beaches and coastal communities from extreme weather events such as storms and cyclones.

- Sustainable tourism: The beauty and diversity of Timor-Leste's coral reefs attract both domestic and international tourists. Tourism related to coral observation and scuba diving contributes to the country's economy, creating jobs and income for local communities while also supporting conservation efforts and appreciation for coral reefs.
- Marine ecosystem health: Coral reefs are fundamental to the overall health of marine ecosystems in Timor-Leste and the region. Healthy marine ecosystems support water quality, nutrient cycling, and oxygen production —all critical for sustaining marine food chains.

A study conducted in August 2012 recorded coral reef fish in 20 different sites in Timor-Leste, based on 75 hours of diving to a maximum depth of 70 metres.

This study identified a total of 741 species from 61 families and 234 genera. In addition, 40 species were identified in a 2008 survey in the (Marine) Nino Konis Santana National Park, and 33 species were recorded during a September 2012 expedition by the Australian Museum.

As of 2012, the total known coral reef fish fauna of Timor-Leste is 814 species.<sup>92</sup>

More recently, in 2016, a study by Conservation International found that the waters surrounding Ataúro Island contain some of the world's highest marine biodiversity. Researchers surveyed ten sites around the island and found an average of 253 fish species per site. In total, they recorded 642 different species, including 315 species in a single location — some of which may be completely new to science, and others are very rare.

While this data needs to be updated with more recent surveys, new fish species have continued to be discovered — such as *Eviota santanai* (Santanai dwarfgoby) and *Eviota atauriensis* (Ataúro dwarfgoby), found in Nino Konis Santana Park and Ataúro Island, respectively.

There are few recent studies on the condition of Timor-Leste's coral reefs, but estimates indicate that around 92% face high or very high threats due to unsustainable fishing, destructive practices, pollution from watershed runoff, coastal development, and marine pollution. Additionally, the thermal stress and coral bleaching linked to climate change place reefs at further risk. This highlights the urgent need for robust conservation measures to protect and restore local biodiversity.<sup>93</sup>



#### Strategic objectives:

- To understand and protect the coral reefs of Timor-Leste and create the conditions for them to remain healthy, contributing to marine biodiversity and ocean health.
- To preserve biological diversity, protect coastal areas and the health of marine ecosystems, while also promoting fisheries, related activities and tourism in a balanced and sustainable way.

#### Measures and actions:

- Map and study the coral reefs of Timor-Leste as part of the Marine Biodiversity Survey and Study of Timor-Leste.
- Adopt legislation and regulation to combat coral reef degradation in an integrated manner, including in relevant sectors such as fisheries and tourism.
- Promote community involvement in the conservation of coral reefs.
- Promote education, knowledge and public awareness about the importance of coral reef conservation, including as part of the National Ocean Literacy Programme.

#### 5.2.2.2. Mangroves

*«A mangrove forest is a biological treasure that can be compared to the beauty of a cathedral or the wonder of a mountain range. »*

Peter Matthiessen

Mangrove forests are forests of trees with aerial roots that grow in tropical regions, typically in estuarine areas or muddy coastal zones. Mangroves are a type of salt-tolerant vegetation that includes trees and shrubs with extensive root systems beneath the surface and in deep sediments. These deep sediment layers store anaerobic carbon which, when exposed, oxidises and becomes a source of greenhouse gas emissions.

Mangroves are therefore among the forest environments richest in carbon, storing more carbon than any other forest type, making them a key part of the solution to climate change. A report by the Global Commission on Adaptation estimates that mangroves generate a net benefit of USD 1 trillion for climate change adaptation, to be achieved by 2030 if investment begins swiftly.

They are also essential for protecting coastal communities, as they act as an important barrier against destructive forces from the sea and wind. Their root systems filter pollutants in the water, improving the quality of water that flows from rivers and streams into the ocean environment.

In addition, they enhance fish production, as they provide unique habitats for wildlife, supporting several plant and animal species specialised in the transitional zone between land and sea. They are also important nursery areas for species that spend their adult lives on coral reefs or in the open ocean.

Mangroves can be restored depending on the severity of the natural risks they face, the return to suitable conditions and climate, local land use, and the options available to withstand extreme events.

Given that mangroves are vital to the marine environment, coastal communities, and mitigating the effects of climate change, the Government of Timor-Leste will proactively address the existing risks to mangroves to minimise their destruction and protect their habitat, including through consistent mangrove reforestation practices.

The Government will resume and strengthen coastal resilience programs with extensive interventions for the protection and restoration of mangrove ecosystems and coastal wetlands, with the support of international partners and local communities, including through the Tara Bandu practice.

#### **Strategic Objectives:**

- Protect the biodiversity found in mangrove forests, including fish, crustaceans, birds, and plant species, keeping them healthy and resilient, and recognising their role as nurseries for numerous marine species.
- Protect coastal zones and ensure the socio-economic sustainability of coastal communities.
- Contribute to mitigating climate change, considering that mangroves play a fundamental role in storing large amounts of carbon in soil and vegetation (carbon sequestration).
- Protect the health of the sea and ocean and their ecosystems, through the essential role of mangroves in filtering pollutants and sediments, thus ensuring better water quality in coastal areas.
- Contribute to economic diversification through the sustainable use of mangrove natural resources, including timber, marine resources, and tourism.

#### **Measures and Actions:**

- Map mangrove forests across the country.

- Identify and consolidate the various existing studies and project reports, and assess the need for intervention for maintenance, urgent protection, and reforestation.
- Improve research and monitoring of these ecosystems in coordination with the Timor-Leste Marine Biodiversity Survey and Study.
- Expand mangrove forest coverage by at least 20% by 2030.
- Consider expanding the national network of protected areas to include mangrove forests across the country, including the adoption of management plans and regulations to promote and protect these forests.
- Evaluate and resume the Coastal Resilience Building Programme, extending it to all municipalities.
- Promote awareness campaigns on mangrove forests among coastal communities and promote environmental education through the National Ocean Literacy Programme and the Marine Research and Education Centres.
- Submit an application for Timor-Leste's membership of the Global Mangrove Alliance.

#### 5.2.2.3. Seaweeds and Seagrasses

*«In the dance of the tides, seaweeds sway gracefully, embodying the ocean's rich life and standing as a testament to nature's resilience and beauty. »*

Seaweeds, or macroalgae, provide shelter and food for a variety of marine organisms, including fish, invertebrates, and others. They also contribute to stabilising sediments, improving water quality, and participating in the nutrient cycle of the marine environment.

Beyond their ecological role, seaweeds are increasingly being used across various industries, which presents an important opportunity for economic diversification and job creation in the country.

Seaweeds come in a variety of shapes and colours, ranging from microscopic forms to large multicellular organisms visible to the naked eye. They are a type of plant that lives in seawater and can be found all around the world.

Seaweeds produce oxygen, helping sustain life on the planet, while absorbing carbon dioxide (from the atmosphere and seawater through photosynthesis). This helps reduce carbon dioxide levels, which are responsible for global warming and climate change.

In addition, seaweeds provide habitat and shelter for several marine species, including fish, molluscs, crustaceans, and other marine life. They offer protection from predators

and serve as nurseries for the larvae of many marine species. Seaweeds also form the base of the food chain in many marine ecosystems. They are consumed by herbivores, which in turn are prey for other organisms such as fish, seabirds, and marine mammals.

Seaweeds can also contribute to increased productivity in the agricultural sector, as they are a natural fertiliser. Many species of seaweed are rich in nutrients such as nitrogen and phosphorus and can be used to improve soil quality and support the growth of terrestrial plants.

Finally, seaweeds are an important source of food and are consumed in many cultures around the world. Small-scale industries based on seaweed can be developed. In addition to being used as food, they can also be processed by industries to produce items such as cosmetics, fertilisers, bioplastics, and renewable fuels.

#### **Strategic Objectives:**

- Promote research, scientific study, and education on seaweeds, within the framework of the Marine Biodiversity Survey and Study Programme of Timor-Leste and the National Ocean Literacy Programme.
- Protect, conserve, and restore seaweed habitats.
- Establish specific regulations for the sustainable management of seaweeds, including sustainable harvesting practices.
- Develop partnerships in the fields of innovation and technology for the sustainable production and cultivation of seaweeds, also with a view to economic diversification.
- Contribute to climate change mitigation and adaptation by conserving seaweed ecosystems.

#### **Measures and Actions:**

- Establish protected areas that include marine zones, based on science and conducted surveys.
- Through these protected areas, regulate harvesting and harvesting seasons to prevent overexploitation of wild seaweed stocks.
- Support and empower local communities to cultivate seaweeds through aquaculture, also to safeguard wild seaweed populations.
- Promote education and vocational training for entrepreneurs (fishers) and local communities on sustainable practices in this sector.
- Stimulate industry growth, including through financial incentives, in sectors related to food, agriculture (fertilisers), bioplastics, and renewable fuels.

*«Seagrasses are the lungs of the ocean, providing vital habitats and supporting biodiversity, while playing a crucial role in carbon sequestration.»*

According to Conservation International, seagrass ecosystems are considered as important as coral reef systems, as they are essential to the success of coastal fisheries. Seagrasses, which are under pressure from human activity, play a key role in climate change mitigation.

Seagrasses are fully submerged flowering plants that can grow in underwater meadows along coastal zones near the shore. Their roots accumulate vertically beneath the seabed over time, creating a significant reserve of buried carbon. It is estimated that one hectare of seagrass meadow, despite its relatively small amount of live biomass, can store as much carbon as one to two hectares of temperate forest. Of the three key coastal Blue Carbon ecosystems — mangrove forests, saltwater marshes, and seagrass meadows — the latter are the least studied and therefore represent a significant area for exploration and knowledge expansion.

However, it is known that when seagrasses are healthy, they play an important role in meeting the dietary needs of coastal communities and millions of consumers of fish and seafood worldwide. They also protect coastlines from storm impacts, improve seawater quality, and help prevent the acceleration of climate change. Dugongs that inhabit seagrass ecosystems serve as excellent indicators of the overall health of this habitat, as they are the only herbivorous marine mammal that depends on seagrasses for food. Seagrass ecosystems with dugong presence are indicative of a healthy environment.

The direct and indirect threats to these sensitive seagrass ecosystems stemming from human influence are significant and cannot be ignored. As such, the Government of Timor-Leste will promote not only research and science, but also greater literacy and awareness of seagrasses, for their protection and conservation.

#### **Strategic Objectives:**

- Promote research, investigation, and education on seagrasses within the framework of the Timor-Leste Biodiversity Survey and Study Programmes and the National Ocean Literacy Programme.
- Combat the direct destruction of seagrass habitats caused by unsustainable urban and industrial coastal development, as well as harmful fishing practices (such as trawling, and the use of explosives and chemicals) that cause physical damage to seagrass meadows.
- Tackle pollution in coastal waters resulting from inadequate treatment of domestic wastewater, the disposal of untreated liquid and solid industrial waste, and runoff caused by deforestation for plantations.

- Contribute to mitigating climate change and its impacts through the conservation of seagrasses.

#### **Measures and Actions:**

- Legislate, monitor, and enforce regulations on unsustainable urban and industrial coastal development, as well as harmful fishing practices (such as trawling, and the use of explosives and chemicals) that directly damage seagrass meadows.
- Implement, in a holistic and integrated manner, measures to combat pollution of coastal waters resulting from the inadequate treatment of domestic wastewater, the discharge of untreated industrial liquid and solid waste, and runoff caused by deforestation for plantation.
- Deepen scientific studies on seagrasses and, in coordination with the Blue Carbon program (below), seek financing solutions and ways to economically valorise this sector with the involvement of coastal communities.

#### **5.2.2.4. Cetaceans, Sea Turtles, Sharks, Dugongs and Other Marine Species**

*«The blue whale is the most magnificent and majestic being I've ever had the privilege to share the ocean with.»*

Jacques Cousteau

The protection and conservation of marine species not only contributes to the stability and health of marine ecosystems but also brings benefits to the fisheries and marine tourism sectors. Special attention and emphasis should be given to key species — those that have a significant impact on their ecosystems. The disappearance or removal of such species can cause severe imbalances in environmental health, and they are also typically the kinds of species that attract major tourist interest and serve as flagship attractions.

Timor-Leste, with its rich ocean space hosting habitats for a diverse array of marine life, bears the responsibility to protect and take conservation measures for the various key marine species that occur in its waters — many of which are listed as Vulnerable, Endangered or Critically Endangered on the IUCN Red List of Threatened Species.

Alongside tourism development, Timor-Leste is positioned as a prime location for scientific research, monitoring and evaluation of these key species, given the biodiversity found in its waters. Research and data collection contribute not only to marine sustainability but also to national and international education and awareness.

## Cetaceans

Cetaceans are a group of marine mammals that include whales and dolphins, living mainly in the world's oceans and seas, though some species are found in rivers and estuaries. They are known for their high cognitive abilities, complex social structures, and intricate vocal communications like whale songs and dolphin calls. Large whales are considered key species due to the ecological services they provide — nutrient cycling, climate regulation, carbon sequestration, and food web stability. Everything from their feeding habits to their digestion and decomposition supports planetary health.

More than a third of the world's known cetacean species live in or migrate through the waters of Timor-Leste. This places the country among the world's best locations for seeing dolphins and whales. Some species are also known to congregate and feed in the same areas, forming what are known as superpods of dolphins or whales.

Moreover, Timor-Leste lies along a known migration route for pygmy blue whales (*Balaenoptera musculus brevicauda*), a subspecies of blue whales. These marine mammals are among the largest creatures ever to exist. The Antarctic blue whale (*Balaenoptera musculus intermedia*) is the largest, reaching over 30 metres in length and 200 tonnes in weight.

The annual migration season of the pygmy blue whales makes Timor-Leste one of the best places in the world for their observation. At the same time, sightings of sperm whales, orcas and humpback whales have also been recorded. This opportunity has only recently gained international attention, generating growing interest and giving rise to whale tourism — including boat tours and in-water swimming encounters — making Timor-Leste one of the few countries in the world that permits this activity.

Whale tourism has the potential to become a unique, world-class, high-value industry for Timor-Leste, but it requires strong governance, careful management and ethical, sustainable practices. It is essential that interactions with these animals be responsible and respectful, maintaining safe distances and avoiding interference with natural behaviour. The recent rapid growth in whale tourism interest must be closely monitored to prevent negative impacts on animal welfare and human safety.

Regulatory proposals have already been drafted in partnership with conservation organisations for government consideration. However, the Government sees the need to review and finalise these proposals through consultations with all relevant local stakeholders and expert advice, to fully understand the migratory cycles and the specific regulatory needs for whale observation and monitoring.

This applies not only to whale watching but also to dolphin observation, as the rich biodiversity of Timor-Leste's waters supports sightings of several dolphin species. Commonly seen dolphins in Timor-Leste include the pantropical spotted dolphin (*Stenella attenuata*), spinner dolphin (*Stenella longirostris*), Fraser's dolphin (*Lagenodelphis hosei*) and Risso's dolphin (*Grampus griseus*). These dolphins travel in groups and are known for their playfulness, leaps and acrobatics.

### **Sea Turtles**

Six of the seven known species of sea turtles are found in the waters of Timor-Leste. Sea turtles are crucial for the health of ocean ecosystems, contributing to food chain balance as both top and mid-level predators, and maintaining marine habitats through behaviours such as foraging on reef sponges, grazing on seagrass, and preying on jellyfish.

Traditionally, turtle meat and eggs have been used for food and trade by local communities over generations. However, turtle populations have declined rapidly due to human activity. Habitat loss especially affects feeding and nesting areas. Despite being listed as protected species, there is little enforcement on turtle capture and egg harvesting.

Accurate population estimates are lacking due to limited data. Tagging, tracking, and monitoring of sea turtles is not yet in place in the country and needs to be established.

Grassroots conservation efforts have begun in places like Liquiçá and Com. Expanding protected areas around feeding and nesting habitats and improving enforcement against the harvest of turtles and eggs, will help reduce decline and allow populations to recover.

Turtle conservation centres have also become popular tourist and education sites in other countries. Timor-Leste will explore similar models to support species preservation while also creating jobs and diversifying livelihoods in selected communities.

### **Sharks and Rays**

Sharks and rays in Timor-Leste play a vital role in maintaining healthy marine ecosystems but face serious threats from overfishing, bycatch, and habitat degradation. As apex predators, they regulate fish populations and maintain the balance of coral reefs and other habitats — critical for biodiversity and local fisheries.

Timor-Leste's waters host various species, including reef sharks, tiger sharks, hammerheads, mobula rays and manta rays. However, in-water sightings are rare, and it is assumed that these species are being fished. Shark and ray sales by fishers have



been observed along much of the coastline, but there is no data to indicate whether these are targeted catches or bycatch.

Around the world, similar species are endangered or vulnerable due to global demand for shark fins and ray gill plates. Data on local populations are limited and requires further study, but interest in expanding research into Timor-Leste's shark and ray populations is growing — particularly following the recent success in capturing the first-ever footage of a live painted swellshark (*Cephaloscyllium pictum*). The swellshark inhabits deep-sea environments, and the discovery of one off the coast of Timor-Leste marked a significant milestone in research, as the species had previously only been documented through specimens found in fish markets.

Shark and ray conservation efforts in Timor-Leste are hindered by a lack of proper monitoring and enforcement. Protecting these species is essential not only for ecological stability but also to support the livelihoods of coastal communities who depend on healthy oceans.

### **Dugongs**

Dugongs are herbivorous marine mammals in the Sirenia order, along with manatees. Adult dugongs can reach 3 metres in length, weigh up to 500 kilograms and live up to 70 years. For millennia, dugongs have been important to human cultures. Like sea turtles, their seagrass-based diets play a vital role in maintaining healthy marine ecosystems.

Although capable of long-distance travel, dugong populations are believed to be declining globally — by an estimated 20% over the last century — mainly due to human activity. Their low reproductive rate (a single calf every 3-7 years) puts them at particular risk.

In Timor-Leste, dugongs are not actively hunted due to their sacred status. However, they remain vulnerable to destructive fishing practices, boat strikes, and coastal development that affects seagrass bay habitats. In Liquiçá and Dili, known feeding areas are near current or planned development zones, increasing the risk of habitat loss. Future tourism or boat traffic may further impact dugong habitat range.

In Com, a community-led initiative has shown success in protecting dugongs and turtles, with many individuals regularly visiting the community-managed protected area. Dugongs are also sighted around Ataúro Island, but further study and monitoring of the local population is needed to inform protection strategies.

## Saltwater Crocodiles

Saltwater crocodiles (*Crocodylus porosus*) are a significant and revered presence in Timor-Leste, inhabiting coastal waters, rivers, and mangrove ecosystems. In Timorese culture, crocodiles hold deep symbolic importance, often seen as ancestral beings or land guardians. However, as human populations grow and habitats shrink, encounters between people and crocodiles have increased — sometimes leading to fatal attacks.

Balancing cultural respect, ecological conservation, and human safety, the persistence of saltwater crocodiles requires careful planning, especially as the country seeks to expand marine and coastal tourism. A comprehensive wildlife management plan is needed to address habitat protection, community education and conflict mitigation strategies. These measures would reduce risky interactions while preserving the crocodile's role in the ecosystem and Timor-Leste's cultural heritage.

### Strategic objectives:

- Promote the conservation and scientific research on cetacean populations and other marine species.
- Develop a regulatory framework and ethical guidelines for these marine species.
- Develop community-based tourism that provides local benefits for both people and marine species.
- Develop sustainable infrastructure and build capacity for species observation.
- Educate and raise awareness about ethical interactions with wildlife.
- Promote international collaboration and seek funding sources for the management and conservation of this unique biodiversity.

### Measures and actions:

- Prioritise and support scientific research on cetacean populations and other key marine species, their behaviour, migration patterns and biologically important areas.
- Create MPAs and strengthen existing ones to safeguard critical habitats. This will include establishing and enforcing permitted activities and interactions with protected species, vessel speed limits within the zones, and the maximum carrying capacity of vessels and people in a protected area, as well as minimum safety requirements.
- Support the creation of an agency for marine protection and enforcement of marine legislation.
- Implement monitoring programs to assess the impacts of tourism as a feedback mechanism to ensure policy effectiveness.

- Establish a licensing or certification system for operators who comply with international standards (e.g. IUCN and IWC guidelines for whale tourism).
- Prohibit harmful practices (e.g. feeding, touching, overcrowding, harming, capturing, chasing protected species).
- Train and employ local communities as guides, researchers and hospitality staff, with an emphasis on training in responsible wildlife tourism practices.
- Promote and encourage community-owned ecotourism initiatives to ensure that economic benefits remain local.
- Promote and encourage tourism operators who adhere to sustainable practices and target eco-conscious travellers through global sustainability certifications (e.g. GreenFins certification).
- Develop cultural programs that connect traditional knowledge with conservation.
- Invest in low-impact tourism infrastructure (e.g. eco-friendly boats, land-based observation points, conservation or rehabilitation centres).
- Develop partnerships with international experts to transfer knowledge on best practices.
- Invest in the creation of a rescue and rehabilitation centre for marine wildlife, particularly protected species.
- Invest in the review and development of a long-term crocodile management plan, with a focus on strategies to manage human–wildlife conflict.
- Launch campaigns to educate tourists and local residents about ethical wildlife interactions.
- Position Timor-Leste as a high-quality, low-volume premier destination for whale watching.
- Establish partnerships with NGOs (e.g. World Wide Fund for Nature, Whale and Dolphin Conservation) for conservation funding.
- Seek UNESCO or the Ramsar Convention on Wetlands recognition for key marine areas.
- Seek transboundary protection and alignment in the management and protection of migratory species.

### 5.2.3. PILLAR 5: COMBATING MARINE POLLUTION AND WASTE MANAGEMENT

*«Plastic pollution is everywhere — all around us and even inside us — from our seas to our blood, to our brains. (...) By 2050, there could be more plastic in the ocean than fish.»*

António Guterres, Secretary-General of the United Nations

Plastic pollution suffocates the planet, harms terrestrial and marine ecosystems, affects well-being and the climate, as plastic waste also clogs rivers, pollutes the ocean and endangers wildlife.

The United Nations estimates that 11 million tonnes of plastic ends up in lakes, rivers and seas annually, with microplastics being of particular concern — tiny plastic particles up to 5 mm in diameter that enter food chains, water and air, thus posing a serious threat to public health.

Half of the more than 400 million tonnes of plastic produced globally each year is designed for single use, making it urgent to implement policies to reduce single-use plastics and improve waste management.

The Government of Timor-Leste is committed to reducing the country's plastic waste, as well as recycling and promoting reuse. This concept, which is not new, is known as the 3Rs Policy (Reduce, Recycle and Reuse) and requires greater awareness at the national level, including within the National Ocean Literacy Programme.

Reducing what is consumed is the first principle of sustainability, while recycling — that is, transforming waste into new resources — requires bold approaches and government investment. Reusing, meaning promoting conservation and waste minimisation practices, will also be an important government priority under the framework of the circular economy.

Recognising this issue, more than four decades ago the United Nations included a framework for the protection and preservation of the marine environment in UNCLOS, which requires States to protect and preserve the marine environment from all sources. States are also obliged to take necessary measures to ensure that activities under their jurisdiction do not cause harm or pollution to other States and their marine environment.

UNCLOS defines marine pollution as “the introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in deleterious effects such as harm to living resources and marine life, hazards to human health, hindrance to marine activities including fishing and other legitimate uses of the sea, impairment of the quality for use of sea water, and reduction of amenities.”

This international framework also provides for the regulation of State activities regarding the protection and preservation of the marine environment from a variety of sources, including land-based activities, seabed mining, deep-sea mining in the high seas, discharges, ships and atmospheric pollution. UNCLOS requires States to adhere to international standards for managing and regulating marine pollution.

Since the most significant source of marine pollution is land-based, States are encouraged to implement regulations that control pollution from land-based sources, not only plastic, but also materials from fishing activities, such as fishing nets, and agricultural chemicals, as these have the greatest impact on the environment and marine life.

It is also necessary to take into account the danger of biological and toxic waste (namely syringes and materials contaminated with blood, antibiotics, disinfectants and pharmaceuticals), which must always be disposed of safely.

The dumping of hospital waste in open dumps, near coastal areas or directly into watercourses poses a serious threat to marine and human ecosystems and promotes antimicrobial resistance, an emerging risk to global health.

With an integrated vision, combating pollution and improving waste management, including biological, organic and toxic waste, will not only ensure the long-term health of the ocean and marine resources but also allow ocean-related economic activities to grow sustainably, including marine tourism, thereby providing better living conditions for Timorese people.

A study conducted by the Asian Development Bank and the UNDP revealed that between 54.7 and 68.4 tonnes of plastic are generated daily in Timor-Leste. It is estimated that about 80% of this plastic enters the ocean directly, without any waste treatment or through direct disposal into the sea.

A study on marine and terrestrial pollution on Timor-Leste's south coast identified 14 critical hotspots with severe pollution loads. The study calls for urgent action to prioritise pollution control plans to protect the country's marine resources. The study, titled "Marine and Terrestrial Pollution on the South Coast of Timor-Leste", is the first to carry out a survey and collection of marine litter in four municipalities along the south coast. It is part of the ATSEA-2 Project and is based on the Transboundary Diagnostic Analysis and the Strategic Action Programme, conducted with the support of UNDP Timor-Leste.

The study identifies that most critical points are located near river mouths or estuaries where rivers meet the sea. It highlights growing concerns that pollution caused by sedimentation, plastic waste and abandoned fishing gear is destroying marine habitats (corals, mangroves and seagrass beds) and endangering marine life.<sup>94</sup>

The lack of wastewater treatment processes, poor waste management and processing, weak barriers between water resources and the ocean, and the absence of recycling

systems all contribute daily to the increasing amount of plastic and marine debris entering Timor-Leste's seas.

The Government is aware of this situation and is actively seeking solutions to address the threats of plastic marine pollution and other sources of marine contamination. In addition to Decree-Law No. 37/2020 on the 'Sale, Import and Production of Bags, Packaging and other Plastic Objects', and Decree-Law No. 2/2017 on the Urban Solid Waste Management System, as well as regulations on environmental impact assessments and environmental management plans, a national zero-plastic policy has also been established.

As mentioned, Decree-Law No. 37/2020 contains provisions prohibiting the 'introduction into consumption of any non-recyclable, non-biodegradable or non-degradable single-use plastic packaging or object for 13 items. However, according to a study carried out by the University of Georgia, 'Circularity Assessment Protocol for Timor-Leste', of December 2024, the ban is in force for only two of the 13 proposed items (single-use bags and foam takeaway containers), with single-use items still widely available for purchase and frequently disposed of in the rubbish. In the short term, finalising and implementing regulations for the other 11 items, as well as increasing inspections, monitoring and other enforcement measures, could have an immediate impact. On the other hand, according to the same report, beverage containers could be a promising area to focus on in the short term, as the necessary infrastructure to support a deposit return system already exists in the country, which could also generate employment.<sup>95</sup>

Internationally, Timor-Leste supports the formulation of a treaty on plastics, including the maritime sector, and has been participating in the ongoing negotiations under the auspices of the UN. Additionally, Timor-Leste has ratified the legal instruments of the International Maritime Organisation related to marine pollution, including the International Convention for the Prevention of Pollution from Ships (MARPOL), and its associated protocols. Timor-Leste is also engaged in collaborative efforts with its regional and international partners to address marine pollution.

There are, however, gaps to be filled in government efforts, particularly at the institutional level, such as overlapping jurisdictions and lack of coordination, planning and adequate budgeting — especially in rural areas and waste management; and at the legislative level, such as lack of regulation, enforcement mechanisms and weak awareness of the fact that marine pollution originates on land.

The Government of Timor-Leste recognises the importance of protecting and preserving the marine environment from pollution threats and acknowledges the widespread use of plastics in the country, particularly as containers for food, beverages and other daily

uses, as well as the pressing need for ambitious policies in the area of waste management.

For this reason, the Government of Timor-Leste is committed to better planning and budgeting to prevent marine pollution, including efforts not only in urban but also rural areas (since much of the plastic originates in rural areas and is transported through rivers), and also taking action with fishers and all vessel users to prevent plastic waste from entering the sea, while enforcing and monitoring MARPOL rules.

Regarding solid waste management, the Government will work to improve waste collection and management programs across the country, as well as enhance recycling initiatives, avoiding the burning of solid waste, which is not environmentally sustainable.

#### **Strategic Objectives:**

- Fulfil international commitments and obligations in combating plastic pollution through engagement in the international negotiations of the Plastics Pollution Treaty as well as other international conventions and mechanisms under UNCLOS.
- Improve the implementation of the MARPOL guidelines.
- Adhere to international conventions and treaties aimed at protecting human health and the marine environment from the harmful effects that may result from the inadequate management of hazardous waste, as well as the spread of marine pollution, in particular through toxic waste and plastic.
- Protect Timor-Leste's marine environment and ecosystems from marine pollution, including urgent actions related to marine plastic, such as enforcement and sanctioning measures, through a holistic approach.
- Secure the involvement of international and national stakeholders in close collaboration with the Government, including the participation of the private sector, NGOs and the Timorese population, to combat marine pollution and promote adaptation solutions for reducing, recycling and reusing polluting materials, particularly plastics.
- Strengthen national campaigns on the 3Rs Policy (Reduce, Recycle and Reuse), in association with the National Ocean Literacy Programme.
- Foster a circular economy in the country, with particular focus on recycling, reusing and repairing plastic materials, through training in the sector and incentives for both public and private sectors.
- Raise awareness of health and environmental issues, improving the management of biological, organic and toxic waste, with particular emphasis on the management of clinical waste, screening and random testing for cases of contamination, allergies, infections or bacteria, both on land and at sea.

- Promote the fight against marine pollution, especially plastic waste, and promote the improvement of plastic collection and management systems, namely through the 'Peixe Azul' (Blue Fish) campaign.

#### **Measures and Actions:**

- Monitor and actively participate in the negotiations of the Plastics Pollution Treaty, advocating for the principle of common but differentiated responsibilities and respective capabilities.
- Monitor and implement international treaties and mechanisms in the area of plastic pollution, as well as others related to the protection and preservation of the marine and terrestrial environment.
- Adhere to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which, since its amendment in 2019, includes provisions on plastic waste.
- Review relevant national legislation to specifically reference marine pollution and regulate accordingly.
- Regulate immediate measures to combat marine plastic, including enforcement and sanctioning measures, and increase monitoring and surveillance of waters under national jurisdiction.
- Also regulate to address pollution in rivers and other national water resources.
- Approve implementation, monitoring and evaluation mechanisms for approved legal frameworks, including those related to plastic material imports, the Urban Solid Waste Management System, and other regulations regarding environmental impact assessments and environmental management plans.
- Revitalise and promote the National Zero Plastic Policy, including in rural areas, and implement and enforce Decree-Law No. 37/2020 on the disposal, import and production of plastic bags, packaging and other plastic items.
- Extend the 'Peixe Azul' (Blue Fish) awareness campaign (fish-shaped bins) to the whole country, ensuring the effective recycling of the plastic collected.
- Invest in monitoring, research and data collection on marine plastic pollution in Timor-Leste.
- Develop content on pollution and marine pollution to integrate into the National Ocean Literacy Programme.
- Distribute, across the country, equipment and bins for separated waste collection, linked to subsequent waste management (recycling), involving local authorities and communities.
- Invest in efficient waste collection and disposal systems using collection centres in each municipality, suco and village, including planning for the market value of plastic waste that could be sold internationally to the Plastic Bank or other waste banks.



- Promote, optimise and subsidise the private sector, if necessary, to improve existing waste management facilities and expand waste management infrastructure in Timor-Leste.
- Expand and improve recycling systems, notably by supporting existing businesses engaged in recycling activities and encouraging investment in recycling facilities and technologies.
- Strengthen environmental impact assessment regimes and mechanisms for activities with a high risk of marine pollution.
- Develop databases on waste collection and disposal (not only during beach clean-ups, but also in wetlands and water resources).
- Approve enforcement measures for all regulatory actions to ensure effectiveness and compliance.
- Seek financing mechanisms from development partners for reducing marine plastic and improving waste management.
- Ensure a holistic and coordinated approach to marine pollution, waste management, and water and sanitation policies.
- Monitor the implementation of basic sanitation systems in new public or private buildings (including residences), as well as waste management plans for any coastal tourism development.
- Promote access to regular medical examinations for workers in coastal areas (including fishers) and workers in industries exploiting water resources or other natural resources located at sea.
- Invest in research and development to identify bacteria and viruses in fish and seafood, as well as research and database records on the most prevalent diseases among populations living or working in coastal areas and industries located in blue areas.

#### 5.2.4. PILLAR 6: CARBON SEQUESTRATION

*«Seagrass meadows and mangroves are among the most important carbon sinks in the biosphere. They are essential filters of carbon pollution, plastics, heavy metals, and oil. They serve as a purification mechanism for the sea.»*

Carlos Duarte, Researcher and Executive Director of the Global Coral Reef R&D Platform

Carbon sequestration in the context of the Blue Economy — known as blue carbon — refers to the carbon dioxide captured by the ocean and coastal ecosystems. This carbon is stored in the form of biomass and sediments in mangroves, salt marshes, and seagrass meadows.

Blue carbon represents the most effective, though still underexplored, method in Timor-Leste for long-term carbon capture and storage. It reduces the concentration of greenhouse gases and contributes to climate change mitigation.

Improving our understanding of the global carbon cycle will help to develop more effective public policies in this area. It is important to highlight that over half (55%) of the green carbon captured annually worldwide — that is, carbon captured through photosynthetic activity — is captured by marine organisms. This oceanic carbon cycle is dominated by micro, nano, and picoplankton, including bacteria and archaea. Despite marine plant biomass accounting for only 0.05% of the total terrestrial plant biomass, the same amount of carbon circulates annually, making these organisms extremely efficient carbon sinks.<sup>96</sup>

Globally, conservation efforts have focused mainly on land ecosystems, particularly the protection of tropical forests, with the aim of mitigating climate change. More recently, there has been growing global awareness of the crucial role of marine ecosystems.

Climate change mitigation can also be achieved through the protection and restoration of natural ecosystems. In Timor-Leste's case, where a sharp reduction in fossil fuel production could compromise development, it is essential for the Government to identify options that help mitigate climate change while having neutral or even positive impacts on national development.

In this regard, the Government is committed to promoting, protecting, and conserving its valuable blue carbon ecosystems, namely:

- Mangrove forests, as essential forest environments for carbon sequestration.
- Saltwater marshes, found in intertidal areas, containing partially and fully submerged vegetation adapted to both freshwater and saltwater conditions.
- Seagrass meadows, as vegetation that creates a significant reservoir of buried carbon.

From the holistic and integrated approach intended through the Policy and Action Plan for the Promotion of a Resilient and Sustainable Ocean Economy in Timor-Leste, protecting coastal areas — where these blue carbon sinks are found — is essential for sustainable development. These ecosystems provide crucial services such as water filtration, reduction of coastal pollution and nutrient loads, sediment stabilisation, coastal erosion protection, and buffering against extreme weather events.

These are valuable ecosystem services with economic relevance. To reduce the degradation of coastal ecosystems, unsustainable practices in natural resource use will be curbed, and watershed and waste management will be improved.

The protection and restoration of coastal areas through coordinated integrated management is a necessary investment to enhance the productivity of coastal activities, food security, and the health of communities.

Likewise, the Government will conduct studies and based on science, promote investment in blue carbon with the aim of enhancing ecosystem services and contributing to climate change mitigation and adaptation.

The Government will evaluate and strengthen projects already underway in this sector, such as:

- *Carbon Offset Timor Foundation (FCOTI)*, created in late 2018 to develop reforestation initiatives, namely the Halo Verde Community Forest Carbon project under Plan Vivo certification. By mid-2021, the project had already supported more than 1,000 smallholder farmers, planted more than 250,000 trees on approximately 150 hectares and issued nearly 20,000 tonnes of certified carbon credits, including hundreds sold to international buyers. On average, the project estimates a net sequestration of around 247 tCO<sub>2</sub>e per hectare (after the risk reserve) and aims to expand to 322 hectares by 2029.
- *WithOneSeed*: managed by the xpand Foundation (also known as “Ho Musan Ida”), the first Gold Standard-certified community forestry program in Timor-Leste. Launched in Baguia in 2010, it now involves more than 1,200 farmers managing more than 500,000 trees and removing more than 128,000 tCO<sub>2</sub>e to date, while injecting nearly US\$900,000 into the local economy through incentives, jobs and cooperative structures.
- *Rai Matak*, funded by the EU and implemented with Oxfam and Ho Musan Ida, carbon farming is expanding to other municipalities: four pilot communities will plant up to three million trees, with around 400,000 viable survivors projected to sequester more than 400,000 tCO<sub>2</sub>e over 30 years. At a conservative carbon price of \$18 per tonne, this represents around \$7.2 million in income for the community and forms the basis of an emerging national carbon farming market and institutional framework.

In addition to blue carbon investment, the Government of Timor-Leste is also planning to reuse the depleted oil field for CO<sub>2</sub> storage. The concept of storage is now an

important and recognised means of mitigating climate change. Carbon capture and storage (CCS) is an alternative to reducing CO<sub>2</sub> emissions from the production and use of fossil fuels. CCS is a recently applied technology to prevent the accumulation of gas in the atmosphere, transporting it to a storage site to permanently isolate it from the Earth's atmospheric carbon cycle by injecting it into depleted oil and gas reservoirs in the Timor Sea.

Some benefits for Timor-Leste with the application of this technology are:

- The use of CO<sub>2</sub> as a tool to maximise the extraction of remaining gas resources in the oil field;
- Geological storage of CO<sub>2</sub>, in addition to extending the life of these fields, could usher in a new and valuable carbon services industry for Timor-Leste, creating new jobs and a new source of revenue for the nation.

**Strategic Objectives:**

- Promote integrated policies to combat the degradation of coastal ecosystems, including unsustainable practices in the use of natural resources, watershed management, and waste management.
- Promote and restore coastal areas through coordinated integrated management to improve the productivity of coastal activities, food security, and community health.
- Promote reforestation and agroforestry, providing benefits in terms of both carbon removal and coastal resilience, stabilising soils, improving watershed management and increasing biodiversity — important synergies between forest and marine ecosystems.
- Promote the design of community-led and socially inclusive projects: FCOTI and WithOneSeed/Rai Matak are based on partnerships with subsistence farmers and women, using annual incentive structures, farmer cooperatives and training to ensure equitable benefit sharing and build local ownership — strategic elements for sustaining long-term carbon interventions.
- Prepare the carbon market and policies, notably through securing Plan Vivo and Gold Standard certification, voluntary carbon markets and national enabling instruments — tailored to be scaled up through carbon farming policies, legal frameworks and greenhouse gas accounting systems in the land sector, currently supported under the development of the EU-TA carbon farming policy.
- Contribute to the long-term sequestration and storage of carbon, thus combating climate change and improving living conditions for Timorese citizens and humanity at large.

- Develop community-led nature-based solutions projects, including the restoration of mangroves, preservation of saltwater marshes, and conservation of seagrass meadows.
- Access the voluntary carbon market and unlock new sources of sustainable income to support local livelihoods.

#### **Measures and Actions:**

- Conduct biodiversity surveys and research in Timor-Leste, increase national and international research efforts on carbon sequestration in coastal areas.
- Map and characterise blue carbon ecosystems in Timor-Leste.
- Based on this mapping, define appropriate conservation and restoration measures, and promote their valuation.
- Create a national portfolio of blue carbon ecosystem interventions for future investment opportunities by entities aiming to offset their carbon footprint.
- Improve local management measures based on current knowledge of emissions from degraded coastal ecosystems.
- Educate and raise awareness among local communities about the importance of marine and coastal ecosystems, particularly through the National Ocean Literacy Program.
- Conduct financial and institutional impact studies on blue carbon, as well as build capacity for projects to be developed by local communities.
- Encourage private sector development through subsidies and tax incentives for companies investing in blue carbon initiatives.
- Establish carbon markets that enable the buying and selling of carbon credits, incentivising emission reductions.
- Evaluate and strengthen the *Carbon Offset Timor Foundation* and *WithOneSeed/Rai Matak*, based on partnerships with subsistence farmers and women.
- Ensure Plan Vivo and Gold Standard certification, voluntary carbon markets, and national enabling instruments.
- Transform and encourage the reuse of geological reservoirs, facilities, and offshore infrastructure used in oil and gas exploration for carbon capture and storage (e.g., the depleted Bayu Undan gas fields).
- Encourage the exploration of new geological reservoirs in the Timor Sea for permanent CO<sub>2</sub> sequestration and storage.
- Promote the development of a legal framework for the implementation of CO<sub>2</sub> sequestration, capture and storage in the Timor Sea.

### 5.3. AXIS 3: SUSTAINABLE USE (LIVING WITH THE SEA)

*«The fight against poverty, maternal and child undernutrition, and food insecurity, along with job creation and the improvement of infrastructure, are priorities on our agenda. We must remain steadfast in our efforts to diversify our economy, reducing excessive dependence on oil and gas revenues, and investing in new, economically viable and productive areas that can offer a promising future for our youth.»*

José Ramos-Horta

The country is blessed with natural resources, notably oil and gas reserves, whose revenues have supported national development for over two decades. However, these are finite natural resources, and the Government is committed to investing in economic diversification, particularly through the Blue Economy.

The aim is to connect Timorese communities more deeply with the sea and the sustainable development opportunities it provides. This includes not only the preservation and conservation of its biodiversity but also the sustainable use of marine resources, generating employment, income, and improvements in socioeconomic conditions — including in health, education, culture, sports, and recreation.

The Government will therefore invest in the development of the fisheries, aquaculture, tourism and renewable energy sectors, which will bring additional economic returns and other benefits to Timor-Leste. This includes fostering new economic and industrial sectors, encouraging the development of the national private sector, and promoting foreign direct investment in the country.

This strategy also involves strengthening international cooperation through knowledge sharing, experience exchange, and investment, with the ocean as the common denominator — an ocean that connects Timor-Leste to the world and the world to Timor-Leste, while confronting shared challenges that threaten the security, stability, and sustainable development of many nations, particularly Small Island Developing States and Least Developed Countries.

#### 5.3.1. PILLAR 7: BLUE TOURISM

*«Our vision is that, by 2030, we will have a vibrant and attractive tourism sector that significantly contributes to employment across the country, is economically, socially, and environmentally sustainable, helps promote a positive image of Timor-Leste abroad, and is an industry in which people want to work.»*

Rui Maria de Araújo

Blue tourism is the internationally adopted concept referring to sustainable tourism focused on coastal and marine areas. One of its main characteristics is that it is not solely centred on economic growth and profit, but also on promoting activities that support ocean, sea, and freshwater conservation — with a priority on fair and equitable development of local communities.

The Government of Timor-Leste considers the strategic development of blue tourism a means to balance the use of marine resources with environmental protection, promoting practices that minimise ecological impact.

The country offers numerous opportunities to expand its current ecotourism offerings through a high-value, low-volume community-based model. This includes investing in the expansion of eco-resorts and homestay accommodation in new parts of the island, creating jobs in the tourism sector.

This homestay tourism model can lead to the integrated development of activities that benefit entire communities and is also an attractive alternative for tourists seeking immersive experiences in nature, culture, and tradition.

In addition, the development of new high-standard eco-resorts can attract high-value tourism, generating greater economic benefits for communities. This expansion will require infrastructure investment, such as improved electricity, basic sanitation, telecommunications, road networks, and transport options to support tourism in new areas and deliver high-quality tourist experiences.

To achieve the objectives of sustainable tourism development, the Government will focus on strengthening local capacities through training and the inclusion of young people and women. One way of doing this is through the participation of local communities in the community management of reefs and fishing areas, supported by traditional regulations such as Tara Bandu. The ministry responsible for tourism plans to create training and awareness programs for local community groups that provide tourism services (tour operators, tour guides, women entrepreneurs in tourism infrastructure, and Ataúro divers 'WAWATA TOPU', who symbolise traditional ecological knowledge, resilience and female empowerment).

Furthermore, investment in the port and aviation sectors is essential to meet tourism sector growth goals. The Government is actively working on evaluations, procurement, and financing processes for such developments.

The Human Capital Development Fund has already supported the training of human resources in the tourism sector. The Government now aims to strengthen education, training, and capacity building in the Blue Economy field, including sustainable tourism.

Timor-Leste can benefit from its strategic location in the Asia-Pacific region which has a growing international tourism market, and from the nation's forthcoming accession to ASEAN.

#### **5.3.1.1. Coastal Tourism**

Coastal tourism is a segment of blue tourism focused on coastal areas, with the beach and sea as the main attractions. This type of tourism is characterised by activities that leverage proximity to the ocean, offering experiences common to most island nations and coastal regions — particularly in those with tropical climates that allow year-round tourism opportunities.

The Government will promote selected coastal destinations both nationally and internationally and will establish certification schemes for hotels and tour operators that follow sustainable practices.

Within this context, coastal tourism will be linked to the promotion and restoration of coral reefs and the conservation and protection of marine species. This includes the development of community-led activities, such as the creation of turtle nesting sponsorship sites.

Beyond the beach and sea, it is possible to promote cultural and gastronomic experiences, as well as conservation, leisure, and sports activities.

#### **Strategic Objectives:**

- Sustainable development across the country, prioritising practices that preserve marine ecosystems, coastal zones, and other areas with aquatic spaces such as streams, lagoons, and waterfalls, while promoting the responsible use of natural resources. This includes the conservation of marine and aquatic biodiversity and the protection of critical habitats such as coral reefs, mangroves, and estuaries.
- Development of both traditional and innovative activities within the blue tourism sector, such as diving and snorkelling, whale and marine species watching, sustainable and recreational fishing, boat tours, coastal and mountain water-based adventure tourism, and beach and water sports (such as beach football and volleyball).



- Encouraging community development by enabling blue tourism to be community-led. This includes professional training and capacity building, provision of subsidies and access to small-scale development capital, as well as the transfer of local tourism management with respect for local culture and tradition.
- Promote the local economy and the empowerment of women and young people across the country, within the framework of promoting blue tourism activities, including training and capacity building.
- Encourage traditional practices for the promotion of marine conservation and blue tourism, such as Tara Bandu.
- Promoting environmental education and awareness, particularly through ocean literacy programs, targeting both host communities and visiting tourists, to raise awareness about sustainable practices and ecosystem preservation, with both national and international impact.
- Developing the national private sector, especially in tourism and related industries, by providing conditions and resources for low-impact tourism development, including sustainable transportation, eco-friendly accommodation, and proper waste management systems.
- Increasing the number of tourists visiting the country, while enforcing strict sustainability rules for entry, use, and tourism practices.
- Positioning Timor-Leste as a premium, low-volume, high-quality destination for whale watching, diving, and nature-based tourism.
- Implementing, in an integrated and sustainable manner, the National Tourism Policy, with concrete action plans that ensure both financial and environmental sustainability.
- Improve the legal and regulatory framework for the tourism sector.
- Invest in international tourism promotion and marketing campaigns in Timor-Leste.
- Create financial incentive funds to protect biodiversity and its ecosystems. This Blue Tourism Community Project Support Fund is allocated for the exclusive use of the community, upon proposal by organisations, associations and cooperatives in the field of ecological establishments for the production and trade of handicrafts, local restaurants, seaweed production, and other activities.
- Implement Coastal Zone Management Plans linking the establishment of a land use regime for coastal zone management to an economic development strategy based on the development of coastal tourism, taking into account environmental issues and the rational and sustainable management of natural resources, thus integrating planning with investment strategies.

## Measures and Actions:

- Develop low-impact tourist activities, such as ecotourism and diving, that value and preserve local culture and marine ecosystems, with the aim of generating income and employment, including nautical observation and sports activities (sailing, traditional canoe trips, whale watching, among others).
- Regulate tourist activities in protected and sensitive marine areas (eg reef coral areas under reconstruction).
- Train local operators in good environmental practices to care for and preserve the marine environment.
- Provide exclusive funding to promote community participation, based on proposals from organisations, associations and cooperatives in the field of eco-friendly establishments for the production and sale of handicrafts, local restaurants throughout the country's coastal zone, etc. These projects aim to encourage community and local participation in tourism activities, particularly coastal and community tourism.
- Define Sustainable Blue Tourism Areas by designating blue flag beaches in order to promote the safe use of these beaches by tourists and the local population.
- Build community eco-lodges in Ataúro, Lautém and throughout the coastal zone.
- Install informative coastal tourist signage.
- Socialise and expand the programs and campaigns: 'My Sea, My Timor', 'National Ocean Week', 'The Sea Begins Here! The Blue Economy, from the Mountains to the Sea'; 'Young Ambassadors of the Blue Economy'; and 'Blue Fish'.
- Encourage the participation of local communities in the community management of reefs and fishing areas, with the support of traditional regulations such as Tara Bandu.
- Create training programs for local community groups that provide tourism services (tour operators, tour guides, divers, women entrepreneurs in tourism infrastructure, Ataúro 'WAWATA TOPU' women divers and other community tourism operators).
- Support, through a financial and capacity-building fund, the 'women divers' or 'women of the sea' of Ataúro Island.
- Promote Tara Bandu practices in marine conservation on Ataúro Island and the entire coastal zone of the country by local communities.
- Create a Support Fund for Blue Tourism Community Projects and financial incentives for seaweed production groups.
- Implement international campaigns focused on diving, nature and eco-tourism.
- Promote the use of environmentally friendly materials and sustainable construction in the country's coastal areas.

- Finalise the draft law and regulations for the Basic Law on Tourism to improve the coordination and evaluation of policies defined and approved by the Council of Ministers for tourism, commercial and industrial activities.
- Develop regulations and establish strict licences for contact with marine species, including their monitoring.
- Expand reef restoration in Marine Protected Areas and consider new marine protection areas.
- Expand the restoration of coral reefs, mangroves and seagrass beds.
- Monitor and combat marine pollution.
- Raise awareness, encourage and train coastal communities to protect the marine environment through community-involved coastal clean-up campaigns.
- Control crocodile populations and map safe areas with blue flags, investing in a long-term crocodile management plan.

#### **5.3.1.2. Maritime or Nautical Tourism**

Sustainable maritime or nautical tourism is also an important component of Blue Tourism, though more specific in focus, as it primarily involves tourism and recreational activities carried out on the water using boats and other water-based transportation.

In this regard, the Government will assess the feasibility of promoting activities such as boating and boat tours, diving and snorkelling, sustainable recreational fishing in designated offshore areas, as well as cruises or maritime expeditions to be developed by the private sector.

The Government will also promote the necessary conditions to map and publicise Timor-Leste's top diving locations. Globally, "premium" dive sites are typically mapped to facilitate access and promote this rapidly growing tourism niche. Accordingly, through integrated approaches involving relevant stakeholders in tourism, the environment, dive operators, and environmental conservation institutions, the Government will promote dive tourism, including the establishment of appropriate information centres and the development of basic support infrastructure for this activity.

Considering national priorities and the need to manage public resources while ensuring that these activities are carried out with equipment and practices that promote the highest levels of sustainability, the development of nautical tourism is presented here as a long-term policy. This is without prejudice to the assessment of investment projects and environmental impact evaluations, particularly concerning offshore activities, cruises, and maritime expeditions.

## Measures and Actions:

- Invest in training human resources in the field of sustainable tourism.
- Rehabilitate the Dili waterfront as part of the urban planning for the city of Dili, which may include the construction of a Dili Marina and other projects to redevelop the Dili waterfront, turning it into a pleasant leisure area.
- Build and activate Crocodile Management Parks, increasing beach safety while preserving the species and promoting the touristic appeal of an animal that holds formal symbolic value in Timorese identity.
- Promote arts and cultural initiatives, including gastronomy, in coastal areas, during National Ocean Week celebrations.
- Encourage beach activities by ensuring cleanliness, safety, and infrastructure, while upholding sustainable practices and respect for nature.
- Develop specific regulations for coastal and marine use, as well as for interactions with nature.
- Prepare specific regulations for whale and marine species watching.
- Map and promote Timor-Leste's prime diving sites, along with guidelines for sustainable practices in the sector.
- Train and equip people in rescue techniques and first aid, namely training professional lifeguards.
- Map and promote Timor-Leste's mangrove forests, along with sustainable visitation and usage practices.
- Invest in diving tourism development strategies, including adequate information centres and basic infrastructure, such as access pontoons for recreational boats transporting divers and hyperbaric chambers for decompression.
- Create a certification program for hotels, ecotourism resorts, local accommodation, and tour operators that adhere to sustainable practices.
- Develop an integrated waste collection and management plan, including provision of bins.
- Support the private sector in providing beach infrastructure, including access transport, parking facilities, signage, food services, and designated areas for sunbathing, swimming, and other activities, especially water sports.
- Promote beach sports such as beach football and volleyball, as well as water sports like windsurfing, kitesurfing, and kayaking.
- Develop beach entertainment activities, particularly for families with children, to strengthen national maritime identity. This includes nature conservation activities, such as protecting species like turtles.

### 5.3.1.3. Nature Tourism

*«A beautiful country like Timor-Leste, with its history of determination and heroism, should not be promoted through a tourism industry that creates a small modern world of luxury hotels, but rather through the creation of conditions for ecotourism, as a means of promoting the identity, personality, and unique character of our people, with a more human dimension in relationships between people.»*

Kay Rala Xanana Gusmão

Natural conservation zones, including protected areas and national parks, aim to safeguard ecosystems by limiting commercial and other human activities. They allow for research and educational activities, as well as cultural, tourism, and leisure activities. Timor-Leste's first protected area is the Nino Konis Santana National Park, which will play a strategically important role in developing the country's sustainable tourism, considering both its terrestrial and marine areas, rich in biodiversity and cultural and historical heritage.

In addition, various studies and reports highlight sites of international ornithological significance that should be protected. Bird species are intrinsically linked to both marine and terrestrial biodiversity, especially in mountainous areas and inland waters.

Ornithological importance is frequently recognised in international treaties and conventions, such as the Convention on Migratory Species and the Convention on Biological Diversity, which encourage the protection of bird species and their habitats.

The *Strategic Development Plan 2011-2030* identified several areas of potential interest for conservation, in addition to Mount Manucoco in Ataúro, such as Tilomar, Ramelau, Fatumasin, Matebian, Kablake, Builo, Clere-Lore, Mount Paitchao and Lake Iralalaro, Mount Diatuto, Be Male-Atabae, Maubara, Mak Fahik and Sarim, Tasitolu, Areia Branca, Mount Curi and the Irabere and Iliomar Estuary, most of which have important water resources.

The Government will also promote nature tourism in the western region of the country, with a focus on the hot springs of Marobo, combining nature conservation with historical and cultural heritage.

#### **Measures and Actions:**

- Link the designation, management and planning of protected areas to the promotion of sustainable tourism and ecotourism.

- Support tourism operators and hospitality, food service, and other related sectors through training, capacity building, and enabling conditions for carrying out sustainable tourism activities.
- Promote hotels, guesthouses, and family-run accommodation, creating conditions for their ecologically sustainable expansion.
- Regulate and support the public and private transport industry to facilitate travel across the country.
- Regulate access to protected areas and national parks, including setting appropriately considered tourist entrance fees.
- Define and create hiking trails and mountain paths for adventure tourism in the country's interior, with the strategic involvement of local communities.
- Establish Tourist Information Centres in various parts of the country, making use of existing institutions such as Marine Research and Education Centres.
- Support the development of a network of private accommodation at key national points of interest.
- Train and build the capacity of individuals to support adventure tourism activities such as hiking, climbing, diving, and snorkelling, among others.
- Invest in signage for areas of interest and accommodation throughout the country.
- Combine whale watching with other ecological activities (e.g., diving, birdwatching, cultural and coffee tours).
- Target environmentally conscious travellers through global sustainability certifications.

### 5.3.2. PILLAR 8: LIVING RESOURCES EXPLOITATION

*«If we want to care for our planet and all living beings on it, the conservation and sustainable use of the ocean and its resources must be our starting point.»*

Francisco Kalbuadi Lay

The sustainable exploitation of living resources refers to the use of living organisms — such as fish, crustaceans, plants, and other biological resources — to ensure their populations and associated ecosystems remain healthy and productive over time.

The northern sea of Timor-Leste is characterised by a narrow coastal shelf, coral reefs, high temperatures, low nutrient levels due to limited river runoff, and absence of sea upwellings. This results in low recruitment of commercial species and limited phytoplankton production due to low oxygen levels.

The southern sea of Timor-Leste, exposed to stronger wave action and winds and lacking the protective barrier of multiple Indonesian islands, receives more nutrients — both

from river input and sea upwellings events. Its broader continental shelf retains nutrients within the photic zone, enabling primary phytoplankton production.

Despite being an island nation, Timor-Leste has a limited tradition of fishing. This is often attributed to cultural factors and environmental conditions: poor fishing potential in the north and hazardous fishing conditions in the south. Furthermore, studies show that although fishing effort has increased (more fishers and boats), total catches have not increased proportionally. This may indicate either that marine capacity is reaching its limit or that there is little potential for growth without environmental damage.

It is therefore essential to develop and implement strategies to enhance fish production.

Other sectors, such as aquaculture development and sustainable marine biotechnology, offer opportunities for industrial diversification and marine ecosystem restoration.

#### 5.3.2.1. Fisheries and Aquaculture

*«There are hundreds of millions of traditional fishers in remote, rural, and urban communities worldwide. With the right support, they can fundamentally reshape our relationship with the ocean. They can rebuild their fisheries, strengthen their livelihoods, and improve food security. They can restore ocean life and maintain healthy environments for generations to come.»*

Blue Ventures

The *Strategic Development Plan 2011–2030* noted that while the fisheries sector in Timor-Leste was well regulated, law enforcement remained a major challenge requiring improvement.

These challenges persist. However, under the Blue Economy Promotion Framework, the Government now has a strategic opportunity to implement a sustainable fisheries sector that improves Timorese livelihoods and protects the environment.

The Legal Regime for Fisheries and Aquaculture Management stipulates that commercial fisheries must follow the precautionary principle and be sustainable. It restricts commercial fishing to practices that do not harm marine and aquatic ecosystems and requires that fishery management plans be based on prior assessment of aquatic biological resources and the potential environmental impacts of fishing.

The Government is committed to ensuring that both commercial and non-commercial fishing comply with legal frameworks that support the conservation and sustainable use of marine resources. Commercial fishing and seaweed harvesting require authorisation,

which can be denied if the activity is deemed harmful to the marine environment, ecosystems, or species preservation.

Even non-commercial fishing may be temporarily banned to protect species and ecosystems—as is already practiced in some areas under community-enforced Tara Bandu customary law.

The fisheries regime also prohibits the discharge of toxic substances into freshwater and marine environments. Any project that discharges wastewater into these environments must be approved by the Government.

Similarly, proposed marine or freshwater aquaculture projects must be pre-approved by the relevant ministry. The fisheries regime applies the “polluter pays” principle and holds parties objectively liable for environmental damage. The fisheries legislation lists protected species, and ministerial regulations define fishing zones, specifying commercially valuable species, allowable sizes and weights, and bycatch limits.

However, the current zoning framework (Joint Ministerial Decree No. 1/03/GM/I/2005) is only based on distance from the coast and does not integrate marine restocking zones or national marine parks where fishing may be prohibited.

In 2004, special legislation was enacted to criminalise certain harmful practices, such as fishing with explosives or toxins, coral destruction, and fishing in protected zones without a license. However, the 2009 Penal Code reduced these penalties (removing cumulative prison and fines). Fines are now set by ministerial decree based on the extent of damage caused. There is a need to harmonise the protected species list with the Penal Code.

Currently, the ministerial decree listing protected species does not indicate whether species are endangered or threatened. The Penal Code penalises the capture of endangered and threatened species but not protected ones.

The Government will review all fisheries and aquaculture legislation to bring it into line with the Penal Code, current national development priorities, emerging environmental concerns, international commitments, and Blue Economy objectives, including marine spatial planning and marine protected area regimes.

Fisheries and aquaculture are vital to food security and nutrition. Fisheries provide livelihoods, reduce poverty, promote employment and development, and support rural and coastal stability. They also have cultural, recreational, and tourism value.



According to the Ministry of Agriculture, Fisheries, Livestock, and Forestry, fish production fell from 8,630 tonnes in 2019 to 8,060 tonnes in 2023, totalling 40,244 tonnes over five years. The lowest year was 2022, with only 7,104 tonnes produced. Fish accounts for 31% of animal protein in the Timorese diet. By 2030, the Government aims to increase per capita fish consumption to 15 kg, with aquaculture providing 40% of local supply (WorldFish).

The 2019 Timor-Leste Agricultural Census reported that about 60% of agricultural households engage in fishing — 51% for household consumption, 24% for sale, and 26% for both domestic use and social obligations. Overfishing is unsustainable as many resources risk depletion.

In this regard, it is a priority for the Government, in coordination with local authorities, to promote the sustainable management of the community-based fisheries sector by introducing integrated coastal management with the involvement of all relevant stakeholders.

Timor-Leste exports fish and seaweed to China, Vietnam, Hong Kong, the Philippines, Singapore, Spain, Australia, South Korea and Indonesia. The Government will activate monitoring and control systems to increase exports in line with product quality, while ensuring the balance of marine ecosystems under national jurisdiction.

Illegal, unreported, and unregulated fishing poses a serious threat to sustainability and economic development. It undermines environmental sustainability and food security. The Government must urgently invest in surveillance systems and international cooperation to protect its marine resources.

Aquaculture — particularly tilapia and carp farming — plays a significant role in the rural economy. Other promising aquaculture activities include seaweed farming and farming of shrimp, abalone, crabs, and oysters. These can generate income for coastal communities. To ensure sustainable aquaculture development, the National Aquaculture Development Strategy (2012–2030), developed with support from WorldFish, should be reviewed and implemented by the Government.

In partnership with WorldFish, in 2019 the Government of Timor-Leste launched the world's first monitoring system for artisanal fisheries. This online dashboard tracks fishing activities almost in real time, including the number and type of fish caught by each vessel. This critically important system should be strengthened and supported by the Government, to develop better public policies for the fisheries and aquaculture sector.

Lastly, the Government will continue to invest in capacity building and technical-vocational qualifications for this sector, including support with equipment and technology, to ensure both economic and environmental sustainability.

**Strategic Objectives:**

- Protect marine biodiversity and ensure that fish populations and other marine and aquatic species are maintained in healthy quantities and environments.
- Incorporate climate change adaptation and mitigation measures into marine and coastal resource management, taking into account sea level rise, ocean acidification and changing species migration patterns.
- Integrate a gender perspective into all initiatives, recognising and promoting the fundamental role of women in artisanal fishing, processing, marketing and management of marine resources, and ensuring their equitable access to benefits, training and decision-making.
- Invest in science, research, and surveys — particularly within the framework of the Marine Biodiversity Assessment and Study of Timor-Leste — for responsible fisheries and aquaculture management.
- Implement sustainable fisheries and aquaculture management programs through responsible practices that prevent overfishing and the destruction of marine and aquatic habitats.
- Effectively combat Illegal, unreported, and unregulated fishing.
- Strengthen monitoring, control and surveillance systems.
- Strengthen regional and international cooperation for the shared management of migratory species, combat illegal, unregulated and unreported fishing, share scientific data and best practices, and harmonise conservation measures.
- Engage and support coastal communities whose main activities rely on marine resources, encouraging their increased participation in management, protection, and conservation decisions.
- Launch awareness campaigns within communities to promote the benefits of sustainable practices and the importance of marine resources for food security and the healthy development of the Timorese people.
- Review and modernise the legal framework for the fisheries and aquaculture sectors, aligning it not only with current development needs but also with emerging environmental concerns and biodiversity preservation, and with international commitments and the specific goals of the Blue Economy.
- Strengthen the capacity of local fishers by improving access to knowledge, technology, and equipment.
- Coordinate fisheries sector development with the improvement of port infrastructure, with the appropriate components.

- Improve aquaculture infrastructure to increase production, capacity building, and development of this economic activity.
- Strengthen monitoring, control, and surveillance systems.
- Invest in the export market for fish and aquaculture products.
- Invest in the establishment of fish landing centres and markets, equipped with appropriate refrigeration systems, through which the Government can enforce quality and food safety standards, as well as ensure fair pricing, while providing the sector with proper oversight and monitoring.
- Promote sustainable fish consumption.

#### **Measures and Actions:**

- Promote research on marine biodiversity, fish population dynamics, and the impacts of fishing activities, using scientific data to inform policies and management practices.
- Develop a national database on Timor-Leste's fish stocks, spawning and breeding areas, and sustainable harvest levels for commercial species, coordinated with the mapping of Key Biodiversity Areas and the Marine Biodiversity Assessment.
- Strengthen enforcement of fisheries and aquaculture activities and implement monitoring systems to ensure compliance with existing laws and regulations.
- Review and regulate fishing license fees based on scientific studies and sustainable limits.
- Establish permanent consultation mechanisms with local authorities and communities in the fisheries and aquaculture sectors.
- Provide training programs for fishers and coastal communities on sustainable fishing practices, resource management, and conservation.
- Establish international partnerships and cooperation projects for the sustainable management and implementation of fisheries — particularly in high seas and international waters.
- Build national capacity for high seas and international water fishing, including vessels, technology, and equipment, and training on international regulations, notably UNCLOS.
- Adhere to and implement international and regional legal instruments applicable to access to fisheries and the export of fish and fishery products, such as the 1995 United Nations Fish Stocks Agreement (straddling and highly migratory stocks) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) — in order to ensure sustainable fishing, particularly on the high seas.
- Promote international cooperation with other countries and international organisations on cross-border sustainable fisheries issues.

- Assess and identify gaps in the current legal framework for fisheries and aquaculture and develop a modern legal regime that balances economic development with ecosystem and biodiversity protection.
- Define updated regulations based on scientific evidence and the new legal framework, including: catch limits for population recovery; no-fishing zones aligned with marine protected areas; sustainable practices and methods to minimise ecosystem degradation and bycatch; permitted vessel types and fishing zones; and licensing regulations, especially for foreign commercial vessels, including sanctions and fines.
- Introduce sustainable fishing certification systems and encourage responsible consumption.
- Develop port and logistics infrastructure to support the fisheries sector, including landing points for fishers.
- Develop alternative fish preservation methods such as salting, smoking, and drying.
- Support sustainable fishing through measures that prevent overfishing and enforce biodiversity protection regulations, especially in protected areas.
- Map all vulnerable coastal areas to prevent their development or conversion into aquaculture or salt production zones, and revert non-productive areas into natural systems.
- Offer aquaculture training programs on farming techniques, disease prevention, and sustainable practices, along with know-how tools to improve skills and knowledge.
- Develop various types of aquaculture in freshwater, brackish, and saltwater environments.
- Allocate additional funding for the construction and maintenance of aquaculture facilities such as hatcheries and nurseries, and facilitate access to financing.
- Develop studies and research to support aquaculture activities, particularly by providing alternatives to the challenges faced in its development, namely, the quality and availability of necessary water resources, competition over land and water use, disease prevention, feed ingredients, and species development.
- Restructure the Liquiçá Aquaculture Training Centre to train fishery technicians, fishers, and aquaculture producers.
- Improve existing water supply and distribution systems to ensure consistent, unpolluted water for aquaculture activities.
- Conduct awareness campaigns about the nutritional value of fish, promoting increased demand alongside supply.
- Invest in markets, auction facilities, distribution centres, and mechanisms connecting producers and consumers, including cold chain infrastructure like freezers, refrigerated warehouses, and offshore freezing capabilities.

- Conduct studies to promote offshore fishing and ensure the sustainability of export markets.
- Strengthen national institutional cooperation to ensure cross-sectoral interventions with various partners, especially the private sector.

#### 5.3.2.2. Marine Biotechnology

*«Advances in science and technology over the past decade have increased our understanding of the ocean's biological resources and renewed interest in the field of marine biotechnology. Governments are recognising the potential of marine biotechnology to address some of today's global challenges and are integrating marine biotechnology into their innovation, national prosperity, and economic and social growth strategies. As marine biotechnology becomes a prominent feature of these strategies, it will be important to ensure that its development is pursued sustainably.»*

OECD

Marine biotechnology, also referred to as “blue biotechnology” involves the sustainable use of marine biodiversity to develop innovative and sustainable solutions across various sectors, including food and agriculture, pharmaceuticals, cosmetics, and energy (through biofuels).

Marine biotechnology harnesses marine bioresources — ranging from macroorganisms and microorganisms such as zooplankton, fish and marine mammals, molluscs, crustaceans, bivalves, macro- and microalgae, bacteria, and fungi — to discover bioactive compounds, enzymes, and other products that can be used in technological innovation.

This emerging area of ocean-based applications is in its early stages but represents a significant potential source of job creation and revenue generation provided the balance between sustainable exploitation and the preservation of marine ecosystems is carefully maintained.

Although Timor-Leste does not yet have the national capacity to develop marine biotechnology projects independently, it must follow this field closely. Global trends suggest that marine biotechnology is becoming increasingly relevant, especially in light of international projections forecasting that global food demand in 2050 will be twice the current levels, along with a growing demand for natural ingredients derived from the largely unexplored ocean environment.<sup>97</sup>

### **Strategic Objectives:**

- Monitor international developments in the field of marine biotechnology and assess the challenges and opportunities facing this sector.
- Promote the sustainable use of national marine resources, beginning to build national capacity to explore their present and future potential.
- Contribute to science and innovation, particularly through strategic partnerships in key development areas such as health, food and nutrition, agriculture and fertilisers, and biofuels.
- Promote and support the development of biotechnology that contributes to the restoration of marine ecosystems.

### **Measures and Actions:**

- Develop scientific research, including within the framework of the Marine Biodiversity Survey and Study of Timor-Leste, to promote and invest in research and development for biotechnological applications.
- Encourage higher education for national staff in marine biotechnology and provide professional training in support areas for the sector's development.
- Develop international cooperation and strategic partnerships to bring innovation in marine biotechnology to Timor-Leste.
- Align the legal frameworks to be developed under the Blue Economy with the challenges and opportunities posed by the growth of marine biotechnology.
- Encourage private sector development in this field by promoting entrepreneurship and the creation of startups focused on marine biotechnology.

### **5.3.3. PILLAR 9: EXPLORATION OF NON-LIVING RESOURCES AND ENERGY PRODUCTION**

The exploration of non-living marine resources and sustainable energy production refers to practices that aim to ensure the responsible and balanced use of natural resources without compromising environmental equilibrium or the long-term development capacity of future generations.

These non-biological resources such as minerals, metals, water, and fossil fuels, have low or no regenerative capacity and are formed over millions of years, raising critical sustainability concerns.

In a rapidly changing world that remains heavily dependent on fossil fuel-based energy sources, transitioning to cleaner energy is a major challenge, especially as energy security concerns become increasingly urgent.

Therefore, the energy transition process — intended to replace fossil fuels with renewable energy sources — is a critical commitment to meet global carbon neutrality targets by 2050. This must be conducted gradually and consistently to avoid disruptions to energy supply chains and human development while mitigating climate change.

Timor-Leste closely follows these issues and, while acknowledging the need for carbon neutrality, remains reliant on its available resources to finance the transition, build multidisciplinary skills and qualifications, and support the socioeconomic development of its people.

#### **5.3.3.1. Hydrocarbon Production**

Hydrocarbon production remains an important source of energy and financing for Timor-Leste, including the extraction and processing of oil and gas in the Timor Sea, counting on the transformation of these resources into land.

Timor-Leste maintains that, despite environmental challenges and the need for a transition to cleaner and renewable energies, this must be a gradual process in its specific national context.

In 2023 and 2024, Timor-Leste actively participated in landmark consultative procedures at the International Tribunal for the Law of the Sea and the International Court of Justice regarding State obligations related to climate change. In these fora, Timor-Leste, a Small Island Developing State and a Least Developed Country, argued that although all countries share a common duty to combat climate change, responsibilities must reflect historical contributions to the problem and differing capacities to address it.

Timor-Leste upholds the following principles:

- The exploitation of non-living marine resources and the sustainable extraction of energy through practices that seek to ensure the prudent and balanced use of natural resources, without compromising the environmental balance and the long-term development capacity of future generations.
- The principle of common but differentiated responsibilities and respective capabilities, which acknowledges that developing and least developed countries

such as Timor-Leste should not bear the same burdens as developed nations regarding oil and gas extraction.

- Climate change treaties must recognise the developmental necessity for some developing countries to increase emissions before transitioning to reductions.
- Developed countries must fulfil their obligations to provide financial and technical assistance to support mitigation and adaptation efforts in developing countries.

It is within this transparent framework that Timor-Leste is developing its petroleum sector along the southern coast — the Greater Sunrise project — while emphasising that the most significant marine environmental damage has historically been caused by developed countries.

An independent feasibility study conducted in 2024 by the UK-based firm Wood confirmed that the development of the Greater Sunrise project in Timor-Leste is viable and the most advantageous option for the country, providing significant economic and social benefits.

The study applied rigorous criteria to evaluate engineering, technology, financing, commercial structures, and fiscal, environmental, health, safety, and socioeconomic impacts to assess four main development options: Timor-Leste Liquefied Natural Gas (LNG), Darwin LNG, Ichthys LNG, and a new LNG facility in Australia.

Although all four options were deemed technically viable, the study concluded that the Timor-Leste LNG option offers the lowest operational costs and would yield the greatest overall, direct and indirect, returns for Timor-Leste. It would also have a strong positive impact on the country's socioeconomic development.

Moreover, the study indicated that the Timor-Leste option would produce the highest impact on GDP, employment generation, and returns for the Sunrise Joint Venture while also benefiting Australia through direct upstream revenues.

The Greater Sunrise gas fields are located approximately 140 km south of Timor-Leste's coastline. The Sunrise Joint Venture includes TIMOR GAP (56.6%), Woodside (33.44%), and Osaka Gas Australia (10%).

Without development of the petroleum sector, Timor-Leste may lack the capacity to advance its sustainable development and improve living standards for its people, including the necessary measures for economic diversification. By failing to develop and produce these resources, Timor-Leste may struggle to mitigate or adapt to climate change, a global problem to which Timor-Leste has very minimally contributed.



Nonetheless, the Government, in line with international best practices, maintains that all projects related to hydrocarbon production must adhere to strict Environmental Impact Assessment policies to minimise environmental degradation, with particular emphasis on the protection of marine ecosystems.

The Government has prioritised finding concrete solutions to mitigate the effects of terrestrial and marine pollution and climate change through legislation, public policy implementation, and various national projects.

In particular, through Marine Spatial Planning and Management, the Government will safeguard ongoing activities crucial to Timor-Leste's development — namely offshore hydrocarbon production and related upstream and downstream operations — by establishing coordination mechanisms among public authorities and regulators, such as the National Petroleum Authority and the National Minerals Authority, and other stakeholders from the public and private sectors. These mechanisms will ensure efficient and legally binding decision-making processes.

#### **Strategic Objectives:**

- Ensure that the development of the Greater Sunrise fields and others (Chuditch, Kelp Deep, etc.) in the Timor Sea delivers long-term benefits for the people of Timor-Leste.
- Promote the long-term economic growth of Timor-Leste, including the necessary economic diversification and improvement of living standards for Timorese citizens, as well as developing the country's capacity to mitigate and adapt to the challenges posed by climate change.
- Ensure that the potential associated with petroleum resources in the Timor Sea is fully developed for the socio-economic benefit of the people of Timor-Leste, as a catalyst for development, job creation and GDP growth.
- Ensure adequate mitigation of the impacts of petroleum resource development in the Timor Sea on healthy marine development.

#### **Measures and Actions:**

- Ensure that Environmental Impact Assessments or Initial Environmental Reviews are carried out before commencing or authorising oil activities in the Timor Sea.
- Monitor and assess the impacts of oil activities in the Timor Sea.
- Ensure the establishment of a clear mechanism for the remediation of the marine environment for any pollution that may occur as a result of oil resource development in the Timor Sea.

- Ensure the establishment of an economic diversification scheme for the development of petroleum resources in the Timor Sea, aiming at maximum participation of Timor-Leste and its citizens in all phases of petroleum resource development in the Timor Sea.
- Establish appropriate legislation and policies on Carbon Capture and Storage and ensure mechanisms to promote a smooth transition of Timor-Leste towards low carbon emissions under the country's comprehensive efforts to achieve cleaner energy.
- Participate in international discussions on promoting sustainable oil sector development and good practices in the exploitation of marine resources.
- Ensure compliance with existing legislation in the country, especially regarding the Planning and Management of the National Maritime Space and Marine Protected Areas, with a view to protecting critical ecosystems and habitats.
- Promote the development of gas resources in the Timor Sea and transport them via pipeline to Timorese territory.
- Develop key infrastructure on land for the collection, treatment and processing of hydrocarbons from the Timor Sea.
- Encourage and promote the exploration of hydrocarbon resources in the Timor Sea with responsibility and rigour through partnerships between TIMOR GAP and international oil companies.
- Promote and regulate the implementation of hydrocarbon exploration projects in the Timor Sea with the intervention of the National Petroleum Authority.
- Promote innovation and creativity with international partners to boost the application of marine biotechnology in the energy sector in Timor-Leste.

#### **5.3.3.2. Renewable Energy**

Sustainable energy refers to the generation and consumption of energy in a way that does not harm the environment and can be maintained over the long term. This includes energy sources that are renewable and have a reduced environmental impact.

The main sources of renewable energy are solar, wind, hydroelectric, biomass, and geothermal power. These are characterised by lower emissions of pollutants and greenhouse gases.

The increasing use of offshore renewable energy will facilitate the energy transition and the decarbonisation of the national economy. It will also create an economic sector associated with the Blue Economy — one that is intended to be competitive and efficient and contribute to job creation and the social and economic advancement of Timor-Leste.

In line with the forthcoming Legal Framework for Maritime Spatial Planning and Management, as well as Timor-Leste's National Electrification Plan and the goal to increase the use of renewable energy sources, especially hydropower, the Government intends to develop a National Emissions Reduction and Energy Transition Plan. This plan aims to launch an international tender for the development of power generation centres based on offshore renewable energy sources.

Within the framework of the National Emissions Reduction and Energy Transition Plan, the Government will draw up a map identifying the locations for power generation centres. This will ensure the appropriate protection and conservation of the marine environment and safeguard the proper land-sea interaction, in accordance with legislation on maritime and terrestrial spatial planning.

Investing in the offshore renewable energy sector, alongside emissions regulation, will enable an efficient and significant reduction in emissions, taking into account Timor-Leste's international commitments as a developing country, based on the principle of common but differentiated responsibilities.

The Government aims to ensure that by 2030, approximately 50% of its electricity production will come from renewable sources, especially solar. It also plans to convert existing diesel power plants to natural gas, which is a cleaner and more sustainable energy source, taking advantage of the development of the Greater Sunrise fields, as discussed in the previous section.

As is well known, Timor-Leste has access to significant gas reserves in the Timor Sea. The availability of natural gas for electricity production offers the potential for a cleaner and more affordable fuel compared to liquid fuels. From an environmental perspective, for the same amount of electricity generated, carbon emissions from natural gas are considerably lower than those from diesel.

#### **Strategic Objectives:**

- Develop the National Emissions Reduction and Energy Transition Plan in an integrated manner and with the involvement of all sectors of government.
- Create the necessary conditions for a transition to renewable energy sources, including the review of existing studies for Timor-Leste and, if necessary, the development of new studies, in partnership with international cooperation.
- Conduct feasibility and sustainability studies on the use of natural gas for electricity production, aiming to adopt a more cost-effective energy source that also addresses environmental concerns.

- Build human capacity, infrastructure, and facilities to accelerate the development of the renewable energy sector across the country.
- Invest in renewable energy sources to diversify the energy sector, reduce dependence on heavy fuel oils, lower electricity production costs, and protect the environment.
- Carry out feasibility studies to assess the renewable energy potential in the country—particularly wind, solar photovoltaic, and hydropower—which remain underutilised.

#### **Measures and Actions:**

- Compile all relevant studies on renewable energy in Timor-Leste and make informed political decisions based on their findings.
- Promote scientific research to support the development of marine renewable energy technologies, including corresponding monitoring, evaluation, and environmental impact assessments.
- Deepen feasibility studies for offshore wind energy, wave and tidal energy, and hydropower.
- Develop a feasibility study for the construction of a thermoelectric power plant to generate energy from household and industrial waste in Dili.
- Encourage, wherever feasible, the use of solar panels to support sustainable practices within the Blue Economy — particularly in aquaculture projects, ecotourism, Marine Research and Education Centres, coastal and aquatic hospitality services, port and navigation infrastructure, and awareness campaigns.
- Promote seaweed farming for the production of biofuels and biochemical products that can serve as renewable energy sources.
- Support the transformation of fishery waste into biofuels.
- Manage resources from the Green Climate Fund to contribute to the financing of energy transition projects.
- Develop a legal framework to encourage and regulate renewable energy projects in the country.
- Create grant schemes to support small to medium sized enterprises and private sector actors investing in renewable energy.
- Invest in education and vocational training in the field of renewable energy.
- Establish a Renewable Natural Resources Office to coordinate intersectoral actions, conduct feasibility studies, and oversee the implementation, management, monitoring, and evaluation of renewable energy projects.
- Strengthen political coordination and cooperation between agencies responsible for energy, environment, and maritime affairs to promote the sustainable development of ocean-based renewable energy.

- Continue to develop solar and wind energy projects in the country.

#### 5.3.3.3. Salt Production

A developing industry in Timor-Leste that could significantly contribute to economic growth and job creation is salt production, provided it is developed in a balanced way, integrating production with environmental protection and community involvement.

Salt, beyond being essential for human health, plays a key role in food preservation and is used in various industries. Its versatility and historical importance make it a valuable resource for improving daily nutrition and contributing to economic diversification.

Salt production refers to the process of extracting and purifying this essential mineral, typically in the form of sodium chloride. Used in food consumption and the chemical industry, salt offers significant economic potential for Timor-Leste.

The Government is committed to fostering the sustainable and high-quality development of this industry by enhancing production methods — whether through seawater evaporation, rock salt mining, or extraction from saline areas — while strengthening existing programs supporting domestic salt production.

To that end, the Government intends to invest in and promote the production and commercialisation of:

- Refined salt, the most widely consumed type, extracted from seawater through evaporation and then purified. This process removes impurities and other naturally occurring minerals from seawater.
- Sea salt, also obtained via seawater evaporation. Depending on its region of origin, it may differ in mineral composition, colour (white, pink, black, grey, or mixed), and texture (coarse, fine, or flaky). Less processed, sea salt retains more of the natural mineral richness of seawater.
- Iodised salt, a type of sea salt enriched with iodine—an essential micronutrient for the synthesis of thyroid hormones. Iodine deficiency is common, and supplementation is often necessary.

The World Health Organization has recommended the universal iodisation of salt for over two decades. This practice is safe and widely used to address iodine deficiency affecting two-thirds of the global population. Unless contraindicated, iodised salt is recommended over regular sea salt, in appropriate amounts.

iodine is especially important for the development of the foetus's central nervous system during the early stages of pregnancy. Moreover, iodine deficiency in school-aged children can impair psychomotor development and reduce IQ levels.

As part of its policy in this sector, the Government will develop adequate regulations to establish salt quality standards, contributing to food safety and enabling proper monitoring and inspection. It will also provide incentives for salt producers.

To address iodine deficiency in the population, especially among pregnant women and children, the Government will carry out awareness campaigns on the importance of iodine in the diet.

Ultimately, the Government aims to increase productivity, quality, and competitiveness in the salt sector, including exploring opportunities for export.

#### **Strategic Objectives:**

- Identify priority locations across the country for expanding national salt production, through environmental and sustainability feasibility studies.
- Sustainably produce sufficient salt, according to best international practices, for domestic consumption and export, including for industrial use.
- Promote production methods that minimise environmental impact and ensure the sustainability of water resources and local ecosystems.
- Diversify the local economy, creating employment opportunities and improving the living conditions of communities.
- Promote scientific and traditional knowledge to foster innovation in salt production and processing, improving both efficiency and product quality.
- Develop marketing and branding strategies that incorporate Timor-Leste's identity in the production of gourmet sea salt, iodised salt, and salt for cosmetic uses.
- Regulate and raise awareness among communities regarding the importance of iodised salt consumption, particularly for children and pregnant women.
- Strengthen training and capacity-building across the sector, from production to promotion, commercialisation opportunities, and market strategy.

#### **Measures and Actions:**

- Conduct feasibility and environmental sustainability studies to determine the most suitable locations for expanding national salt production.

- Invest in necessary infrastructure to develop the salt industry, including the construction and rehabilitation of salt pans, drying and storage facilities, ensuring sustainable practices from extraction to purification and storage.
- Develop scientific studies through partnerships with universities, research centres, and NGOs to improve sustainable salt production technologies.
- Review and/or draft appropriate regulations to support the expansion and ensure quality standards in the sector, in compliance with food safety parameters.
- Implement sustainable production practices, such as the use of renewable energy, minimisation of chemical use, and the protection of ecosystems surrounding salt production areas.
- Train and upskill workers in modern, safe and sustainable salt production and processing techniques.
- Develop marketing strategies to promote different types of salt products (including gourmet, iodised, and detox/cosmetic salt), incorporating the Timor-Leste brand for national and international markets.
- Enforce the national regulation on the mandatory use of iodised salt.
- Promote awareness campaigns on the importance of iodised salt, especially targeting vulnerable groups such as children and pregnant women.
- Align salt production with Timorese culture and identity, encouraging community-based tourism.
- Raise public awareness of the role of salt in food security and industrial applications, creating business and trade opportunities.
- Ensure market access through improved transport networks and strategic communication initiatives.

#### **5.3.3.4. Seabed Mining**

Seabed mining is a potential commercial industry aimed at extracting minerals from the seabed and subsoil, such as manganese, copper, cobalt, zinc, and rare earth metals. However, such activities are not without environmental impact, as they may cause irreversible destruction of delicate marine ecosystems.

For this reason, mineral exploitation must be carefully managed to balance economic development with the protection of marine ecosystems and biodiversity. Timor-Leste seeks to ensure that mineral exploitation is conducted sustainably, in a manner that respects marine ecosystems and promotes the well-being of the communities that depend on these resources.

Accordingly, the Government intends to assess the impacts of mineral extraction to ensure the preservation and protection of the marine environment.

In this regard, the Timor-Leste Mining Code, approved in 2021, aims to establish a modern legal framework for the mining sector, capable of attracting investment, maximising returns for the State, and contributing to the diversification of the national economy. This objective is beginning to take shape through the work of relevant national entities overseeing this sector.

Since the development of the mining industry in Timor-Leste, there has been no advanced technology for deep-sea mining activities. The main focus has been on establishing the basic infrastructure and legal framework necessary for the development of this industry. With regard to offshore mining, Article 153 of the Mining Code states that ‘until specific rules are approved for this purpose, the provisions of this Code shall apply, with the necessary adaptations to Maritime Mineral Activities’.

The issue of deep-sea mining was discussed and addressed in the drafting of the national Mining Code, with Timor-Leste opting to be prepared for offshore mining activities, if and when approached by investors interested in developing them, and provided that all requirements deemed necessary by the Government are met.

Timor-Leste supports the right of all nations to explore marine natural resources within areas under national jurisdiction. The State reserves the right to authorise such activities, subject to the environmental safeguards established under the Mining Code and to other national interest considerations. The Government expresses a clear preference for offshore mining activities to be conducted in an environmentally responsible manner, avoiding significant harm to marine ecosystems and safeguarding the livelihoods of coastal communities and other relevant economic sectors.

Timor-Leste does not oppose mining activities in the international seabed area provided that they are carried out in an environmentally responsible manner and in accordance with international law and best practices.

In summary, Timor-Leste’s economy, and therefore its people, may benefit from offshore mining activities conducted within areas under its national jurisdiction. Such activities can generate state revenue through taxes and royalties, create local employment, and stimulate the growth of a domestic business sector.

Recognising the risks posed by offshore mining, particularly to coastal ecosystems upon which many Timorese communities depend for their livelihoods and which also hold future economic potential through tourism, the Government commits to ensuring that any offshore mining activity is planned and implemented in an environmentally responsible manner, avoiding undue or excessive risks and costs.



### **Strategic Objectives:**

- Ensure that the exploitation of marine mineral resources complies with sustainability criteria, minimising environmental and social impacts.
- Guarantee the cost-effectiveness of mining activities in relation to the potential impacts on marine ecosystems and biodiversity.
- Conduct scientific research and monitor international trends, including through international cooperation, to determine Timor-Leste's national position regarding deep seabed mining activities.
- Implement the Legal Framework for Marine Scientific Research in national maritime waters.

### **Measures and Actions:**

- Promote and regulate the implementation of mineral exploration projects in the Timor Sea with the involvement of the National Minerals Authority of Timor-Leste.
- Promote scientific and commercial research by the Geoscience Institute of Timor-Leste and Murak Rai Timor, E. P., with international partners.
- Ensure the completion of Environmental Impact Assessments prior to the initiation or authorisation of any mining activities.
- Monitor and assess mining activities carried out in other regions to evaluate the environmental impacts of mining operations.
- Use mining technologies that minimise seabed disturbance, water contamination and impacts on marine life.
- Strengthen national legislation and licensing systems to ensure that any eventual operations are conducted with the highest standards of sustainability, guaranteeing the protection of marine ecosystems and biodiversity.
- Establish robust surveillance and enforcement mechanisms to prevent unauthorised mining activities within Timor-Leste's maritime jurisdiction.
- Train and build the capacity of national experts and technicians to enable domestic participation in the sector, thereby safeguarding national interests and sovereignty.
- Participate in international dialogues and negotiations on the promotion of sustainable mining and best practices in the exploration of marine resources.
- Promote the development of a legal framework for the planning and management of national maritime space.
- Ensure full compliance with applicable national legislation, particularly regarding Maritime Spatial Planning and Marine Protected Areas, with a view to protecting critical ecosystems and habitats.

#### **5.3.3.5. Desalination**

Desalination is the process of removing salt and other impurities from seawater or brackish water, converting it into potable water. This process is particularly important in arid regions or where freshwater availability is limited, as it allows seawater to be used as an alternative source of drinking water. This is especially relevant for potable (drinking) water supply in areas such as Ataúro.

##### **Strategic Objectives:**

- Conduct feasibility and environmental sustainability studies to identify the most suitable locations for desalination projects based on local needs.
- Increase access to potable water in regions with water scarcity or reduce pressure on natural freshwater resources, thus contributing to greater sustainability.
- Ensure the availability of water during dry seasons and also promote pilot projects for adaptation to the impacts of climate change.
- Promote technology, innovation, and human resource capacity to ensure access to essential services for the population, based on sustainable management practices.

##### **Measures and Actions:**

- Carry out a national assessment of potable water needs to guide the development of desalination infrastructure.
- Conduct feasibility and environmental sustainability studies for the desalination sector.
- Invest in research and innovation to ensure efficient processes with minimal environmental impact.
- Ensure the implementation of environmental impact assessments to safeguard and conserve marine ecosystems.
- Guarantee the maintenance of existing facilities and establish appropriate monitoring and evaluation procedures to ensure water quality and the health of marine ecosystems.
- Involve local communities in the process, including by providing training for the installation and maintenance of these facilities.

### **5.3.4. PILLAR 10: TRANSPORT, MARITIME PORTS AND COMMUNICATIONS**

#### **5.3.4.1. Infrastructure**

The use of submarine cables is critical for human development and progress. At present, international submarine cable networks account for nearly all global data traffic transmission. This is largely due to technological advancements over recent decades, which have enabled the growth of mobile communications and widespread use of the Internet.

Alongside cables, international submarine pipelines have also played a fundamental role, particularly in the transportation of oil and gas. As such, both submarine cables and pipelines are essential infrastructure that must be protected.

The practice of States over time regarding the use of submarine cables and pipelines is codified in international law, namely through UNCLOS and the Convention for the Protection of Submarine Telegraph Cables, signed in Paris on 14 March 1884 and the Convention on the High Seas and the Convention on the Continental Shelf, both signed in Geneva on 29 April 1958.

UNCLOS acknowledges in its preamble the importance of establishing a legal order for the seas and oceans that facilitates international communications, expressly recognising the freedom of all States to lay submarine cables and pipelines in their EEZ, on the continental shelf, and in the high seas. However, this freedom does not extend to the territorial sea and internal waters of other States, where there is no right for States to lay such infrastructure. In the EEZ and continental shelf, States must respect the sovereign rights and jurisdiction of the coastal State as provided under UNCLOS.

In addition to the legal framework governing the laying, maintenance, and removal of submarine cables and pipelines under international law, it is essential to regulate these activities within the national legal system, especially in relation to exclusive uses, and to ensure proper land-sea interaction where such infrastructure connects to the shore.

Therefore, beyond regulating Timor-Leste's rights and duties concerning the placement, maintenance, and removal of submarine cables and pipelines, it is necessary to legislate these activities within the new legal regime for the spatial National Maritime Space Planning and Management, ensuring coherence with relevant existing legislation, such as the Environmental Framework Law, and with terrestrial spatial planning instruments.

Finally, the development of the Information and Communication Technology Agency will play a significant role in developing digital solutions for the Blue Economy, by collecting,

analysing and disseminating marine data, and through applications that improve the efficiency and safety of maritime operations.

#### **Strategic Objectives:**

- Promote and develop the communications sector, especially mobile communications and Internet access, through the use of submarine cables.
- Comply with international commitments and develop national legislation in accordance with these obligations.
- Regulate the rights and duties of Timor-Leste in relation to the placement, maintenance, and removal of submarine cables and pipelines within the legal framework for maritime spatial planning and management.
- Develop the skills of the Information and Communication Technology Agency to improve the efficiency and safety of maritime operations.

#### **Measures and Actions:**

- Regulate the placement, maintenance, and removal of submarine cables and pipelines in accordance with international legal frameworks.
- Regulate the placement, maintenance, and removal of submarine cables and pipelines in the context of exclusive use, and ensure appropriate land-sea interaction at connection points.
- Ensure a holistic and integrated approach through the regulation of rights and responsibilities under the legal framework for maritime spatial planning and management.
- Construct and renovate basic infrastructure to support activities related to the Blue Economy, such as jetties and access points for recreational boating, sport fishing, diving, and snorkelling.
- Improve digital solutions for the Blue Economy.
- Promote digital connectivity in coastal areas: expand and improve telecommunications infrastructure in remote coastal and maritime areas to support digital innovation in fisheries, tourism and marine research.

#### **5.3.4.2. Port and Logistics Development**

*«The geopolitical context of the Timor Sea favours the role of the sea as a driver of national development, notably through a port system, with maritime security emerging as a key challenge to this national ambition.»*

Donaciano Gomes

The development of port and logistics infrastructure is essential for enabling Timor-Leste to import critical goods and equipment, thereby strengthening and diversifying the national economy. At the same time, it establishes the foundation for future competitiveness in the export of national products.

Maritime transport and port development are critical components of Timor-Leste's Blue Economy, serving as key conduits for trade, economic growth, and sustainable development.

Timor-Leste's geographical position at the crossroads of Southeast Asia and the Pacific Islands places it near key shipping routes through the Ombai and Wetar Straits. The development of maritime trade, transport, and logistics along these straits should be a central focus in promoting the Blue Economy in Timor-Leste.

During Portuguese colonial rule, maritime infrastructure development was minimal, aimed primarily at facilitating limited trade and administrative activities. After the Indonesian occupation, Timor-Leste inherited underdeveloped and poorly maintained port infrastructure. In recent years, the Government has prioritised the enhancement of maritime infrastructure as part of its broader economic development strategy. Efforts have been made to modernise the main port in Dili, increasing its capacity to accommodate larger vessels and growing cargo volumes. In addition, the Government has invested in the new Tibar Bay Port, equipping it with modern facilities to ensure fast and efficient movement of containers and cargo, and enabling it to handle vessels significantly larger than those served by the old Port of Dili.

Efficient port operations significantly reduce the cost of goods, enhance competitiveness, and stimulate economic activity. By developing maritime transport and port infrastructure, Timor-Leste can better integrate into regional and global markets. Improved connectivity facilitates participation in regional trade agreements and initiatives, such as the ASEAN Economic Community, thereby supporting economic diversification and resilience.

The Government will continue to invest in the development of the Tibar Bay Port system while also building efficient operational infrastructure in regional port facilities, including the development of new ports. This aims to ensure that maritime transport remains a viable option for the movement of people and goods, ultimately benefiting both local communities and national and international private sectors.

As a coastal State, Timor-Leste must engage in strategic geopolitical-economic planning for the development of port services, manufacturing, and value-added industries. These industries should be located along the country's navigable maritime coastline and

supported by bilateral agreements with third countries. Timor-Leste can generate income from leasing land and maritime spaces for the transit of goods and people or for control and use of critical sea lanes through the Ombai and Wetar Straits. Revenue from leasing national assets or investments in strategic port and logistics infrastructure and manufacturing will contribute to the growth of the maritime economy by providing a wide range of nationally relevant strategic services.<sup>98</sup>

The Government will also undertake studies to incorporate sustainable practices and technologies in the construction and operation of new ports and terminals. These may include the installation of solar panels and waste management systems, alongside the necessary monitoring and enforcement mechanisms for port activities.

#### **Strategic Objectives:**

- Develop a port network with the capacity to provide logistical services throughout the country, prioritising key locations for tourism, industrial, and fisheries development.
- Conduct feasibility studies for the construction of the Port of Manatuto and the establishment of a national maritime route to facilitate coastal shipping and connectivity, as well as to provide passenger and cargo transport services at various coastal points across the country.
- Restructure and modernise the former Port of Dili, converting it into a City Marina and Cruise Terminal, in coordination with the possible creation of a Maritime Museum.
- Carry out studies aimed at implementing sustainable practices and green technologies in the construction and operation of new ports and terminals, such as the installation of solar panels and waste collection and management systems.
- Strengthen the maritime regulator and authority, including the improvement and modernisation of its regulatory standards.
- Promote the safety of navigation and international maritime traffic within national waters.

#### **Measures and Actions:**

- Upgrade port facilities across the country, with priority given to Com and Ataúro.
- Construct port infrastructure in Kairabela, Vemasse, and Baucau to provide sea access for fisheries sector activities and to support the tourism sector.
- Install sustainable technologies and practices in port infrastructure, such as solar panels and waste collection and management systems.
- Restructure the old Port of Dili to develop the Dili waterfront as a space for tourism, culture, and leisure, including the potential reception of cruise ships.

- Implement a maritime signalling system (lighthouses) in Ataúro, Maubara, Baucau, and Com to promote navigational safety and international maritime traffic within national waters.
- Enforce international legislation and standards, including the International Ship and Port Facility Security Code at all national ports and on vessels, which involves conducting security assessments, training port professionals, and implementing monitoring and inspection measures, including regular audits.
- Implement International Maritime Organisation standards in order to update and incorporate international regulations established by international conventions, ensuring that national legislation is aligned with international requirements, including port and worker modernisation and certification, with a focus on safety, accessibility, and environmental protection.
- Adopt digital technologies and data-sharing platforms to improve efficiency and transparency in maritime trade and logistics.

#### 5.3.4.3. Maritime Transport and Navigation

*«Maritime transport is the backbone of global trade, connecting nations and facilitating the flow of goods and services across the ocean worldwide.»*

John M. McGowan

A national maritime transport and navigation system is essential for the economic development of Timor-Leste, contributing directly to the advancement of the Blue Economy.

By expanding and enhancing the competitiveness of national maritime transport, and integrating it with land and air transport, ports and logistics, trade, and other maritime support services, Timor-Leste can significantly increase its economic potential.

The Ombai and Wetar Straits serve as alternative routes, frequently used by some of the largest oil tankers transiting between the Persian Gulf and Japan. This route is considered one of the safest and is also used by vessels travelling between Australia, the Java Sea, and East Asia. The development of the maritime industry, along with the growth of trade hubs, regional centres, and navigation centres, places the country in a position to potentially become a vital transport asset in the Southeast Asian and Pacific regions.

Regulatory provisions, however, remain a major challenge in the maritime transport sector. The organisation of the maritime transport sector has a significant impact on trade volumes, transport costs, and overall economic competitiveness.

Ports of Call must be able to keep up with the increasing complexities of port management to sustain and create employment in developing countries with port communities such as Timor-Leste. The Government will strengthen internal coordination to promote the growth of the national Blue Economy, recognising that it encompasses a wide range of economic activities connected to the seas and oceans, thereby adding sustainability to the traditional maritime economy.

In this sector, the Government will focus on achieving two primary objectives: increasing the maritime sector's contribution to GDP and boosting maritime employment. Commitment to these objectives is an essential step in realising Timor-Leste's Blue Economy vision.

To this end, the Government aims to improve the national maritime transport industry through responsible and innovative practices that take into account ocean protection, climate change mitigation and adaptation, while also promoting sustainable economic development.

A modern maritime transport system will enhance international trade by enabling the efficient movement of goods between countries, thereby opening opportunities to access new markets and drive the national economy — particularly in light of Timor-Leste's recent accession to the World Trade Organisation and the full ASEAN membership expected in October 2025.

Maritime transport development will also be a key pillar in the growth of the oil and gas sector along the southern coast. It must therefore be planned in an intersectoral manner, leveraging partnerships with technical experts that possess the necessary knowledge and technologies.

Investing in maritime transport is a more sustainable option for accelerating trade, as it offers greater energy efficiency — enabling longer distances and larger volumes of cargo to be transported than air freight, while consuming less fuel and reducing the carbon footprint.

This is particularly relevant in the case of Timor-Leste, which, as an island state, cannot rely on road or rail transport to remain competitive in international trade.

Moreover, the development of maritime transport will also promote tourism and support the growth of coastal communities — stimulating job creation and market access for local products, both nationally and regionally — thus promoting other economic sectors not directly tied to the marine economy.



In association with the National Emissions Reduction and Energy Transition Plan, the Government may, in the future, adopt cleaner maritime transport technologies, including the use of alternative fuels such as natural gas, with the aim of preserving and protecting marine ecosystems.

The Government should also implement safety-at-sea and IMO certification measures, to align the country with key international conventions and safety protocols regarding navigation, environmental protection, and proper training of maritime professionals.

In this context, the Government will also regulate, in accordance with international law and best practices, the prevention of pollution caused by oil spills and marine waste.

#### **Strategic Objectives:**

- Promote international, regional, and national trade, including within the framework of World Trade Organisation and ASEAN integration.
- Advance science and technology in the search for more sustainable solutions for a cleaner, more efficient, and less polluting maritime transport sector.
- Support the development of the petroleum sector on the south coast.
- Contribute to the development of sustainable tourism, including cruise tourism and marine adventure tourism.
- Train and build the capacity of professionals in the maritime transport sector.
- Improve the management of radio spectrum, which is crucial for navigation and communication systems used in the marine environment.

#### **Measures and Actions:**

- Stimulate local economic development, especially in coastal areas, including commercial and tourism-related activities.
- Implement the STCW Convention to establish training programs in accordance with international standards and ensure crew certification is carried out in line with International Maritime Organisation regulations.
- Establish maritime academies or training centres to ensure that professionals are properly trained.
- Develop certification systems for seafarers and other maritime industry professionals, through international partnerships, to create curricula aligned with International Maritime Organisation conventions.
- Conduct regular ship surveys and inspections to ensure compliance with the International Convention for the Safety of Life at Sea, the International Convention for the Prevention of Pollution from Ships, International Ship and Port Facility Security Code, and other international conventions.

- Develop monitoring systems by implementing maritime radar, surveillance, and signalling systems to prevent accidents and ensure compliance with international standards.
- Develop and regulate communication activities, as well as optimise communication means, including ensuring robust communication networks that can support real-time data exchange for maritime safety, weather forecasting and marine resource monitoring.
- Ensure the provision of public telecommunications services and the use of radio spectrum, which are essential for the operational efficiency of maritime industries, enabling communication between ships, coastal facilities and emergency services.

#### 5.3.4.4. Shipbuilding and Ship Repair

*«The blue economy represents a significant opportunity for job creation and growth, and shipbuilding and ship repair are fundamental pillars to ensure the sustainability and competitiveness of the maritime sector.»*

José Manuel Durão Barroso

The shipbuilding and ship repair sector is rapidly growing and offers important economic growth opportunities for Timor-Leste.

This sector encompasses the design, construction, maintenance, and repair of vessels and maritime structures such as ships, oil platforms, fishing boats, yachts, and other watercraft, and is being considered in an integrated and cross-sectoral manner by the Government.

#### Strategic Objectives:

- Support the development of the maritime transport industry and international trade in the country.
- Support the development of the oil and gas industry on the south coast.
- Promote employment and technical qualifications in this sector.
- Develop science, technology, and innovation to ensure vessel efficiency, safety, and sustainability, including the use of alternative fuels, more efficient propulsion systems, and emission reduction technologies.
- Explore shipbuilding and ship repair methods that minimise environmental impact, such as the use of recyclable materials and the implementation of waste-reducing production processes.
- Ensure appropriate legislation and regulation for the sector's development, including environmental, safety, and performance certification systems.

- Improve internal capacity for monitoring and enforcement in the national maritime space.
- Reduce international dependency and strengthen national sovereignty.

#### **Measures and Actions:**

- Begin training and building the capacity of national technicians and specialists in the design, construction, assembly, and operation of the sector, including sustainability skills and specialised areas such as engineering and mechanics.
- Develop feasibility and environmental impact studies to support the promotion of the shipbuilding and ship repair industry.
- Raise awareness among stakeholders to develop this emerging sector, ensuring international best practices and compliance with environmental standards.

#### **5.3.5. PILLAR 11: MARITIME SECURITY**

*«The vastness of the sea, its variable depths, the activities that take place within it, and the hidden dangers it holds are all factors that compel us to view the maritime domain as a subsystem of the national security system, requiring diverse and complex capabilities tailored to its specific characteristics.»*

Donaciano Gomes

Maritime safety consists of an integrated set of measures and actions aimed at protecting the integrity and safety of maritime operations, transport and trade.

This concept encompasses not only the physical safeguarding of naval facilities and assets, such as ports and ships, but also the safety of shipping lanes, accident prevention and the mitigation of threats such as piracy, terrorism, drug trafficking, smuggling and other illegal activities.

Maritime security is essential to ensure the free movement of goods and people, promote the economic development of coastal countries, protect the marine environment and preserve order and legality in areas under national jurisdiction.

Given that Timor-Leste is exposed to a wide range of threats that go beyond illegal fishing and the degradation of marine biodiversity, such as transnational organised crime and the misuse of natural resources, it is urgent to define and implement a national maritime security plan to safeguard its ocean space.

It is also necessary to verify whether strategic instruments are already in place and, if so, to ensure that they are updated and operationalised, in line with the international commitments made by the Government.

### Strategic Objectives:

- Analyse national risks: identify and characterise the main risks and threats to maritime security in Timor-Leste, including piracy, terrorism, drug and human trafficking, illegal, unreported and unregulated fishing, smuggling, marine pollution and other illegal or dangerous activities.
- Assess the likelihood of occurrence and potential impact: study the degree of probability and the effects that each threat may have on security, the economy, the environment and national sovereignty, contributing to the prioritisation of response measures.
- Identify the country's vulnerabilities: assess the structural and operational weaknesses of the national maritime security system, including gaps in port infrastructure, shortage of qualified human resources, inadequate equipment, poor implementation of international standards, and legal and institutional weaknesses.
- Define national priorities and objectives: establish clear, measurable and realistic targets for strengthening maritime security, such as reducing incidents of piracy, increasing vessel surveillance, effectively protecting marine protected areas and improving inspection and control practices in ports.
- Develop preventive measures: implement actions to mitigate identified risks and prevent incidents, such as strengthening port security, training enforcement officers, implementing maritime surveillance and tracking systems, establishing rapid response protocols and developing contingency plans.
- Strengthen international cooperation: promote coordination with neighbouring countries, regional and international organisations in information sharing, training, capacity building and joint patrols. Encourage Timor-Leste to accede to relevant multilateral conventions and initiatives in the field of maritime safety and environmental protection.
- Monitor and evaluate results: establish a system for the continuous monitoring of actions implemented, with performance indicators and evaluation mechanisms that allow for the correction of deviations, the updating of strategies and the promotion of continuous improvement.
- Promote awareness and training: conduct public awareness campaigns on the importance of maritime security and promote regular technical and operational training programs for maritime and port professionals, in line with international standards.
- Harmonise national legislation with international legal instruments: review, adapt and adopt international maritime legislation, including UNCLOS, the ISPS Code, the SOLAS, and the COLREG, ensuring their integration into the national legal framework.

## Measures and Actions:

- Application of international maritime safety instruments, namely the COLREG, SOLAS, MARPOL and other IMO conventions, ensuring compliance by vessels under national jurisdiction.
- Strengthening of the National Maritime Authority, providing it with the legal, human and material resources necessary for the effective performance of its regulatory, inspection and surveillance functions.
- Development of technological and operational capabilities through the installation of coastal control and surveillance systems (radar, Automatic Identification System, satellite), emergency response systems and command and control centres.
- Continuous training and qualification of civil and military professionals involved in maritime safety, promoting partnerships with friendly countries and specialised organisations for technical and educational support.
- Support for the modernisation of ports and implementation of safe practices in port operations, integrating safety, environmental protection and logistical efficiency requirements.
- Creation of a joint maritime surveillance force, with elements from the naval component of the F-FDTL, the Maritime Police, Customs, the Fisheries Authority and other entities with responsibility at sea, under an operational coordination regime.

### 5.3.5.1. Capacity Building, Surveillance and Enforcement

*«Our seas are located in the corridor connecting the Indian Ocean to the Pacific, as well as the maritime routes of Ombai and Wetar. This requires the State to provide adequate naval capabilities to protect the sea and its resources. »*

José Ramos-Horta

Timor-Leste's geostrategic position, located in the maritime corridor between the Indian and Pacific Oceans and crossed by the international routes of the Ombai and Wetar straits, imposes on the State an increased responsibility for the protection of its maritime space and resources.

In view of current international security challenges, including the increase in threats such as terrorism, human trafficking, transnational organised crime and incursions into maritime areas under national jurisdiction, the Government of Timor-Leste will adopt a more effective and comprehensive maritime security strategy based on the principles of sovereignty, prevention and cooperation.

The extension of the EEZ and the wealth of marine natural resources, including the energy resources of the Timor Sea, require the development of naval capabilities to exercise authority, prevent illegal activities and ensure environmental protection.

To this end, the Ministry of Defence will consolidate the legislative framework necessary for the establishment of the Timor-Leste Maritime Authority System and the National Maritime Authority, ensuring their full implementation as the highest structure for the direction, coordination and administration of entities operating in maritime areas under national sovereignty and jurisdiction.

The strengthening of maritime surveillance and enforcement capabilities will be geared towards an integrated approach to security, including:

- The defence of national sovereignty;
- Border control;
- The fight against illegal, unreported and unregulated fishing;
- Combating piracy, drug trafficking and other forms of transnational crime;
- Preventing pollution and environmental crimes;
- Maritime search and rescue;
- Protecting critical infrastructure, including oil and gas exploration facilities on the south coast.

To support this mission, an information, surveillance and reconnaissance system will be established, combining maritime, air and technological assets with the capacity to support continuous patrol and incident response operations. This system should be interoperable with national defence and security systems and compatible with international information-sharing platforms.

Maritime surveillance will thus be strengthened not only in the military domain, but also in support of non-military security, particularly in the promotion of the Blue Economy, environmental protection and sustainable management of marine resources.

The Government is committed to ensuring that these capabilities are included in the National Security and Defence System, to ensure an active, permanent and effective presence at sea – an essential condition for the development, security and sovereign affirmation of Timor-Leste.

### **Strategic objectives:**

- Defend national sovereignty and marine resources: ensure effective control and protection of the Exclusive Economic Zone EEZ, including the seabed and living and non-living resources, in accordance with international law of the sea.
- Involve the Timor-Leste Defence Force in economic development: promote the active contribution of the naval component of the Timor-Leste Defence Force into the protection of economic activities at sea, with a particular focus on surveillance, enforcement and support for the development of the Blue Economy.
- Promote training and operational capacity building: strengthen the training of military and civilian human resources involved in maritime operations, with a focus on security, enforcement, rescue, surveillance and environmental protection.
- Consolidate the Maritime Authority System of Timor-Leste: build the command, control and coordination structure of the National Maritime Authority, ensuring its operational capacity based on appropriate legislation, qualified human resources and logistical means.
- Create and implement specific legislation that allows for the construction of infrastructure to support national defence and the development of the Blue Economy, in line with international standards.
- Strengthen infrastructure and logistical capabilities: improve existing naval facilities and develop new support bases along the coast, ensuring the sustainability and territorial reach of naval action.
- Modernise information and command systems: invest in the development of the C4ISR (Command, Control, Communications, Computers, Cybersecurity, Information and Surveillance) system to ensure a coordinated and effective response to various maritime threats.
- Provide the naval component with adequate resources: acquire vessels, equipment and technologies appropriate to the defence, inspection and surveillance mission, with a focus on agile, low-cost and highly effective platforms.
- Strengthen the National Maritime Authority: consolidate its institutional, technical and logistical capacity to ensure the full exercise of State authority in the maritime areas under its jurisdiction.
- Train specialists in critical areas: invest in advanced training in areas such as naval engineering, maintenance, logistics operations, surveillance technologies and port management.
- Implement a National Maritime Alert System: create an integrated structure for monitoring and responding to emergencies at sea, with coordination between civil and military entities.

- Strengthen search, rescue and surveillance capabilities: train the naval component to act in emergencies, rescues, maritime accidents and pollution response, with adequate resources and specialised training.
- Ensure compliance with international maritime law: ensure alignment with UNCLOS, SOLAS Convention, MARPOL and other relevant instruments.
- Promote the security of strategic facilities: protect critical infrastructure associated with oil and gas exploration, particularly on the south coast, ensuring its safe and sustainable operation.
- Establish strategic international partnerships: strengthen bilateral and multilateral cooperation in the field of maritime security, with a view to sharing capabilities, joint training and technical assistance.

#### **Measures and actions:**

- Acquisition of versatile and low-cost naval assets, capable of operating in coastal and ocean waters, supported by coordinated communications with air and land assets.
- Development of the Port of Hera as a main naval base, with capacity for expansion and complementarity with secondary logistics points along the coast.
- Creation of regional coastal surveillance centres, with progressive coverage of the EEZ and integration of sensors, radar, Automatic Identification Systems, and satellite imagery.
- Continuous and specialised training of human resources, including technicians, system operators, naval engineers and inspection personnel, in collaboration with international partners.
- Active surveillance and multisectoral information gathering, covering national security, environmental protection, natural resource monitoring and traffic control.
- Effective enforcement against threats to sovereignty and resources, including illegal fishing, illegal mineral extraction, illicit vessel traffic, polluting activities and environmental crimes.
- Surveillance of submarine and air traffic, integrating data obtained from maritime and airborne platforms, strengthening intelligence sharing.
- Promotion of international cooperation actions, including joint exercises, mutual assistance protocols, information sharing and technology transfer.

#### **5.3.5.2. Monitoring and International Cooperation**

*«Protecting maritime routes and safeguarding ocean security is crucial for ensuring global trade, preserving the marine environment, and promoting international stability and security.»*

International Maritime Organization



Timor-Leste's geostrategic location, at the crossroads of international shipping routes linking the Indian and Pacific Oceans, gives it growing importance in the context of regional and global security. Its position attracts the direct interest of neighbouring countries such as Indonesia and Australia, both because of its territorial proximity and its importance for security and development in Southeast Asia and the South Pacific.

For Indonesia, Timor-Leste is strategically important in the process of democratic consolidation and shared security. For Australia, Timor-Leste is an important link in its 'chain of security', functioning as part of its perimeter of protection and stability.

In this context, systematic monitoring of the national maritime space and the strengthening of international cooperation are essential elements for ensuring the sovereignty, peace, security and sustainable development of the country.

The growing complexity of threats such as piracy, drug trafficking, environmental crime, irregular migration, illegal fishing and terrorism requires a cooperative and shared approach, using bilateral, regional and multilateral mechanisms.

The Government of Timor-Leste recognises that no country can guarantee maritime security on its own. It therefore intends to deepen its integration into international information, technical capacity-building and emergency response networks, with a focus on prevention, shared risk management and the protection of the ocean's common goods.

In this context, strategic partnerships should focus on:

- Strengthening monitoring and surveillance capabilities;
- Training technical and military personnel;
- Sharing intelligence and best practices;
- Operational cooperation in critical areas such as combating maritime crime, fisheries enforcement and responding to environmental disasters.

The monitoring of Timor-Leste's maritime space should be based on a robust technical structure that is interoperable with regional systems, allowing for continuous monitoring of shipping routes, identification of risky behaviour, and detection of illegal or dangerous operations.

### **Strategic Objectives:**

- Promote and preserve regional and global peace and stability: develop bilateral and multilateral cooperation initiatives with neighbouring countries and international organisations, with the aim of strengthening cooperative security in the Indo-Pacific region and preventing conflicts or instability that affect navigation, trade or the sustainable exploitation of marine resources.
- Strengthen national capacities through external cooperation: promote strategic partnerships for institutional, technical and operational capacity building in the areas of maritime security, search and rescue, surveillance and environmental protection, ensuring the transfer of knowledge and technology.
- Contribute to ocean protection and the development of the Blue Economy: establish cooperation networks for the sharing of good practices and experiences in the sustainable exploitation of marine resources, including fisheries, coastal tourism, marine biotechnology and ocean renewable energy.
- Integrate Timor-Leste into relevant international forums: consolidate active participation in organisations such as the IMO, the International Hydrographic Organisation, the ASEAN Regional Forum, the Pacific Islands Forum, among other regional and global platforms.
- Strengthen maritime security diplomacy: use maritime cooperation as a foreign policy tool, projecting the image of Timor-Leste as a responsible partner committed to peace, international law and sustainable development.

### **Measures and Actions:**

- Establish and formalise bilateral maritime cooperation agreements with countries such as Australia, Indonesia, Portugal, Japan, South Korea and CPLP member states for the exchange of information, joint patrols, training and technical assistance.
- Strengthen Timor-Leste's participation in multilateral maritime security exercises, promoting interoperability and confidence-building with other navies and coast guards in the region.
- Develop joint training programs involving military personnel, maritime law enforcement officers, environmental technicians and port officials, with the support of leading international institutions.
- Promote technical exchange missions with partner countries, with a view to developing specific skills in the areas of port inspection, electronic surveillance, naval engineering, emergency management and marine conservation.
- Consolidate cooperation with regional and multilateral organisations such as the International Maritime Organisation, UN Office on Drugs and Crime, Food and Agriculture Organisation of the UN, Indian Ocean Rim Association, SPC and CPLP,

with a view to implementing international standards, combating organised crime and supporting the maritime economy.

- Coordinate international cooperation with national development policy, ensuring that external assistance programs are aligned with Timor-Leste's strategic objectives and contribute to institutional autonomy in the medium term.
- Establish national focal points for the coordination of international maritime cooperation, ensuring the effectiveness, continuity and monitoring of commitments made.

#### **5.4. AXIS 4: SUPPORTING THE IMPLEMENTATION OF THE BLUE ECONOMY (CROSS-CUTTING MEASURES)**

*«The Government will strengthen internal coordination to promote the growth of the national Blue Economy, recognising that it encompasses a wide range of economic activities connected to the seas and oceans.»*

Program of the Ninth Constitutional Government

##### **5.4.1. PILLAR 12: WATER AND BASIC SANITATION**

The development of the Blue Economy largely depends on adequate basic sanitation that ensures coastal and inland waters are not contaminated by waste and polluted water, particularly from sewage systems.

The conservation of marine and aquatic ecosystems — and their species and biodiversity — relies on the proper treatment of wastewater and the efficient management of solid waste, so that they do not compromise the sustainability of vital ecosystems ranging from mangroves to transitional habitats and coral reefs.

In this sense, it can be said that there is no Blue Economy without adequate basic sanitation, including the treatment and protection of national water resources.

In summary, basic sanitation and the Blue Economy are interconnected. An efficient sanitation system is essential for the protection and sustainability of water resources, which in turn is fundamental for the economic development of communities that depend on them.

#### **Strategic Objectives:**

- Invest in integrated access to potable water and basic sanitation nationwide, also contributing to the reduction of single-use plastics and the promotion of recycling and reuse.

- Provide widespread, safe, and sustainable access to water supply — both for individual consumption and for agriculture, commerce, industry, tourism, and aquaculture development.
- Ensure that all Timorese have access to improved basic sanitation throughout the country, through a self-sufficient and quality sewage system, including the construction of treatment facilities and provision of public sanitation facilities in the capital and municipalities.
- Ensure quality drainage systems in Dili and across all municipalities.
- Provide technical training for professionals in the water and sanitation sector and build the institutional capacity of the bodies that manage, implement, monitor, and regulate the sector.
- Develop alternative resilience mechanisms in response to climate change and prevent its effects on water and sanitation infrastructure.

#### **Measures and Actions:**

- Promote the reduction, recycling, and reuse of plastics as part of water and sanitation management measures.
- Fund and construct infrastructure to provide reliable and sustainable access to potable water throughout the country.
- Conduct the necessary studies and feasibility plans to expand piped potable water nationwide.
- Implement the strategic water management plan.
- Improve intersectoral mechanisms for investment and management in water and sanitation.
- Develop databases and monitoring systems for water and sanitation management, ensuring transparency and public participation in progress.
- Review and implement the National Policy for Water Resources Management to achieve the objectives of the Blue Economy.
- Review and implement the National Policy for Water Supply to achieve the objectives of the Blue Economy.
- Review and implement the National Policy for Basic Sanitation to achieve the objectives of the Blue Economy.
- Review the legal framework necessary for the implementation of water resource management, water supply, and sanitation policies.
- Implement the Master Plan for Water Supply and Sanitation in Dili and the remaining municipal capitals.
- Reform the institutional model of the sector to ensure greater autonomy, efficiency, and sustainability, enabling the implementation of government strategy and effective technical and economic regulation.

- Identify new water sources, including desalination, and construct reservoirs and treatment facilities throughout the national territory, continuing to expand the water supply network.
- Ensure that all municipal urban areas have improved sanitation facilities.
- Connect all households to existing sewer systems in Dili, and where not feasible, ensure connection to septic tanks or access to community sanitation facilities.
- Improve coordination with development partners in cooperation projects for this sector.
- Approve and implement a tariff policy that includes differentiated rates for different types of consumers — residential, commercial, and industrial — while promoting Blue Economy-relevant areas.
- Develop appropriate infrastructure, including operational and maintenance systems, for the collection, treatment, and disposal of sewage.
- Improve monitoring and control systems for the collection and treatment of wastewater from public, commercial, industrial, social, and residential facilities.
- Implement existing legislation and regulations and develop integrated systems for urban solid waste management.
- Improve drainage systems in all municipalities, ensuring the construction of stormwater drainage systems.
- Scale up vocational training projects and institutional capacity-building for the development of water and basic sanitation infrastructure, including the maintenance and operation of these systems.
- Ensure the development of monitoring, prevention, and response mechanisms to climate change, to minimise its effects on water and sanitation infrastructure, through intersectoral coordination with relevant government entities.

#### **5.4.2. PILLAR 13: MANAGEMENT AND CONSERVATION OF WETLANDS AND TRANSITIONAL ZONES**

The Blue Economy is a holistic and interdependent approach that connects terrestrial and marine ecosystems. This means that, to promote truly sustainable and harmonious development across the country, it is necessary to coordinate activities in inland areas — including mountainous zones — as these influence the health of the ocean, and vice versa.

The Government recognises that an integrated perspective in the management and conservation of wetlands and transitional areas can lead to better environmental conservation practices, while also benefiting local communities.

In this regard, the Government will take into consideration:

- Watersheds and hydrological cycles: recognising that water flowing from mountains and rivers to the sea affects the health of marine ecosystems. Thus, sustainable management of water resources and the conservation of watersheds in mountainous and riverine areas are crucial to ensure the quality of water reaching the seas. Degradation of watersheds contributes to pollution and biodiversity loss.
- Economic and domestic activities: including agricultural, forestry and industrial practices in mountainous and riverbank areas, as well as pollution and poor solid waste management, particularly plastics, and erosion sediments that flow into rivers and groundwater.
- Protection and cleaning actions for wetlands and coastal/transitional areas, which depend on sustainable land-based practices to prevent waste from being transported into the sea during heavy rainfall.
- Climate change mitigation and adaptation.

Sustainable development through the Blue Economy must include the promotion of sustainable practices across the entire water cycle from the source to the sea that is, from mountains and inland waters to the coastlines, transitional zones and the ocean.

#### **Strategic Objectives:**

- Consider including the study of biodiversity in wetlands and transitional zones, as well as national water resources, in the Survey and Study of Timor-Leste's Marine Biodiversity.
- Develop a national policy for watershed, wetlands, and transitional zone management.
- Develop and implement the management, conservation, and rehabilitation of aquatic ecosystems, wetlands, and transitional areas, including rivers, lagoons, groundwater, swamps, and coastal ecosystems such as mangroves.
- Monitor and sanction, according to existing legislation, sand extraction in various rivers and coastal zones, especially the Comoro River, and establish buffer zones along riverbanks and around dams, lagoons, and coastlines to help conserve water resources and control natural floodplains.
- Raise awareness and educate communities on the importance of protecting and sustainably managing wetlands, which are essential for preserving their ecological and economic benefits.
- Involve local communities in decision-making and in the implementation of projects, measures, and actions — both inland for water resource management and in coastal areas — by promoting business and self-development opportunities, such as ecotourism and adventure tourism.

- Conduct surveys and data collection on biodiversity, including mapping of ecosystems across various biodiversity areas in inland waters and wetlands.
- Ensure sound management of sea-land border areas, including the adoption of legislation on water resources.

#### **Measures and Actions:**

- Conduct biodiversity assessments of wetlands and transitional zones as part of the Survey and Study of Timor-Leste's Marine Biodiversity.
- Incorporate into domestic legislation the Ramsar Convention, an international treaty aimed at promoting the conservation and wise use of inland and wetland ecosystems worldwide.
- Approve and implement the Legal Regime for Special Zones of Environmental and Ecological Protection, which aims to identify and regulate land use in areas of ecological value and sensitivity, or areas exposed to natural risks, including various coastal protection areas, zones crucial to the sustainability of the terrestrial water cycle, and natural hazard prevention areas.
- Introduce specific rules in the Municipal Territorial Planning Plans (still pending approval) regarding the use, occupation, and transformation of land, particularly in coastal areas or adjacent to watercourses, lagoons, or wetlands and transitional zones.
- Implement the approved Municipal Territorial Planning Plans for Bobonaro, Ermera, Baucau, Lautém, and Viqueque, and those for Aileu, Ainaro, Covalima, and Manufahi, creating local conditions for the management and conservation of wetlands and transitional zones
- Map all vulnerable coastal areas to prevent the development or conversion of activities such as aquaculture, salt production, or desalination that could harm natural system recovery.
- Implement awareness and education campaigns for local communities about the importance of wetland and transitional zone ecosystems, including through the National Ocean Literacy Programme and the Blue Economy Youth Ambassadors Program.
- Approve legislation on water resources.

#### **5.4.3. PILLAR 14: RURAL DEVELOPMENT, TRADE AND INDUSTRY**

The Blue Economy refers to an economic model that values the sustainable use of marine resources, promoting economic growth, social inclusion and the preservation of marine ecosystems.

This economic development strategy can be a powerful ally in rural development, especially in regions where marine resources are a fundamental part of local life and the economy. Activities such as sustainable fishing, aquaculture, marine tourism and marine resource exploitation can create jobs and generate income for rural communities, which make up the majority of the Timorese population.

From this dual perspective of sustainability and rural development, the Blue Economy offers alternatives to traditional agriculture, allowing communities to diversify their sources of income and reduce their dependence on a single activity.

On the other hand, the development of activities linked to the Blue Economy can encourage investment in infrastructure such as ports, roads and transport services, benefiting not only the exploitation of marine resources but also improving access to markets and services for rural communities.

Government plans for rural development and community housing are integral to the national Blue Economy as the National Suco Development Program and the Strategic Housing Plan involve building community capacity, economic diversification, climate resilience and developing culturally and ecologically appropriate housing.

The creation of cooperatives and industries and the promotion of trade are crucial in this context, especially from the point of view of private sector involvement and job creation, which are fundamental to economic diversification in areas such as fishing and marine cultivation, as well as other industries such as marine tourism and canning, renewable energy, marine biotechnology, among other opportunities that generate employment and business opportunities, promoting local economic development.

The Blue Economy industry drives research and development of new technologies for the sustainable exploitation and use of marine resources. This includes innovations in biotechnology, environmental monitoring technologies and sustainable production methods to enhance trade in marine products such as fish, algae, biofuels and pharmaceuticals, which can be marketed globally. International trade can bring significant revenue to coastal countries, as well as promoting the exchange of knowledge and best practices.

For this to be a successful strategy, there must be coordinated development strategies for coastal and port infrastructure to facilitate transport and logistics, without detracting from these initiatives promoting conservation and environmental protection.

In short, trade and industry are fundamental to the development of the Blue Economy, as they not only contribute to economic growth but also promote sustainability and the



conservation of marine resources. The integration of sustainable practices into these activities is essential to ensure that the ocean remains a source of wealth and well-being for future generations.

The Government of Timor-Leste is committed to:

- Promoting sustainable marine Industries: developing policies and programs that encourage the growth of sustainable fisheries, aquaculture, renewable marine energy and ecotourism, ensuring that these activities are balanced with the capacity of marine ecosystems.
- Fostering Blue Innovation and Entrepreneurship: designing programs that support local innovators and entrepreneurs in developing solutions to climate and economic challenges in the marine sector, such as those related to coastal erosion, mangrove restoration and digital platforms for tourism.
- Strengthen trade and industrial cooperation in marine products: initiate policies that facilitate trade in marine resources and related products, including the exploration and establishment of shipping routes with neighbouring countries to expand the mobility of traders and services.
- Improve human capital for the Blue Economy: support vocational training and capacity building initiatives for personnel and young people in marine-related industries, including planning and reporting techniques, to improve the Government strategic plan and promote youth entrepreneurship.
- Integrate cultural heritage with economic development: develop initiatives that recognise and integrate the intrinsic link between Timorese culture and marine ecosystems, potentially through the promotion of traditional crafts such as Tais, which have cultural significance and economic potential.
- Market access and investment promotion: establish programs that provide market access and investment opportunities for Blue Economy enterprises, including the promotion of local products at national and international fairs and the attraction of foreign direct investment in Blue Economy sectors.

**Strategic objectives:**

- Empower rural and coastal communities through sustainable Blue Economy sectors such as fisheries, aquaculture, ecotourism and biodiversity conservation.
- Strengthen community leadership, including especially women and local community groups, through Local Action Groups for project governance.
- Improve adequate housing and social infrastructure for diverse livelihood and well-being needs.
- Build capacity and promote knowledge exchange to promote sustainable economic activities linked to coastal and aquatic resources.

- Facilitate trade and strategic investment in the Blue Economy.
- Promote import and export activities within the framework of strategic investments in the Blue Economy.
- Promote national industries and local products.
- Strengthen regulatory frameworks that promote trade, industry and national cooperatives.
- Promote the national private sector and economic growth.
- Develop decent housing with access to water supply, sanitation and improved public hygiene as preconditions for healthy marine ecosystems and community well-being.
- Develop rural development mechanisms that include support for the management of inland and coastal aquifers, forest protection and the reduction of pollution affecting marine and freshwater resources.

#### **Measures and actions:**

- Create Local Action Groups to promote community leadership, including especially women and local community groups, for greater participation in public decision-making and project governance.
- Invest in housing and social infrastructure appropriate to diverse livelihood and well-being needs.
- Build capacity and promote knowledge exchange to promote sustainable economic activities linked to coastal and aquatic resources.
- Build housing and community spaces with integrated improvements in water supply, sanitation and hygiene (WASH) as prerequisites for healthy marine ecosystems and community well-being.
- Support the economic growth of cooperatives and small and medium-sized enterprises involved in the management of inland and coastal aquifers, forest protection and reduction of pollution affecting marine and freshwater resources.
- Utilise and promote the Timor-Leste Trade Information Portal to make import and export activities easier and more transparent for companies involved in marine products and services.
- Organise and participate in trade fairs to showcase Timorese marine products and attract investment to the Blue Economy.
- Work with the private sector to leverage its involvement in planned, healthy, and productive economic development within the Blue Economy.
- Collaborate with artisans and cooperatives, such as the cooperative group 'Sorunain,' to promote 'Tais' (traditional fabric) at national and international events, linking cultural heritage to economic opportunities.

- Support the expansion of small-scale salt production with improved techniques and the exploration of export markets, as mentioned in the broader Blue Economy strategy.
- Ensure the effective understanding and implementation of legal documents governing the structure and organisation of the relevant ministries, particularly with regard to the emerging Blue Economy sector.
- Continue to safeguard consumer rights related to goods and services, including those of the marine industry, by monitoring prices, testing product quality and addressing issues in supply chains.
- Participate in bilateral meetings with neighbouring regions to strengthen trade relations and industrial cooperation, including discussions on maritime links and Small and Medium enterprises promotion.
- Actively participate in ASEAN consumer protection conferences and other regional forums to strengthen Timor-Leste's involvement in the Blue Economy and promote knowledge exchange.
- Strengthen relationships with development partners, namely the World Bank, the United Nations Development Program, the World Health Organisation, the Asian Development Bank, and other institutions that can secure financing for “blue growth”.
- Promote the involvement of local and national entities, including the Timor-Leste Chamber of Commerce and Industry, as a strategic partner representing the private business sector, which is essential for leveraging the private sector in economic development; Ekipa Tasi Mos Ataúro (Clean Ocean Team Ataúro): which directly supports the Blue Economy policy objectives of protecting marine ecosystems and mitigating the impacts of climate change through plastic pollution removal and community-based waste reduction efforts, aligning with environmental preservation and sustainable ocean management; Roman Luan NGO: which contributes to the Blue Economy policy by promoting a sustainable ocean economy through sustainable tourism and the protection of marine protected areas, balancing economic activity with environmental preservation through an ‘ecosystem approach’; and ‘Laudato Si’ Movement Timor-Leste: which aligns with ocean conservation and marine ecosystem protection, particularly through youth engagement, fostering a future generation committed to the principles of sustainable development policy and marine biodiversity safeguarding.

#### **5.4.4. PILLAR 15: MARINE SATELLITE ACCOUNT**

The creation of the Ocean Satellite Account is essential for measuring the relevance of the Blue Economy within Timor-Leste’s national economy and in terms of job creation,

as well as for assessing the fulfilment of other quantifiable objectives established by the Government across various sectoral domains.

Essentially, the Ocean Satellite Account is a statistical tool for compiling and analysing data, based on the most appropriate accounting concepts and developed in line with international best accounting practices.

The Government will approve a Council of Ministers Resolution establishing the Ocean Satellite Account, with the National Institute of Statistics of Timor-Leste tasked with preparing this important statistical instrument, in collaboration with the relevant sectoral bodies and services.

The Ocean Satellite Account will be published every three years, without prejudice to the annual compilation of data that allows for closer monitoring of statistical developments in the Blue Economy.

This strategy will make it possible to measure ocean-based economic activities for the purpose of innovation and strategic development. The Government considers it crucial to assess the gross output, added value, and employment generated by the Blue Economy in relation to the national economy, in order to understand its overall contribution.

Currently, Timor-Leste lacks the detailed data necessary to disaggregate specific indicators for Blue Economy activities and their contribution to national production. The Government aims to address this gradually.

The Ocean Satellite Account will enable the performance of ocean-related economic activities to be measured in accordance with the following strategic objectives.

**Strategic Objectives:**

- Approve the Ocean Satellite Account through a Government Resolution, prior to the preparation of the next State Budget, ensuring a pilot phase through the creation of budgetary markers.
- Measure the relevance of ocean-related activities to the country, allowing for the estimation of the added value of economic activities contributing to GDP.
- Support decision-making in the coordination of public policies related to the sea and ocean.
- Contribute to better strategic planning and to the sustainable management and development of maritime and coastal resources and activities.

- Assess the environmental and marine biodiversity impacts of maritime activities, enabling the sustainable use of marine resources.
- Monitor and evaluate policies, measures and actions implemented, providing important data to attract investment and create business opportunities.
- Enable timely review and correction of measures and actions.

#### **Measures and Actions:**

- Develop budgetary markers for the Blue Economy to account for public expenditure in the sector, through the Directorate-General for Planning and Budget (DGPO) and in collaboration with line ministries, as a pilot project.
- Develop the Ocean Satellite Account in the medium term through the National Institute of Statistics, to account for the real, public and private Blue Economy.
- Ensure proper coordination between the DGPO of the Ministry of Finance and the National Institute of Statistics, in order to define markers that provide useful and appropriate information for the satellite account.
- Publish the Ocean Satellite Account every three years, without prejudice to the annual compilation of data that allows for closer tracking of Blue Economy developments.
- Establish joint, cross-sectoral monitoring and evaluation mechanisms for implemented measures and actions.

#### **5.4.5. PILLAR 16: PLANNING, FINANCING AND MONITORING INSTRUMENTS**

« Protecting the ocean is a sound investment. »

Christine Lagarde

Promoting the Blue Economy and preserving the ocean and its marine resources is widely recognised as a sound investment because it supports national economic growth, health, education, job creation, and, ultimately, long-term sustainable development.

Delaying sustainable investment in the Blue Economy is tantamount to delaying investment in future generations. This will inevitably result in significantly higher financial costs in the future.

The timeline for the planning, financing and monitorisation of the Policy and Action Plan for the Promotion of a Resilient and Sustainable Ocean Economy in Timor-Leste is presented in Part III of this document, along with the respective action plan that outlines priorities and short, medium and long-term measures, also aligned with the convenience of required investments and the budgetary constraints on public expenditure.

Accordingly, without prejudice to programs and projects to be developed with Timor-Leste's Development Partners, private sector or NGO-led initiatives (national and international), it is essential to prioritise key Blue Economy areas during the current legislative term and identify corresponding financing sources.

The effectiveness and sustainability of the implementation of the Blue Economy Policy requires the adoption of a set of structural and operational measures to ensure institutional coordination, community ownership and technical capacity building for the various actors involved. The aim is to ensure that political ambition translates into real and lasting impact, underpinned by an effective and inclusive governance model.

A preliminary analysis of the current financing landscape for the Blue Economy in Timor-Leste identifies three main sources: national public resources, development partner assistance, and private sector investments, and evaluates how these flows are currently oriented (or could be redirected) towards the Blue Economy through bilateral, regional, and international negotiations.

As highlighted throughout this document, the first step is for the Government to communicate its priorities, not only to better align Development Partners, but also to increase investor understanding of market opportunities in Timor-Leste—thus reducing perceived investment risk and addressing any perception of insufficient public sector commitment or support.

On the demand side, gaps remain in knowledge, capacity, and awareness of business and investment opportunities linked to the Blue Economy. The Government, through its policy and action plan, aims to bridge this gap by defining its priorities to steer project pipelines toward “bankable” options and designing support measures or subsidies — such as tax incentives, reduced electricity tariffs, land lease reductions, and other tailored incentives — ensuring that the public sector acts as a real partner in financing future Blue Economy initiatives.

The Blue Economy is also intended to stimulate the development of the national private sector, which remains significantly underdeveloped. Moreover, the Government is confident that through the strategic objectives laid out for the Blue Economy, it can attract greater levels of foreign direct investment, with benefits for all stakeholders and direct positive impacts on the living conditions of Timorese citizens.

Other potential Blue Economy financing sources include:

- Public-Private Partnerships: through the strategic integration of public and private financing for development, attracting private capital seeking returns.

- Donor and Philanthropic Funds: these can help de-risk private investments by adjusting the risk-return profile, thereby encouraging private capital to participate. Donors also often provide technical assistance for project identification and preparation.
- Blue Bonds: debt instruments issued by governments, municipalities, development banks, corporations, and others to raise capital for marine and ocean-related projects that deliver environmental, economic, and climate benefits. For Timor-Leste to qualify for blue bonds, several criteria must be met, including the assurance of environmental and social benefits, revenue-generating capacity (to attract investors), a compelling investment narrative, a clear communication framework, and the ability to disburse funds efficiently.
- Blue Carbon Credits: for example, through the conservation of mangroves and seagrass meadows, which can generate sellable "blue carbon" credits to fund marine conservation projects.
- Grants and International Aid: when combined with innovative financial instruments like blue bonds, these can attract investments for sustainable projects in Small Island Developing States. This approach ensures the long-term viability of marine resources while supporting economic development and environmental conservation.
- Environmental Fees: applied to Timor-Leste's Marine Protected Areas or as entrance fees for tourists seeking nature-based experiences, particularly in coastal areas and marine ecosystems. These environmental fees, especially those linked to tourism, can provide a sustainable revenue stream to support the management of protected marine areas and ecotourism activities.

Finally, monitoring and evaluating Blue Economy policies are key to making sure that sustainable development choices are effective, efficient, and relevant. This way, goals can be adjusted to boost the chances of success and public investment will be transparent and accountable, which is good for democracy and good national governance.

#### **Strategic Objectives:**

- Provide the Timor-Leste Land and Maritime Boundary Office Blue Economy Unit with technical and financial resources and specialised human resources in order to be able to coordinate the national strategy for the Blue Economy, ensuring collaboration and providing support to all implementing agencies, both public and private.
- Develop an integrated national vision for the structural and procedural integration of the Blue Economy Policy, including the coordination of all relevant

ministries, in conjunction with the Ministry of Finance, in terms of planning, budgeting, monitoring and evaluation. In other words.

- Ensure the development of a locally-based participatory process that guarantees the active involvement of coastal municipalities, sucos and fishing communities, with special attention to the inclusion of women, young people and traditional knowledge holders, ensuring the principle of community ownership.
- Improve coordination with development partners, not only to improve the planning and monitoring of policies and projects, but also to explore and operationalise financing mechanisms.
- Improve international cooperation (multilateral and bilateral) in the Blue Economy.
- Ensure financing for the blue transition through the development of a National Blue Economy Financing Roadmap, supported by public funds, public private partnerships, donors and philanthropists, blue bonds, blue carbon credits, taxes, licences and grants, among others.
- Develop fiscal analyses for the implementation of the Blue Economy, including revenue generation and fiscal risks related to the development of the maritime and marine sector.
- Mobilise domestic revenue and fiscal sustainability to support efforts to promote the Blue Economy.
- Ensure adequate monitoring and evaluation mechanisms to guarantee transparency and good governance of public policies.
- Ensure the necessary systematic political follow-up for the effectiveness, legitimacy and regulatory coherence of the rule of law.

#### **Measures and Actions:**

- Provide the Timor-Leste Land and Maritime Boundary Office Blue Economy Unit (reporting directly to the Prime Minister) with the technical and financial resources to carry out its mission.
- Review and harmonise the legal framework applicable to the Blue Economy to ensure better planning and budgeting in sectors such as fisheries, the environment, tourism, coastal management, biodiversity protection and maritime governance, among others.
- Strengthen the legal framework for the sustainable management of marine and coastal resources, aligning it with international best practices.
- Implement working groups and coordination mechanisms, namely the Blue Economy Task Force, to implement initiatives related to the Blue Economy, with priority given to establishing the necessary national legal frameworks.



- Create working groups with development partners and cooperation agencies to share knowledge and experiences, implement initiatives and develop financing mechanisms.
- Create working and knowledge-sharing mechanisms with the national private sector to assess needs, constraints and ambitions for the possible involvement of the public sector.
- Develop and implement public policies that support the development of the Blue Economy and the training of skilled human resources, including tax incentives for companies that invest in capacity building.
- Strengthen Timor-Leste's participation in regional and international initiatives related to the Blue Economy, such as ASEAN, the Coral Triangle Initiative, the CPLP, among other cooperation platforms, ensuring adequate funding for this participation.
- Promote technical and financial support from development agencies and international organisations for the implementation of the Blue Economy in its various and interdependent aspects.
- Integrate the Blue Economy into national planning and budgetary instruments, including alignment with the Public Finance Management System.
- Develop a financing plan for the blue transition through a National Roadmap for Financing the Blue Economy, in line with the National Integrated Financing Framework, combining public funds, including innovative instruments such as blue bonds, blended finance, public-private partnerships, international cooperation and the mobilisation of philanthropists.
- Create financial incentive funds to protect biodiversity and its ecosystems throughout the country. A Blue Tourism Community Project Support Fund will be allocated for the exclusive use of communities, upon proposal by organisations, associations and cooperatives in the field of eco-friendly establishments for the production and trade of handicrafts, local restaurants, seaweed production, etc.
- Coordinate external financing and public-private partnerships under national tax rules, through the Ministry of Finance, ensuring the efficient and transparent channelling of financing proposals from donors and the private sector and the best management of public finances.
- Align Blue Economy initiatives with national short, medium and long-term planning systems, including the Annual Action Plans and the General State Budget, also through budget markers that will form part of the Sea Satellite Account.
- Include Blue Economy initiatives in performance monitoring and evaluation mechanisms, to be coordinated with the Sea Satellite Account.

- Design and implement a revenue mobilisation strategy, incorporating licensing, service fees, environmental taxes and other fiscal instruments relevant to Blue Economy sectors.
- Improve the short, medium and long-term Action Plan for the Blue Economy Policy, including the results framework and specific performance indicators for the strategic objectives and measures and actions identified in the Blue Economy Policy.
- Create mechanisms for monitoring, reporting and evaluating policies and actions in the Blue Economy, making the necessary corrections in a timely manner.
- Include parliamentary political control in the implementation of the Blue Economy, through the inclusion of parliamentary hearings to assess policy progress, the regular presentation of implementation reports by the Government, with quantitative data, targets achieved, challenges faced and lessons learned, as a legacy for the future generation of a policy that will be implemented in the long term, using the financial and human resources available.

## PART III

### 6. ACTION PLAN FOR THE PROMOTION OF A RESILIENT AND SUSTAINABLE ECONOMY OF THE SEA IN TIMOR-LESTE

AXIS 1: RESEARCH, EDUCATION, AND COMMUNICATION (KNOWING THE SEA)			
PILLAR 1: MARINE SCIENTIFIC RESEARCH			
1.1. LEGAL FRAMEWORK FOR INTERNATIONAL MARINE SCIENTIFIC RESEARCH			
STRATEGIC OBJECTIVES			
<ul style="list-style-type: none"> <li>• Contribute to achieving United Nations Sustainable Development Goal 14.</li> <li>• Stimulate the development of new areas of action that promote ocean knowledge in Timor-Leste and the training of Timorese scientific personnel, especially young researchers, by fostering international cooperation and knowledge exchange about the ocean — particularly concerning Timor-Leste's maritime space, which, due to its size, natural resources, and marine biodiversity, constitutes a unique natural laboratory of global significance.</li> <li>• Promote ocean knowledge to combat the loss and degradation of ocean biodiversity caused especially by the impacts of climate change on marine ecosystems — such as ocean warming and deoxygenation, acidification, pollution (including plastics) and unsustainable use.</li> <li>• Regulate the authorisation process for marine scientific research activities carried out by foreign States or international organisations within Timor-Leste's maritime space, taking into account international recommendations and best practices for marine scientific research, while safeguarding Timor-Leste's sovereign rights and jurisdiction.</li> </ul>			
MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS	CALENDAR

Draft and submit for approval the Legal Framework for Marine Scientific Research applicable to research activities carried out within the national maritime space at the request of foreign States or international organisations, with the aim of advancing ocean knowledge in Timor-Leste.	GFTM MNEC	Decree Law approved and published	AUGUST 2025
Promote the training of Timorese scientific personnel — especially young researchers — by fostering cooperation and international knowledge exchange related to the ocean, and particularly to Timor-Leste's maritime space.	MESCC/INTC/UNTL		LONG TERM
Define administrative procedures to facilitate the implementation of the Legal Framework for International Marine Scientific Research.	MNEC		DECEMBER 2025
<b>1.2 SURVEY AND STUDY OF TIMOR-LESTE'S MARINE BIODIVERSITY</b>			
<b>STRATEGIC OBJECTIVES</b> <ul style="list-style-type: none"> <li>• Conduct the first comprehensive survey and study of Timor-Leste's marine biodiversity.</li> <li>• Establish a system of international scientific and technological partnerships to carry out the first comprehensive survey and study of Timor-Leste's marine biodiversity.</li> <li>• Build a framework for scientific and technological collaboration and exchange, working towards the adoption and implementation of sound ocean governance policies and measures within Timor-Leste's maritime space.</li> </ul>			

- Conduct studies to assess the feasibility of establishing a meteorology and geophysics laboratory, including institutional and human capacity-building needs, through international partnerships and cooperation.
- Encourage research projects within Timor-Leste's maritime domain and the Coral Triangle, addressing global, regional, and national challenges and threats.
- Support early-career researchers and promote the development of scientific knowledge in Timor-Leste by integrating traditional and local knowledge into the research process.
- Facilitate scientific and technological exchange through international cooperation and researcher mobility.
- Ensure the participation of young people, women and people with disabilities in scientific research and national and international exchange activities.
- Conduct studies and research that benefit the situation of women in the Blue Economy and have a direct impact on the future of the population in an inclusive manner.
- Create conditions to ensure that the Marine Biodiversity Survey and Study mechanism of Timor-Leste is continuously updated, including a monitoring and evaluation system that can effectively measure the conservation status of marine biodiversity in the national maritime area.
- Invest in the mechanism for surveying and studying Timor-Leste's marine biodiversity with the long-term goal of becoming a Centre of Excellence for the Blue Economy, as a hub for innovation, training and consulting for the sector.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS	CALENDAR
Plan and establish, with relevant stakeholders, the mechanism for the first comprehensive Marine Biodiversity Survey and Study of Timor-Leste.	GFTM		
Identify research gaps in existing reports and develop a database of specialised literature on Timor-Leste's biodiversity, ensuring its continuous update.			

Design the scientific marine research program and schedule with short-, medium-, and long-term objectives, including the selection of indicators to achieve a reliable system for monitoring and reviewing marine biodiversity, allowing for proper data assessment and reporting on its status.

Establish an international network of multidisciplinary, regional, and international scientific partners, based in Timor-Leste and led by a Timorese institution with recognised research and scientific competence, which will form the basis of a centre of excellence for the national Blue Economy.

Identify and collaborate in seeking funding opportunities to support the establishment and development of the Marine Biodiversity Survey and Study of Timor-Leste, along with associated projects.

Conduct feasibility studies for the creation of a national meteorology and geophysics system.

Develop international cooperation and strategic partnerships and/or investment plans for institutional, technological, and human resource capacity-building to ensure

the regular and reliable production of meteorological and geophysical data, for relevant institutions and, in due course, for the general public.
Promote innovation, training and consulting in the Blue Economy sector through concrete support.
Allocate resources to research and development projects in identified priority areas, with a view to knowledge management and the application of innovative solutions to national challenges in the sector.
Strengthen Timor-Leste's participation in regional and international initiatives related to the Blue Economy, such as ASEAN, the Coral Triangle Initiative, the CPLP and other cooperation platforms, where common challenges and opportunities can be addressed.
<b>PILLAR 2: EDUCATION, TRAINING, AND STRATEGIC COMMUNICATION</b>
<b>2.1. EDUCATION AND VOCATIONAL TRAINING</b>
<b>STRATEGIC OBJECTIVES</b>
<ul style="list-style-type: none"> <li>• Develop and implement the National Ocean Literacy Programme.</li> <li>• Ensure that the national core curriculum for lower and upper secondary education includes content that promotes ocean literacy and climate resilience.</li> </ul>

- For pre-school, and the first and second cycles of basic education, given that curriculum revisions are not feasible in the short or medium term, prepare teaching materials and supplementary content to be distributed to schools and teachers, promoting ocean literacy and climate resilience.
- Develop school projects during the academic year through an integrated approach combining teacher training and student education, delivered through supplementary materials.
- Develop higher education programs and postgraduate courses in the fields of marine sciences and the Blue Economy.
- Promote links between education and research by building national knowledge and capacity and investing in innovation in technologies and practices essential to the exploration and conservation of marine resources.
- Strengthen alignment with the UN Decade of Ocean Science for Sustainable Development 2021–2030, contributing to the achievement of SDG 14 and the commitments made at the UN Conferences of the Parties on Oceans, Climate, and Biodiversity.
- Ensure skilled human resources and trained labour in Blue Economy-related industries, through sustainable practices — including fisheries and aquaculture, maritime transport, tourism, renewable energy, and waste management, especially in coastal and wetland areas.
- Build the capacity of other Government stakeholders in promoting the country's Blue Economy, namely public administration agents, the private sector, and civil society.
- Train a new generation of professionals to drive the sustainable development of the Blue Economy over the next 5 to 10 years, focusing on areas of expertise crucial to the growth and sustainable management of marine resources.
- Strengthen the capacities of the National Vocational Training Centre—Becora, I.P. and the National Employment and Vocational Training Centre, I.P., and create opportunities for training and professional internships in Timor-Leste and abroad.
- Promote the skills and qualifications of Timor-Leste's future leaders through the Blue Economy Youth Ambassadors Programme, including national scientists, diving professionals, conservationists, and a technical workforce across the public and private sectors.

#### MEASURES AND ACTIONS

#### IMPLEMENTATION BODIES/GOVERNANCE PARTNERS

#### INDICATORS AND RESULTS

#### CALENDAR

Design and implement the National Ocean Literacy Programme. GFTM



Educate for blue literacy through the development and revision of lower and upper secondary curricula.
Develop supplementary teaching materials for pre-school, and the first and second cycles of basic education.
Prepare didactic materials for teachers and deliver “blue curriculum” training-of-trainers programs.
Promote the introduction of content on the ocean and sustainable marine development into the curricula of higher education institutions, particularly in natural sciences, engineering, economics, law and education.
Develop curricula and study programs in collaboration with universities and technical education institutions in Timor-Leste to develop and adapt undergraduate and postgraduate programs in the identified areas of specialisation.
Create higher education programs (bachelor's, master's and doctoral degrees) in strategic areas of the Blue Economy.
Introduce research projects in higher education and establish partnerships with

renowned international universities and research centres to promote knowledge exchange, course development and teacher training.
Promote research centres and laboratories in higher education, in coordination with the mechanism created for the Survey and Study of Marine Biodiversity in Timor-Leste.
Develop a Human Resources Development Plan for the Blue Economy of Timor-Leste (medium and long term). This Plan will give priority to sectors that contribute to food production, economic diversification, biodiversity protection, climate change adaptation, energy security and renewable energy, and the sustainable use of fisheries and tourism resources.
Develop vocational training activities, building the capacity of relevant national entities for the administration and management of Timor-Leste's Blue Economy.
Create and/or invest in existing vocational and technical training centres specialising in the Blue Economy, offering short and medium-term courses for fishers,

aquaculture farmers and workers in the sector, as a short/medium-term response.
Implement 'train the trainers' programs to train local instructors in priority areas.
Launch scholarship programs for Timorese students to study priority areas at national and foreign universities (create special programs to identify potential candidates or the best students from all municipalities for the creation of human resources at the territorial level).
Encourage exchange programs with international institutions so that students and professionals from Timor-Leste can gain practical experience and advanced knowledge.
Foster collaboration between the government, academia and the private sector to identify labour needs and develop internship and apprenticeship programs.
Encourage companies linked to the Blue Economy to invest in the training and qualification of their employees.
In addition to training professionals typically employed in the sector, also train professionals in public health,

microbiology, infectious diseases and epidemiology to ensure that there are specialised technical staff available to manage medical and drug emergencies and to monitor diseases related to contact with or proximity to marine resources.			
Conduct training activities under the Blue Economy Leadership Programme for specific target groups.			
<b>2.2 MARINE RESEARCH AND EDUCATION CENTRES</b>			
<b>STRATEGIC OBJECTIVES</b>			
<ul style="list-style-type: none"> <li>• Promote knowledge and prevent the collapse of marine biodiversity, pollution, and degradation of the marine environment.</li> <li>• Provide the necessary conditions to host “marine research laboratories” for conducting biodiversity studies.</li> <li>• Promote and support the work of researchers, academics, and students.</li> <li>• Support the sustainable development of local communities.</li> <li>• Promote sustainable tourism and the expansion of community-based maritime spaces, including recreational activities such as snorkelling and diving.</li> <li>• Develop content within the framework of the National Ocean Literacy Programme with local involvement and adapted to local contexts.</li> <li>• Support the creation of marine protected areas and the development and monitoring of their management plans.</li> <li>• Support maritime sovereignty, the sovereign rights and jurisdiction of Timor-Leste, including through coordinated government and local community actions for the surveillance and security of maritime areas.</li> </ul>			
MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Establish the first Marine Research and Education Centre on Ataúro Island,	GFTM/MAPPF		MARCH 2026

determining its specific location, concept, and design, including its financing plan.		
Identify other areas of interest for establishing Marine Research and Education Centres, with priority given to national protected areas.	GFTM/MAPPF	MEDIUM TERM
Establish national and international partnerships, including international cooperation projects, for the planning and financing of the Marine Research and Education Centres, with the involvement of relevant government agencies, including entities responsible for the National Ocean Literacy Programme and the Survey and Study of Marine Biodiversity of Timor-Leste.		
Conduct informational and training sessions across all municipalities with various stakeholders in Timor-Leste, including government officials, civil society organisations, students and youth, and coastal communities.		
Support UNTL to create an advanced teacher training program with international universities, with an emphasis on applied research into marine sustainability and climate change, liaising	GFTM MESCC UNTL	

with Marine Research and Education Centres, as advanced laboratories close to the core of studies, and contributing to the Survey and Study of Biodiversity in Timor-Leste, the future Centre of Excellence in Blue Economy.

## 2.3 MARINE AND UNDERWATER CULTURAL HERITAGE

### STRATEGIC OBJECTIVES

- Provide a space for the exhibition, education, and entertainment focused on objects and artefacts related to the sea, aimed at safeguarding cultural heritage and strengthening national maritime identity.
- Raise awareness of environmental issues and promote the conservation of the ocean, inland waters, and other water resources.
- Promote and safeguard the history and traditions of Timorese communities.
- Promote the development of underwater archaeology and the underwater cultural heritage in the country.
- Collect and preserve remains, movable or immovable property, and surrounding areas that attest to human life, located entirely or partly in underwater environments, obtained through scientific archaeological research or isolated finds, which constitute testimony with civilisational or cultural value and are of significant cultural interest.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Identify a suitable location for the future Museum of the Sea, in the former Dili Port, and develop a concept note and corresponding procurement processes for the design and conception/adaptation of the space, which should ensure accessibility and	GFTM/MTA		DECEMBER 2025

interaction for all visitors in the most inclusive way possible.		
Research and document relevant themes to produce content with creative narratives and language tailored to various audiences.		
Collect, conserve, and treat exhibition materials (including artefacts) with community involvement.		
Gather audiovisual material from communities, including documents, testimonials, and oral history.		
Establish national and international partnerships for the design and development of the Museum of the Sea, including anthropologists, ethnographers, and other specialists, such as marine archaeologists and divers, as well as scientists and academics in the marine field.		
Accede to the Convention on the Protection of the Underwater Cultural Heritage.	MTA/MJDAC/MNEC	DECEMBER 2025
Develop domestic legal rules applicable to national cultural heritage, aimed at the legal protection, preservation, safeguarding, and enhancement of	MTA/MJADCD	

Timorese cultural heritage, with a focus on the underwater environment.
Promote the training of divers to identify underwater cultural objects.
Basic training on diving equipment.
Equip and train personnel in the field of underwater culture.
<b>2.4 STRATEGIC COMMUNICATION AND OCEAN LITERACY</b>
<p><b>STRATEGIC OBJECTIVES</b></p> <ul style="list-style-type: none"> <li>• Strengthen national maritime identity and its fundamental culture and values, which include respect for nature and people: sustainable and inclusive development.</li> <li>• Promote Timor-Leste's image nationally and internationally as a nation that upholds environmental preservation and conservation, also contributing to climate change mitigation.</li> <li>• Promote international and regional cooperation in matters relating to the Blue Economy and the promotion and preservation of the ocean.</li> <li>• Promote the fight against marine pollution, especially plastic waste, and promote the improvement of plastic collection and management systems.</li> <li>• Foster economic diversification by developing investment opportunities, particularly in new sectors and economic industries — both to encourage Timorese citizens to actively participate in their development and to attract foreign direct investment into Timor-Leste, in compliance with national laws and regulations in force, including coastal protection regulations.</li> <li>• Validate existing cultural knowledge and practices in the development of the Blue Economy in Timor-Leste, ensuring that development initiatives are rooted in the values and aspirations of the Timorese people.</li> <li>• Encourage broad public participation and promote good governance and transparency in public policy.</li> <li>• Mobilise and inspire people and organisations to promote and protect nature.</li> <li>• Develop and implement public awareness campaigns on Blue Economy policies, initiatives and objectives.</li> </ul>



- Promote digital platforms for access to information and monitoring of data on the Blue Economy: Digital Blue Economy Platform - Tasi Link.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Develop a Strategic Communication Plan in coordination with relevant entities, to institutionalise the programs and various campaigns mentioned (“My Sea, My Timor”; “The Sea Starts Here! The Blue Economy from Mountain to Sea”; “National Ocean Week”; “Young Ambassadors for the Blue Economy” and “Blue Fish”).	GFTM, SECOMS, RELEVANT MINISTRIES		APRIL 2026
Develop the public awareness campaign ‘Tasi Timor Nia Futuro’ (Timor Sea Our Future), which aims to educate coastal communities, salt producers and fishermen about the benefits of the Blue Economy, to be developed by the government department responsible for media communications.			
Develop educational programs for the community press in coastal areas such as Ataúro, Manatuto, Viqueque and Lautém.			
Develop digital platforms for monitoring Blue Economy activities (fishing, maritime tourism and energy).			

Support the development of open data content on coastal areas and marine resources.		
Provide access to the internet and communication networks in strategic coastal areas.		
Approve a “National Sea Day” through a government resolution, with the date to be decided by the government.	GFTM	
Create and launch the Timor-Leste Blue Economy Portal: Timor is TASI, and update it regularly.		
Promote and participate in national and international events related to Blue Economy themes, and develop strategic regional and international partnerships.		
Conduct nationwide awareness campaigns in coordination with relevant partners.		
Promote the use of Tara Bandu, traditional customary law, to help preserve terrestrial and marine ecosystems.	MTA PAM	2026
Support talent competitions and cultural and artistic events in collaboration with relevant agencies, engaging young people.		

Support the Blue Economy Youth Ambassadors Programme, as key advocates for sustainable ocean governance, through regular workshops, capacity-building sessions, and community engagement initiatives, as well as participation in international events related to climate and oceans.		
Promote seminars and workshops in each municipality on topics related to ocean literacy.		
Launch a “Blue Prize” initiative to recognise and reward individual, group, organisational, or private sector actions that promote sustainability and marine protection.		
Produce and distribute publications, newsletters, fact sheets, and promotional merchandise.	GFTM	APRIL 2026
Implement the use of QR Codes on all Blue Economy-related publications to promote more sustainable practices and reduce environmental impact.		
Invest in a digital platform called ‘Tasi Link’, linked to the Blue Economy Portal, which, in the long term, will bring together all the relevant components of		

the Blue Economy, from the provision of data and information, to interactive maps of the country's biodiversity and other activities in accordance with national maritime spatial planning, the issuing of fishing licences and other maritime and coastal activities, training and capacity-building options, etc.

Develop a Strategic Communication Plan in coordination with relevant entities, to institutionalise the programs and various campaigns mentioned (“My Sea, My Timor”; “The Sea Starts Here! The Blue Economy from Mountain to Sea”; “National Ocean Week”; “Young Ambassadors for the Blue Economy” and “Blue Fish”).

## **AXIS 2: MARINE BIODIVERSITY PRESERVATION AND CONSERVATION (RESPECTING THE SEA)**

### **PILLAR 3: MARITIME AND COASTAL MANAGEMENT AND PROTECTION**

#### **STRATEGIC OBJECTIVES**

- Conserve biodiversity by protecting marine species and their habitats, including coastal areas and complex ecosystems rich in biodiversity such as coral reefs and mangroves.
- Ensure the sustainable use of marine resources, particularly through fisheries and tourism, to avoid compromising the health and sustainability of these resources for future generations.
- Ensure current and future food security through the sustainable management of marine and coastal resources.

- Promote economic diversification through ocean-based economic activities, such as fisheries and tourism, which depend on healthy and resilient oceans and coasts.
- Develop a national plan for the effective management of the National System of Protected Areas, integrated with all other national policies and spatial planning instruments, and based on sound scientific data — with particular emphasis on marine protected areas.
- Contribute to the 2022 Kunming-Montreal Global Biodiversity Framework, in particular the target of protecting 30% of the world's terrestrial and marine areas by 2030 through protected areas and other effective conservation measures.
- Combat negative environmental impacts by reducing pollution and the destruction of marine and coastal species, habitats and ecosystems — thereby also contributing to climate change mitigation and adaptation.
- Ensure proper coordination between the preparation of Maritime Spatial Planning and Management and other legislation, such as the Basic Law on Spatial Planning, for Integrated Coastal Zone Management (ICZM), including specific planning instruments such as Coastal Zone Management Plans (POOC).
- Involve coastal communities — including key stakeholders in economic activities such as fisheries, aquaculture, agriculture and tourism — in decision-making processes for the management of marine resources, by validating their knowledge and traditional practices.
- Support and promote the practice of Tara Bandu.
- Invest in sound science through research, monitoring and investigation, linking knowledge to the planning, monitoring and evaluation of traditional practices and public policies, in line with Axis 1 and its corresponding pillars.
- Promote education, training and strategic communication to empower and raise awareness among the population about the importance of marine and coastal conservation, aligning active citizenship with planning and ensuring sustainable economic growth for communities — in line with Axis 1 and its corresponding pillars.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Draft and adopt the Legal Framework for the National Maritime Spatial Planning and Management.			
Develop Maritime Spatial Planning and Management in coordination with			

<b>Integrated Coastal Zone Management (ICZM) and Coastal Zone Management Plans (POOC).</b>
<b>Draft and adopt the Legal Framework for Marine Protected Areas.</b>
<b>Establish Transboundary Protected Areas in regional cooperation.</b>
<b>Draft and adopt the Integrated Coastal Zone Management Plan, including the definition of coastal zones and associated concepts and Coastal Zone Management Plans (POOC).</b>
<b>Promote community involvement in marine and coastal protection and management through capacity building, training and awareness-raising activities.</b>
<b>Encourage, with concrete support, Tara Bandu and community practices that promote and ensure the sustainable use of ecosystem services.</b>
<b>Promote the development of community-based associations, organisations and small-scale private sector actors, through financial incentives, small capital investments, and technical and specialised support.</b>
<b>Review the National Biodiversity Strategy and Action Plan (2011–2020), updating the guiding framework for biodiversity conservation based on current science</b>

and reports, and aligning it with the targets of the Kunming-Montreal Global Biodiversity Framework.

### **3.1 MARITIME SPATIAL PLANNING AND MANAGEMENT**

#### **STRATEGIC OBJECTIVES**

- Promote the implementation of the Blue Economy in Timor-Leste through the National Maritime Space Planning and Management.
- Ensure that the planning and management of national maritime space is carried out through a participatory process, both in the planning phase and in the implementation and management of resources.
- Plan the protection and use of “inland areas” in an integrated manner with water resource management, taking into account impacts on coastal areas as well as the specific needs of the coastline and marine ecosystems.
- Ensure compliance with Law No. 6/2017, of 19 April 2017, which establishes the general framework for public land-use planning policy and refers to the integrated management of coastal zones, based on the POOC, which cover a coastal strip with a maximum limit of 500 metres from the high tide line and a maritime zone extending to the 30-metre barometric line.
- Improve the use of national maritime space and help prevent conflicts between coastal uses and activities, ensuring an appropriate land-sea interaction.
- Ensure proper coordination between the preparation of Maritime Spatial Planning and Management and other legislation, such as the Basic Law on Spatial Planning, for Integrated Coastal Zone Management (ICZM), including specific planning instruments such as Coastal Zone Management Plans (POOC).
- Prevent both natural degradation and degradation caused by human activities, as well as support the recovery of degraded areas and enhance natural, historical, cultural, and landscape heritage.
- Stimulate socio-economic activities compatible with the sustainable development of coastal areas, ensure and promote the compatibility between different uses and activities in coastal zones, and minimise environmental, economic, and social risks and impacts.
- Coordinate maritime spatial planning and management with the national plan for the National Protected Areas System, in an integrated way with all other national policies and land-use planning instruments.

- **Contribute to the implementation of the National Adaptation Programme of Action on Climate Change as a planning tool that identifies priority areas for immediate action, including proposals for adaptation measures, such as protecting coastal ecosystems from the impacts of climate change.**

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Establish a working group with the relevant stakeholders for the drafting of the Legal Framework for the National Maritime Space Planning and Management.	GFTM/MAPPF/MPIE/MTA/MD		AUGUST 2025
Develop a questionnaire to be applied to all relevant stakeholders for a situational analysis and needs assessment relating to the maritime spatial planning and management process.	GFTM/MAPPF/MPIE/MTA/MD		SEPTEMBER 2025
Consider the use of tools to support the development of national maritime space management that ensure the promotion of participatory planning, such as "SeaSketch".			
Draft and approve the Legal Framework for National Maritime Space Planning and Management, which will include planning tools and a public process that analyses and allocates the spatial and temporal			



distribution of uses and activities, based on a comprehensive and transparent decision-making process.		
Develop appropriate coordination and cooperation mechanisms among different national agencies and entities, ensuring stakeholder participation and safeguarding traditional and strategic uses and activities.	GFTM/MAPPF/MPIE/MTA/MD	DECEMBER 2025
<b>3.2 MARINE PROTECTED AREAS</b>		
<p><b>STRATEGIC OBJECTIVES</b></p> <ul style="list-style-type: none"> <li>• Contribute to UN SDG 14, which set as a target the conservation of at least 10% of coastal and marine areas.</li> <li>• Contribute to the international commitment adopted at the 15<sup>th</sup> Conference of the Parties to the Convention on Biological Diversity, in 2022, the “Kunming-Montreal Global Biodiversity Framework,” which introduced new, more ambitious and updated targets in response to the global biodiversity crisis — namely, to protect at least 30% of global terrestrial and marine areas through protected areas and other effective conservation measures by 2030.</li> <li>• Protect and maintain endangered marine species and their habitats, as well as coastal and marine ecosystems, to ensure the health of the seas and ocean.</li> <li>• Support the sustainable management of marine resources, particularly by regulating economic activities such as fishing, aquaculture, and the harvesting of marine species (algae, molluscs, etc.), also as a means of ensuring the sustainability of present and future coastal communities.</li> <li>• Support national and international scientific research to obtain technical and scientific surveys that identify protection needs, critical areas for the reproduction and development of marine species, the state of their habitats and associated ecosystems, providing data for the formulation of public policies that create an enabling environment for species to survive and thrive.</li> <li>• Contribute to increased resilience and adaptation to climate change, reinforcing the implementation of the National Adaptation Programme of Action (NAPA).</li> <li>• Contribute to sustainable economic development, particularly through sustainable and community-based ecotourism associated with MPAs.</li> </ul>		

- Contribute to food security by ensuring the stocks and health of marine species, particularly fish, thereby improving the socio-economic conditions of Timorese communities.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Establish a working group with relevant stakeholders to draft the Legal Framework for MPAs.	GFTM/MAPPF/MPIE/MTA		AUGUST 2025
Develop a questionnaire to be distributed to all relevant actors to assess the current situation and needs concerning the classification, management, and monitoring of MPAs in the seabed, subsoil, water column, and surface of Timor-Leste's maritime space.			SEPTEMBER 2025
Develop appropriate coordination and cooperation mechanisms among different national agencies and entities, ensuring stakeholder contributions and safeguarding traditional and strategic uses and activities.			
Analyse and implement the national adoption of scientific and technical criteria that describe Atauro Island and the Nino Konis Santana National Park as Ecologically or Biologically Significant Marine Areas (EBSA), in accordance with the 13 <sup>th</sup> Conference of the Parties to the Convention on Biological Diversity, held in 2016.			
Analyse and implement the findings and recommendations from the audit of protected areas by the Audit Chamber			

conducted between 2021 and 2022, within the framework of biodiversity and nature conservation policy and international commitments.		
Draft and approve the Legal Framework for MPAs.	GFTM/MAPPF/MPIE/MTA	DECEMBER 2025
Plan the creation of a National Network of MPAs, integrated into the National System of Protected Areas.		
Identify marine protected areas already formally or informally created in Timor-Leste and integrate them into the National Network of MPSs defining typologies and corresponding management plans.		
Identify, beyond Tutuala, Jaco and Atauro, other coastal areas around Timor-Leste requiring increased protection, including areas already identified such as Behau, Batugadé, Balibó, Manufahi, Manatuto, Viqueque, Baucau, Com and Liquiçá.	GFTM/MAPPF/MPIE/MTA	DECEMBER 2025
Invest in the necessary human resources, science and technology to achieve the	GFTM/MAPPF/MPIE/MTA/MD	DECEMBER 2025

objectives related to the classification, management, and monitoring of MPAs.		
Identify, promote and support Locally Managed Marine Areas (LMMAs), based on local community knowledge and practices, notably in Atauro, also supporting traditional practices such as Tara Bandu.	GFTM/MAPPF/MPIE/MTA	JUNE 2026
Establish national, regional and international partnerships and cooperation for managing existing MPAs and establishing new ones.		
Resume efforts already initiated to have the Nino Konis Santana National Park recognised as a Biosphere Reserve site, through its nomination under UNESCO's "Man and the Biosphere" Programme.	GFTM/MAPPF/MPIE/MTA	LONG TERM
Ratify the Convention on International Trade in Endangered Species of Wild Fauna and Flora, in order to address the illegal harvesting, transport and sale of species listed under CITES and originating from Timor-Leste.		
<b>3.2.1 NATIONAL PARK OF ATAÚRO</b>		

## STRATEGIC OBJECTIVES

- Establish the Ataúro National Park as a legally protected area, composed of multiple zones with different categories of protection and MPA usage, based on a balance between the best available scientific knowledge and local and traditional knowledge.
- Invest in a model of environmental protection and sustainable development for Ataúro, combining marine conservation and community-based tourism with nature-based solutions: a small island with a big heart.
- Promote the Ataúro National Park as a flagship biodiversity laboratory and conservation platform supported by strong governance capable of attracting donor funding and support, as well as scientists and scholars from around the world.
- Promote nature-based solutions and ecosystem conservation projects with integrated land-sea interaction, including mangrove restoration, seaweed and seagrass conservation, and reforestation projects, in partnership with local communities.
- Create sustainable income for local communities through sustainable revenue generation and benefit-sharing mechanisms, drawing from international best practices and visitor-centred research insights, and ensuring cultural adaptation.
- Generate economic and employment opportunities in environmental protection, ecotourism, and the Blue Economy sectors, building a growing economy in harmony with the natural environment.
- Consider nominating the Ataúro National Park for the UNESCO World Heritage Marine Programme. Such designation would offer Timor-Leste a significant advantage in attracting international attention, both for tourism and for drawing the interest of the international scientific community in conducting marine research and studies on Ataúro Island, including the possibility of securing funding, with the ultimate goal of building capacity for effective marine area management.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Finalise the Strategic Development Plan for Ataúro for approval by the Council of Ministers.	GFTM/MAPPF/MTA/MAE/PAM-ATAÚRO		AFTER APPROVAL AND PUBLICATION OF THE BEP
Conduct scientific assessments and studies to develop a baseline biodiversity study for Ataúro, as part of the National Marine Biodiversity Survey and Study of Timor-Leste, mentioned above.			

Carry out surveys and extensive community consultations, linked to the National Marine Biodiversity Survey and Study, to help define the relevant protection typologies and categories required for the declaration, management, and monitoring of MPAs and to identify and protect high conservation value areas.

Establish institutional agreements and international partnerships to support the creation of a dedicated Ataúro National Park, in coordination with the Ataúro Administrative Authority.

Develop and implement local community education and capacity-building initiatives, including under the National Ocean Literacy Programme, supporting local qualifications that lead to employment creation — such as Ataúro National Park rangers, fisheries, aquaculture and mangrove sector workers, tourism service providers, educators and facilitators, scientists, and researchers, among others.

Define the protection typologies/categories of Ataúro's MPAs in an integrated manner with the rest of the country, under the Legal Regime for Marine Protected Areas, including management and monitoring mechanisms, while taking into account existing regulations and management systems used for Nino Konis Santana National Park.

Define and administer entry fees (for international tourists) to sustainably fund ongoing park management and enable the hiring of community members to enforce protections within the Ataúro National Park, through transparent systems for collecting and distributing National Park fees with local community involvement.

Ensure the proper integration between the Ataúro National Park and the creation of the Ataúro Marine Research and Education Centre, supported by the National Ocean Literacy Programme and the Marine

Biodiversity Survey and Study of Timor-Leste, ensuring the inclusion of local knowledge, practices, and stakeholders in the process, and leveraging existing human and material resources within the Ataúro communities.

### 3.3 TRANSBOUNDARY COOPERATION

#### STRATEGIC OBJECTIVES

- Promote bilateral cooperation between Timor-Leste and neighbouring countries, not only for the conservation and promotion of MPAs but also to foster peace and friendship.
- Protect and preserve biodiversity and natural and cultural resources associated with shared ecosystems and migratory marine species.
- Share knowledge and experiences from local communities in neighbouring countries and promote the sustainable development of communities.
- Facilitate the transfer of know-how, science, and technology between neighbouring countries to enhance the effectiveness and success of marine conservation efforts.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Conduct a comprehensive assessment of all bilateral and regional cooperation projects related to marine areas, including existing or proposed agreements and memorandums of understanding.	MAPPF/MNEC		
Review the content, goals, and commitments of such cooperation,			



ensuring consistent messaging and documentation (including maps), to safeguard Timor-Leste's maritime sovereignty.
Assess ongoing cooperation mechanisms and projects under the Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security, the Timor Seas Ecosystem Action Program and Partnerships in Environmental Management for the Seas of East Asia, ensuring that marine and coastal conservation efforts do not compromise Timor-Leste's maritime sovereignty.
Establish a national mechanism for planning and monitoring projects in these areas, to be overseen by the Office of the Prime Minister and the Blue Economy Unit from Land and Maritime Boundary Office.
Identify new areas for joint protection (e.g., Batugadé, due to the presence of manta rays and important coral reefs), and develop new partnerships and cooperation agreements.
<b>3.4. STRENGTHENING ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REGIMES</b>
<b>STRATEGIC OBJECTIVES</b>

- Improve the national legal framework concerning Strategic Environmental Assessment and Environmental Impact Assessment, in accordance with the Environmental Framework Law.
- Develop environmental management and assessment mechanisms that address potential gaps in national legislation, particularly regarding marine environmental impacts.
- Promote, in an integrated manner, marine biodiversity within the national maritime space, in line with international best practices and in accordance with international law obligations under UNCLOS.
- Introduce legislation promoting standards for the use of public property, including the coastline, with a focus on regulatory solutions for the preservation of the marine environment.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Review all existing legal instruments under the Environmental Framework Law to identify gaps and improve the legal framework in the field of environmental protection, with particular emphasis on marine biodiversity protection.			
Revise the legal regime for environmental impact assessment.			
Draft supporting legislation and regulations related to environmental law and ensure their broad dissemination.			
Promote public awareness and online access to information on environmental licensing, through the competent Ministries and the Blue Economy Portal.			
Define activities for disseminating legislation on environmental protection, in order to inform citizens about the law			

and clarify and raise awareness of their rights and duties.			
Establish legislative measures to amend criminal law regarding environmental crimes, proposing fines for non-compliance, thereby preventing environmental crimes and contributing to state revenue.			
Propose measures to speed up the trial of environmental crimes in the courts, as well as the training of justice actors.			
<b>PILLAR 4: MARINE BIODIVERSITY CONSERVATION</b>			
<b>4.1 CORAL REEFS</b>			
<b>STRATEGIC OBJECTIVES</b>			
<ul style="list-style-type: none"> <li>To understand and protect the coral reefs of Timor-Leste and create the conditions for them to remain healthy, contributing to marine biodiversity and ocean health.</li> <li>To preserve biological diversity, protect coastal areas and the health of marine ecosystems, while also promoting fisheries, related activities and tourism in a balanced and sustainable way.</li> </ul>			
<b>MEASURES AND ACTIONS</b>	<b>IMPLEMENTATION BODIES/GOVERNANCE PARTNERS</b>	<b>INDICATORS AND RESULTS</b>	<b>CALENDAR</b>
Map and study the coral reefs of Timor-Leste as part of the Marine Biodiversity Survey and Study of Timor-Leste.			
Adopt legislation and regulation to combat coral reef degradation in an integrated manner, including in relevant sectors such as fisheries and tourism.			

Promote community involvement in the conservation of coral reefs.			
Promote education, knowledge and public awareness about the importance of coral reef conservation, including as part of the National Ocean Literacy Programme.			
<b>4.2. MANGROVES</b>			
<b>STRATEGIC OBJECTIVES</b>			
<ul style="list-style-type: none"> <li>• Protect the biodiversity found in mangrove forests, including fish, crustaceans, birds, and plant species, keeping them healthy and resilient, and recognising their role as nurseries for numerous marine species.</li> <li>• Protect coastal zones and ensure the socio-economic sustainability of coastal communities.</li> <li>• Contribute to mitigating climate change, considering that mangroves play a fundamental role in storing large amounts of carbon in soil and vegetation (carbon sequestration).</li> <li>• Protect the health of the sea and ocean and their ecosystems, through the essential role of mangroves in filtering pollutants and sediments, thus ensuring better water quality in coastal areas.</li> <li>• Contribute to economic diversification through the sustainable use of mangrove natural resources, including timber, marine resources, and tourism.</li> </ul>			
<b>MEASURES AND ACTIONS</b>	<b>IMPLEMENTATION BODIES/GOVERNANCE PARTNERS</b>	<b>INDICATORS AND RESULTS</b>	<b>CALENDAR</b>
Map mangrove forests across the country.			
Identify and consolidate the various existing studies and project reports, and assess the need for intervention for maintenance, urgent protection, and reforestation.			

<p>Improve research and monitoring of these ecosystems in coordination with the Timor-Leste Marine Biodiversity Survey and Study.</p>
<p>Expand mangrove forest coverage by at least 20% by 2030.</p>
<p>Consider expanding the national network of protected areas to include mangrove forests across the country, including the adoption of management plans and regulations to promote and protect these forests.</p>
<p>Evaluate and resume the Coastal Resilience Building Programme, extending it to all municipalities.</p>
<p>Promote awareness campaigns on mangrove forests among coastal communities and promote environmental education through the National Ocean Literacy Programme and the Marine Research and Education Centres.</p>

Submit an application for Timor-Leste's membership of the Global Mangrove Alliance.

#### 4.3. SEaweEDS AND SEagrASSES

##### STRATEGIC OBJECTIVES

- Promote research, scientific study, and education on seaweeds, within the framework of the Marine Biodiversity Survey and Study Programme of Timor-Leste and the National Ocean Literacy Programme.
- Protect, conserve, and restore seaweed habitats.
- Establish specific regulations for the sustainable management of seaweeds, including sustainable harvesting practices.
- Develop partnerships in the fields of innovation and technology for the sustainable production and cultivation of seaweeds, also with a view to economic diversification.
- Contribute to climate change mitigation and adaptation by conserving seaweed ecosystems.
- Promote research, investigation, and education on seagrasses within the framework of the Timor-Leste Biodiversity Survey and Study Programmes and the National Ocean Literacy Programme.
- Combat the direct destruction of seagrass habitats caused by unsustainable urban and industrial coastal development, as well as harmful fishing practices (such as trawling, and the use of explosives and chemicals) that cause physical damage to seagrass meadows.
- Tackle pollution in coastal waters resulting from inadequate treatment of domestic wastewater, the disposal of untreated liquid and solid industrial waste, and runoff caused by deforestation for plantations.
- Contribute to mitigating climate change and its impacts through the conservation of seagrasses.

##### MEASURES AND ACTIONS

##### IMPLEMENTATION BODIES/GOVERNANCE PARTNERS

##### INDICATORS AND RESULTS

##### CALENDAR

Establish protected areas that include marine zones, based on science and conducted surveys.

Through these protected areas, regulate harvesting and harvesting seasons to prevent overexploitation of wild seaweed stocks.
Support and empower local communities to cultivate seaweeds through aquaculture, also to safeguard wild seaweed populations.
Promote education and vocational training for entrepreneurs (fishers) and local communities on sustainable practices in this sector.
Stimulate industry growth, including through financial incentives, in sectors related to food, agriculture (fertilisers), bioplastics, and renewable fuels.
Legislate, monitor, and enforce regulations on unsustainable urban and industrial coastal development, as well as harmful fishing practices (such as trawling, and the use of explosives and chemicals) that directly damage seagrass meadows.
Implement, in a holistic and integrated manner, measures to combat pollution of coastal waters resulting from the inadequate treatment of domestic wastewater, the discharge of untreated industrial liquid and solid waste, and runoff caused by deforestation for plantation.

Deepen scientific studies on seagrasses and, in coordination with the Blue Carbon program (below), seek financing solutions and ways to economically valorise this sector with the involvement of coastal communities.

#### 4.4. CETACEANS, SEA TURTLES, SHARKS, DUGONGS AND OTHER MARINE SPECIES

##### STRATEGIC OBJECTIVES

- Promote the conservation and scientific research on cetacean populations and other marine species.
- Develop a regulatory framework and ethical guidelines for these marine species.
- Develop community-based tourism that provides local benefits for both people and marine species.
- Develop sustainable infrastructure and build capacity for species observation.
- Educate and raise awareness about ethical interactions with wildlife.
- Promote international collaboration and seek funding sources for the management and conservation of this unique biodiversity.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Prioritise and support scientific research on cetacean populations and other key marine species, their behaviour, migration patterns and biologically important areas.			
Create MPAs and strengthen existing ones to safeguard critical habitats. This will include establishing and enforcing permitted activities and interactions with protected species, vessel speed limits within the zones, and the maximum carrying capacity of vessels and people in a			



protected area, as well as minimum safety requirements.
Support the creation of an agency for marine protection and enforcement of marine legislation.
Implement monitoring programs to assess the impacts of tourism as a feedback mechanism to ensure policy effectiveness.
Establish a licensing or certification system for operators who comply with international standards (e.g. IUCN and IWC guidelines for whale tourism).
Prohibit harmful practices (e.g. feeding, touching, overcrowding, harming, capturing, chasing protected species).
Train and employ local communities as guides, researchers and hospitality staff, with an emphasis on training in responsible wildlife tourism practices.
Promote and encourage community-owned ecotourism initiatives to ensure that economic benefits remain local.
Promote and encourage tourism operators who adhere to sustainable practices and target eco-conscious travellers through global sustainability certifications (e.g. GreenFins certification).
Develop cultural programs that connect traditional knowledge with conservation.
Invest in low-impact tourism infrastructure (e.g. eco-friendly boats, land-based

observation points, conservation or rehabilitation centres).
Develop partnerships with international experts to transfer knowledge on best practices.
Invest in the creation of a rescue and rehabilitation centre for marine wildlife, particularly protected species.
Invest in the review and development of a long-term crocodile management plan, with a focus on strategies to manage human–wildlife conflict.
Launch campaigns to educate tourists and local residents about ethical wildlife interactions.
Position Timor-Leste as a high-quality, low-volume premier destination for whale watching.
Establish partnerships with NGOs (e.g. World Wide Fund for Nature, Whale and Dolphin Conservation) for conservation funding.
Seek UNESCO or the Ramsar Convention on Wetlands recognition for key marine areas.
Seek transboundary protection and alignment in the management and protection of migratory species.
<b>PILLAR 5: COMBATING MARINE POLLUTION AND WASTE MANAGEMENT</b>
<b>STRATEGIC OBJECTIVES</b>

- Fulfil international commitments and obligations in combating plastic pollution through engagement in the international negotiations of the Plastics Pollution Treaty as well as other international conventions and mechanisms under UNCLOS.
- Improve the implementation of the MARPOL guidelines.
- Adhere to international conventions and treaties aimed at protecting human health and the marine environment from the harmful effects that may result from the inadequate management of hazardous waste, as well as the spread of marine pollution, in particular through toxic waste and plastic.
- Protect Timor-Leste's marine environment and ecosystems from marine pollution, including urgent actions related to marine plastic, such as enforcement and sanctioning measures, through a holistic approach.
- Secure the involvement of international and national stakeholders in close collaboration with the Government, including the participation of the private sector, NGOs and the Timorese population, to combat marine pollution and promote adaptation solutions for reducing, recycling and reusing polluting materials, particularly plastics.
- Strengthen national campaigns on the 3Rs Policy (Reduce, Recycle and Reuse), in association with the National Ocean Literacy Programme.
- Foster a circular economy in the country, with particular focus on recycling, reusing and repairing plastic materials, through training in the sector and incentives for both public and private sectors.
- Raise awareness of health and environmental issues, improving the management of biological, organic and toxic waste, with particular emphasis on the management of clinical waste, screening and random testing for cases of contamination, allergies, infections or bacteria, both on land and at sea.
- Promote the fight against marine pollution, especially plastic waste, and promote the improvement of plastic collection and management systems, namely through the 'Peixe Azul' (Blue Fish) campaign.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Monitor and actively participate in the negotiations of the Plastics Pollution Treaty, advocating for the principle of common but differentiated responsibilities and respective capabilities.			

Monitor and implement international treaties and mechanisms in the area of plastic pollution, as well as others related to the protection and preservation of the marine and terrestrial environment.
Adhere to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which, since its amendment in 2019, includes provisions on plastic waste.
Review relevant national legislation to specifically reference marine pollution and regulate accordingly.
Regulate immediate measures to combat marine plastic, including enforcement and sanctioning measures, and increase monitoring and surveillance of waters under national jurisdiction.
Also regulate to address pollution in rivers and other national water resources.
Approve implementation, monitoring and evaluation mechanisms for approved legal frameworks, including those related to plastic material imports, the Urban Solid Waste Management System, and other regulations regarding environmental impact assessments and environmental management plans.
Revitalise and promote the National Zero Plastic Policy, including in rural areas, and implement and enforce Decree-Law No.

37/2020 on the disposal, import and production of plastic bags, packaging and other plastic items.
Extend the 'Peixe Azul' (Blue Fish) awareness campaign (fish-shaped bins) to the whole country, ensuring the effective recycling of the plastic collected.
Invest in monitoring, research and data collection on marine plastic pollution in Timor-Leste.
Develop content on pollution and marine pollution to integrate into the National Ocean Literacy Programme.
Distribute, across the country, equipment and bins for separated waste collection, linked to subsequent waste management (recycling), involving local authorities and communities.
Invest in efficient waste collection and disposal systems using collection centres in each municipality, suco and village, including planning for the market value of plastic waste that could be sold internationally to the Plastic Bank or other waste banks.
Promote, optimise and subsidise the private sector, if necessary, to improve existing waste management facilities and expand waste management infrastructure in Timor-Leste.
Expand and improve recycling systems, notably by supporting existing businesses

engaged in recycling activities and encouraging investment in recycling facilities and technologies.
Strengthen environmental impact assessment regimes and mechanisms for activities with a high risk of marine pollution.
Develop databases on waste collection and disposal (not only during beach clean-ups, but also in wetlands and water resources).
Approve enforcement measures for all regulatory actions to ensure effectiveness and compliance.
Seek financing mechanisms from development partners for reducing marine plastic and improving waste management.
Ensure a holistic and coordinated approach to marine pollution, waste management, and water and sanitation policies.
Monitor the implementation of basic sanitation systems in new public or private buildings (including residences), as well as waste management plans for any coastal tourism development.
Promote access to regular medical examinations for workers in coastal areas (including fishers) and workers in industries exploiting water resources or other natural resources located at sea.
Invest in research and development to identify bacteria and viruses in fish and seafood, as well as research and database

records on the most prevalent diseases among populations living or working in coastal areas and industries located in blue areas.

## **PILLAR 6: CARBON SEQUESTRATION**

### **STRATEGIC OBJECTIVES**

- Promote integrated policies to combat the degradation of coastal ecosystems, including unsustainable practices in the use of natural resources, watershed management, and waste management.
- Promote and restore coastal areas through coordinated integrated management to improve the productivity of coastal activities, food security, and community health.
- Promote reforestation and agroforestry, providing benefits in terms of both carbon removal and coastal resilience, stabilising soils, improving watershed management and increasing biodiversity — important synergies between forest and marine ecosystems.
- Promote the design of community-led and socially inclusive projects: FCOTI and WithOneSeed/Rai Matak are based on partnerships with subsistence farmers and women, using annual incentive structures, farmer cooperatives and training to ensure equitable benefit sharing and build local ownership — strategic elements for sustaining long-term carbon interventions.
- Prepare the carbon market and policies, notably through securing Plan Vivo and Gold Standard certification, voluntary carbon markets and national enabling instruments — tailored to be scaled up through carbon farming policies, legal frameworks and greenhouse gas accounting systems in the land sector, currently supported under the development of the EU-TA carbon farming policy.
- Contribute to the long-term sequestration and storage of carbon, thus combating climate change and improving living conditions for Timorese citizens and humanity at large.
- Develop community-led nature-based solutions projects, including the restoration of mangroves, preservation of saltwater marshes, and conservation of seagrass meadows.
- Access the voluntary carbon market and unlock new sources of sustainable income to support local livelihoods.

**MEASURES AND ACTIONS**

**IMPLEMENTATION  
BODIES/GOVERNANCE PARTNERS**

**INDICATORS AND RESULTS**

**CALENDAR**

Conduct biodiversity surveys and research in Timor-Leste, increase national and international research efforts on carbon sequestration in coastal areas.
Map and characterise blue carbon ecosystems in Timor-Leste.
Based on this mapping, define appropriate conservation and restoration measures, and promote their valuation.
Create a national portfolio of blue carbon ecosystem interventions for future investment opportunities by entities aiming to offset their carbon footprint.
Improve local management measures based on current knowledge of emissions from degraded coastal ecosystems.
Educate and raise awareness among local communities about the importance of marine and coastal ecosystems, particularly through the National Ocean Literacy Program.
Conduct financial and institutional impact studies on blue carbon, as well as build capacity for projects to be developed by local communities.
Encourage private sector development through subsidies and tax incentives for companies investing in blue carbon initiatives.



Establish carbon markets that enable the buying and selling of carbon credits, incentivising emission reductions.
Evaluate and strengthen the <i>Carbon Offset Timor Foundation</i> and <i>WithOneSeed/Rai Matak</i> , based on partnerships with subsistence farmers and women.
Ensure Plan Vivo and Gold Standard certification, voluntary carbon markets, and national enabling instruments.
Transform and encourage the reuse of geological reservoirs, facilities, and offshore infrastructure used in oil and gas exploration for carbon capture and storage (e.g., the depleted Bayu Undan gas fields).
Encourage the exploration of new geological reservoirs in the Timor Sea for permanent CO <sub>2</sub> sequestration and storage.
Promote the development of a legal framework for the implementation of CO <sub>2</sub> sequestration, capture and storage in the Timor Sea.
<b>AXIS 3: SUSTAINABLE USE (LIVING WITH THE SEA)</b>
<b>PILLAR 7: BLUE TOURISM</b>
<b>7.1 COASTAL TOURISM</b>
<b>STRATEGIC OBJECTIVES</b>
<ul style="list-style-type: none"> <li>Sustainable development across the country, prioritising practices that preserve marine ecosystems, coastal zones, and other areas with aquatic spaces such as streams, lagoons, and waterfalls, while promoting the responsible use of natural resources. This includes the conservation of marine and aquatic biodiversity and the protection of critical habitats such as coral reefs, mangroves, and estuaries.</li> </ul>

- Development of both traditional and innovative activities within the blue tourism sector, such as diving and snorkelling, whale and marine species watching, sustainable and recreational fishing, boat tours, coastal and mountain water-based adventure tourism, and beach and water sports (such as beach football and volleyball).
- Encouraging community development by enabling blue tourism to be community-led. This includes professional training and capacity building, provision of subsidies and access to small-scale development capital, as well as the transfer of local tourism management with respect for local culture and tradition.
- Promote the local economy and the empowerment of women and young people across the country, within the framework of promoting blue tourism activities, including training and capacity building.
- Encourage traditional practices for the promotion of marine conservation and blue tourism, such as Tara Bandu.
- Promoting environmental education and awareness, particularly through ocean literacy programs, targeting both host communities and visiting tourists, to raise awareness about sustainable practices and ecosystem preservation, with both national and international impact.
- Developing the national private sector, especially in tourism and related industries, by providing conditions and resources for low-impact tourism development, including sustainable transportation, eco-friendly accommodation, and proper waste management systems.
- Increasing the number of tourists visiting the country, while enforcing strict sustainability rules for entry, use, and tourism practices.
- Positioning Timor-Leste as a premium, low-volume, high-quality destination for whale watching, diving, and nature-based tourism.
- Implementing, in an integrated and sustainable manner, the National Tourism Policy, with concrete action plans that ensure both financial and environmental sustainability.
- Improve the legal and regulatory framework for the tourism sector.
- Invest in international tourism promotion and marketing campaigns in Timor-Leste.
- Create financial incentive funds to protect biodiversity and its ecosystems. This Blue Tourism Community Project Support Fund is allocated for the exclusive use of the community, upon proposal by organisations, associations and cooperatives in the field of ecological establishments for the production and trade of handicrafts, local restaurants, seaweed production, and other activities.
- Implement Coastal Zone Management Plans linking the establishment of a land use regime for coastal zone management to an economic development strategy based on the development of coastal tourism, taking into account environmental issues and the rational and sustainable management of natural resources, thus integrating planning with investment strategies.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Develop low-impact tourist activities, such as ecotourism and diving, that value and preserve local culture and marine ecosystems, with the aim of generating income and employment, including nautical observation and sports activities (sailing, traditional canoe trips, whale watching, among others).			
Regulate tourist activities in protected and sensitive marine areas (eg reef coral areas under reconstruction).			
Train local operators in good environmental practices to care for and preserve the marine environment.			
Provide exclusive funding to promote community participation, based on proposals from organisations, associations and cooperatives in the field of eco-friendly establishments for the production and sale of handicrafts, local restaurants throughout the country's coastal zone, etc. These projects aim to encourage community and local participation in tourism activities, particularly coastal and community tourism.			
Define Sustainable Blue Tourism Areas by designating blue flag beaches in order to promote the safe use of these beaches by tourists and the local population.			

Build community eco-lodges in Ataúro, Lautém and throughout the coastal zone.
Install informative coastal tourist signage.
Socialise and expand the programs and campaigns: 'My Sea, My Timor', 'National Ocean Week', "The Sea Begins Here! The Blue Economy, from the Mountains to the Sea'; 'Young Ambassadors of the Blue Economy'; and 'Blue Fish'".
Encourage the participation of local communities in the community management of reefs and fishing areas, with the support of traditional regulations such as Tara Bandu.
Create training programs for local community groups that provide tourism services (tour operators, tour guides, divers, women entrepreneurs in tourism infrastructure, Ataúro 'WAWATA TOPU' women divers and other community tourism operators).
Support, through a financial and capacity-building fund, the 'women divers' or 'women of the sea' of Ataúro Island.
Promote Tara Bandu practices in marine conservation on Ataúro Island and the entire coastal zone of the country by local communities.
Create a Support Fund for Blue Tourism Community Projects and financial incentives for seaweed production groups.

Implement international campaigns focused on diving, nature and eco-tourism.			
Promote the use of environmentally friendly materials and sustainable construction in the country's coastal areas.			
Finalise the draft law and regulations for the Basic Law on Tourism to improve the coordination and evaluation of policies defined and approved by the Council of Ministers for tourism, commercial and industrial activities.			
Develop regulations and establish strict licences for contact with marine species, including their monitoring.			
Expand reef restoration in Marine Protected Areas and consider new marine protection areas.			
Expand the restoration of coral reefs, mangroves and seagrass beds.			
Monitor and combat marine pollution.			
Raise awareness, encourage and train coastal communities to protect the marine environment through community-involved coastal clean-up campaigns.			
Control crocodile populations and map safe areas with blue flags, investing in a long-term crocodile management plan.			
<b>7.2. MARITIME OR NAUTICAL TOURISM</b>			
<b>MEASURES AND ACTIONS</b>	<b>IMPLEMENTATION BODIES/GOVERNANCE PARTNERS</b>	<b>INDICATORS AND RESULTS</b>	<b>CALENDAR</b>

Invest in training human resources in the field of sustainable tourism.
Rehabilitate the Dili waterfront as part of the urban planning for the city of Dili, which may include the construction of a Dili Marina and other projects to redevelop the Dili waterfront, turning it into a pleasant leisure area.
Build and activate Crocodile Management Parks, increasing beach safety while preserving the species and promoting the touristic appeal of an animal that holds formal symbolic value in Timorese identity.
Promote arts and cultural initiatives, including gastronomy, in coastal areas, during National Ocean Week celebrations.
Encourage beach activities by ensuring cleanliness, safety, and infrastructure, while upholding sustainable practices and respect for nature.
Develop specific regulations for coastal and marine use, as well as for interactions with nature.
Prepare specific regulations for whale and marine species watching.
Map and promote Timor-Leste's prime diving sites, along with guidelines for sustainable practices in the sector.

Train and equip people in rescue techniques and first aid, namely training professional lifeguards.
Map and promote Timor-Leste's mangrove forests, along with sustainable visitation and usage practices.
Invest in diving tourism development strategies, including adequate information centres and basic infrastructure, such as access pontoons for recreational boats transporting divers and hyperbaric chambers for decompression.
Create a certification program for hotels, ecotourism resorts, local accommodation, and tour operators that adhere to sustainable practices.
Develop an integrated waste collection and management plan, including provision of bins.
Support the private sector in providing beach infrastructure, including access transport, parking facilities, signage, food services, and designated areas for sunbathing, swimming, and other activities, especially water sports.
Promote beach sports such as beach football and volleyball, as well as water sports like windsurfing, kitesurfing, and kayaking.

Develop beach entertainment activities, particularly for families with children, to strengthen national maritime identity. This includes nature conservation activities, such as protecting species like turtles.

### 7.3. NATURE TOURISM

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Link the designation, management and planning of protected areas to the promotion of sustainable tourism and ecotourism.			
Support tourism operators and hospitality, food service, and other related sectors through training, capacity building, and enabling conditions for carrying out sustainable tourism activities.			
Promote hotels, guesthouses, and family-run accommodation, creating conditions for their ecologically sustainable expansion.			
Regulate and support the public and private transport industry to facilitate travel across the country.			
Regulate access to protected areas and national parks, including setting appropriately considered tourist entrance fees.			
Define and create hiking trails and mountain paths for adventure tourism in			



the country's interior, with the strategic involvement of local communities.
Establish Tourist Information Centres in various parts of the country, making use of existing institutions such as Marine Research and Education Centres.
Support the development of a network of private accommodation at key national points of interest.
Train and build the capacity of individuals to support adventure tourism activities such as hiking, climbing, diving, and snorkelling, among others.
Invest in signage for areas of interest and accommodation throughout the country.
Combine whale watching with other ecological activities (e.g., diving, birdwatching, cultural and coffee tours).
Target environmentally conscious travellers through global sustainability certifications.
<b>PILLAR 8: LIVING RESOURCES EXPLOITATION</b>
<b>8.1. FISHERIES AND AQUACULTURE</b>
<b>STRATEGIC OBJECTIVES</b>
<ul style="list-style-type: none"> <li>• Protect marine biodiversity and ensure that fish populations and other marine and aquatic species are maintained in healthy quantities and environments.</li> <li>• Incorporate climate change adaptation and mitigation measures into marine and coastal resource management, taking into account sea level rise, ocean acidification and changing species migration patterns.</li> <li>• Integrate a gender perspective into all initiatives, recognising and promoting the fundamental role of women in artisanal fishing, processing, marketing and management of marine resources, and ensuring their equitable access to benefits, training and decision-making.</li> </ul>

- Invest in science, research, and surveys — particularly within the framework of the Marine Biodiversity Assessment and Study of Timor-Leste — for responsible fisheries and aquaculture management.
- Implement sustainable fisheries and aquaculture management programs through responsible practices that prevent overfishing and the destruction of marine and aquatic habitats.
- Effectively combat illegal, unreported, and unregulated fishing.
- Strengthen monitoring, control and surveillance systems.
- Strengthen regional and international cooperation for the shared management of migratory species, combat illegal, unregulated and unreported fishing, share scientific data and best practices, and harmonise conservation measures.
- Engage and support coastal communities whose main activities rely on marine resources, encouraging their increased participation in management, protection, and conservation decisions.
- Launch awareness campaigns within communities to promote the benefits of sustainable practices and the importance of marine resources for food security and the healthy development of the Timorese people.
- Review and modernise the legal framework for the fisheries and aquaculture sectors, aligning it not only with current development needs but also with emerging environmental concerns and biodiversity preservation, and with international commitments and the specific goals of the Blue Economy.
- Strengthen the capacity of local fishers by improving access to knowledge, technology, and equipment.
- Coordinate fisheries sector development with the improvement of port infrastructure, with the appropriate components.
- Improve aquaculture infrastructure to increase production, capacity building, and development of this economic activity.
- Strengthen monitoring, control, and surveillance systems.
- Invest in the export market for fish and aquaculture products.
- Invest in the establishment of fish landing centres and markets, equipped with appropriate refrigeration systems, through which the Government can enforce quality and food safety standards, as well as ensure fair pricing, while providing the sector with proper oversight and monitoring.
- Promote sustainable fish consumption.

#### MEASURES AND ACTIONS

#### IMPLEMENTATION BODIES/GOVERNANCE PARTNERS

#### INDICATORS AND RESULTS

#### CALENDAR

Promote research on marine biodiversity, fish population dynamics, and the impacts of fishing activities, using scientific data to inform policies and management practices.
Develop a national database on Timor-Leste's fish stocks, spawning and breeding areas, and sustainable harvest levels for commercial species, coordinated with the mapping of Key Biodiversity Areas and the Marine Biodiversity Assessment.
Strengthen enforcement of fisheries and aquaculture activities and implement monitoring systems to ensure compliance with existing laws and regulations.
Review and regulate fishing license fees based on scientific studies and sustainable limits.
Establish permanent consultation mechanisms with local authorities and communities in the fisheries and aquaculture sectors.
Provide training programs for fishers and coastal communities on sustainable fishing practices, resource management, and conservation.
Establish international partnerships and cooperation projects for the sustainable management and implementation of fisheries — particularly in high seas and international waters.

Build national capacity for high seas and international water fishing, including vessels, technology, and equipment, and training on international regulations, notably UNCLOS.

Adhere to and implement international and regional legal instruments applicable to access to fisheries and the export of fish and fishery products, such as the 1995 United Nations Fish Stocks Agreement (straddling and highly migratory stocks) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) — in order to ensure sustainable fishing, particularly on the high seas.

Promote international cooperation with other countries and international organisations on cross-border sustainable fisheries issues.

Assess and identify gaps in the current legal framework for fisheries and aquaculture and develop a modern legal regime that balances economic development with ecosystem and biodiversity protection.

Define updated regulations based on scientific evidence and the new legal framework, including: catch limits for population recovery; no-fishing zones aligned with marine protected areas; sustainable practices and methods to

<p>minimise ecosystem degradation and bycatch; permitted vessel types and fishing zones; and licensing regulations, especially for foreign commercial vessels, including sanctions and fines.</p>
<p>Introduce sustainable fishing certification systems and encourage responsible consumption.</p>
<p>Develop port and logistics infrastructure to support the fisheries sector, including landing points for fishers.</p>
<p>Develop alternative fish preservation methods such as salting, smoking, and drying.</p>
<p>Support sustainable fishing through measures that prevent overfishing and enforce biodiversity protection regulations, especially in protected areas.</p>
<p>Map all vulnerable coastal areas to prevent their development or conversion into aquaculture or salt production zones, and revert non-productive areas into natural systems.</p>
<p>Offer aquaculture training programs on farming techniques, disease prevention, and sustainable practices, along with know-how tools to improve skills and knowledge.</p>
<p>Develop various types of aquaculture in freshwater, brackish, and saltwater environments.</p>

Allocate additional funding for the construction and maintenance of aquaculture facilities such as hatcheries and nurseries, and facilitate access to financing.

Develop studies and research to support aquaculture activities, particularly by providing alternatives to the challenges faced in its development, namely, the quality and availability of necessary water resources, competition over land and water use, disease prevention, feed ingredients, and species development.

Restructure the Liquiçá Aquaculture Training Centre to train fishery technicians, fishers, and aquaculture producers.

Improve existing water supply and distribution systems to ensure consistent, unpolluted water for aquaculture activities.

Conduct awareness campaigns about the nutritional value of fish, promoting increased demand alongside supply.

Invest in markets, auction facilities, distribution centres, and mechanisms connecting producers and consumers, including cold chain infrastructure like freezers, refrigerated warehouses, and offshore freezing capabilities.

Conduct studies to promote offshore fishing and ensure the sustainability of export markets.			
Strengthen national institutional cooperation to ensure cross-sectoral interventions with various partners, especially the private sector.			
<b>8.2 MARINE BIOTECHNOLOGY</b>			
<b>STRATEGIC OBJECTIVES</b>			
<ul style="list-style-type: none"> <li>• Monitor international developments in the field of marine biotechnology and assess the challenges and opportunities facing this sector.</li> <li>• Promote the sustainable use of national marine resources, beginning to build national capacity to explore their present and future potential.</li> <li>• Contribute to science and innovation, particularly through strategic partnerships in key development areas such as health, food and nutrition, agriculture and fertilisers, and biofuels.</li> <li>• Promote and support the development of biotechnology that contributes to the restoration of marine ecosystems.</li> </ul>			
<b>MEASURES AND ACTIONS</b>	<b>IMPLEMENTATION BODIES/GOVERNANCE PARTNERS</b>	<b>INDICATORS AND RESULTS</b>	<b>CALENDAR</b>
Develop scientific research, including within the framework of the Marine Biodiversity Survey and Study of Timor-Leste, to promote and invest in research and development for biotechnological applications.			
Encourage higher education for national staff in marine biotechnology and provide professional training in support areas for the sector's development.			

Develop international cooperation and strategic partnerships to bring innovation in marine biotechnology to Timor-Leste.			
Align the legal frameworks to be developed under the Blue Economy with the challenges and opportunities posed by the growth of marine biotechnology.			
Encourage private sector development in this field by promoting entrepreneurship and the creation of startups focused on marine biotechnology.			
<b>PILLAR 9: EXPLORATION OF NON-LIVING RESOURCES AND ENERGY PRODUCTION</b>			
<b>9.1. HYDROCARBON PRODUCTION</b>			
<b>STRATEGIC OBJECTIVES</b>			
<ul style="list-style-type: none"> <li>• Ensure that the development of the Greater Sunrise fields and others (Chuditch, Kelp Deep, etc.) in the Timor Sea delivers long-term benefits for the people of Timor-Leste.</li> <li>• Promote the long-term economic growth of Timor-Leste, including the necessary economic diversification and improvement of living standards for Timorese citizens, as well as developing the country's capacity to mitigate and adapt to the challenges posed by climate change.</li> <li>• Ensure that the potential associated with petroleum resources in the Timor Sea is fully developed for the socio-economic benefit of the people of Timor-Leste, as a catalyst for development, job creation and GDP growth.</li> <li>• Ensure adequate mitigation of the impacts of petroleum resource development in the Timor Sea on healthy marine development.</li> </ul>			
<b>MEASURES AND ACTIONS</b>	<b>IMPLEMENTATION BODIES/GOVERNANCE PARTNERS</b>	<b>INDICATORS AND RESULTS</b>	<b>CALENDAR</b>
Ensure that Environmental Impact Assessments or Initial Environmental Reviews are carried out before commencing or authorising oil activities in the Timor Sea.			



Monitor and assess the impacts of oil activities in the Timor Sea.
Ensure the establishment of a clear mechanism for the remediation of the marine environment for any pollution that may occur as a result of oil resource development in the Timor Sea.
Ensure the establishment of an economic diversification scheme for the development of petroleum resources in the Timor Sea, aiming at maximum participation of Timor-Leste and its citizens in all phases of petroleum resource development in the Timor Sea.
Establish appropriate legislation and policies on Carbon Capture and Storage and ensure mechanisms to promote a smooth transition of Timor-Leste towards low carbon emissions under the country's comprehensive efforts to achieve cleaner energy.
Participate in international discussions on promoting sustainable oil sector development and good practices in the exploitation of marine resources.
Ensure compliance with existing legislation in the country, especially regarding the Planning and Management of the National Maritime Space and Marine Protected Areas, with a view to

protecting critical ecosystems and habitats.
Promote the development of gas resources in the Timor Sea and transport them via pipeline to Timorese territory.
Develop key infrastructure on land for the collection, treatment and processing of hydrocarbons from the Timor Sea.
Encourage and promote the exploration of hydrocarbon resources in the Timor Sea with responsibility and rigour through partnerships between TIMOR GAP and international oil companies.
Promote and regulate the implementation of hydrocarbon exploration projects in the Timor Sea with the intervention of the National Petroleum Authority.
Promote innovation and creativity with international partners to boost the application of marine biotechnology in the energy sector in Timor-Leste.

## 9.2 RENEWABLE ENERGY

### STRATEGIC OBJECTIVES

- Develop the National Emissions Reduction and Energy Transition Plan in an integrated manner and with the involvement of all sectors of government.
- Create the necessary conditions for a transition to renewable energy sources, including the review of existing studies for Timor-Leste and, if necessary, the development of new studies, in partnership with international cooperation.

- Conduct feasibility and sustainability studies on the use of natural gas for electricity production, aiming to adopt a more cost-effective energy source that also addresses environmental concerns.
- Build human capacity, infrastructure, and facilities to accelerate the development of the renewable energy sector across the country.
- Invest in renewable energy sources to diversify the energy sector, reduce dependence on heavy fuel oils, lower electricity production costs, and protect the environment.
- Carry out feasibility studies to assess the renewable energy potential in the country—particularly wind, solar photovoltaic, and hydropower—which remain underutilised.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Compile all relevant studies on renewable energy in Timor-Leste and make informed political decisions based on their findings.			
Promote scientific research to support the development of marine renewable energy technologies, including corresponding monitoring, evaluation, and environmental impact assessments.			
Deepen feasibility studies for offshore wind energy, wave and tidal energy, and hydropower.			
Develop a feasibility study for the construction of a thermoelectric power plant to generate energy from household and industrial waste in Dili.			
Encourage, wherever feasible, the use of solar panels to support sustainable practices within the Blue Economy — particularly in aquaculture projects,			

ecotourism, Marine Research and Education Centres, coastal and aquatic hospitality services, port and navigation infrastructure, and awareness campaigns.
Promote seaweed farming for the production of biofuels and biochemical products that can serve as renewable energy sources.
Support the transformation of fishery waste into biofuels.
Manage resources from the Green Climate Fund to contribute to the financing of energy transition projects.
Develop a legal framework to encourage and regulate renewable energy projects in the country.
Create grant schemes to support small to medium sized enterprises and private sector actors investing in renewable energy.
Invest in education and vocational training in the field of renewable energy.
Establish a Renewable Natural Resources Office to coordinate intersectoral actions, conduct feasibility studies, and oversee the implementation, management, monitoring, and evaluation of renewable energy projects.
Strengthen political coordination and cooperation between agencies responsible for energy, environment, and maritime

affairs to promote the sustainable development of ocean-based renewable energy.			
Continue to develop solar and wind energy projects in the country.			
<b>9.3 SALT PRODUCTION</b>			
<b>STRATEGIC OBJECTIVES</b>			
<ul style="list-style-type: none"> <li>• Identify priority locations across the country for expanding national salt production, through environmental and sustainability feasibility studies.</li> <li>• Sustainably produce sufficient salt, according to best international practices, for domestic consumption and export, including for industrial use.</li> <li>• Promote production methods that minimise environmental impact and ensure the sustainability of water resources and local ecosystems.</li> <li>• Diversify the local economy, creating employment opportunities and improving the living conditions of communities.</li> <li>• Promote scientific and traditional knowledge to foster innovation in salt production and processing, improving both efficiency and product quality.</li> <li>• Develop marketing and branding strategies that incorporate Timor-Leste's identity in the production of gourmet sea salt, iodised salt, and salt for cosmetic uses.</li> <li>• Regulate and raise awareness among communities regarding the importance of iodised salt consumption, particularly for children and pregnant women.</li> <li>• Strengthen training and capacity-building across the sector, from production to promotion, commercialisation opportunities, and market strategy.</li> </ul>			
MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Conduct feasibility and environmental sustainability studies to determine the most suitable locations for expanding national salt production.			
Invest in necessary infrastructure to develop the salt industry, including the construction and rehabilitation of salt pans, drying and			

storage facilities, ensuring sustainable practices from extraction to purification and storage.
Develop scientific studies through partnerships with universities, research centres, and NGOs to improve sustainable salt production technologies.
Review and/or draft appropriate regulations to support the expansion and ensure quality standards in the sector, in compliance with food safety parameters.
Implement sustainable production practices, such as the use of renewable energy, minimisation of chemical use, and the protection of ecosystems surrounding salt production areas.
Train and upskill workers in modern, safe and sustainable salt production and processing techniques.
Develop marketing strategies to promote different types of salt products (including gourmet, iodised, and detox/cosmetic salt), incorporating the Timor-Leste brand for national and international markets.
Enforce the national regulation on the mandatory use of iodised salt.
Promote awareness campaigns on the importance of iodised salt, especially targeting vulnerable groups such as children and pregnant women.

Align salt production with Timorese culture and identity, encouraging community-based tourism.			
Raise public awareness of the role of salt in food security and industrial applications, creating business and trade opportunities.			
Ensure market access through improved transport networks and strategic communication initiatives.			
<b>9.4. SEABED MINING</b>			
<b>STRATEGIC OBJECTIVES</b> <ul style="list-style-type: none"> <li>• Ensure that the exploitation of marine mineral resources complies with sustainability criteria, minimising environmental and social impacts.</li> <li>• Guarantee the cost-effectiveness of mining activities in relation to the potential impacts on marine ecosystems and biodiversity.</li> <li>• Conduct scientific research and monitor international trends, including through international cooperation, to determine Timor-Leste's national position regarding deep seabed mining activities.</li> <li>• Implement the Legal Framework for Marine Scientific Research in national maritime waters.</li> </ul>			
MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Promote and regulate the implementation of mineral exploration projects in the Timor Sea with the involvement of the National Minerals Authority of Timor-Leste.			
Promote scientific and commercial research by the Geoscience Institute of Timor-Leste and Murak Rai Timor, E. P., with international partners.			

Ensure the completion of Environmental Impact Assessments prior to the initiation or authorisation of any mining activities.
Monitor and assess mining activities carried out in other regions to evaluate the environmental impacts of mining operations.
Use mining technologies that minimise seabed disturbance, water contamination and impacts on marine life.
Strengthen national legislation and licensing systems to ensure that any eventual operations are conducted with the highest standards of sustainability, guaranteeing the protection of marine ecosystems and biodiversity.
Establish robust surveillance and enforcement mechanisms to prevent unauthorised mining activities within Timor-Leste's maritime jurisdiction.
Train and build the capacity of national experts and technicians to enable domestic participation in the sector, thereby safeguarding national interests and sovereignty.
Participate in international dialogues and negotiations on the promotion of sustainable mining and best practices in the exploration of marine resources.



Promote the development of a legal framework for the planning and management of national maritime space.			
Ensure full compliance with applicable national legislation, particularly regarding Maritime Spatial Planning and Marine Protected Areas, with a view to protecting critical ecosystems and habitats.			
<b>9.5. DESALINATION</b>			
<b>STRATEGIC OBJECTIVES</b>			
<ul style="list-style-type: none"> <li>• Conduct feasibility and environmental sustainability studies to identify the most suitable locations for desalination projects based on local needs.</li> <li>• Increase access to potable water in regions with water scarcity or reduce pressure on natural freshwater resources, thus contributing to greater sustainability.</li> <li>• Ensure the availability of water during dry seasons and also promote pilot projects for adaptation to the impacts of climate change.</li> <li>• Promote technology, innovation, and human resource capacity to ensure access to essential services for the population, based on sustainable management practices.</li> </ul>			
<b>MEASURES AND ACTIONS</b>	<b>IMPLEMENTATION BODIES/GOVERNANCE PARTNERS</b>	<b>INDICATORS AND RESULTS</b>	<b>CALENDAR</b>
Carry out a national assessment of potable water needs to guide the development of desalination infrastructure.			
Conduct feasibility and environmental sustainability studies for the desalination sector.			

Invest in research and innovation to ensure efficient processes with minimal environmental impact.
Ensure the implementation of environmental impact assessments to safeguard and conserve marine ecosystems.
Guarantee the maintenance of existing facilities and establish appropriate monitoring and evaluation procedures to ensure water quality and the health of marine ecosystems.
Involve local communities in the process, including by providing training for the installation and maintenance of these facilities.

## **PILLAR 10: TRANSPORT, MARITIME PORTS AND COMMUNICATIONS**

### **10.1 INFRASTRUCTURE**

#### **STRATEGIC OBJECTIVES**

- Promote and develop the communications sector, especially mobile communications and Internet access, through the use of submarine cables.
- Comply with international commitments and develop national legislation in accordance with these obligations.
- Regulate the rights and duties of Timor-Leste in relation to the placement, maintenance, and removal of submarine cables and pipelines within the legal framework for maritime spatial planning and management.
- Develop the skills of the Information and Communication Technology Agency to improve the efficiency and safety of maritime operations.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Regulate the placement, maintenance, and removal of submarine cables and pipelines in accordance with international legal frameworks.			
Regulate the placement, maintenance, and removal of submarine cables and pipelines in the context of exclusive use, and ensure appropriate land-sea interaction at connection points.			
Ensure a holistic and integrated approach through the regulation of rights and responsibilities under the legal framework for maritime spatial planning and management.			
Construct and renovate basic infrastructure to support activities related to the Blue Economy, such as jetties and access points for recreational boating, sport fishing, diving, and snorkelling.			
Improve digital solutions for the Blue Economy.			
Promote digital connectivity in coastal areas: expand and improve telecommunications infrastructure in remote coastal and maritime areas to support digital innovation in fisheries, tourism and marine research.			
<b>10.2 PORT AND LOGISTICS DEVELOPMENT</b>			
<b>STRATEGIC OBJECTIVES</b>			

- Develop a port network with the capacity to provide logistical services throughout the country, prioritising key locations for tourism, industrial, and fisheries development.
- Conduct feasibility studies for the construction of the Port of Manatuto and the establishment of a national maritime route to facilitate coastal shipping and connectivity, as well as to provide passenger and cargo transport services at various coastal points across the country.
- Restructure and modernise the former Port of Dili, converting it into a City Marina and Cruise Terminal, in coordination with the possible creation of a Maritime Museum.
- Carry out studies aimed at implementing sustainable practices and green technologies in the construction and operation of new ports and terminals, such as the installation of solar panels and waste collection and management systems.
- Strengthen the maritime regulator and authority, including the improvement and modernisation of its regulatory standards.
- Promote the safety of navigation and international maritime traffic within national waters.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Upgrade port facilities across the country, with priority given to Com and Ataúro.			
Construct port infrastructure in Kairabela, Vemasse, and Baucau to provide sea access for fisheries sector activities and to support the tourism sector.			
Install sustainable technologies and practices in port infrastructure, such as solar panels and waste collection and management systems.			
Restructure the old Port of Dili to develop the Dili waterfront as a space for tourism, culture, and leisure, including the potential reception of cruise ships.			
Implement a maritime signalling system (lighthouses) in Ataúro, Maubara, Baucau,			

and Com to promote navigational safety and international maritime traffic within national waters.
Enforce international legislation and standards, including the International Ship and Port Facility Security Code at all national ports and on vessels, which involves conducting security assessments, training port professionals, and implementing monitoring and inspection measures, including regular audits.
Implement International Maritime Organisation standards in order to update and incorporate international regulations established by international conventions, ensuring that national legislation is aligned with international requirements, including port and worker modernisation and certification, with a focus on safety, accessibility, and environmental protection.
Adopt digital technologies and data-sharing platforms to improve efficiency and transparency in maritime trade and logistics.
<b>10.3 MARITIME TRANSPORT AND NAVIGATION</b>
<b>STRATEGIC OBJECTIVES</b> <ul style="list-style-type: none"> <li>• Promote international, regional, and national trade, including within the framework of World Trade Organisation and ASEAN integration.</li> <li>• Advance science and technology in the search for more sustainable solutions for a cleaner, more efficient, and less polluting maritime transport sector.</li> </ul>

- Support the development of the petroleum sector on the south coast.
- Contribute to the development of sustainable tourism, including cruise tourism and marine adventure tourism.
- Train and build the capacity of professionals in the maritime transport sector.
- Improve the management of radio spectrum, which is crucial for navigation and communication systems used in the marine environment.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Stimulate local economic development, especially in coastal areas, including commercial and tourism-related activities.			
Implement the STCW Convention to establish training programs in accordance with international standards and ensure crew certification is carried out in line with International Maritime Organisation regulations.			
Establish maritime academies or training centres to ensure that professionals are properly trained.			
Develop certification systems for seafarers and other maritime industry professionals, through international partnerships, to create curricula aligned with International Maritime Organisation conventions.			
Conduct regular ship surveys and inspections to ensure compliance with the International Convention for the Safety of Life at Sea, the International Convention for the Prevention of Pollution from Ships,			

International Ship and Port Facility Security Code, and other international conventions.
Develop monitoring systems by implementing maritime radar, surveillance, and signalling systems to prevent accidents and ensure compliance with international standards.
Develop and regulate communication activities, as well as optimise communication means, including ensuring robust communication networks that can support real-time data exchange for maritime safety, weather forecasting and marine resource monitoring.
Ensure the provision of public telecommunications services and the use of radio spectrum, which are essential for the operational efficiency of maritime industries, enabling communication between ships, coastal facilities and emergency services.
<b>10.4 SHIPBUILDING AND SHIP REPAIR</b>
<b>STRATEGIC OBJECTIVES</b> <ul style="list-style-type: none"> <li>• Support the development of the maritime transport industry and international trade in the country.</li> <li>• Support the development of the oil and gas industry on the south coast.</li> <li>• Promote employment and technical qualifications in this sector.</li> <li>• Develop science, technology, and innovation to ensure vessel efficiency, safety, and sustainability, including the use of alternative fuels, more efficient propulsion systems, and emission reduction technologies.</li> </ul>

- Explore shipbuilding and ship repair methods that minimise environmental impact, such as the use of recyclable materials and the implementation of waste-reducing production processes.
- Ensure appropriate legislation and regulation for the sector's development, including environmental, safety, and performance certification systems.
- Improve internal capacity for monitoring and enforcement in the national maritime space.
- Reduce international dependency and strengthen national sovereignty.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Begin training and building the capacity of national technicians and specialists in the design, construction, assembly, and operation of the sector, including sustainability skills and specialised areas such as engineering and mechanics.			
Develop feasibility and environmental impact studies to support the promotion of the shipbuilding and ship repair industry.			
Raise awareness among stakeholders to develop this emerging sector, ensuring international best practices and compliance with environmental standards.			
<b>PILLAR 11: MARITIME SECURITY</b>			
<b>STRATEGIC OBJECTIVES</b>			
<ul style="list-style-type: none"> <li>• Analyse national risks: identify and characterise the main risks and threats to maritime security in Timor-Leste, including piracy, terrorism, drug and human trafficking, illegal, unreported and unregulated fishing, smuggling, marine pollution and other illegal or dangerous activities.</li> <li>• Assess the likelihood of occurrence and potential impact: study the degree of probability and the effects that each threat may have on security, the economy, the environment and national sovereignty, contributing to the prioritisation of response measures.</li> </ul>			



- **Identify the country's vulnerabilities:** assess the structural and operational weaknesses of the national maritime security system, including gaps in port infrastructure, shortage of qualified human resources, inadequate equipment, poor implementation of international standards, and legal and institutional weaknesses.
- **Define national priorities and objectives:** establish clear, measurable and realistic targets for strengthening maritime security, such as reducing incidents of piracy, increasing vessel surveillance, effectively protecting marine protected areas and improving inspection and control practices in ports.
- **Develop preventive measures:** implement actions to mitigate identified risks and prevent incidents, such as strengthening port security, training enforcement officers, implementing maritime surveillance and tracking systems, establishing rapid response protocols and developing contingency plans.
- **Strengthen international cooperation:** promote coordination with neighbouring countries, regional and international organisations in information sharing, training, capacity building and joint patrols. Encourage Timor-Leste to accede to relevant multilateral conventions and initiatives in the field of maritime safety and environmental protection.
- **Monitor and evaluate results:** establish a system for the continuous monitoring of actions implemented, with performance indicators and evaluation mechanisms that allow for the correction of deviations, the updating of strategies and the promotion of continuous improvement.
- **Promote awareness and training:** conduct public awareness campaigns on the importance of maritime security and promote regular technical and operational training programs for maritime and port professionals, in line with international standards.
- **Harmonise national legislation with international legal instruments:** review, adapt and adopt international maritime legislation, including UNCLOS, the ISPS Code, the SOLAS, and the COLREG, ensuring their integration into the national legal framework.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Application of international maritime safety instruments, namely the COLREG, SOLAS, MARPOL and other IMO conventions, ensuring compliance by vessels under national jurisdiction.			
Strengthening of the National Maritime Authority, providing it with the legal, human and material resources necessary			

for the effective performance of its regulatory, inspection and surveillance functions.
Development of technological and operational capabilities through the installation of coastal control and surveillance systems (radar, Automatic Identification System, satellite), emergency response systems and command and control centres.
Continuous training and qualification of civil and military professionals involved in maritime safety, promoting partnerships with friendly countries and specialised organisations for technical and educational support.
Support for the modernisation of ports and implementation of safe practices in port operations, integrating safety, environmental protection and logistical efficiency requirements.
Creation of a joint maritime surveillance force, with elements from the naval component of the F-FDTL, the Maritime Police, Customs, the Fisheries Authority and other entities with responsibility at sea, under an operational coordination regime.
<b>11.1 CAPACITY BUILDING, SURVEILLANCE AND ENFORCEMENT</b>
<b>STRATEGIC OBJECTIVES</b>

- **Defend national sovereignty and marine resources:** ensure effective control and protection of the Exclusive Economic Zone EEZ, including the seabed and living and non-living resources, in accordance with international law of the sea.
- **Involve the Timor-Leste Defence Force in economic development:** promote the active contribution of the naval component of the Timor-Leste Defence Force into the protection of economic activities at sea, with a particular focus on surveillance, enforcement and support for the development of the Blue Economy.
- **Promote training and operational capacity building:** strengthen the training of military and civilian human resources involved in maritime operations, with a focus on security, enforcement, rescue, surveillance and environmental protection.
- **Consolidate the Maritime Authority System of Timor-Leste:** build the command, control and coordination structure of the National Maritime Authority, ensuring its operational capacity based on appropriate legislation, qualified human resources and logistical means.
- **Create and implement specific legislation** that allows for the construction of infrastructure to support national defence and the development of the Blue Economy, in line with international standards.
- **Strengthen infrastructure and logistical capabilities:** improve existing naval facilities and develop new support bases along the coast, ensuring the sustainability and territorial reach of naval action.
- **Modernise information and command systems:** invest in the development of the C4ISR (Command, Control, Communications, Computers, Cybersecurity, Information and Surveillance) system to ensure a coordinated and effective response to various maritime threats.
- **Provide the naval component with adequate resources:** acquire vessels, equipment and technologies appropriate to the defence, inspection and surveillance mission, with a focus on agile, low-cost and highly effective platforms.
- **Strengthen the National Maritime Authority:** consolidate its institutional, technical and logistical capacity to ensure the full exercise of State authority in the maritime areas under its jurisdiction.
- **Train specialists in critical areas:** invest in advanced training in areas such as naval engineering, maintenance, logistics operations, surveillance technologies and port management.
- **Implement a National Maritime Alert System:** create an integrated structure for monitoring and responding to emergencies at sea, with coordination between civil and military entities.
- **Strengthen search, rescue and surveillance capabilities:** train the naval component to act in emergencies, rescues, maritime accidents and pollution response, with adequate resources and specialised training.

- Ensure compliance with international maritime law: ensure alignment with UNCLOS, SOLAS Convention, MARPOL and other relevant instruments.
- Promote the security of strategic facilities: protect critical infrastructure associated with oil and gas exploration, particularly on the south coast, ensuring its safe and sustainable operation.
- Establish strategic international partnerships: strengthen bilateral and multilateral cooperation in the field of maritime security, with a view to sharing capabilities, joint training and technical assistance.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Acquisition of versatile and low-cost naval assets, capable of operating in coastal and ocean waters, supported by coordinated communications with air and land assets.			
Development of the Port of Hera as a main naval base, with capacity for expansion and complementarity with secondary logistics points along the coast.			
Creation of regional coastal surveillance centres, with progressive coverage of the EEZ and integration of sensors, radar, Automatic Identification Systems, and satellite imagery.			
Continuous and specialised training of human resources, including technicians, system operators, naval engineers and inspection personnel, in collaboration with international partners.			
Active surveillance and multisectoral information gathering, covering national security, environmental protection, natural resource monitoring and traffic control.			

Effective enforcement against threats to sovereignty and resources, including illegal fishing, illegal mineral extraction, illicit vessel traffic, polluting activities and environmental crimes.

Surveillance of submarine and air traffic, integrating data obtained from maritime and airborne platforms, strengthening intelligence sharing.

Promotion of international cooperation actions, including joint exercises, mutual assistance protocols, information sharing and technology transfer.

## 11.2 MONITORING AND INTERNATIONAL COOPERATION

### STRATEGIC OBJECTIVES

- Promote and preserve regional and global peace and stability: develop bilateral and multilateral cooperation initiatives with neighbouring countries and international organisations, with the aim of strengthening cooperative security in the Indo-Pacific region and preventing conflicts or instability that affect navigation, trade or the sustainable exploitation of marine resources.
- Strengthen national capacities through external cooperation: promote strategic partnerships for institutional, technical and operational capacity building in the areas of maritime security, search and rescue, surveillance and environmental protection, ensuring the transfer of knowledge and technology.
- Contribute to ocean protection and the development of the Blue Economy: establish cooperation networks for the sharing of good practices and experiences in the sustainable exploitation of marine resources, including fisheries, coastal tourism, marine biotechnology and ocean renewable energy.
- Integrate Timor-Leste into relevant international forums: consolidate active participation in organisations such as the IMO, the International Hydrographic Organisation, the ASEAN Regional Forum, the Pacific Islands Forum, among other regional and global platforms.
- Strengthen maritime security diplomacy: use maritime cooperation as a foreign policy tool, projecting the image of Timor-Leste as a responsible partner committed to peace, international law and sustainable development.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Establish and formalise bilateral maritime cooperation agreements with countries such as Australia, Indonesia, Portugal, Japan, South Korea and CPLP member states for the exchange of information, joint patrols, training and technical assistance.			
Strengthen Timor-Leste's participation in multilateral maritime security exercises, promoting interoperability and confidence-building with other navies and coast guards in the region.			
Develop joint training programs involving military personnel, maritime law enforcement officers, environmental technicians and port officials, with the support of leading international institutions.			
Promote technical exchange missions with partner countries, with a view to developing specific skills in the areas of port inspection, electronic surveillance, naval engineering, emergency management and marine conservation.			
Consolidate cooperation with regional and multilateral organisations such as the International Maritime Organisation, UN			

Office on Drugs and Crime, Food and Agriculture Organisation of the UN, Indian Ocean Rim Association, SPC and CPLP, with a view to implementing international standards, combating organised crime and supporting the maritime economy.

Coordinate international cooperation with national development policy, ensuring that external assistance programs are aligned with Timor-Leste's STRATEGIC OBJECTIVES and contribute to institutional autonomy in the medium term.

Establish national focal points for the coordination of international maritime cooperation, ensuring the effectiveness, continuity and monitoring of commitments made.

#### **AXIS 4: SUPPORTING THE IMPLEMENTATION OF THE BLUE ECONOMY (CROSS-CUTTING MEASURES)**

##### **PILLAR 12: WATER AND BASIC SANITATION**

###### **STRATEGIC OBJECTIVES**

- Invest in integrated access to potable water and basic sanitation nationwide, also contributing to the reduction of single-use plastics and the promotion of recycling and reuse.
- Provide widespread, safe, and sustainable access to water supply — both for individual consumption and for agriculture, commerce, industry, tourism, and aquaculture development.
- Ensure that all Timorese have access to improved basic sanitation throughout the country, through a self-sufficient and quality sewage system, including the construction of treatment facilities and provision of public sanitation facilities in the capital and municipalities.
- Ensure quality drainage systems in Dili and across all municipalities.

- Provide technical training for professionals in the water and sanitation sector and build the institutional capacity of the bodies that manage, implement, monitor, and regulate the sector.
- Develop alternative resilience mechanisms in response to climate change and prevent its effects on water and sanitation infrastructure.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Promote the reduction, recycling, and reuse of plastics as part of water and sanitation management measures.			
Fund and construct infrastructure to provide reliable and sustainable access to potable water throughout the country.			
Conduct the necessary studies and feasibility plans to expand piped potable water nationwide.			
Implement the strategic water management plan.			
Improve intersectoral mechanisms for investment and management in water and sanitation.			
Develop databases and monitoring systems for water and sanitation management, ensuring transparency and public participation in progress.			
Review and implement the National Policy for Water Resources Management to achieve the objectives of the Blue Economy.			
Review and implement the National Policy for Water Supply to achieve the objectives of the Blue Economy.			



Review and implement the National Policy for Basic Sanitation to achieve the objectives of the Blue Economy.
Review the legal framework necessary for the implementation of water resource management, water supply, and sanitation policies.
Implement the Master Plan for Water Supply and Sanitation in Dili and the remaining municipal capitals.
Reform the institutional model of the sector to ensure greater autonomy, efficiency, and sustainability, enabling the implementation of government strategy and effective technical and economic regulation.
Identify new water sources, including desalination, and construct reservoirs and treatment facilities throughout the national territory, continuing to expand the water supply network.
Ensure that all municipal urban areas have improved sanitation facilities.
Connect all households to existing sewer systems in Dili, and where not feasible, ensure connection to septic tanks or access to community sanitation facilities.
Improve coordination with development partners in cooperation projects for this sector.

Approve and implement a tariff policy that includes differentiated rates for different types of consumers — residential, commercial, and industrial — while promoting Blue Economy-relevant areas.
Develop appropriate infrastructure, including operational and maintenance systems, for the collection, treatment, and disposal of sewage.
Improve monitoring and control systems for the collection and treatment of wastewater from public, commercial, industrial, social, and residential facilities.
Implement existing legislation and regulations and develop integrated systems for urban solid waste management.
Improve drainage systems in all municipalities, ensuring the construction of stormwater drainage systems.
Scale up vocational training projects and institutional capacity-building for the development of water and basic sanitation infrastructure, including the maintenance and operation of these systems.
Ensure the development of monitoring, prevention, and response mechanisms to climate change, to minimise its effects on water and sanitation infrastructure, through intersectoral coordination with relevant government entities.
<b>PILLAR 13: MANAGEMENT AND CONSERVATION OF WETLANDS AND TRANSITIONAL ZONES</b>

## STRATEGIC OBJECTIVES

- Consider including the study of biodiversity in wetlands and transitional zones, as well as national water resources, in the Survey and Study of Timor-Leste's Marine Biodiversity.
- Develop a national policy for watershed, wetlands, and transitional zone management.
- Develop and implement the management, conservation, and rehabilitation of aquatic ecosystems, wetlands, and transitional areas, including rivers, lagoons, groundwater, swamps, and coastal ecosystems such as mangroves.
- Monitor and sanction, according to existing legislation, sand extraction in various rivers and coastal zones, especially the Comoro River, and establish buffer zones along riverbanks and around dams, lagoons, and coastlines to help conserve water resources and control natural floodplains.
- Raise awareness and educate communities on the importance of protecting and sustainably managing wetlands, which are essential for preserving their ecological and economic benefits.
- Involve local communities in decision-making and in the implementation of projects, measures, and actions — both inland for water resource management and in coastal areas — by promoting business and self-development opportunities, such as ecotourism and adventure tourism.
- Conduct surveys and data collection on biodiversity, including mapping of ecosystems across various biodiversity areas in inland waters and wetlands.
- Ensure sound management of sea-land border areas, including the adoption of legislation on water resources.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Conduct biodiversity assessments of wetlands and transitional zones as part of the Survey and Study of Timor-Leste's Marine Biodiversity.			
Incorporate into domestic legislation the Ramsar Convention, an international treaty aimed at promoting the conservation and wise use of inland and wetland ecosystems worldwide.			

**Approve and implement the Legal Regime for Special Zones of Environmental and Ecological Protection, which aims to identify and regulate land use in areas of ecological value and sensitivity, or areas exposed to natural risks, including various coastal protection areas, zones crucial to the sustainability of the terrestrial water cycle, and natural hazard prevention areas.**

**Introduce specific rules in the Municipal Territorial Planning Plans (still pending approval) regarding the use, occupation, and transformation of land, particularly in coastal areas or adjacent to watercourses, lagoons, or wetlands and transitional zones.**

**Implement the approved Municipal Territorial Planning Plans for Bobonaro, Ermera, Baucau, Lautém, and Viqueque, and those for Aileu, Ainaro, Covalima, and Manufahi, creating local conditions for the management and conservation of wetlands and transitional zones**

**Map all vulnerable coastal areas to prevent the development or conversion of activities such as aquaculture, salt production, or desalination that could harm natural system recovery.**

**Implement awareness and education campaigns for local communities about the**

importance of wetland and transitional zone ecosystems, including through the National Ocean Literacy Programme and the Blue Economy Youth Ambassadors Program.

Approve legislation on water resources.

#### **PILLAR 14: RURAL DEVELOPMENT, TRADE AND INDUSTRY**

##### **STRATEGIC OBJECTIVES**

- Empower rural and coastal communities through sustainable Blue Economy sectors such as fisheries, aquaculture, ecotourism and biodiversity conservation.
- Strengthen community leadership, including especially women and local community groups, through Local Action Groups for project governance.
- Improve adequate housing and social infrastructure for diverse livelihood and well-being needs.
- Build capacity and promote knowledge exchange to promote sustainable economic activities linked to coastal and aquatic resources.
- Facilitate trade and strategic investment in the Blue Economy.
- Promote import and export activities within the framework of strategic investments in the Blue Economy.
- Promote national industries and local products.
- Strengthen regulatory frameworks that promote trade, industry and national cooperatives.
- Promote the national private sector and economic growth.
- Develop decent housing with access to water supply, sanitation and improved public hygiene as preconditions for healthy marine ecosystems and community well-being.
- Develop rural development mechanisms that include support for the management of inland and coastal aquifers, forest protection and the reduction of pollution affecting marine and freshwater resources.

**MEASURES AND ACTIONS**

**IMPLEMENTATION  
BODIES/GOVERNANCE  
PARTNERS**

**INDICATORS AND RESULTS**

**CALENDAR**

Create Local Action Groups to promote community leadership, including especially women and local community groups, for greater participation in public decision-making and project governance.
Invest in housing and social infrastructure appropriate to diverse livelihood and well-being needs.
Build capacity and promote knowledge exchange to promote sustainable economic activities linked to coastal and aquatic resources.
Build housing and community spaces with integrated improvements in water supply, sanitation and hygiene (WASH) as prerequisites for healthy marine ecosystems and community well-being.
Support the economic growth of cooperatives and small and medium-sized enterprises involved in the management of inland and coastal aquifers, forest protection and reduction of pollution affecting marine and freshwater resources.
Utilise and promote the Timor-Leste Trade Information Portal to make import and export activities easier and more transparent for companies involved in marine products and services.
Organise and participate in trade fairs to showcase Timorese marine products and attract investment to the Blue Economy.
Work with the private sector to leverage its involvement in planned, healthy, and productive economic development within the Blue Economy.

Collaborate with artisans and cooperatives, such as the cooperative group 'Sorunain,' to promote 'Tais' (traditional fabric) at national and international events, linking cultural heritage to economic opportunities.
Support the expansion of small-scale salt production with improved techniques and the exploration of export markets, as mentioned in the broader Blue Economy strategy.
Ensure the effective understanding and implementation of legal documents governing the structure and organisation of the relevant ministries, particularly with regard to the emerging Blue Economy sector.
Continue to safeguard consumer rights related to goods and services, including those of the marine industry, by monitoring prices, testing product quality and addressing issues in supply chains.
Participate in bilateral meetings with neighbouring regions to strengthen trade relations and industrial cooperation, including discussions on maritime links and Small and Medium enterprises promotion.
Actively participate in ASEAN consumer protection conferences and other regional forums to strengthen Timor-Leste's involvement in the Blue Economy and promote knowledge exchange.
Strengthen relationships with development partners, namely the World Bank, the United Nations Development Program, the World Health Organisation, the Asian Development Bank, and

other institutions that can secure financing for “blue growth”.

Promote the involvement of local and national entities, including the Timor-Leste Chamber of Commerce and Industry, as a strategic partner representing the private business sector, which is essential for leveraging the private sector in economic development; Ekipa Tasi Mos Ataúro (Clean Ocean Team Ataúro): which directly supports the Blue Economy policy objectives of protecting marine ecosystems and mitigating the impacts of climate change through plastic pollution removal and community-based waste reduction efforts, aligning with environmental preservation and sustainable ocean management; Roman Luan NGO: which contributes to the Blue Economy policy by promoting a sustainable ocean economy through sustainable tourism and the protection of marine protected areas, balancing economic activity with environmental preservation through an ‘ecosystem approach’; and ‘Laudato Si’ Movement Timor-Leste: which aligns with ocean conservation and marine ecosystem protection, particularly through youth engagement, fostering a future generation committed to the principles of sustainable development policy and marine biodiversity safeguarding.

#### **PILLAR 15: MARINE SATELLITE ACCOUNT**

##### **STRATEGIC OBJECTIVES**



- Approve the Ocean Satellite Account through a Government Resolution, prior to the preparation of the next State Budget, ensuring a pilot phase through the creation of budgetary markers.
- Measure the relevance of ocean-related activities to the country, allowing for the estimation of the added value of economic activities contributing to GDP.
- Support decision-making in the coordination of public policies related to the sea and ocean.
- Contribute to better strategic planning and to the sustainable management and development of maritime and coastal resources and activities.
- Assess the environmental and marine biodiversity impacts of maritime activities, enabling the sustainable use of marine resources.
- Monitor and evaluate policies, measures and actions implemented, providing important data to attract investment and create business opportunities.
- Enable timely review and correction of measures and actions.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Develop budgetary markers for the Blue Economy to account for public expenditure in the sector, through the Directorate-General for Planning and Budget (DGPO) and in collaboration with line ministries, as a pilot project.			
Develop the Ocean Satellite Account in the medium term through the National Institute of Statistics, to account for the real, public and private Blue Economy.			
Ensure proper coordination between the DGPO of the Ministry of Finance and the National Institute of Statistics, in order to define markers that provide useful and appropriate information for the satellite account.			

Publish the Ocean Satellite Account every three years, without prejudice to the annual compilation of data that allows for closer tracking of Blue Economy developments.

Establish joint, cross-sectoral monitoring and evaluation mechanisms for implemented measures and actions.

## **PILLAR 16: PLANNING, FINANCING AND MONITORING INSTRUMENTS**

### **STRATEGIC OBJECTIVES**

- Provide the Timor-Leste Land and Maritime Boundary Office Blue Economy Unit with technical and financial resources and specialised human resources in order to be able to coordinate the national strategy for the Blue Economy, ensuring collaboration and providing support to all implementing agencies, both public and private.
- Develop an integrated national vision for the structural and procedural integration of the Blue Economy Policy, including the coordination of all relevant ministries, in conjunction with the Ministry of Finance, in terms of planning, budgeting, monitoring and evaluation. In other words.
- Ensure the development of a locally-based participatory process that guarantees the active involvement of coastal municipalities, sucos and fishing communities, with special attention to the inclusion of women, young people and traditional knowledge holders, ensuring the principle of community ownership.
- Improve coordination with development partners, not only to improve the planning and monitoring of policies and projects, but also to explore and operationalise financing mechanisms.
- Improve international cooperation (multilateral and bilateral) in the Blue Economy.
- Ensure financing for the blue transition through the development of a National Blue Economy Financing Roadmap, supported by public funds, public private partnerships, donors and philanthropists, blue bonds, blue carbon credits, taxes, licences and grants, among others.
- Develop fiscal analyses for the implementation of the Blue Economy, including revenue generation and fiscal risks related to the development of the maritime and marine sector.
- Mobilise domestic revenue and fiscal sustainability to support efforts to promote the Blue Economy.
- Ensure adequate monitoring and evaluation mechanisms to guarantee transparency and good governance of public policies.

- Ensure the necessary systematic political follow-up for the effectiveness, legitimacy and regulatory coherence of the rule of law.

MEASURES AND ACTIONS	IMPLEMENTATION BODIES/GOVERNANCE PARTNERS	INDICATORS AND RESULTS	CALENDAR
Provide the Timor-Leste Land and Maritime Boundary Office Blue Economy Unit (reporting directly to the Prime Minister) with the technical and financial resources to carry out its mission.			
Review and harmonise the legal framework applicable to the Blue Economy to ensure better planning and budgeting in sectors such as fisheries, the environment, tourism, coastal management, biodiversity protection and maritime governance, among others.			
Strengthen the legal framework for the sustainable management of marine and coastal resources, aligning it with international best practices.			
Implement working groups and coordination mechanisms, namely the Blue Economy Task Force, to implement initiatives related to the Blue Economy, with priority given to establishing the necessary national legal frameworks.			
Create working groups with development partners and cooperation agencies to share knowledge and experiences, implement initiatives and develop financing mechanisms.			
Create working and knowledge-sharing mechanisms with the national private sector to			

assess needs, constraints and ambitions for the possible involvement of the public sector.
Develop and implement public policies that support the development of the Blue Economy and the training of skilled human resources, including tax incentives for companies that invest in capacity building.
Strengthen Timor-Leste's participation in regional and international initiatives related to the Blue Economy, such as ASEAN, the Coral Triangle Initiative, the CPLP, among other cooperation platforms, ensuring adequate funding for this participation.
Promote technical and financial support from development agencies and international organisations for the implementation of the Blue Economy in its various and interdependent aspects.
Integrate the Blue Economy into national planning and budgetary instruments, including alignment with the Public Finance Management System.
Develop a financing plan for the blue transition through a National Roadmap for Financing the Blue Economy, in line with the National Integrated Financing Framework, combining public funds, including innovative instruments such as blue bonds, blended finance, public-private partnerships, international cooperation and the mobilisation of philanthropists.
Create financial incentive funds to protect biodiversity and its ecosystems throughout the country. A Blue Tourism Community Project

Support Fund will be allocated for the exclusive use of communities, upon proposal by organisations, associations and cooperatives in the field of eco-friendly establishments for the production and trade of handicrafts, local restaurants, seaweed production, etc.
Coordinate external financing and public-private partnerships under national tax rules, through the Ministry of Finance, ensuring the efficient and transparent channelling of financing proposals from donors and the private sector and the best management of public finances.
Align Blue Economy initiatives with national short, medium and long-term planning systems, including the Annual Action Plans and the General State Budget, also through budget markers that will form part of the Sea Satellite Account.
Include Blue Economy initiatives in performance monitoring and evaluation mechanisms, to be coordinated with the Sea Satellite Account.
Design and implement a revenue mobilisation strategy, incorporating licensing, service fees, environmental taxes and other fiscal instruments relevant to Blue Economy sectors.
Improve the short, medium and long-term Action Plan for the Blue Economy Policy, including the results framework and specific performance indicators for the strategic objectives and measures and actions identified in the Blue Economy Policy.
Create mechanisms for monitoring, reporting and evaluating policies and actions in the Blue

Economy, making the necessary corrections in a timely manner.

Include parliamentary political control in the implementation of the Blue Economy, through the inclusion of parliamentary hearings to assess policy progress, the regular presentation of implementation reports by the Government, with quantitative data, targets achieved, challenges faced and lessons learned, as a legacy for the future generation of a policy that will be implemented in the long term, using the financial and human resources available.

## DEFINITIONS

(To be developed)

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