



Tuvalu National Biodiversity Strategy and Action Plan 2025-2030

*Living in Harmony with Nature: Protecting Our Islands, Our People, and Our
Future*

August 2025



Government of Tuvalu

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Prepared with the participation of Tuvaluan communities, traditional leaders, government agencies, and development partners, and guided by the Kunming-Montreal Global Biodiversity Framework.

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Foreword

Tuvalu stands at a crossroads where the wisdom of our ancestors meets the urgency of our future. As custodians of one of the world's most vulnerable yet resilient ecosystems, we recognize that biodiversity is not merely a scientific concern, but a sacred trust woven into our identity, livelihoods, and spiritual life. It is the living thread that binds our people to our land, our seas, and to each other.

This National Biodiversity Strategy and Action Plan (NBSAP) 2025-2030 is both a reaffirmation of our commitment and a renewal of our collective vision. It reflects the voices of our people, from elders and cultural leaders to youth and technical experts, who gathered in unity to shape a path forward that honours tradition while embracing innovation.

Guided by the Kunming–Montreal Global Biodiversity Framework (KMGBF) and rooted in the values of stewardship, equity, and resilience, this NBSAP sets out Tuvalu's national targets, thematic priorities, and enabling conditions for implementation. It places biodiversity at the core of our development planning, ensuring coherence across fisheries, agriculture, energy, local governance, climate change, waste management, and environmental governance. In doing so, it strengthens alignment with Tuvalu's broader sectoral policies and national priorities.

At the regional and global level, this NBSAP aligns with frameworks such as the Blue Pacific Strategy and the Action Blueprint for Accelerated Biodiversity Action (ABAS), reinforcing Tuvalu's role in collective Pacific leadership. It also reaffirms Tuvalu's commitment to the Waigani and Noumea Conventions, ensuring that our biodiversity actions contribute to regional cooperation on hazardous waste, pollution control, and marine protection. Furthermore, Tuvalu proudly supports and has ratified the new Agreement on Biodiversity Beyond National Jurisdiction (BBNJ), recognizing its importance in safeguarding marine biodiversity in areas beyond our national waters and strengthening global ocean governance.

We affirm the role of traditional knowledge as a formal monitoring tool, standing alongside modern science to guide our decisions. We commit to inclusive, cross-sectoral action through the establishment of a Biodiversity Steering Committee, ensuring that every sector contributes to the protection and restoration of our natural heritage.

Above all, we recognize that safeguarding biodiversity is not the work of one ministry or sector alone; it is the shared responsibility of every Tuvaluan, at home and abroad. Our success will depend on the strength of our partnerships, the courage of our leadership, and the active participation of our communities.

May this document serve not only as a strategic guide, but as a covenant of care for our islands, our people, and the generations yet to come. In protecting our biodiversity, we protect the very essence of Tuvalu, our culture, our resilience, and our hope for the future.

Hon. Dr. Maina Talia

Minister for Home Affairs, Climate Change and Environment
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Executive Summary

Tuvalu's National Biodiversity Strategy and Action Plan (NBSAP) 2025-2030 marks a decisive shift in how we govern and safeguard our natural heritage, blending the wisdom of our ancestors with scientific innovation and global cooperation. This updated strategy responds to the urgent realities of climate change, ecosystem degradation, and development pressures, while reaffirming the cultural values and community stewardship that define Tuvalu's identity.

Anchored in the Kunming–Montreal Global Biodiversity Framework (KMGBF), the NBSAP integrates 16 Tuvalu Biodiversity Targets, developed through a nationally consultative process led by the Department of Environment in partnership with communities, cultural leaders, and technical experts, into a unified, inclusive roadmap. These targets encompass critical themes, including species protection, ecosystem restoration, sustainable resource use, pollution control, invasive species management, and the safeguarding of traditional knowledge systems.

Key Strategic Shifts:

- **Integrated Planning:** Aligning national spatial planning with KMGBF Targets 1-3 to ensure biodiversity is central to land and sea-use decisions.
- **Cultural Leadership:** Embedding traditional knowledge and community-led monitoring into conservation action, positioning Tuvalu as a global leader in Indigenous stewardship.
- **Climate Resilience:** Advancing nature-based solutions for adaptation, directly linked to KMGBF Target 8 and Tuvalu's climate risk management priorities.
- **Inclusive Governance:** Expanding the participation of women, youth, elders, and persons with disabilities in biodiversity decision-making, in line with KMGBF Targets 22–23.
- **Resource Mobilization and Finance:** Ensuring reliable, diversified, and well-managed financing for biodiversity priorities by reviewing current expenditures, estimating costs of GBF-related actions, phasing out harmful subsidies, and mobilizing resources through national budgets, donor partnerships, and innovative mechanisms, all while reflecting Tuvalu's cultural and spiritual stewardship of nature.

The NBSAP is designed to deliver on the KMGBF's four Goals and 23 Targets, while tailoring them to Tuvalu's unique ecological, cultural, and governance context. It provides:

- Measurable indicators to track progress.
- An implementation framework to guide coordinated action.
- Monitoring and reporting systems to ensure transparency and accountability.
- A biodiversity finance strategy to secure sustainable funding, with a resource mobilization target of USD 3 million identified to support implementation.

By aligning Tuvalu's 16 Biodiversity Targets with global commitments, this NBSAP reaffirms our pledge to live in harmony with nature, protect the legacy of our islands, and empower future generations to thrive in a changing world.

1. Introduction

1.1 Ecological and Geographic Profile of Tuvalu

Tuvalu is a Polynesian island nation located in the west-central Pacific Ocean, midway between Australia and Hawaii. It comprises nine inhabited islands, three reef islands, and six atolls, with a total land area of just 26 square kilometers. This makes Tuvalu one of the smallest and most geographically dispersed country in the world, amplifying its vulnerability to climate change and logistical challenges in infrastructure and conservation.

Tuvalu's ecosystems are shaped by coral reef foundations, limited freshwater resources, and coastal vegetation. The islands host a range of biodiversity, including endemic species, migratory birds, and culturally significant marine life. With an average elevation of less than 2 meters and a highest point of just 5 meters above sea level, Tuvalu is among the most climate-vulnerable nations globally. The impacts of sea level rise, coastal erosion, and saltwater intrusion threaten both ecological integrity and human habitation.

Despite these challenges, Tuvaluan communities have long practiced sustainable resource management rooted in traditional knowledge, spiritual values, and communal stewardship. Customary practices such as *fatoaga* (communal gardening) and *tapu* (sacred restrictions on resource use) reflect a deep ethic of care for land and sea. These practices continue to guide conservation efforts and inform national policy.

Tuvalu's ecological fragility and cultural resilience underscore the importance of biodiversity conservation as not only a scientific imperative, but also a moral and spiritual responsibility. In Tuvaluan theology and cosmology, the land (*fenua*) and ocean (*moana*) are sacred gifts entrusted to human stewardship. Tuvaluan cosmology is rooted in ancestral narratives, spiritual symbolism, and the relational understanding of creation. It views the environment not as a passive backdrop, but as a living, spiritual entity woven into the divine order. The cosmos is understood as an interconnected web where land, sea, sky, and spirit are bound by sacred relationships, and humanity's role is to honour and maintain this balance through reverence, ritual, and responsible care.

1.2 Contextual Background

Tuvalu is a nation of profound ecological and cultural significance. Comprising nine low-lying islands scattered across nearly one million square kilometers of the Pacific Ocean, our country is home to fragile coastal ecosystems, rich marine biodiversity, and deeply rooted traditional knowledge systems. These ecosystems are sustained by coral reef foundations, limited freshwater lenses, and coastal vegetation that have supported Tuvaluan life for generations.

Yet Tuvalu faces existential threats. Climate change continues to accelerate sea level rise, saltwater intrusion, and intensifying weather patterns, including droughts and cyclones that erode both our natural heritage and the foundations of daily life. According to projections from the IPCC Sixth Assessment Report (AR6), Tuvalu could experience a sea level rise of

approximately 22 cm by 2050 under a low-emissions scenario (SSP1–2.6), and up to 27 cm under a medium-high emissions scenario (SSP2–4.5). These figures reflect the ocean’s thermal inertia and the delayed response of polar ice sheets, meaning that even under aggressive mitigation, sea levels will continue to rise for decades. Local factors such as vertical land movement, tidal patterns, and regional ocean currents may further amplify these impacts. In addition to climate pressures, increasing waste generation and inadequate waste management systems pose growing threats to ecosystems, public health, and community resilience. Without significant adaptation and mitigation measures, these combined challenges risk rendering parts of Tuvalu uninhabitable within decades, with increased flooding, salinization of freshwater lenses, pollution, and loss of habitable land.

Development pressures, including population growth, land scarcity, and increasing reliance on imported food, fuel, and materials, further strain Tuvalu’s ecosystems and challenge national resilience. Tuvalu’s population in 2025 is estimated at 9,501 people (4,863 males and 4,638 females), with a median age of 25.2 years and a youthful demographic profile where 33% are under 15 years old and nearly 60% are of working age. This expansive age structure reflects high fertility rates (3.2 children per woman) and continued demographic momentum, placing significant demands on education, employment, housing, and social services. Although small in absolute numbers, the concentration of people on nine low-lying atolls intensifies pressures on land, water, and waste management systems. The lack of consistent rainfall and inadequate catchment infrastructure has further impacted water security and public health, compounding vulnerabilities faced by communities.

Despite these challenges, Tuvalu remains resilient. Our communities are guided by a strong ethic of stewardship, communal cohesion, and spiritual grounding. Traditional governance structures, such as *Falekaupule* and the *Kaupule* (island councils), continue to play a vital role in resource management and climate adaptation. Our resilience is not only technical, it is cultural, spiritual, and intergenerational.

1.3 Purpose and Scope of the Updated NBSAP

The updated National Biodiversity Strategy and Action Plan (NBSAP) 2025-2030 serves as Tuvalu’s principal roadmap for biodiversity conservation and sustainable use. It builds upon the second NBSAP (2018–2022), incorporating lessons learned, emerging priorities, and the outcomes of extensive national consultations and desktop review. It also draws from the foundational work of Tuvalu’s first NBSAP (2012–2016), which established the initial framework for biodiversity governance, traditional stewardship, and community engagement.

This 2025-2030 NBSAP not only articulates 16 nationally validated biodiversity targets but also demonstrates full alignment with the Kunming-Montreal Global Biodiversity Framework (GBF), ensuring that our local actions contribute meaningfully to global efforts to halt biodiversity loss, restore ecosystems, and promote equitable benefit-sharing. In addition to thematic coherence, the NBSAP integrates cross-cutting GBF priorities, including gender-responsive and inclusive planning (Target 22), traditional knowledge protection and integration (Target 13), and biodiversity mainstreaming across national policies and sectors (Target 14). It

also commits to strengthening monitoring and reporting systems (Target 20), mobilizing sustainable finance (Target 19), and enhancing open-access biodiversity data infrastructure (Target 21). These alignments reflect Tuvalu's holistic approach grounded in cultural integrity, community leadership, and global solidarity to safeguard biodiversity for present and future generations.

Generally, it provides a comprehensive strategic framework to guide Tuvalu's biodiversity efforts over the next five years. It outlines clear priorities for:

- Mainstreaming biodiversity across all sectors, including fisheries, agriculture, energy, education, and infrastructure. Ensuring that ecological considerations are embedded in national development.
- Strengthens monitoring, evaluation, and reporting systems through the use of measurable indicators and community-based validation, fostering transparency and local ownership.
- Mobilizing financial and technical resources for implementation, leveraging partnerships with donors, regional institutions, and faith-based networks.
- Emphasizes ecosystem restoration and culturally significant species recovery, the integration of traditional knowledge and spiritual values into conservation planning, and the alignment of biodiversity actions with climate resilience strategies.
- Promotes decentralized governance and empowers island-level stewardship, while advancing biodiversity education, youth engagement, and intergenerational knowledge transfer.
- Legal and policy reforms are also prioritized to ensure coherence with global biodiversity targets, alongside the development of digital tools and open-access data platforms to support evidence-based decision-making.

Together, these strategic directions demonstrate Tuvalu's holistic, values-driven approach to safeguarding biodiversity and sustaining life across its islands. Designed to be inclusive, culturally grounded, and action-oriented, the NBSAP reflects the voices of communities, women and children, vulnerable groups, faith institutions, technical experts, and government leaders. It affirms Tuvalu's unwavering commitment to biodiversity as a spiritual, ecological, and national priority.

1.4 Linkages to National Strategies and Global Frameworks

The NBSAP 2025–2030 is closely aligned with Tuvalu's broader development, environmental, and climate resilience frameworks. It ensures coherence across national priorities and strengthens Tuvalu's contribution to global biodiversity goals. Importantly, some earlier frameworks have expired or are being updated; where relevant, successors or ongoing processes are noted.

Key national linkages include:

- Te Kaniva: Tuvalu Climate Change Policy Framework (2012–2016). Provided the overarching vision for climate resilience, adaptation, and mitigation. While now outdated, its principles continue to inform successor strategies such as the *Te Vaka Fenua o Tuvalu – National Climate Change Policy 2021–2030*.
- Te Vaka Fenua o Tuvalu – National Climate Change Policy 2021–2030. A covenant of climate stewardship, grounded in faith, guided by evidence, and crafted through inclusive dialogue to safeguard Tuvalu’s people, ecosystems, and national integrity through 2030.
- TKIV: Te Kete IV (National Strategy for Sustainable Development). Articulates Tuvalu’s development priorities across sectors, integrating environmental sustainability, cultural integrity, and economic resilience.
- Tuvalu National Environment Management Strategy (NEMS) 2022–2026. Provides current strategic guidance for environmental governance, pollution control, and biodiversity protection.
- Tuvalu National Adaptation Plan (NAP, 2025) and Nationally Determined Contributions (NDCs, 2025). Outline Tuvalu’s climate adaptation pathways and international commitments under the Paris Agreement, with strong emphasis on nature-based solutions and ecosystem restoration.
- Tuvalu Marine Resources Act (Revised Edition). Establishes the legal framework for the conservation, management, and sustainable use of marine resources, including fisheries within Tuvalu’s EEZ.
- Conservation Areas Act (CAP. 30.15). Provides for the declaration, management, and protection of conservation areas, including community-based management plans and enforcement measures.
- Falekaupule Act (CAP. 4.08). Defines the roles and powers of traditional island councils (Kaupule) in local governance, including environmental stewardship and enforcement of conservation by-laws.
- Tuvalu Agriculture Sector Plan (2016–2023). Now expired, but its priorities on resilient farming and food security are being integrated into ongoing agricultural policy development.
- Tuvalu National Strategic Action Plan for Climate Change and Disaster Risk Management (NSAP, 2012–2016). Outdated, but its operational roadmap informed subsequent adaptation and disaster risk management strategies.
- Tuvalu Integrated Waste Policy and Action Plan (2017–2026). Provides a current national strategy to improve waste management and public health, emphasizing hazardous waste management and community-based approaches.

- Tuvalu National Culture Policy Strategic Plan (2018–2024). Expired, but successor cultural policy discussions are underway to continue safeguarding Tuvaluan identity and heritage.
- Tuvalu National Youth Policy (2015–2019). Expired, but youth engagement remains a cross-cutting priority in biodiversity and climate action.
- Tuvalu State of Environment Report (2022). [Tuvalu State of Environment Report 2022](#). It presents an overview across four thematic areas: Environmental Governance, Island and Ocean Ecosystems, Climate Change, and Waste.

Regional and global linkages include:

- 2050 Blue Pacific Strategy. Position Tuvalu within a collective regional vision for resilience, sustainable ocean governance, and biodiversity protection.
- Action Blueprint for Accelerated Biodiversity Action (ABAS). Reinforces Tuvalu’s role in advancing regional biodiversity priorities.
- Commitments as a Party to the Waigani Convention (hazardous waste and pollution control) and the Noumea Convention (marine protection). These conventions strengthen Tuvalu’s regional cooperation and legal obligations in biodiversity and environmental governance.
- Kunming–Montreal Global Biodiversity Framework (KMGBF). Provides the global architecture for biodiversity targets and indicators, which Tuvalu has localized through its 16 national biodiversity targets.

Table 1: Linkages to National Strategies and Global Frameworks

Level	Framework / Policy	Status	Relevance to NBSAP
National	Te Kaniva: Tuvalu Climate Change Policy Framework (2012–2016)	Expired	Provided overarching vision for resilience; informed successor policies.
	Te Vaka Fenua o Tuvalu – National Climate Change Policy (2021–2030)	Current	Covenant of climate stewardship; aligns biodiversity with climate resilience.
	Te Kete IV (National Strategy for Sustainable Development)	Current	Integrates biodiversity into development, cultural integrity, and resilience.
	Tuvalu National Environment Management Strategy (NEMS 2022–2026)	Current	Provides baseline and guidance for biodiversity and environmental governance.
	Tuvalu National Adaptation Plan (NAP, 2025) & NDCs (2025)	Current	Climate adaptation pathways; Paris Agreement commitments; nature-based solutions.
	Tuvalu Marine Resources Act (Revised Edition)	Current	Legal framework for marine resource conservation and fisheries management.
	Conservation Areas Act (CAP. 30.15)	Current	Enables declaration and management of conservation areas; community-based plans.
	Falekaupule Act (CAP. 4.08)	Current	Defines traditional councils’ roles in environmental stewardship and enforcement.
	Tuvalu Agriculture Sector Plan (2016–2023)	Expired	Priorities integrated into ongoing agricultural policy development.

	Tuvalu National Strategic Action Plan for Climate Change & DRM (2012–2016)	Expired	Operational roadmap; informed later adaptation and DRM strategies.
	Tuvalu Integrated Waste Policy and Action Plan (2017–2026)	Current	National strategy for waste management, hazardous waste, and public health.
	Tuvalu National Culture Policy Strategic Plan (2018–2024)	Expired	Successor discussions underway; links cultural and biological diversity.
	Tuvalu National Youth Policy (2015–2019)	Expired	Youth engagement remains a cross-cutting priority in biodiversity action.
Regional	2050 Blue Pacific Strategy	Current	Collective regional vision for resilience, ocean governance, and biodiversity.
	Action Blueprint for Accelerated Biodiversity Action (ABAS)	Current	Reinforces Pacific leadership in biodiversity action.
	Waigani Convention	Current	Commitment to hazardous waste and pollution control.
	Noumea Convention	Current	Commitment to marine protection and regional cooperation.
Global	Kunming–Montreal Global Biodiversity Framework (KMGBF, 2022)	Current	Provides global architecture for biodiversity targets and indicators.
	Paris Agreement (2015)	Current	Climate commitments linked to biodiversity and adaptation.
	UN Decade on Ecosystem Restoration (2021–2030)	Current	Positions Tuvalu’s restoration efforts within global movement.
	Agreement on Biodiversity Beyond National Jurisdiction (BBNJ, 2023)	Current	Strengthens global ocean governance; Tuvalu ratified and supports.

At the global level, the NBSAP responds directly to:

- The *Aichi Targets*. Tuvalu’s NBSAP 2025-2030 aligns with the Kunming-Montreal Global Biodiversity Framework, building on the legacy of the Aichi Targets while fulfilling obligations under the Convention on Biological Diversity. It reinforces key Sustainable Development Goals (SDGs 13, 14, and 15) and regional commitments under the Pacific Islands Framework for Nature Conservation. The plan integrates biodiversity with climate resilience through the Paris Agreement, disaster risk reduction under the Sendai Framework, and restoration efforts under the UN Decade on Ecosystem Restoration. By positioning itself within Global Environment Facility priorities and upholding the UN Declaration on the Rights of Indigenous Peoples, Tuvalu ensures access to support while embedding traditional knowledge and cultural values in biodiversity governance.
- The *Kunming-Montreal Global Biodiversity Framework (GBF)*. Aligning Tuvalu’s 16 national targets and its thematic areas with global goals to halt biodiversity loss, restore ecosystems, and ensure equitable benefit-sharing.
- The *Convention on Biological Diversity (CBD)*. Fulfilling Tuvalu’s obligations under the CBD, including the submission of updated national targets and implementation plans.
- The *Sustainable Development Goals (SDGs)*. Especially SDG 14 (Life Below Water), SDG 15 (Life on Land), and SDG 13 (Climate Action), reinforcing biodiversity as a foundation for sustainable development.

- The *Pacific Islands Framework for Nature Conservation and Protected Areas*. Reflecting Tuvalu’s commitment to regional cooperation, shared ecological stewardship, and culturally grounded conservation.
- The *Paris Agreement (UNFCCC)*. Emphasizes the interdependence of climate and biodiversity. Tuvalu’s NBSAP contributes to climate adaptation and resilience, particularly through ecosystem-based approaches and nature-based solutions.
- The *Sendai Framework for Disaster Risk Reduction (2015-2030)*. Recognizes healthy ecosystems as buffers against climate-related disasters. The NBSAP’s focus on coastal restoration and species recovery supports disaster risk reduction and community resilience.
- The *Global Environment Facility (GEF) Programming Directions*. Tuvalu’s NBSAP aligns with GEF priorities on biodiversity, land degradation, and climate change, positioning the country to access technical and financial support for implementation.
- *UN Decade on Ecosystem Restoration (2021-2030)*. Tuvalu’s restoration efforts, especially of coastal and culturally significant ecosystems, contribute directly to this global movement to revive degraded landscapes and seascapes.
- *UN Declaration on the Rights of Indigenous Peoples (UNDRIP)*. By integrating traditional knowledge and cultural protocols, the NBSAP upholds principles of indigenous rights, participation, and benefit-sharing in biodiversity governance.
- *Antigua and Barbuda Agenda for SIDS (ABAS)*. Tuvalu’s NBSAP contributes to the implementation of ABAS, which provides a renewed global framework for Small Island Developing States to advance resilience, sustainable development, and biodiversity action in the face of climate and economic vulnerabilities.

Table 2: Tuvalu NBSAP Alignment with Global and Regional Frameworks

Policy Framework	Relevance to Tuvalu’s NBSAP
Aichi Biodiversity Targets (2011–2020)	Provided the foundation for global biodiversity action under the CBD. Tuvalu’s NBSAP builds on lessons learned from Aichi to inform its alignment with the Kunming–Montreal GBF.
Kunming–Montreal Global Biodiversity Framework (GBF, 2022)	Aligns Tuvalu’s 16 national targets with global goals to halt biodiversity loss, restore ecosystems, and ensure equitable benefit-sharing.
Convention on Biological Diversity (CBD)	Fulfills Tuvalu’s obligations under the CBD, including updated national targets and implementation plans.
Sustainable Development Goals (SDGs, 2015–2030)	Reinforces SDG 13 (Climate Action), SDG 14 (Life Below Water), and SDG 15 (Life on Land), positioning biodiversity as central to sustainable development.
Pacific Islands Framework for Nature Conservation and Protected Areas	Demonstrates Tuvalu’s commitment to regional cooperation, ecological stewardship, and culturally grounded conservation.
2050 Strategy for a Blue Pacific Continent	Positions Tuvalu within a collective regional vision for resilience, sustainable ocean governance, and biodiversity protection.
Antigua and Barbuda Agenda for SIDS (ABAS, 2024)	Provides a renewed global framework for Small Island Developing States to advance resilience, sustainable development, and biodiversity action.

Noumea Convention (SPREP, 1986)	Strengthens Tuvalu’s regional cooperation on marine protection, pollution control, and environmental governance.
Waigani Convention (1995)	Reinforces Tuvalu’s commitment to hazardous waste and pollution control across the Pacific region.
Paris Agreement (UNFCCC, 2015)	Supports climate resilience through ecosystem-based adaptation and nature-based solutions.
Sendai Framework for Disaster Risk Reduction (2015–2030)	Enhances disaster preparedness by restoring ecosystems that buffer against climate-related hazards.
Global Environment Facility (GEF) Programming Directions	Aligns with GEF priorities on biodiversity, land degradation, and climate change, enabling access to technical and financial support.
UN Decade on Ecosystem Restoration (2021–2030)	Contributes to global restoration efforts, especially through community-led coastal and marine ecosystem recovery.
Agreement on Biodiversity Beyond National Jurisdiction (BBNJ, 2023)	Highly relevant given Tuvalu’s vast EEZ; Tuvalu has ratified the agreement, strengthening global ocean governance and equitable benefit-sharing.
UN Declaration on the Rights of Indigenous Peoples (UNDRIP)	Tuvalu’s NBSAP upholds the principles of indigenous rights and integrates traditional knowledge into biodiversity governance. However, it should be clarified whether Tuvalu has formally signed or endorsed the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). The declaration (document A/61/L.67) was referred to the General Assembly and adopted on September 13, 2007, during its 61st regular session. Tuvalu was absent during the vote.

This integrated approach ensures that biodiversity is not treated in isolation, but as a cross-cutting pillar of Tuvalu’s national resilience, spiritual identity, and global solidarity.

1.5 Importance of Biodiversity in Tuvalu

Community & Cultural Framing

Biodiversity is the lifeblood of Tuvalu. It flows through our reefs, our gardens, our songs, and our prayers. It sustains our fisheries, nourishes our soils, protects our coastlines, and anchors our cultural and spiritual identity. From the reef to the taro pit, every ecosystem plays a role in the daily lives of Tuvaluans, providing food, medicine, building materials, and meaning.

Traditional knowledge systems, passed down through generations, reflect a deep understanding of ecological balance and seasonal rhythms. From the reef to the taro pit, Tuvaluan practices embody a holistic view of stewardship, where marine and terrestrial ecosystems are seen as interconnected gifts from creation. Sacred customs such as *tapu* (restrictions on harvesting), *fatoaga* (communal gardening), and seasonal closure of certain areas and fishing taboos have long guided sustainable resource use, community cohesion, and reverence for nature.

At the regional and international perspective associated with development initiatives, biodiversity is reflected in Tuvalu’s Ridge to Reef initiatives, which seek to restore ecological integrity across land and sea. One such effort includes the revival of *pulaka* cultivation through the construction of raised, cemented *pulaka* pits, an adaptive response to saltwater intrusion and soil degradation. Another involves the planting of vetiver grass along the Funafuti Dumpsite and southern Fogafale on the leeward coastal area to slow coastal erosion and filter

leachate. These interventions not only safeguard food security but also honour ancestral knowledge and spiritual responsibility. Biodiversity is not merely a scientific concern; it is a sacred trust, woven into our prayers, our landscapes, and our way of life.

Community-led adaptation has also played a vital role. The *Tuvalu National Council of Women* led a pioneering effort in Nanumea by planting mangroves along the shoreline, enhancing coastal protection and demonstrating women's leadership in ecosystem stewardship. Similarly, an international partner from Japan-Tuvalu Overview through a mangrove planting initiative at Funafala islet, supported erosion control and habitat restoration. Their contribution reflects the value of cross-cultural collaboration in safeguarding Tuvalu's natural heritage.

In the face of climate change and globalization, safeguarding biodiversity is essential to preserving Tuvalu's sovereignty, resilience, and cultural continuity. It is the foundation upon which sustainable development must be built, and the thread that binds ecological integrity with spiritual responsibility.

In alignment with this vision, the Government of Tuvalu, through its Department of Environment and key sectoral agencies, has undertaken targeted actions to safeguard biodiversity and enhance climate resilience. The Department of Agriculture is working to establish and maintain a gene bank, aimed at preserving traditional crop varieties while introducing climate-resilient species that can withstand salinity, drought, and shifting seasonal patterns. The Fisheries Department continues to advance aquaculture initiatives, including the farming of giant clams and seaweeds, which not only support food security but also restore degraded marine habitats. Civil society organizations and island communities play a vital role in managing locally designated conservation areas, many of which are governed through customary practices and spiritual stewardship. These efforts are further supported by regional partnerships and knowledge-sharing platforms that integrate traditional ecological wisdom with scientific innovation. Together, they form a living tapestry of resilience, where biodiversity is not merely protected but actively nurtured as a sacred trust for future generations.

Policy & Technical Framing

Biodiversity represents Tuvalu's *critical natural capital*, the essential life-support system upon which ecological resilience, food security, and cultural continuity depend. It underpins key sectors such as fisheries, agriculture, water management, and disaster risk reduction. The sustainable use and protection of biodiversity are central to achieving Tuvalu's development goals, climate adaptation strategies, and obligations under the Convention on Biological Diversity (CBD).

Tuvalu's traditional ecological knowledge systems offer valuable insights into seasonal cycles, species behaviour, and resource management. These systems complement scientific approaches and are increasingly recognized in national planning, including the NBSAP, NDCs, and NAP.

Tuvalu's accession to the Nagoya Protocol further affirms its commitment to protecting genetic resources and ensuring equitable benefit-sharing, especially in relation to traditional knowledge and community-held biodiversity assets. Preserving biodiversity is not only an environmental priority, it is a strategic imperative for national resilience, cultural survival, and intergenerational justice.

Tuvalu's biodiversity strategy is further supported by regional partnerships and knowledge-sharing platforms such as the Pacific R2R initiative and SPREP's biodiversity frameworks. National efforts are underway to strengthen biodiversity monitoring through species inventories, habitat mapping, and community-based data collection. These tools help address emerging threats, including invasive species, habitat fragmentation, and climate-induced salinization, through coordinated responses across national and island-level institutions.

1.6 Threats and Barriers to Biodiversity Conservation

Despite its richness, Tuvalu's biodiversity faces mounting and multifaceted threats. Climate change remains the most pervasive challenge. Rising sea levels, saltwater intrusion, ocean acidification, and increasingly severe weather events, including droughts and tropical cyclones, are degrading habitats, disrupting ecological balance, and altering species distributions. Coral bleaching, coastal erosion, and the salinization of freshwater lenses are already impacting food security and traditional livelihoods.

In addition to climate-related pressures, poor management of waste poses a growing barrier to conservation. Inadequate disposal systems, limited recycling capacity, and the accumulation of plastics and hazardous materials threaten both terrestrial and marine ecosystems. Waste pollution undermines the health of coral reefs, contaminates freshwater resources, and endangers species that are vital to community sustenance and cultural identity.

Invasive alien species pose a growing risk to native flora and fauna, particularly on smaller islets and in fragile lagoon ecosystems. Introduced pests, weeds, and disease vectors threaten endemic species and undermine agricultural resilience. Overharvesting of marine resources, pollution from waste and runoff, and unsustainable land-use practices further compound these pressures.

Together, these challenges erode ecosystem resilience, compromise biodiversity, and heighten vulnerabilities for Tuvaluan households. Addressing them requires integrated, community-driven solutions that combine climate adaptation with improved waste governance and sustainable resource management.

Barriers to effective biodiversity conservation in Tuvalu include:

- *Limited technical capacity and data systems*, especially for biodiversity monitoring, enforcement, and early warning mechanisms.
- *Insufficient human resources*, with a shortage of trained personnel to design, implement, and sustain conservation initiatives.

- *Fragmented institutional mandates*, leading to gaps in coordination, overlapping responsibilities, and inconsistent implementation.
- *Weak policy frameworks and enforcement mechanisms*, where outdated legislation, limited compliance monitoring, and inadequate enforcement reduce the effectiveness of conservation measures.
- *Insufficient funding and resource mobilization*, particularly for community-led and culturally grounded initiatives.
- *Loss of traditional ecological knowledge*, as younger generations migrate or shift away from customary practices and spiritual stewardship.

These challenges underscore the urgency of a coordinated, inclusive, and well-resourced biodiversity strategy. The NBSAP 2025–2030 responds to these realities by:

- Strengthening governance, policy frameworks, and institutional coherence;
- Integrating biodiversity into national development and climate planning;
- Enhancing data systems, technical capacity, and human resource development;
- Empowering communities, faith institutions, and traditional leaders as stewards of Tuvalu’s natural heritage.

Table 3: Risk Matrix - Key Threats to Biodiversity in Tuvalu

Threat	Impact	Type of Intervention	Severity	Urgency	Linked Targets
Climate change (sea level rise, saltwater intrusion, cyclones)	Habitat loss, species displacement, and food insecurity	Ecosystem restoration, coastal protection, climate-resilient management	High	Immediate	Targets 1, 5, 9
Invasive alien species	Loss of native biodiversity, agricultural damage	Biosecurity, eradication programs, and community surveillance	High	Medium	Targets 2, 6
Overharvesting of marine resources	Decline in fish stocks, reef degradation	Sustainable fisheries management	Medium	Immediate	Targets 3, 10
Pollution and waste runoff	Lagoon contamination, coral loss, public health risks	Waste management, lagoon monitoring, public awareness	Medium	Medium	Targets 4, 11
Land-use pressure and erosion	Soil degradation, freshwater lens salinization	Agroecological planning, pulaka pit rehabilitation, erosion control	Medium	Medium	Targets 5, 12
Loss of traditional knowledge	Weakening of community	Cultural documentation, intergenerational	High	Long-term	Targets 7, 13, 16

	stewardship and cultural continuity	programs, church-led education			
Limited technical capacity	Gaps in monitoring, enforcement, and data-driven decision-making	Training, data systems, regional partnerships	High	Immediate	Targets 8, 14
Fragmented institutional mandates	Poor coordination, overlapping responsibilities	Governance reform, inter-agency coordination, policy harmonization	Medium	Immediate	Targets 8, 15
Insufficient funding	Delayed implementation, limited coverage	Donor engagement, biodiversity trust	High	Immediate	Targets 14, 15, 16
Threats to human health (linked to pollution, waste, and climate impacts)	Increased disease risks, reduced water quality, compromised food security	Integrated health–environment monitoring, improved sanitation, climate-resilient health systems	Medium	Immediate	Targets 4, 9, 11

This mapping is anticipated to allow for targeted interventions, clearer budgeting, and more effective monitoring.

2. Situational Analysis

2.1 Review of the 2018-2022 NBSAP and Lessons Learned

Tuvalu’s second National Biodiversity Strategy and Action Plan (NBSAP) for 2018-2022 marked a pivotal step in formalizing biodiversity governance and integrating conservation into national development and climate planning. Key achievements included:

- The establishment of *community-based conservation areas*, particularly under the Ridge to Reef (R2R) initiative, which strengthened local stewardship and ecosystem protection.
- Increased *awareness and action on invasive species*, supported by regional partnerships and targeted training.
- Initial *integration of biodiversity into climate adaptation frameworks*, including the National Adaptation Plan (NAP) and Nationally Determined Contributions (NDCs).

However, implementation faced several persistent challenges:

- *Limited institutional coordination*, with biodiversity responsibilities dispersed across ministries and agencies, lacking a central oversight mechanism.
- *Inadequate monitoring and reporting systems*, resulting in fragmented data, inconsistent indicators, and difficulty tracking progress against targets.
- *Resource constraints*, particularly in sustaining community-led initiatives, technical capacity, and long-term funding.

- *Underutilization of traditional ecological knowledge*, despite its recognized value in local stewardship, seasonal management, and cultural resilience.

These lessons have directly informed the structure and priorities of the 2025-2030 NBSAP. Notable reforms include:

- The creation of a *Biodiversity Steering Committee*, mandated to harmonize efforts across sectors and ensure accountability.
- The *formal endorsement of traditional knowledge* as a valid and complementary monitoring tool, with protocols for documentation, validation, and intergenerational transmission.
- A renewed emphasis on *community empowerment*, with targeted support for *Falekaupule* and *Kaupule-led* initiatives, youth engagement, and faith-based stewardship.
- The integration of *lessons from past implementation cycles*, including gaps in enforcement, data systems, and donor coordination, now addressed through adaptive planning and capacity-building measures.
- Alignment with *regional frameworks and global biodiversity targets*, ensuring Tuvalu's voice and values are represented in international platforms while securing technical and financial support.

These challenges highlight the complex realities facing biodiversity conservation in Tuvalu. Limited human and technical capacity, weak policy enforcement, fragmented mandates, and the erosion of traditional knowledge all converge to reduce resilience at a time of escalating climate and environmental pressures. Addressing these challenges requires not only stronger governance and resource mobilization, but also a renewed commitment to community stewardship and culturally grounded approaches. The NBSAP 2025–2030 builds on this understanding, setting out clear priorities to strengthen institutions, integrate biodiversity into national planning, and empower Tuvaluan communities as custodians of their natural heritage.

2.2 Biodiversity Status and Threats by Ecosystem

Tuvalu's biodiversity spans a range of interconnected ecosystems, each supporting culturally significant species and vital ecological functions. This section presents a sectoral overview of biodiversity status and threats, organized by ecosystem type and enriched with species-specific insights. Five interconnected ecosystems were identified for this NBSAP 2025-2030.

A. Coastal Ecosystems (Mangroves, Seagrass Beds, Lagoons)

Status: Coastal ecosystems are vital lifelines for Tuvalu, offering shoreline protection, fish nursery habitats, and deep cultural significance. Mangrove forests on several islands of Tuvalu remain substantially intact, though they are declining in density due to environmental pressures. However, mangroves are not present on all islands, and Funafuti has only limited

mangrove stands. Seagrass beds support juvenile reef fish and invertebrates and contribute to carbon sequestration, though their extent remains poorly mapped and monitored. Lagoon systems host ecologically and culturally significant species such as giant clams (*Tridacna derasa*, *T. maxima*, *T. crocea*), which are increasingly rare outside designated protected areas. In Tuvalu, these zones are primarily within marine protected areas (MPAs), though the extent and effectiveness of protection vary across islands.

These ecosystems are not only ecological assets but cultural anchors, woven into Tuvaluan identity, livelihoods, and spiritual practice. From traditional harvesting taboos to seasonal closures, coastal stewardship reflects a holistic ethic of care rooted in ancestral wisdom.

Key Threats:

- Coastal erosion, saltwater intrusion and sea level rise, leading to habitat loss and salinization.
- Ad hoc land reclamation and infrastructure development disrupting natural buffers.
- Pollution from household waste, leachate, and runoff.
- Overharvesting of coastal and lagoon species, including clams and mangrove fauna.

Community Response: Tuvaluan communities, Kaupule, youth groups, and civil society organizations are actively engaged in restoration through Ridge to Reef programs and locally led initiatives. Notable efforts include:

- Mangrove planting in Nanumea, led by the *Tuvalu National Council of Women*, enhancing shoreline protection and demonstrating women's leadership in ecosystem stewardship.
- Mangrove restoration at Funafala islet, supported by a Japanese partner organization – Tuvalu Overview, aimed at reducing erosion and restoring habitat integrity.
- Vetiver grass planting along the Funafuti Dumpsite and southern Fogafale to stabilize coastlines and filter leachate.
- Raised pulaka pits to combat saltwater intrusion and preserve traditional food systems.

These interventions reflect a fusion of traditional knowledge and adaptive innovation, safeguarding biodiversity while honoring cultural responsibility.

Coastal Species Restocking Initiatives

Objective: To restore and enhance populations of ecologically and culturally significant coastal species, particularly giant clams, mangrove-associated fauna, and lagoon invertebrates through community-led restocking, habitat rehabilitation, and traditional stewardship practices.

Strategic Actions:

- Giant Clam Restocking (*Tridacna* spp.):

- Establish community hatcheries and protected spawning zones.
- Reinforce traditional harvesting taboos and seasonal closures.
- Monitor growth and survival rates through local youth and Kaupule engagement.
- Mangrove-Associated Fauna Enhancement:
 - Replant degraded mangrove areas using locally sourced seedlings.
 - Monitor populations of crabs, mollusks, and other fauna.
 - Promote tapu-based harvesting cycles and community education.
- Seagrass Mapping and Monitoring:
 - Conduct baseline surveys to assess extent and health.
 - Integrate findings into fisheries management and climate resilience planning.
 - There are currently no clearly documented restoration actions for seagrass in Tuvalu. Further clarification is needed to determine whether any restoration measures have been initiated or planned, and to assess the extent of seagrass recovery efforts.
- Partnerships & Funding Support:
 - Collaborate with regional partners (SPREP, GEF, JICA) and local institutions.
 - Mobilize co-financing for restoration, monitoring, and capacity building.
 - Leverage traditional ecological knowledge alongside scientific innovation.

Vision: Together, these efforts form a mosaic of ecological and cultural restoration and ensuring Tuvalu’s coastal ecosystems remain a source of life, identity, and resilience for generations to come.

B. Reef Ecosystems (Coral Reefs and Reef Flats)

Status: Coral reefs are foundational to Tuvalu’s biodiversity, food security, and cultural identity. They provide habitat for reef fish, protect coastlines from wave action, and support traditional livelihoods. Surveys indicate coral cover has declined by up to 50% in some areas due to bleaching, sedimentation, and physical damage. For example, the Pristine Seas expedition (May–July 2025) documented widespread coral mortality across Funafuti and outer atolls, while earlier assessments highlighted bleaching impacts linked to rising sea temperatures and sedimentation pressures. Coral reefs outside marine protected areas are increasingly depleting.

These ecosystems are not only ecological assets, however, they are sacred spaces, woven into Tuvaluan customs, diets, and spiritual practice. Their degradation threatens both environmental integrity and cultural continuity.

Key Threats:

- Ocean warming and acidification, leading to widespread coral bleaching and reduced reef resilience.
- Overharvesting of reef species, including clams and sea cucumbers, driven by subsistence and commercial pressures.

- Invasive species such as crown-of-thorns starfish (*Acanthaster planci*), which decimate coral colonies.
- Weak enforcement and limited capacity in Locally Managed Marine Areas (LMMAs), undermining community-based conservation efforts.

Community Response: Restoration and stewardship efforts are underway, led by the Fisheries Department, Kaupule, and community groups under Ridge to Reef programs. Key actions include:

- Coral nurseries in Funafuti, designed to regenerate resilient coral species and rehabilitate degraded reef zones.
- Giant clam restocking, integrating hatchery-based propagation with traditional harvesting taboos and seasonal closures.
- Monitoring and removal of crown-of-thorns starfish, often led by youth groups and supported by regional technical partners.
- Strengthening LMMA governance, including community training, signage, and integration of spiritual stewardship practices.
- Knowledge-sharing platforms, linking Tuvaluan practitioners with regional networks (e.g., SPREP, LMMA Network) to exchange restoration techniques and monitoring tools.

Vision: Tuvalu's reef ecosystems are living sanctuaries, sources of nourishment, protection, and cultural meaning. Through community-led restoration, traditional stewardship, and regional collaboration, Tuvalu is working to ensure its reefs remain vibrant and resilient in the face of climate change and global pressures.

C. Oceanic Ecosystems (Pelagic Zones and EEZ)

Status: Tuvalu's Exclusive Economic Zone (EEZ) is a vast marine territory that sustains migratory tuna species (skipjack, yellowfin), billfish, and cetaceans, forming the backbone of national fisheries revenue and regional food security. Marine turtles, particularly green (*Chelonia mydas*) and hawksbill (*Eretmochelys imbricata*), nest on outer islands, linking Tuvalu's pelagic ecosystems to coastal cultural heritage. While tuna stocks remain regionally stable under the management of the Parties to the Nauru Agreement (PNA), turtle nesting success is declining due to habitat disturbance, predation, and coastal pressures. These ecosystems are critical not only for economic resilience but also for Tuvalu's sovereignty and cultural continuity.

Key Threats:

- Illegal, unreported, and unregulated (IUU) fishing, undermining national revenue and threatening stock sustainability.
- Climate-driven shifts in migratory patterns, altering tuna distribution and affecting local catch.
- Marine pollution from transboundary sources, including plastics and oil spills, impacting pelagic species.

- Light pollution and erosion at nesting beaches, disrupting turtle reproduction.
- Limited monitoring capacity, constraining enforcement and ecological data collection across Tuvalu's vast EEZ.

Community Response: Tuvaluan communities, elders, and youth are increasingly engaged in informal turtle monitoring, documenting nesting events and predation. The Fisheries Authority is strengthening EEZ surveillance through licensing systems, vessel monitoring, and regional cooperation. Ridge to Reef programs and civil society initiatives are beginning to integrate pelagic conservation into broader biodiversity strategies.

Further Strategic Actions:

- Tuna Fisheries Management:
 - Strengthen collaboration with PNA and Western and Central Pacific Fisheries Commission (WCPFC) to ensure sustainable harvest quotas.
 - Expand observer programs and electronic monitoring to reduce IUU fishing.
- Marine Turtle Conservation:
 - Formalize community turtle monitoring into national databases.
 - Protect nesting beaches through erosion control, light management, and predator control.
 - Integrate traditional stewardship practices, such as *tapu* on turtle harvesting, into modern conservation frameworks.
- Pollution Control:
 - Enhance regional cooperation to address marine debris and transboundary pollution.
 - Promote community-led beach clean-ups and awareness campaigns.
- Capacity Building & Partnerships:
 - Invest in training for EEZ surveillance officers and community monitors.
 - Leverage partnerships with regional organizations (SPREP, FFA, PNA) and international donors for technical and financial support.
- Global Governance – BBNJ Agreement:
 - Tuvalu's NBSAP acknowledges the *Agreement on Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ)*, adopted in 2023.
 - This treaty strengthens conservation and sustainable use of biodiversity in the high seas and deep seabed, complementing Tuvalu's EEZ management.
 - By engaging with BBNJ processes, Tuvalu positions itself within global efforts to safeguard migratory species, regulate resource use, and ensure equitable benefit-sharing beyond national boundaries.

Tuvalu's oceanic ecosystems are the nation's blue heart, sustaining livelihoods, anchoring sovereignty, and connecting Tuvalu to global marine systems. Through strengthened surveillance, community stewardship, and regional partnerships, Tuvalu seeks to ensure its pelagic zones remain abundant, resilient, and culturally meaningful for generations to come.

D. Terrestrial Ecosystems (Agroforestry, Taro Pits, Coastal Vegetation)

Status: Tuvalu's terrestrial biodiversity is limited in scale but deeply significant for cultural identity, food security, and ecological resilience. Agroforestry systems dominated by coconut, pandanus, breadfruit, and pulaka (*Cyrtosperma merkusii*), form the backbone of traditional

livelihoods. Coastal vegetation stabilizes soils, buffers against erosion, and provides habitat for nesting birds and land crabs. Pulaka cultivation, a cultural cornerstone, is increasingly threatened by saltwater intrusion, changing rainfall patterns, and soil degradation, leading to declining yields. Despite these challenges, terrestrial ecosystems remain central to Tuvaluan heritage, weaving together ecological function and spiritual meaning.

Key Threats:

- Salinization of pulaka pits and freshwater lenses due to sea level rise.
- Invasive weeds and pests (e.g., *Merremia peltata*, *Wedelia trilobata*, *Leucaena*) outcompeting native vegetation.
- Land clearing for housing, roads, and infrastructure, reducing agroforestry diversity.
- Decline in traditional gardening practices and intergenerational knowledge transfer.
- Increasing reliance on imported foods, weakening cultural ties to agro-biodiversity.

Community Response: Tuvaluan communities are actively adapting through innovative and culturally grounded measures:

- Raised cemented pulaka pits introduced across islands, blending traditional cultivation with climate adaptation under Ridge to Reef programs.
- Community agroforestry initiatives, maintaining coconut, pandanus, and breadfruit groves for food, shelter, and cultural use.
- Women's and youth groups revitalizing traditional gardening practices, ensuring knowledge transfer and food sovereignty.
- Coastal vegetation restoration, including planting of vetiver grass and native species to stabilize soils, protect shorelines and leachate from inland waste.

Further Strategic Actions:

- Agro-biodiversity Conservation: Establish gene banks for traditional crop varieties, integrating climate-resilient species to withstand salinity and drought.
- Invasive Species Management: Develop community-led monitoring and removal programs, supported by regional technical expertise.
- Traditional Knowledge Revitalization: Document and promote practices such as *fatoaga* (communal gardening) and seasonal planting calendars to strengthen cultural stewardship.
- Integrated Land Use Planning: Balance housing and infrastructure development with biodiversity conservation, ensuring ecological buffers are maintained.
- Partnerships & Capacity Building: Collaborate with regional partners (SPREP, SPC, UNDP) and donors to strengthen agroforestry resilience, pest management, and soil conservation.
- Environmental Regulation Enforcement: Strengthen compliance with the Environmental Impact Assessment (EIA) Regulation, ensuring that development

projects are systematically assessed, monitored, and enforced to safeguard biodiversity and community well-being.

Tuvalu's terrestrial ecosystems are more than landscapes; they are living heritage. By blending traditional knowledge with modern adaptation, communities are safeguarding food security, cultural identity, and ecological resilience. These efforts ensure that Tuvalu's agroforestry systems, taro pits, and coastal vegetation remain a sacred trust and a foundation for sustainable development in the face of climate change.

E. Avifauna and Migratory Species

Status: Tuvalu hosts several seabird species, including frigatebirds, noddies, and white terns, which nest on islets and coastal vegetation. Migratory shorebirds such as the Pacific golden plover rely on Tuvalu's islets as critical stopover and feeding grounds along the East Asian-Australasian Flyway. Marine turtles, particularly green and hawksbill species, are also included due to their nesting behavior on outer islands. Populations of seabirds are declining, with reduced nesting success and sightings, while turtle nesting success is increasingly threatened by habitat disturbance and predation.

Key Threats:

- Habitat loss due to erosion, sea level rise, and human disturbance.
- Light pollution affecting seabird navigation and turtle nesting success.
- Predation by invasive rats and cats, reducing nesting survival rates.
- Lack of species-specific monitoring and ecological data, limiting conservation planning.

Community Response: Some islets are under *tapu* protection, reflecting traditional stewardship practices that safeguard nesting grounds. Community interest in avifauna monitoring is growing, especially among youth, church groups, and local leaders. Informal turtle monitoring by elders and youth complements these efforts. Community-led conservation initiatives, including coral restoration, mangrove planting, and pulaka pit rehabilitation, are helping to stabilize ecosystems that indirectly support avifauna and migratory species. These actions demonstrate Tuvalu's resilience and reaffirm the importance of integrating traditional knowledge, youth leadership, and faith-based stewardship into biodiversity protection.

Further Strategic Actions:

- **Species Monitoring and Data Collection:** Establish systematic monitoring programs for seabirds, shorebirds, and turtles, integrating community observations into national biodiversity databases. Monitoring results should be uploaded to Tuvalu's National Environment Data Portal (Inform Data Portal) to ensure transparency, accessibility, and alignment with regional reporting frameworks.
- **Invasive Species Control:** Building from existing programs, continue implementing rat and cat eradication programs on key nesting islets, supported by regional technical expertise.
- **Light Pollution Management:** Develop guidelines for coastal lighting to reduce disorientation of seabirds and turtles.

- **Regional and Global Partnerships:** Strengthen collaboration with flyway initiatives (e.g., East Asian and Australasian Flyway Partnership) to ensure Tuvalu's role in migratory species conservation is recognized and supported.
- **Faith and Cultural Stewardship:** Engage church groups and traditional leaders in awareness campaigns, linking conservation to spiritual responsibility and cultural continuity.

Tuvalu's avifauna and migratory species are living messengers of resilience, connecting the nation to global ecological systems and embodying its cultural and spiritual heritage. By combining traditional stewardship, youth leadership, and international cooperation, Tuvalu seeks to ensure that seabirds, shorebirds, and turtles continue to thrive as symbols of life, faith, and ecological balance.

2.3 Community Reflections and Traditional Knowledge Insights

Recent national consultations (July and August 2025) revealed a strong consensus among stakeholders on the importance of integrating cultural values and traditional knowledge into biodiversity planning. Key reflections included:

- Recognition of oral histories and seasonal indicators as tools for monitoring ecosystem health and forecasting climate risks.
- Affirmation of spiritual stewardship, with biodiversity seen as a divine gift requiring care and reverence.
- Calls for youth engagement, ensuring intergenerational transmission of ecological knowledge and leadership in conservation.
- Support for locally managed areas, where Island Councils and community leaders take active roles in stewardship.
- Emphasis on traditional terminologies and directional language, which carry ecological meaning and are vital for interpreting environmental cues and communicating climate risks.
- Desire to formalize traditional knowledge systems, including the development of a national Traditional Knowledge and Indicators (TK) Database to integrate oral traditions, ecological cues, and scientific data.
- Recognition of gendered knowledge systems, with women's roles in seed saving, food preservation, and coastal restoration seen as essential to biodiversity resilience.
- Commitment to spiritual and cultural ceremonies, such as blessings and seasonal rituals, as integral to ecosystem restoration and species recovery.

Stakeholders emphasized that these insights align Tuvalu's NBSAP with global frameworks such as the Kunming-Montreal GBF, the CBD, and the UN Declaration on the Rights of Indigenous Peoples, ensuring that cultural stewardship is recognized as a pillar of biodiversity governance. Together, they affirm that Tuvalu's biodiversity governance must be both technically rigorous and spiritually grounded, weaving ancestral wisdom, youth leadership, and scientific innovation into a living framework of resilience.

2.4 Institutional and Policy Landscape

Tuvalu's biodiversity governance is supported by a range of national policies and frameworks, including *Te Kaniva*, *Te Kete IV*, and the *National Environment Management Strategy*. These instruments reflect Tuvalu's commitment to environmental stewardship and climate resilience. However, gaps remain in legal clarity, enforcement capacity, and cross-sectoral coordination, particularly between national ministries and Island Councils.

The updated NBSAP seeks to:

- *Clarify institutional mandates*, especially between national ministries, Kaupule, and Island Councils, while respecting the role of traditional leaders and spiritual custodians whose authority in resource governance is rooted in centuries of ecological wisdom and community trust.
- *Strengthen legal instruments*, including potential revisions to the *Environment Protection Act* and related regulations, to ensure enforceability, coherence, and alignment with Tuvalu's obligations under the CBD and Nagoya Protocol.
- *Enhance policy coherence*, aligning biodiversity goals with energy, agriculture, fisheries, tourism, and disaster risk reduction sectors, and integrating biodiversity into broader development and climate adaptation frameworks.
- *Mobilize partnerships and financial support*, fostering collaboration with regional agencies, donors, and technical partners to secure long-term funding, capacity-building, and technology transfer for biodiversity action.
- *Promote inclusive and participatory governance*, ensuring that Kaupule, faith-based organizations, youth, and women's groups are actively engaged in decision-making, monitoring, and implementation that is grounded in both cultural protocols and human rights principles.
- *Strengthen institutional capacity*, through targeted training, mentorship programs, regional exchanges, and technical support for biodiversity officers, Island Council staff, and community leaders.
- *Establish adaptive coordination mechanisms*, such as inter-ministerial biodiversity taskforces, joint planning platforms, and climate-biodiversity integration hubs, to respond to climate-related impacts and evolving conservation priorities.
- *Improve biodiversity data systems*, including GIS mapping, species inventories, and integration with platforms such as GBIF and the Inform Data Portal, enabling evidence-based planning, decision making and transparent reporting.
- *Address institutional fragmentation* by fostering joint planning, harmonized reporting, and shared accountability across ministries, island administrations, and civil society actors.

These reforms are informed by regional frameworks such as the *Pacific Islands Framework for Nature Conservation and Protected Areas*, and global commitments under the SAMOA

Pathway, CBD, and Nagoya Protocol. Together, they aim to build a governance system that is not only technically sound but spiritually grounded and culturally inclusive.

2.5 Opportunities for Strategic Alignment

Tuvalu's active engagement in global and regional platforms presents key opportunities to elevate biodiversity action and secure long-term support:

- *Integration of national evidence and frameworks:* The *Tuvalu State of Environment Report 2022* and the updated *National Environmental Management Strategy (NEMS) 2022–2026* function as critical foundations for the effective implementation of the NBSAP. They provide the most comprehensive and current baseline for environmental conditions in Tuvalu, ensuring that biodiversity commitments are grounded in robust evidence, measurable targets, and indicators that reflect national priorities. Referencing these frameworks strengthens alignment between the NBSAP and Tuvalu's broader environmental management agenda, and directly informs multiple NBSAP targets (particularly Targets 2, 4, 5, and 6), yet is not utilised. Furthermore, the SOE employs the Drivers-Pressures-State-Impact-Response (DPSIR) analytical framework, which aligns with the causal analysis approach of the NBSAP and could strengthen the situational analysis
- *Alignment with the Kunming-Montreal Global Biodiversity Framework (GBF)*, including measurable targets, indicators, and reporting protocols that reinforce Tuvalu's global contributions.
- *Access to climate and biodiversity financing*, through mechanisms such as the Global Environment Facility (GEF), Green Climate Fund (GCF), and targeted bilateral and multilateral partnerships.
- *Regional Collaboration:* Strengthen engagement through SPREP, the Pacific Islands Framework for Nature Conservation, and emerging platforms such as the Pacific Resilience Partnership, which promote shared learning and coordinated action. While Tuvalu is not a member of the Micronesia Challenge, however, it continues to benefit from regional knowledge exchange and partnerships that align with its biodiversity and resilience priorities.
- *Integration with the Paris Agreement and Sendai Framework*, leveraging nature-based solutions and ecosystem-based adaptation to address climate risks and disaster resilience.
- *Participation in the UN Decade on Ecosystem Restoration (2021–2030)*, positioning Tuvalu's community-led restoration efforts as part of a global movement to revive degraded ecosystems.
- *Engagement with the Biodiversity Finance Initiative (BIOFIN)* and other innovative financing tools to strengthen national resource mobilization and sustainability.
- *Alignment with Tuvalu's Medium-Term Fiscal Framework and National Budget priorities*, ensuring biodiversity is embedded in public investment planning and sectoral development strategies.

- *Advocacy through Small Island Developing States (SIDS) platforms*, amplifying Tuvalu's voice in global negotiations and promoting equity, cultural integrity, and climate justice.

These opportunities underscore the importance of a well-articulated, inclusive, and forward-looking NBSAP that positions Tuvalu not only as a steward of biodiversity but as a strategic leader and advocate for vulnerable island ecosystems on the global stage.

3. Vision, Mission, and Guiding Principles

3.1 Vision for 2050

Tuvalu lives in harmony with nature where biodiversity flourishes, ecosystems are restored, and communities thrive through stewardship grounded in culture, faith, and resilience.

3.2 Mission

To guide inclusive, resilient, and culturally grounded biodiversity governance by integrating traditional knowledge, community leadership, and global best practices, restoring ecosystems, protecting species, and embedding biodiversity into all sectors of national development.

This vision reflects Tuvalu's long-term aspiration to safeguard biodiversity as a sacred trust, ensuring that future generations inherit a healthy, vibrant environment shaped by both traditional wisdom and modern innovation. The mission commits Tuvalu to a holistic approach that honours spiritual stewardship, empowers local action, and positions biodiversity as a foundation for climate resilience, food security, and sustainable livelihoods.

3.3 Guiding Principles of Tuvalu's NBSAP (2025-2030)

Tuvalu's approach to biodiversity conservation is rooted in values that transcend policy, anchored in spiritual stewardship, cultural integrity, and community resilience. The following guiding principles reflect Tuvalu's unique worldview, where environmental responsibility is both a sacred duty and a practical necessity. They provide the ethical and operational foundation for all actions under the NBSAP, ensuring that biodiversity planning is inclusive, locally led, and globally aligned. These principles are not merely aspirational; they are lived commitments that shape how Tuvalu navigates climate change, sustains its ecosystems, and upholds the dignity of its people across generations.

- i. *Spiritual Stewardship*: Biodiversity is a divine gift entrusted to our care. Conservation efforts shall honour spiritual values, prayerful responsibility, and reverence for creation.
- ii. *Cultural Integrity and Traditional Knowledge*: Planning and implementation will respect and integrate oral histories, seasonal indicators, and customary practices, ensuring that traditional knowledge guides modern solutions.
- iii. *Community Leadership and Local Ownership*: Island Councils, elders, women, and youth are central to biodiversity governance. Locally managed areas and participatory decision-making will be prioritized.

- iv. *Equity and Inclusion*: Biodiversity actions will be inclusive of all genders, generations, and vulnerable groups, ensuring fair access to benefits and meaningful participation in stewardship.
- v. *Resilience and Sustainability*: Ecosystem restoration, climate adaptation, disaster risk reduction, and food security will be pursued through nature-based solutions, ecosystem based adaptation, and long-term sustainability planning.
- vi. *Transparency and Accountability*: Monitoring, reporting, and evaluation systems will be community-validated, evidence-based, and openly shared to build trust and track progress.
- vii. *Regional Solidarity and Global Alignment*: Tuvalu will collaborate with Pacific neighbours and contribute to global biodiversity goals, amplifying the voice of small island states in international forums.
- viii. *Innovation and Knowledge Sharing*: The NBSAP will promote digital tools, open data sharing, and intergenerational learning to strengthen biodiversity citizen science and community awareness.

4. Strategic Framework

Tuvalu's Strategic Framework for biodiversity action is grounded in the Kunming-Montreal Global Biodiversity Framework (GBF), ensuring that national efforts contribute meaningfully to global goals while remaining responsive to local realities. The framework is structured around three core components:

4.1 Goals and Objectives

Tuvalu's biodiversity goals and objectives are directly aligned with the four overarching goals and 23 global targets of the Kunming-Montreal Global Biodiversity Framework (GBF). These objectives reflect the country's commitment to:

- Halting biodiversity loss and restoring degraded ecosystems.
- Ensuring sustainable use of biodiversity and ecosystem services.
- Promoting equitable benefit-sharing, especially for communities and custodians of traditional knowledge.
- Strengthening enabling conditions, including finance, governance, capacity, and data systems.

In addition, Tuvalu's goals emphasize:

- *Integration of Climate and Biodiversity Action*: Biodiversity objectives contribute to national climate resilience, supporting ecosystem-based adaptation and nature-based solutions in line with the Paris Agreement and SDG 13.
- *Recognition of Cultural and Spiritual Dimensions*: Conservation is guided by Tuvaluan values, oral histories, and spiritual stewardship, ensuring that biodiversity governance is not only technically sound but culturally meaningful.

- *Community Empowerment and Local Governance:* Objectives prioritize inclusive decision-making and local leadership, especially through Island Councils, elders, women, and youth, reinforcing community ownership of biodiversity outcomes.
- *Innovation and Knowledge Sharing:* The framework supports digital tools, open-access data platforms, and intergenerational learning to strengthen biodiversity science, monitoring, and public awareness.
- *Alignment with Regional and Global Reporting Systems:* Objectives are designed to facilitate streamlined reporting under the CBD, GBF, SDGs, and regional frameworks such as SPREP's monitoring protocols and the Pacific Islands Framework for Nature Conservation and Protected Areas.

Each of Tuvalu's 16 national biodiversity targets is supported by specific objectives, indicators, and implementation strategies tailored to the country's ecological, cultural, and institutional context, ensuring that biodiversity governance is both globally relevant and locally rooted.

4.2 Mapping of Tuvalu's 16 National Biodiversity Targets to GBF Targets

Tuvalu's 16 national biodiversity targets have been carefully revised and validated through national consultations and technical review, ensuring that they reflect both local priorities and global commitments. Each target has been mapped to one or more of the 23 global targets under the Kunming-Montreal Global Biodiversity Framework (GBF), enabling Tuvalu to:

- Track progress using globally recognized indicators and methodologies.
- Report effectively under the Convention on Biological Diversity (CBD).
- Access technical and financial support through aligned programming, including GEF, GCF, and other regional mechanisms.

This mapping also supports coherence across sectors, such as agriculture, energy, fisheries, education, and other relevant sectors, to ensure that biodiversity actions contribute to climate resilience, food security, and sustainable development.

The following matrix (Table 3) highlights the result of discussions and alignment during consultations to review the strategy.

Table 4: Tuvalu 16 Targets Aligned with the KMGBF and Stakeholders Discussion Result

Tuvalu National Proposed Targets	Aligned Global Targets	Stakeholder Input
1. By 2030, all inhabited islands of Tuvalu will have biodiversity-inclusive land-use and marine spatial plans, incorporating traditional knowledge and supported by EIAs.	Target 1, Target 3, Target 21	• To ensure alignment with inclusive national processes, the term 'Environmental Impact Assessments (EIAs)' shall be replaced with 'Strategic Plans' throughout the document

2. By 2030, at least 30% of Tuvalu's marine and terrestrial ecosystems are effectively conserved and managed through formal and community-based conservation areas.	Target 2, Target 3, Target 8	Given Tuvalu's geographic and ecological constraints, the 30% target may be unrealistic. A revised target of 10% would better reflect national capacity and context.
3. By 2030, priority native species (e.g. forest gecko, green turtle, seabirds) are under species recovery plans with measurable population improvements.	Target 4	- Existing Island Strategic Plans (ISPs) to incorporate this Target. - Consider capturing the global target statement.
4. By 2030, all inhabited islands have active management plans for invasive species, including rats, crown-of-thorns starfish, and aggressive weeds (e.g. <i>Leucaena</i>).	Target 4 Target 6	- Consider capturing the global target statement, like including exsitu and insitu management. - Include the prevention component.
5. By 2030, pollution from land-based sources (e.g. sewage, agricultural runoff, plastics) is reduced by 50% in vulnerable marine and coastal habitats.	Target 7	Agree with the alignment.
6. Ecosystem-based adaptation (EbA) measures are integrated in all climate change policies and implemented in at least 6 outer islands by 2030.	Target 8	Agree with the alignment
7. By 2030, all outer islands have established sustainable harvesting limits for coastal fisheries, sea cucumbers, giant clams, and nesting seabirds.	Target 10 Target 16	Agree with the alignment
8. Agro-biodiversity (e.g. taro, pandanus, pulaka) is conserved and enhanced on all islands, and at least 3 islands have agroforestry demonstration sites by 2030.	Target 10	- Adaptation and resilience approaches are important; therefore, capturing them in T8 is essential. - Capturing the agroforestry term "Gene Bank" is supported to be included.
9. Traditional knowledge is integrated into biodiversity management plans and school curricula by 2027.	Target 12 Target 21	Agree with the alignment
10. By 2030, Funafuti has implemented a biodiversity-sensitive urban plan that safeguards remaining native vegetation and coastal ecosystems.	Target 12	The inclusion of 3 islands is recommended to extend coverage.
11. Tuvalu develops and implements national legislation on access and benefit-sharing (ABS) by 2026,	Target 13 Target 14	Agree with the alignment

ensuring alignment with the Nagoya Protocol.		
12. By 2027, biodiversity considerations are fully integrated into national and island development planning, including “Te Kete” and the Corporate Plans.	Target 14 Target 15 Target 16	Agree with the alignment
13. By 2026, Tuvalu will develop a biodiversity finance plan and mobilize at least USD 3 million in external and domestic resources for NBSAP implementation.	Target 19	Agree
14. By 2030, at least 75% of government staff in key ministries and Kaupule representatives are trained in biodiversity management and planning.	Target 17	Agree
15. By 2026, Tuvalu will establish a national biodiversity database linked to ORT and Te Kakega indicators.	Target 21	The Department of Environment and other key stakeholders, like the Department of Agriculture and Fisheries, are key institutions to take part in this Target 15.
16. By 2030, all schools and communities implement at least one biodiversity awareness campaign per year using local languages and media.	Target 15 Target 22	The inclusion of the Environment Day and other awareness programmes must be part of this Target 16.

Following the alignment of the 16 Targets, stakeholders have emphasized the importance of specifying precise timeframes, such as “by the end of 2030” or “mid-2030”, to enhance clarity in planning and support effective implementation. This feedback directly informs the revision and validation of the 16 targets outlined below.

Table 5: NBSAP 2025-2030 Refined and Validated Targets

Tuvalu National Target	Aligned Global Targets	Stakeholder Input	Refined and Validated Targets
1. By 2030, all inhabited islands of Tuvalu have biodiversity-inclusive land-use and marine spatial plans, incorporating traditional knowledge and supported by EIAs.	Target 1, Target 3, Target 21	To ensure alignment with inclusive national processes, the term 'Environmental Impact Assessments (EIAs)' shall be replaced with 'Strategic Plans' throughout the document	By the end of 2030, all inhabited islands of Tuvalu will have biodiversity-inclusive land-use and marine spatial plans that incorporate traditional knowledge and are guided by Strategic Plans, ensuring alignment with

			inclusive national processes.
2. By 2030, at least 30% of Tuvalu's marine and terrestrial ecosystems are effectively conserved and managed through formal and community-based conservation areas.	Target 2, Target 3, Target 8	Given Tuvalu's geographic and ecological constraints, the 30% target may be unrealistic. A revised target of 10% would better reflect national capacity and context.	By the end of 2030, at least 10% of Tuvalu's marine and terrestrial ecosystems will be effectively conserved and managed through a combination of formal and community-based conservation areas, reflecting national capacity and ecological realities.
3. By 2030, priority native species (e.g. forest gecko, green turtle, seabirds) are under species recovery plans with measurable population improvements.	Target 4	- Existing Island Strategic Plans (ISPs) to consider incorporating this Target. - Consider capturing the global target statement.	By the end of 2030, priority native species, such as the forest gecko, green turtle, and key seabirds, will be protected under species recovery plans that are integrated into Island Strategic Plans (ISPs), with measurable improvements in population health, consistent with global biodiversity targets.
4. By 2030, all inhabited islands have active management plans for invasive species, including rats, crown-of-thorns starfish, and aggressive weeds (e.g. Leucaena).	Target 4 Target 6	- Consider capturing the global target statement, like including exsitu and insitu management. - Include the prevention component.	By the end of 2030, all inhabited islands of Tuvalu will have active invasive species management plans that include prevention, early detection, and both in situ and ex situ control measures, targeting priority species such as rats, crown-of-thorns starfish, and aggressive weeds like Leucaena.
5. By 2030, pollution from land-based sources (e.g. sewage, agricultural runoff, plastics) is reduced by 50% in vulnerable marine and coastal habitats.	Target 7	- Agree with the alignment. - Consider inclusion of Target 7 of the global framework.	By the end of 2030, pollution from land-based sources, such as sewage, agricultural runoff, and plastics, will be reduced by at least 50% in vulnerable marine and coastal habitats, through integrated management approaches that reflect

			both national priorities and the global commitment under Target 7.
6. Ecosystem-based adaptation (EbA) measures are integrated in all climate change policies and implemented in at least 6 outer islands by 2030.	Target 8	• Agree with the alignment • Consider inclusion of Target 8 of the global framework.	• By the end of 2030, ecosystem-based adaptation (EbA) measures will be systematically integrated into all national climate change policies and frameworks, and effectively implemented in at least six outer islands, contributing to both local resilience and the global objectives outlined under Target 8.
7. By 2030, all outer islands have established sustainable harvesting limits for coastal fisheries, sea cucumbers, giant clams, and nesting seabirds.	Target 10 Target 16	• Agree with the alignment • Consider inclusion of targets 10 and 16.	• By the end of 2030, all outer islands will have established and enforced sustainable harvesting limits for key coastal resources, including fisheries, sea cucumbers, giant clams, and nesting seabirds, ensuring long-term ecosystem integrity and equitable access, in alignment with Targets 10 and 16 of the global framework.
8. Agro-biodiversity (e.g. taro, pandanus, pulaka) is conserved and enhanced on all islands, and at least 3 islands have agroforestry demonstration sites by 2030.	Target 10	• Adaptation and resilience approaches are important; therefore, capturing them in T8 is essential. • Capturing the agroforestry term “Gene Bank” is supported to be included.	• By the end of 2030, agro-biodiversity, including culturally significant crops such as taro, pandanus, and pulaka, will be conserved and enhanced across all islands, with at least three islands hosting agroforestry demonstration sites and community-managed Gene Banks, contributing to climate resilience and aligned with Targets 8 and 10 of the global framework.

9. Traditional knowledge is integrated into biodiversity management plans and school curricula by 2027.	Target 12 Target 21	• Agree with the alignment • Consider inclusion of targets 12 and 21.	• By the end of 2027, traditional knowledge systems will be formally integrated into national biodiversity management plans and school curricula, ensuring intergenerational transmission, cultural integrity, and alignment with Targets 12 and 21 of the global framework.
10. By 2030, Funafuti has implemented a biodiversity-sensitive urban plan that safeguards remaining native vegetation and coastal ecosystems.	Target 12	• The inclusion of 3 islands is recommended to extend more coverage. • Consider inclusion of target 12.	• By the end of 2030, biodiversity-sensitive urban plans will be implemented in Funafuti and at least two additional islands, safeguarding remaining native vegetation and coastal ecosystems through inclusive planning and alignment with Target 12 of the global framework.
11. Tuvalu develops and implements national legislation on access and benefit-sharing (ABS) by 2026, ensuring alignment with the Nagoya Protocol.	Target 13 Target 14	• Agree with the alignment • Consider inclusion of targets 13 and 14.	• By the end of 2026, Tuvalu will develop and implement national legislation on access and benefit-sharing (ABS), ensuring full alignment with the Nagoya Protocol and contributing to the fair and equitable sharing of benefits arising from the use of genetic resources, following Targets 13 and 14 of the global framework.
12. By 2027, biodiversity considerations are fully integrated into national and island development planning, including “Te Kete” and the Corporate Plans.	Target 14 Target 15 Target 16	• Agree with the alignment • Consider targets 14, 15 and 16.	• By the end of 2027, biodiversity considerations will be fully mainstreamed into national and island-level development planning processes, including “Te Kete” and Corporate Plans, ensuring ecological integrity, inclusive governance, and alignment with Targets 14,

			15, and 16 of the global framework.
13. By 2026, Tuvalu develops a biodiversity finance plan and mobilizes at least USD 3 million in external and domestic resources for NBSAP implementation.	Target 19	• Agree • Consider target 19	• By the end of 2026, Tuvalu will develop and operationalize a national biodiversity finance plan, mobilizing at least USD 3 million in external and domestic resources to support the effective implementation of the NBSAP, in alignment with Target 19 of the global framework.
14. By 2030, at least 75% of government staff in key ministries and Kaupule representatives are trained in biodiversity management and planning.	Target 17	• Agree • Consider target 17	• By the end of 2030, at least 75% of government staff in key ministries and Kaupule representatives will have received certified training in biodiversity management and planning, strengthening institutional capacity and contributing to the effective implementation of national biodiversity goals in alignment with Target 17 of the global framework.
15. By 2026, Tuvalu establishes a national biodiversity database linked to ORT and Te Kakeega indicators.	Target 21	• The Department of Environment and other key stakeholders like the Department of Agriculture and Fisheries to take part in this Target 15. • Consider target 21 of the global framework.	• By the end of 2026, Tuvalu will establish a national biodiversity database that is interoperable with ORT and Te Kakeega indicators, developed in collaboration with the Department of Environment, Agriculture, Fisheries, and other key stakeholders, in alignment with Target 21 of the global framework.
16. By 2030, all schools and communities implement at least one biodiversity awareness campaign per year using local languages and media.	Target 15 Target 22	• The inclusive of the Environment Day and other awareness programmes must be part of this Target 16.	• By 2030, all schools and communities will implement at least one biodiversity awareness campaign annually, utilizing local languages and media, and actively

		Consider targets 15 and 22 of the global framework.	participate in national events such as Environment Day and other culturally relevant programmes, in alignment with Targets 15 and 22 of the global framework.
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Following extensive stakeholder consultations and iterative refinement, the following matrix confirms the validated 16 national targets for Tuvalu’s NBSAP (2025-2030). These targets reflect national priorities, ecological realities, and global biodiversity commitments, and are designed to guide coordinated action across government, communities, and partners.

Table 6: Validated NBSAP 2025–2030 Targets Matrix

Target No.	Validated Target Statement
Target 1	By the end of 2030, all inhabited islands of Tuvalu will have biodiversity-inclusive land-use and marine spatial plans that incorporate traditional knowledge and are guided by Strategic Plans, ensuring alignment with inclusive national processes.
Target 2	By 2030, Tuvalu will conserve and effectively manage at least 10% of marine and terrestrial ecosystems through formal and community-based conservation areas. To ensure credibility, this target will be supported by baseline values, quantitative indicators (e.g., hectares conserved, % of MPAs), and a clear methodology for measuring progress, aligned with national data systems and regional reporting frameworks.
Target 3	By the end of 2030, priority native species such as the forest gecko, green turtle, and key seabirds, will be protected under species recovery plans integrated into Island Strategic Plans (ISPs), with measurable improvements in population health, consistent with global biodiversity targets.
Target 4	By the end of 2030, all inhabited islands will have active invasive species management plans that include prevention, early detection, and both in situ and ex situ control measures, targeting priority species such as rats, crown-of-thorns starfish, and invasive weeds like <i>Leucaena</i> .
Target 5	By the end of 2030, pollution from land-based sources, including sewage, agricultural runoff, and plastics, will be reduced by at least 50% in vulnerable marine and coastal habitats through integrated management approaches aligned with national priorities and Target 7 of the global framework.
Target 6	By the end of 2030, ecosystem-based adaptation (EbA) measures will be systematically integrated into all national climate change policies and frameworks, and effectively implemented in at least six outer islands, contributing to local resilience and Target 8 of the global framework.
Target 7	By the end of 2030, all outer islands will have established and enforced sustainable harvesting limits for key coastal resources, including fisheries, sea cucumbers, giant clams, and nesting seabirds, and ensuring long-term ecosystem integrity and equitable access, aligned with Targets 10 and 16 of the global framework.
Target 8	By the end of 2030, agro-biodiversity, including culturally significant crops such as taro, pandanus, and <i>pulaka</i> will be conserved and enhanced across all islands, with at least three

	islands hosting agroforestry demonstration sites and community-managed Gene Banks, contributing to climate resilience and Targets 8 and 10 of the global framework.
Target 9	By the end of 2027, traditional knowledge systems will be formally integrated into national biodiversity management plans and school curricula, ensuring intergenerational transmission, cultural integrity, and alignment with Targets 12 and 21 of the global framework.
Target 10	By the end of 2030, biodiversity-sensitive urban plans will be implemented in Funafuti and at least two additional islands, safeguarding remaining native vegetation and coastal ecosystems through inclusive planning and alignment with Target 12 of the global framework.
Target 11	By the end of 2026, Tuvalu will develop and implement national legislation on access and benefit-sharing (ABS), ensuring full alignment with the Nagoya Protocol and contributing to the fair and equitable sharing of benefits arising from the use of genetic resources, consistent with Targets 13 and 14 of the global framework.
Target 12	By the end of 2027, biodiversity considerations will be fully mainstreamed into national and island-level development planning processes, including <i>Te Kete</i> and Corporate Plans, ensuring ecological integrity, inclusive governance, and alignment with Targets 14, 15, and 16 of the global framework.
Target 13	By the end of 2026, Tuvalu will develop and operationalize a national biodiversity finance plan, mobilizing at least USD 3 million in external and domestic resources to support effective NBSAP implementation, aligned with Target 19 of the global framework.
Target 14	By the end of 2030, at least 75% of government staff in key ministries and Kaupule representatives will have received certified training in biodiversity management and planning, strengthening institutional capacity and contributing to national biodiversity goals, aligned with Target 17 of the global framework.
Target 15	By the end of 2026, Tuvalu will establish a national biodiversity database that is interoperable with ORT and <i>Te Kete</i> indicators, developed in collaboration with the Department of Environment, Agriculture, Fisheries, and other key stakeholders, aligned with Target 21 of the global framework.
Target 16	By the end of 2030, all schools and communities will implement at least one biodiversity awareness campaign annually, utilizing local languages and media, and actively participate in national events such as Environment Day and other culturally relevant programmes, aligned with Targets 15 and 22 of the global framework.

4.3 Crosswalk Table: Thematic Alignment and Enabling Conditions

Tuvalu's biodiversity strategy is anchored in thematic coherence and enabling conditions that connect global priorities with local realities. The crosswalk provides a high-level overview of how Tuvalu's key thematic areas, such as coastal restoration, species recovery, agroecology, and knowledge integration, align with the 23 targets of the Kunming-Montreal Global Biodiversity Framework (GBF).

This approach ensures that biodiversity is embedded across national development priorities rather than treated in isolation. It highlights the importance of policy coherence, community leadership, financing mechanisms, climate-biodiversity synergies, gender-responsive planning, and integration of traditional knowledge. Together, these enabling conditions provide the foundation for effective implementation.

The detailed thematic areas, mapped GBF targets, and implementation pathways are presented in **Section 5**, where Tuvalu’s priorities are outlined with clear objectives, strategic actions, indicators, and responsible agencies.

5. Thematic Areas

5.1 Introduction

Tuvalu’s National Biodiversity Strategy and Action Plan (NBSAP) 2025-2030 is organized around a set of priority thematic areas that reflect both the country’s ecological realities and its cultural values. These areas provide the operational backbone of the strategy, translating global commitments under the Kunming-Montreal Global Biodiversity Framework (GBF) into locally grounded actions.

Building on the enabling conditions outlined in Section 4.3, the thematic areas ensure that biodiversity is embedded across national development priorities and linking conservation with agriculture, fisheries, energy, education, infrastructure, and community well-being. Each thematic area is mapped to specific GBF targets, supported by enabling conditions such as policy coherence, financing mechanisms, traditional knowledge integration, and community leadership.

This cross-sectoral approach recognizes that biodiversity cannot be treated in isolation. It is interwoven with Tuvalu’s food security, climate resilience, cultural identity, and spiritual stewardship. By aligning thematic areas with global targets and local realities, Tuvalu’s NBSAP provides a framework that is both technically rigorous and culturally meaningful.

The following crosswalk table (Table 6) introduces the thematic areas, their alignment with GBF targets, enabling conditions, and implementation pathways. Subsequent subsections expand on each thematic area in detail, outlining objectives, strategic actions, indicators, and responsible agencies to guide implementation.

Table 7: Crosswalk Table - Thematic Alignment and Enabling Conditions

Thematic Area	Mapped GBF Target(s)	Enabling Conditions	Implementation Pathways
Coastal Ecosystem Restoration (e.g. mangroves, seagrass, coral)	GBF Targets 1, 2, 10	Community leadership, climate finance, and traditional ecological knowledge	Locally managed areas, seasonal closures, restoration rituals
Species Recovery and Restocking (e.g. giant clams, culturally significant fauna)	GBF Targets 4, 9, 12	Customary stewardship, youth engagement, and monitoring systems	Community hatcheries, faith-based outreach, and school programs
Agroecology and Sustainable Agriculture	GBF Targets 7, 10, 14	Gender-responsive planning, land use policy, and farmer training	Organic farming, seed saving, and integration with the Agriculture Sector Plan
Solar-Linked Biodiversity Monitoring	GBF Targets 19, 20, 23	Technical partnerships, digital tools, decentralized energy systems	Household solar systems with biodiversity sensors, open-access data platforms
Traditional Knowledge Integration	GBF Targets 21, 22	Cultural protocols, oral histories, spiritual stewardship	TK database, intergenerational learning, church-led conservation

Education and Youth Engagement	GBF Targets 14, 22	Curriculum reform, youth networks, and inclusive planning	Biodiversity clubs, school gardens, youth-led restoration
Disaster Risk Reduction and Climate Resilience	GBF Targets 8, 11, 13	Nature-based solutions, ecosystem services, policy coherence	Coastal buffers, ecosystem-based adaptation, integration with DRM plans
Protected and Locally Managed Areas	GBF Targets 3, 5, 6	Island Council mandates, enforcement capacity, and community validation	Customary zoning, participatory mapping, and local bylaws
Biodiversity Finance and Resource Mobilization	GBF Targets 18, 19	Donor engagement, fiscal integration, innovative finance tools	BIOFIN, blended finance, budget tagging
Monitoring, Evaluation, and Reporting	GBF Targets 20, 23	Indicator frameworks, community validation, and regional protocols	Citizen science, SPREP alignment, and national dashboard systems
Tuvalu National Environment Data Portal	GBF Targets 20, 21, 22, 23	Institutional coordination, open data standards, ICT infrastructure, and capacity-building for data management	Centralized repository for biodiversity and environment data; integration with WDPA and UNEP-WCMC platforms; alignment with SPREP regional reporting protocols; training for DOE and Kaupule staff on data entry, validation, and use

5.2 Priority Thematic Areas

5.2.1 Thematic Area 1: Coastal Ecosystem Restoration

Coastal ecosystems - mangroves, seagrass beds, and coral reefs are the frontline of Tuvalu's resilience. They protect shorelines from erosion, serve as nurseries for fish and invertebrates, and anchor cultural practices that connect communities to land and sea. Despite their ecological and spiritual importance, these ecosystems are under increasing pressure from sea level rise, coastal development, pollution, and overharvesting.

Restoration of coastal ecosystems is therefore a national priority, directly linked to GBF Targets 1, 2, and 10. Tuvalu's approach blends traditional ecological knowledge with modern adaptation, ensuring that restoration is not only technical but also cultural. Community leadership, climate finance, and spiritual stewardship form the enabling conditions for success.

Strategic actions under this thematic area include:

- Expanding locally managed areas and seasonal closures to allow ecosystems to regenerate.
- Scaling up mangrove planting and seagrass rehabilitation, led by Island Councils, women's groups, and youth networks.
- Integrating restoration rituals and blessings, reaffirming biodiversity as a sacred trust.
- Leveraging climate finance and partnerships to support coral nurseries, coastal buffers, and monitoring systems.

Together, these actions ensure that Tuvalu's coasts remain living sanctuaries that providing food, protection, and cultural meaning for generations to come.

5.2.2 Thematic Area 2: Species Recovery and Restocking

Species recovery is central to Tuvalu's biodiversity resilience, focusing on the restoration of ecologically and culturally significant species such as giant clams (*Tridacna spp.*), reef fish, and mangrove-associated fauna. These species are not only vital for food security and livelihoods but also hold deep cultural meaning, symbolizing abundance, stewardship, and community identity.

Declines in clam populations, overharvesting of reef species, and habitat degradation have underscored the urgency of recovery initiatives. Tuvalu's approach aligns with GBF Targets 4, 9, and 12, emphasizing the sustainable use of species, recovery of depleted populations, and equitable benefit-sharing.

Enabling conditions include customary stewardship practices, youth engagement, and robust monitoring systems. Traditional taboos (*tapu*) on harvesting, seasonal closures, and faith-based stewardship rituals provide a cultural foundation for species recovery, while modern hatcheries and monitoring tools strengthen ecological outcomes.

Strategic actions under this thematic area include:

- Establishing community hatcheries for giant clams and other culturally significant species, ensuring local ownership and participation.
- Promoting faith-based outreach and stewardship rituals, reinforcing biodiversity as a sacred trust.
- Expanding school programs and youth-led monitoring, integrating ecological education with hands-on conservation.
- Enhancing community-based data collection to track species recovery and inform adaptive management.
- Strengthening regional partnerships for technical support, particularly in aquaculture and species restocking.

Together, these actions ensure that Tuvalu's species recovery efforts are both scientifically sound and culturally rooted, restoring abundance to ecosystems while reaffirming traditional stewardship and intergenerational responsibility.

5.2.3 Thematic Area 3: Agro-ecology and Sustainable Agriculture

Agroecology is at the heart of Tuvalu's terrestrial resilience, linking food security, cultural identity, and ecological stewardship. Traditional agroforestry systems consisting of coconut, pandanus, breadfruit, and pulaka (*Cyrtosperma merkusii*) have sustained Tuvaluan communities for generations, providing nourishment, building materials, and cultural meaning. Yet these systems face mounting pressures from saltwater intrusion, invasive species, changing rainfall patterns, and the decline of traditional gardening practices.

Tuvalu's approach to agroecology aligns with GBF Targets 7, 10, and 14, emphasizing sustainable agriculture, ecosystem restoration, and equitable access to genetic resources. By

blending traditional practices with modern adaptation, Tuvalu seeks to safeguard agrobiodiversity while strengthening community resilience.

Enabling conditions include gender-responsive planning, supportive land use policies, and farmer training programs. Women's roles in seed saving, food preservation, and pulaka cultivation are recognized as essential to biodiversity resilience, while youth engagement ensures intergenerational transmission of ecological knowledge.

Strategic actions under this thematic area include:

- Expanding organic farming practices that reduce reliance on imported inputs and strengthen soil health.
- Establishing community seed banks to preserve traditional crop varieties and introduce climate-resilient species.
- Integrating agroecology into the Agriculture Sector Plan, ensuring policy coherence and budget support.
- Promoting farmer training and extension services, blending scientific innovation with traditional knowledge.
- Supporting gender-responsive initiatives, recognizing women's leadership in food security and ecological stewardship.

Together, these actions ensure that Tuvalu's agricultural systems remain productive, culturally meaningful, and resilient to climate change. Agroecology is not only about crops, it is about sustaining Tuvalu's way of life, weaving ecological integrity with cultural continuity.

5.2.4 Thematic Area 4: Solar-Linked Biodiversity Monitoring

Monitoring biodiversity is essential for adaptive management, yet Tuvalu's dispersed islands and limited infrastructure pose challenges for consistent data collection. Solar-linked monitoring offers an innovative solution, combining decentralized energy systems with digital tools to empower communities in tracking ecosystem health. By harnessing household solar systems and portable sensors, Tuvalu can generate real-time biodiversity data while strengthening energy resilience.

This thematic area aligns with GBF Targets 19, 20, and 23, which emphasize resource mobilization, knowledge sharing, and transparent reporting. It reflects Tuvalu's commitment to integrating modern technology with community-based stewardship, ensuring that monitoring is both accessible and culturally grounded.

Enabling conditions include technical partnerships, digital platforms such as the Tuvalu National Environment Data Portal, and decentralized energy systems. By linking solar energy to biodiversity monitoring, Tuvalu reduces reliance on centralized infrastructure while promoting open-access data sharing across communities and regional networks.

Strategic actions under this thematic area include:

- Deploying household solar systems with biodiversity sensors, enabling communities to track species presence, water quality, and ecosystem changes.

- Establishing open-access data platforms that integrate community observations with national reporting systems.
- Building technical partnerships with regional and international organizations to strengthen capacity in digital monitoring and data analysis.
- Training youth and local biodiversity committees to manage monitoring tools, ensuring intergenerational knowledge transfer.
- Integrating monitoring results into national dashboards and SPREP protocols, enhancing transparency and accountability.

Together, these actions ensure that Tuvalu’s biodiversity monitoring is resilient, decentralized, and community-driven, and powered by the sun and guided by both science and tradition.

5.2.5 Thematic Area 5: Traditional Knowledge Integration

Traditional knowledge is the living foundation of Tuvalu’s biodiversity governance. Rooted in oral histories, seasonal indicators, and spiritual stewardship, it provides ecological insights that are both practical and sacred. Practices such as *tapu* (restrictions on harvesting), *fatoaga* (communal gardening), and seasonal rituals have long guided sustainable resource use, ensuring balance between human needs and ecosystem health.

This thematic area aligns with GBF Targets 21 and 22, which emphasize the recognition of indigenous knowledge systems and the equitable participation of local communities in biodiversity planning. By formalizing and integrating traditional knowledge, Tuvalu strengthens its resilience while ensuring that biodiversity governance remains culturally meaningful.

Enabling conditions include cultural protocols, oral histories, and spiritual stewardship. The development of a national Traditional Knowledge and Indicators (TK) Database will serve as a bridge between ancestral wisdom and scientific monitoring, ensuring that traditional ecological cues are preserved and applied in modern adaptation strategies.

Strategic actions under this thematic area include:

- Establishing a TK Database to document oral histories, ecological indicators, and traditional practices, with clear access protocols to safeguard sensitive traditional knowledge. These protocols will ensure that customary rights, confidentiality, and benefit-sharing arrangements are respected, while allowing appropriate levels of access for communities, researchers, and policymakers.
- Promoting intergenerational learning, where elders, youth, and church groups collaborate to transmit ecological knowledge.
- Integrating traditional terminologies and directional language into biodiversity monitoring and climate forecasting.
- Embedding spiritual ceremonies and blessings into ecosystem restoration and species recovery initiatives.
- Strengthening church-led conservation programs, linking faith-based stewardship with biodiversity governance.

Together, these actions ensure that Tuvalu's biodiversity strategy is not only technically rigorous but spiritually grounded, weaving ancestral wisdom into national policy and global commitments.

5.2.6 Thematic Area 6: Education and Youth Engagement

Education and youth engagement are vital for sustaining Tuvalu's biodiversity strategy across generations. Young people are the custodians of future resilience, and their active involvement ensures that ecological knowledge, cultural values, and stewardship practices are carried forward. Schools, churches, and community networks provide natural platforms for embedding biodiversity awareness into daily life.

This thematic area aligns with GBF Targets 14 and 22, which emphasize inclusive participation and equitable access to biodiversity knowledge. By integrating biodiversity into curricula, extracurricular activities, and youth networks, Tuvalu ensures that conservation is not only a technical priority but also a lived experience for its next generation.

Enabling conditions include curriculum reform, youth networks, and inclusive planning processes. These conditions empower young people to take leadership roles in conservation, while ensuring that education systems reflect both scientific knowledge and traditional ecological wisdom.

Strategic actions under this thematic area include:

- Establishing biodiversity clubs in schools to promote hands-on learning and conservation activities.
- Developing school gardens and restoration projects, linking classroom learning with practical stewardship.
- Supporting youth-led monitoring and restoration initiatives, including coral nurseries, mangrove planting, and turtle monitoring.
- Integrating biodiversity into formal curricula, ensuring that ecological knowledge is taught alongside cultural values.
- Strengthening youth networks and leadership programs, enabling young people to participate in national and regional biodiversity dialogues.

Together, these actions ensure that Tuvalu's youth are not only beneficiaries of biodiversity resilience but active leaders in shaping it. Education and youth engagement weave ecological stewardship into the fabric of community life, ensuring continuity of knowledge, values, and action.

5.2.7 Thematic Area 7: Disaster Risk Reduction and Climate Resilience

Tuvalu's ecosystems are the nation's first line of defense against climate change and natural hazards. Coastal buffers such as mangroves, seagrass beds, and coral reefs reduce storm surge impacts, while agroforestry systems and pulaka pits provide food security during times of crisis. Strengthening biodiversity is therefore inseparable from reducing disaster risk and enhancing climate resilience.

This thematic area aligns with GBF Targets 8, 11, and 13, which emphasize minimizing ecosystem pressures, restoring degraded habitats, and integrating biodiversity into climate

adaptation strategies. Tuvalu's approach recognizes that nature-based solutions are not only ecological interventions but also cultural practices rooted in stewardship and community solidarity.

Enabling conditions include policy coherence across climate and disaster risk management plans, recognition of ecosystem services, and investment in nature-based solutions. By embedding biodiversity into disaster risk reduction frameworks, Tuvalu ensures that resilience is both ecological and social.

Strategic actions under this thematic area include:

- Expanding coastal buffers through mangrove planting, coral restoration, and seagrass rehabilitation to reduce storm surge and erosion.
- Promoting ecosystem-based adaptation strategies that integrate biodiversity into national climate policies and disaster risk management plans.
- Strengthening community preparedness by linking traditional indicators (seasonal cues, oral histories) with modern forecasting systems.
- Enhancing policy coherence, ensuring biodiversity and climate adaptation are mainstreamed across national development priorities.
- Leveraging regional partnerships and climate finance to scale up nature-based solutions and community-led resilience initiatives.

Together, these actions ensure that Tuvalu's biodiversity strategy directly contributes to disaster risk reduction and climate resilience, safeguarding lives, livelihoods, and cultural heritage in the face of intensifying climate impacts.

5.2.8 Thematic Area 8: Protected and Locally Managed Areas

Protected and locally managed areas are the cornerstone of Tuvalu's biodiversity governance. They safeguard critical habitats, sustain fisheries, and preserve cultural heritage sites, while empowering communities to take direct responsibility for stewardship. Island Councils, elders, and local biodiversity committees play a central role in defining boundaries, enforcing rules, and ensuring that conservation is rooted in customary practices.

This thematic area aligns with GBF Targets 3, 5, and 6, which emphasize expanding protected areas, halting species decline, and ensuring sustainable use of biodiversity. Tuvalu's approach prioritizes locally managed areas (LMAs) that blend customary zoning with modern conservation tools, ensuring that protection is both culturally legitimate and ecologically effective.

Enabling conditions include Island Council mandates, enforcement capacity, and community validation. By strengthening local governance structures, Tuvalu ensures that protected areas are not imposed from outside but emerge from community consensus and cultural protocols.

Strategic actions under this thematic area include:

- Expanding locally managed areas across islands, with clear zoning for conservation, sustainable use, and cultural practices.

- Developing participatory mapping processes to integrate traditional knowledge and ecological data into boundary-setting.
- Strengthening local bylaws and enforcement capacity, ensuring compliance through community validation and Island Council authority.
- Promoting community stewardship rituals, reaffirming the sacredness of protected areas.
- Linking LMAs to regional networks and SPREP protocols, ensuring alignment with Pacific conservation frameworks.

Together, these actions ensure that Tuvalu's protected and locally managed areas serve as living sanctuaries that anchor biodiversity, sustaining livelihoods, and preserving cultural identity for generations to come.

5.2.9 Thematic Area 9: Biodiversity Finance and Resource Mobilization

Sustaining Tuvalu's biodiversity strategy requires reliable and innovative financing. Traditional donor support remains essential, but new mechanisms are needed to ensure long-term resilience and reduce dependence on external aid. Biodiversity finance is therefore a critical thematic area, linking conservation goals with fiscal integration, innovative tools, and community ownership.

This thematic area aligns with GBF Targets 18 and 19, which emphasize mobilizing financial resources and ensuring equitable benefit-sharing. Tuvalu's approach blends conventional funding streams such as GEF, GCF, and bilateral partnerships, with innovative mechanisms like BIOFIN, blended finance models, and budget tagging. By embedding biodiversity into national fiscal frameworks, Tuvalu ensures that conservation is not treated as a separate agenda but as a core component of development planning.

Enabling conditions include donor engagement, fiscal integration, and innovative finance tools. Strong partnerships with regional and international institutions, combined with transparent financial management, provide the foundation for mobilizing and sustaining resources.

Strategic actions under this thematic area include:

- Expanding access to global climate and biodiversity funds (GEF, GCF, Adaptation Fund) to support priority projects.
- Implementing BIOFIN methodologies to integrate biodiversity into national budget frameworks and expenditure tracking.
- Developing blended finance models, combining public, private, and community contributions for ecosystem restoration.
- Introducing budget tagging to ensure biodiversity allocations are visible and accountable within national fiscal systems.
- Strengthening donor partnerships and reporting mechanisms, ensuring transparency and alignment with Tuvalu's priorities.

Together, these actions ensure that Tuvalu's biodiversity strategy is financially sustainable, resilient, accountable, and anchored in both global partnerships and local ownership.

5.2.10 Thematic Area 10: Monitoring, Evaluation, and Reporting

Effective monitoring, evaluation, and reporting (MER) are essential to ensure that Tuvalu's biodiversity strategy remains accountable, adaptive, and aligned with both national priorities and global commitments. MER provides the evidence base for decision-making, tracks progress against GBF targets, and strengthens transparency with communities, donors, and regional partners.

This thematic area aligns with GBF Targets 20 and 23, which emphasize strengthening knowledge systems, transparency, and participatory monitoring. Tuvalu's approach integrates community validation, citizen science, and regional protocols, ensuring that biodiversity data is not only technically accurate but also culturally meaningful.

Enabling conditions include indicator frameworks, community validation processes, and alignment with regional reporting systems such as SPREP protocols. By embedding MER into national dashboards and reporting platforms like the Tuvalu National Environment Data Portal, Tuvalu ensures that biodiversity outcomes are visible, measurable, and adaptable.

Strategic actions under this thematic area include:

- Developing national indicator frameworks that align with GBF targets and Tuvalu's NBSAP priorities.
- Promoting citizen science initiatives, empowering communities to collect and validate biodiversity data.
- Integrating community validation processes, ensuring that monitoring reflects local realities and cultural insights.
- Aligning MER systems with regional protocols (SPREP, Pacific Resilience Partnership) to strengthen coherence and comparability.
- Establishing a national biodiversity dashboard like the Tuvalu National Environment Data Portal, providing open-access data for policymakers, communities, and donors.
- Ensuring regular reporting to CBD and GBF frameworks, reinforcing Tuvalu's global commitments.

Together, these actions ensure that Tuvalu's biodiversity governance is transparent, adaptive, accountable, and grounded in both scientific rigor and community stewardship. Monitoring, evaluation, and reporting close the loop of the NBSAP, ensuring that progress is measured, lessons are learned, and resilience is strengthened for generations to come.

5.2.11 Thematic Area 11: Tuvalu National Environment Data Portal

The Tuvalu National Environment Data Portal (TNEDP) serves as the central hub for biodiversity and environmental information, ensuring that data is accessible, validated, and aligned with both national priorities and global reporting frameworks. By consolidating datasets into a single platform, the portal strengthens institutional coordination, supports evidence-based decision-making, and enhances transparency for communities, policymakers, and donors.

This thematic area aligns with GBF Targets 20, 21, 22, and 23, which emphasize knowledge-sharing, open data standards, capacity-building, and participatory monitoring. The TNEDP

ensures that Tuvalu’s biodiversity data is not only technically robust but also integrated into regional and global systems, reinforcing Tuvalu’s role as a transparent and accountable steward of its environment.

Enabling conditions include ICT infrastructure, open data standards, and capacity-building for data management. Training for Department of Environment (DOE) and Kaupule staff ensures that data entry, validation, and use are consistent and culturally grounded. Integration with platforms such as the World Database on Protected Areas (WDPA) and UNEP-WCMC enhances Tuvalu’s visibility in global biodiversity assessments, while alignment with SPREP regional reporting protocols ensures coherence across the Pacific.

Strategic actions under this thematic area include:

- Establishing the TNEDP as a centralized repository for biodiversity and environment data.
- Integrating datasets with global platforms such as WDPA and UNEP-WCMC to strengthen Tuvalu’s international reporting.
- Aligning data management processes with SPREP protocols to ensure regional comparability.
- Building ICT infrastructure and open data standards to support long-term sustainability of the portal.
- Providing training and capacity-building for DOE and Kaupule staff on data entry, validation, and effective use of the portal.
- Promoting open-access principles, ensuring that communities, policymakers, and donors can engage with biodiversity data transparently.

Together, these actions embed Tuvalu’s biodiversity knowledge into a living, accessible system that supports monitoring, evaluation, and reporting. The TNEDP ensures that data is not only collected but actively used to guide decisions, strengthen resilience, and uphold Tuvalu’s commitments under the GBF and CBD frameworks. By making biodiversity information visible and actionable, the portal closes the gap between science, policy, and community stewardship, ensuring that Tuvalu’s environmental governance remains adaptive, transparent, and future-focused.

5.3 Integration Notes to Thematic Areas

The following Table.... outlines how Tuvalu’s ten thematic areas were identified through national consultations, ecosystem assessments, and cultural dialogues. Each thematic area reflects a strategic priority for biodiversity conservation and restoration, and is mapped to relevant Global Biodiversity Framework (GBF) targets and goals to ensure international alignment.

Box.1 highlights the main Goals of the GBF and Box.2 the 23 targets.

Table 8: Thematic Areas and Strategic Alignment (2025–2030)

Thematic Area	Strategic Focus	Mapped GBF Targets	Aligned GBF Goals	SMART Action Targets (2025–2030)	Responsible Agencies
1. Coastal Ecosystem Restoration	Restore mangroves, seagrass beds, and coral habitats	1, 2, 10	A, B	- Rehabilitate 5 ha of mangroves in all islands. - Establish coral nurseries in 3 sites by 2027	Dept. of Environment, Island Councils, Fisheries Division
2. Species Recovery and Restocking	Protect and restock culturally significant species (e.g. giant clams, turtles)	4, 9, 12	A, B	- Restock 10,000 giant clams by 2028 - Monitor turtle nesting sites annually in 4 islands	Fisheries Division, Elders Council, NGOs
3. Agroecology and Sustainable Agriculture	Promote climate-resilient, biodiversity-friendly farming practices	7, 10, 14	B, C	- Train 100 farmers in agroecology by 2026 - Establish 5 demonstration plots across outer islands	Agriculture Dept., Women's Groups, Youth Networks, Island Councils
4. Solar-Linked Biodiversity Monitoring	Use solar infrastructure to support biodiversity data collection and community monitoring	19, 20, 23	D, E	- Install solar-powered monitoring kits in 8 sites - Train 30 community monitors by 2027	Dept. of Environment, Matt Consultancy, Island Councils
5. Traditional Knowledge Integration	Document and apply traditional ecological knowledge in biodiversity planning	21, 22	D	- Record 20 traditional practices by 2028 - Integrate TK into 3 ecosystem management plans	Elders Council, Home Affairs Department, Church Leaders, Dept. of Environment
6. Education and Youth Engagement	Embed biodiversity values in schools, youth programs, and public awareness	14, 22	D	- Deliver biodiversity curriculum in all primary schools by 2028 - Host 10 youth-led biodiversity events annually	Ministry of Education, Youth Groups, Dept. of Environment

7. Disaster Risk Reduction and Climate Resilience	Integrate biodiversity into climate adaptation and disaster preparedness	8, 11, 13	A	- Pilot ecosystem-based adaptation in 2 atolls by 2027 - Include biodiversity safeguards in 100% of new coastal infrastructure	Climate Change Unit, Infrastructure Dept., Matt Consultancy, Disaster Department
8. Protected and Locally Managed Areas	Expand and strengthen community-managed conservation zones	3, 5, 6	A, B	- Designate 3 new Locally Managed Marine Areas (LMMAs) by 2026 - Develop co-management plans for 5 existing sites	Fisheries Division, Island Councils, NGOs, Dept. of Environment
9. Biodiversity Finance and Resource Mobilization	Secure funding and partnerships for biodiversity implementation	18, 19	D	- Establish biodiversity funding mechanism by 2027 - Secure 3 multi-year donor agreements by 2026	Dept. of Environment, Finance Ministry, Donor Focal Points
10. Monitoring, Evaluation, and Reporting	Strengthen national systems for biodiversity tracking and reporting	20, 23	B	- Launch national biodiversity dashboard by 2026 - Submit biennial NBSAP progress reports to CBD	Dept. of Environment, Statistics Office, Regional Partners
11. Tuvalu National Environment Data Portal	Establish centralized repository for biodiversity and environment data; strengthen institutional coordination and open data standards	20, 21, 22, 23	C, D	- Launch TNEDP as a national biodiversity dashboard by 2026. - Integrate datasets with WDPA and UNEP-WCMC by 2027. - Align reporting with SPREP protocols by 2028. - Train DOE and Kaupule staff on data entry,	Dept. of Environment, Kaupule Councils, ICT Unit, SPREP

validation, and use (ongoing).					

Box 1: Note to the KMGBF GOALS 2050

GOAL A: Protect and Restore

The integrity, connectivity, and resilience of all ecosystems are maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050;

Human-induced extinction of known threatened species is halted, and, by 2050, the extinction rate and risk of all species are reduced tenfold, and the abundance of native wild species is increased to healthy and resilient levels.

The genetic diversity within populations of wild and domesticated species is maintained, safeguarding their adaptive potential.

GOAL B: Prosper with Nature

Biodiversity is sustainably used and managed and nature's contributions to people, including ecosystem functions and services, are valued, maintained, and enhanced, with those currently in decline being restored, supporting the achievement of sustainable development for the benefit of present and future generations by 2050.

GOAL C: Share Benefits Fairly

The monetary and non-monetary benefits from the utilization of genetic resources and digital sequence information on genetic resources, and of traditional knowledge associated with genetic resources, as applicable, are shared fairly and equitably, including, as appropriate with indigenous peoples and local communities, and substantially increased by 2050, while ensuring traditional knowledge associated with genetic resources is appropriately protected, thereby contributing to the conservation and sustainable use of biodiversity, in accordance with internationally agreed access and benefit-sharing instruments.

GOAL D: Invest and Collaborate

Adequate means of implementation, including financial resources, capacity-building, technical and scientific cooperation, and access to and transfer of technology to fully implement the Kunming-Montreal Global Biodiversity Framework are secured and equitably accessible to all Parties, especially developing country Parties, in particular the least developed countries and small island developing States, as well as countries with economies in transition, progressively closing the biodiversity finance gap of \$700 billion per year, and aligning financial flows with the Kunming-Montreal Global Biodiversity Framework and the 2050 Vision for biodiversity.

5.4 Global targets for 2030

The Kunming-Montreal Global Biodiversity Framework has 23 action-oriented global targets for urgent action over the decade to 2030. The actions set out in each target need to be initiated immediately and completed by 2030. Together, the results will enable achievement towards the outcome-oriented goals for 2050. Actions to reach these targets should be implemented consistently and in harmony with the Convention on Biological Diversity and its Protocols, and other relevant international obligations, taking into account national circumstances, priorities and socioeconomic conditions.

Table 9: The 23 Global Targets for 2030

Targets	Implementation statement
I. Reducing threats to biodiversity	
TARGET 1: Plan and Manage all Areas To Reduce Biodiversity Loss	Ensure that all areas are under participatory, integrated and biodiversity inclusive spatial planning and/or effective management processes addressing land- and sea-use change, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of indigenous peoples and local communities.
TARGET 2: Restore 30% of all Degraded Ecosystems	Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and marine and coastal ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.
TARGET 3: Conserve 30% of Land, Waters and Seas	Ensure and enable that by 2030 at least 30 per cent of terrestrial and inland water areas, and of marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories, where applicable, and

	integrated into wider landscapes, seascapes and the ocean, while ensuring that any sustainable use, where appropriate in such areas, is fully consistent with conservation outcomes, recognizing and respecting the rights of indigenous peoples and local communities, including over their traditional territories.
TARGET 4: Halt Species Extinction, Protect Genetic Diversity, and Manage Human-Wildlife Conflicts	Ensure urgent management actions to halt human induced extinction of known threatened species and for the recovery and conservation of species, in particular threatened species, to significantly reduce extinction risk, as well as to maintain and restore the genetic diversity within and between populations of native, wild and domesticated species to maintain their adaptive potential, including through in situ and ex situ conservation and sustainable management practices, and effectively manage human-wildlife interactions to minimize human-wildlife conflict for coexistence.
TARGET 5: Ensure Sustainable, Safe and Legal Harvesting and Trade of Wild Species	Ensure that the use, harvesting and trade of wild species is sustainable, safe and legal, preventing overexploitation, minimizing impacts on non-target species and ecosystems, and reducing the risk of pathogen spillover, applying the ecosystem approach, while respecting and protecting customary sustainable use by indigenous peoples and local communities.
TARGET 6: Reduce the Introduction of Invasive Alien Species by 50% and Minimize Their Impact	Eliminate, minimize, reduce and or mitigate the impacts of invasive alien species on biodiversity and ecosystem services by identifying and managing pathways of the introduction of alien species, preventing the introduction and establishment of priority invasive alien species, reducing the rates of introduction and establishment of other known or potential invasive alien species by at least 50 per cent by 2030, and eradicating or controlling invasive alien species, especially in priority sites, such as islands.
TARGET 7: Reduce Pollution to Levels That Are Not Harmful to Biodiversity	Reduce pollution risks and the negative impact of pollution from all sources by 2030, to levels that are not harmful to biodiversity and ecosystem functions and services, considering cumulative effects, including: (a) by reducing excess nutrients lost to the environment by at least half, including through more efficient nutrient cycling and use; (b) by reducing the overall risk from pesticides and highly hazardous chemicals by at least half, including through integrated pest management, based on science, taking into account food security and livelihoods; and (c) by preventing, reducing, and working towards eliminating plastic pollution.
TARGET 8: Minimize the Impacts of Climate Change on Biodiversity and Build Resilience	Minimize the impact of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, including through nature-based solutions and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.
2. Meeting people's needs through sustainable use and benefit-sharing	
TARGET 9: Manage Wild Species Sustainably To Benefit People	Ensure that the management and use of wild species are sustainable, thereby providing social, economic and environmental benefits for people, especially those in vulnerable situations and those most dependent on biodiversity, including through sustainable biodiversity-based activities, products and services that enhance biodiversity, and protecting and encouraging customary sustainable use by indigenous peoples and local communities.
TARGET 10: Enhance Biodiversity and Sustainability in Agriculture, Aquaculture, Fisheries, and Forestry	Ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably, in particular through the sustainable use of biodiversity, including through a substantial increase of the application of biodiversity friendly practices, such as sustainable intensification, agroecological and other innovative approaches, contributing to the resilience and long-term efficiency and productivity of these production systems, and to food security, conserving and restoring biodiversity and maintaining nature's contributions to people, including ecosystem functions and services.
TARGET 11: Restore, Maintain and Enhance Nature's Contributions to People	Restore, maintain and enhance nature's contributions to people, including ecosystem functions and services, such as the regulation of air, water and climate, soil health, pollination and reduction of disease risk, as well as protection from natural hazards and disasters, through nature-based solutions and/or ecosystem-based approaches for the benefit of all people and nature.
TARGET 12: Enhance Green Spaces and Urban Planning for Human Well-Being and Biodiversity	Significantly increase the area and quality, and connectivity of, access to, and benefits from green and blue spaces in urban and densely populated areas sustainably, by mainstreaming the conservation and sustainable use of biodiversity, and ensure biodiversity-inclusive urban planning, enhancing native biodiversity, ecological connectivity and integrity, and improving human health and well-being and connection to nature, and contributing to inclusive and sustainable urbanization and to the provision of ecosystem functions and services.
TARGET 13: Increase the Sharing of Benefits From Genetic Resources, Digital Sequence Information and Traditional Knowledge	Take effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and from digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources, and facilitating appropriate access to genetic resources, and by 2030, facilitating a significant increase of the benefits shared, in accordance with applicable international access and benefit-sharing instruments.
3. Tools and solutions for implementation and mainstreaming	
TARGET 14: Integrate Biodiversity in Decision-Making at Every Level	Ensure the full integration of biodiversity and its multiple values into policies, regulations, planning and development processes, poverty eradication strategies, strategic environmental assessments, environmental impact assessments and, as appropriate, national accounting, within and across all levels of government and across all sectors, in particular those with significant impacts on biodiversity, progressively aligning all relevant public and private activities, and fiscal and financial flows with the goals and targets of this framework.
TARGET 15: Businesses Assess, Disclose and Reduce Biodiversity-Related Risks and Negative Impacts	Take legal, administrative or policy measures to encourage and enable business, and in particular to ensure that large and transnational companies and financial institutions: (a) Regularly monitor, assess, and transparently disclose their risks, dependencies and impacts on biodiversity, including with requirements for all large as well as transnational companies and financial institutions along their operations, supply and value chains, and portfolios; (b) Provide information needed to consumers to promote sustainable consumption patterns; (c) Report on compliance with access and benefit-sharing regulations and measures, as applicable;

	in order to progressively reduce negative impacts on biodiversity, increase positive impacts, reduce biodiversity-related risks to business and financial institutions, and promote actions to ensure sustainable patterns of production.
TARGET 16: Enable Sustainable Consumption Choices To Reduce Waste and Overconsumption	Ensure that people are encouraged and enabled to make sustainable consumption choices, including by establishing supportive policy, legislative or regulatory frameworks, improving education and access to relevant and accurate information and alternatives, and by 2030, reduce the global footprint of consumption in an equitable manner, including through halving global food waste, significantly reducing overconsumption and substantially reducing waste generation, in order for all people to live well in harmony with Mother Earth.
TARGET 17: Strengthen Biosafety and Distribute the Benefits of Biotechnology	Establish, strengthen capacity for, and implement in all countries, biosafety measures as set out in Article 8(g) of the Convention on Biological Diversity and measures for the handling of biotechnology and distribution of its benefits as set out in Article 19 of the Convention.
TARGET 18: Reduce Harmful Incentives by at Least \$500 Billion per Year, and Scale Up Positive Incentives for Biodiversity	Identify by 2025, and eliminate, phase out or reform incentives, including subsidies, harmful for biodiversity, in a proportionate, just, fair, effective and equitable way, while substantially and progressively reducing them by at least \$500 billion per year by 2030, starting with the most harmful incentives, and scale up positive incentives for the conservation and sustainable use of biodiversity.
TARGET 19: Mobilize \$200 Billion per Year for Biodiversity From all Sources, Including \$30 Billion Through International Finance	Substantially and progressively increase the level of financial resources from all sources, in an effective, timely and easily accessible manner, including domestic, international, public and private resources, in accordance with Article 20 of the Convention, to implement national biodiversity strategies and action plans, mobilizing at least \$200 billion per year by 2030, including by: (a) Increasing total biodiversity related international financial resources from developed countries, including official development assistance, and from countries that voluntarily assume obligations of developed country Parties, to developing countries, in particular the least developed countries and small island developing States, as well as countries with economies in transition, to at least \$20 billion per year by 2025, and to at least \$30 billion per year by 2030; (b) Significantly increasing domestic resource mobilization, facilitated by the preparation and implementation of national biodiversity finance plans or similar instruments according to national needs, priorities and circumstances; (c) Leveraging private finance, promoting blended finance, implementing strategies for raising new and additional resources, and encouraging the private sector to invest in biodiversity, including through impact funds and other instruments; (d) Stimulating innovative schemes such as payment for ecosystem services, green bonds, biodiversity offsets and credits, and benefit-sharing mechanisms, with environmental and social safeguards; (e) Optimizing co-benefits and synergies of finance targeting the biodiversity and climate crises; (f) Enhancing the role of collective actions, including by indigenous peoples and local communities, Mother Earth centric actions[1] and non-market-based approaches including community based natural resource management and civil society cooperation and solidarity aimed at the conservation of biodiversity; (g) Enhancing the effectiveness, efficiency and transparency of resource provision and use;
TARGET 20: Strengthen Capacity-Building, Technology Transfer, and Scientific and Technical Cooperation for Biodiversity	Strengthen capacity-building and development, access to and transfer of technology, and promote development of and access to innovation and technical and scientific cooperation, including through South-South, North-South and triangular cooperation, to meet the needs for effective implementation, particularly in developing countries, fostering joint technology development and joint scientific research programmes for the conservation and sustainable use of biodiversity and strengthening scientific research and monitoring capacities, commensurate with the ambition of the goals and targets of the Framework.
TARGET 21: Ensure That Knowledge Is Available and Accessible To Guide Biodiversity Action	Ensure that the best available data, information and knowledge are accessible to decision makers, practitioners and the public to guide effective and equitable governance, integrated and participatory management of biodiversity, and to strengthen communication, awareness-raising, education, monitoring, research and knowledge management and, also in this context, traditional knowledge, innovations, practices and technologies of indigenous peoples and local communities should only be accessed with their free, prior and informed consent,[2] in accordance with national legislation.
TARGET 22: Ensure Participation in Decision-Making and Access to Justice and Information Related to Biodiversity for all	Ensure the full, equitable, inclusive, effective and gender-responsive representation and participation in decision-making, and access to justice and information related to biodiversity by indigenous peoples and local communities, respecting their cultures and their rights over lands, territories, resources, and traditional knowledge, as well as by women and girls, children and youth, and persons with disabilities and ensure the full protection of environmental human rights defenders.
TARGET 23: Ensure Gender Equality and a Gender-Responsive Approach for Biodiversity Action	Ensure gender equality in the implementation of the Framework through a gender-responsive approach, where all women and girls have equal opportunity and capacity to contribute to the three objectives of the Convention, including by recognizing their equal rights and access to land and natural resources and their full, equitable, meaningful and informed participation and leadership at all levels of action, engagement, policy and decision-making related to biodiversity.

6. Implementation Plan

The successful implementation of Tuvalu’s NBSAP 2025-2030 depends on coordinated action across government agencies, Island Councils (Falekaupule and Kaupule), civil society organizations (CSOs), faith-based networks, and regional partners. This section outlines the institutional roles, timelines, capacity-building priorities, and enabling mechanisms that will guide delivery of the NBSAP’s strategic actions.

6.1 Roles and Responsibilities

Effective implementation of Tuvalu’s NBSAP 2025–2030 requires clarity of institutional roles and strong coordination across all levels of society. Each stakeholder contributes unique strengths—government agencies provide oversight, Island Councils enforce customary stewardship, civil society mobilizes communities, faith-based networks embed cultural values, and regional partners supply technical expertise. This section outlines the responsibilities of key actors to ensure accountability, coherence, and inclusivity in delivering the NBSAP’s strategic actions.

Table 10: Roles and Responsibilities Matrix

Stakeholder	Primary Responsibilities	Specific Contributions
Department of Environment (DOE)	Lead agency for NBSAP coordination, reporting, and technical oversight	• Monitor progress and align with GBF targets • Convene stakeholders through annual review forums • Maintain national biodiversity dashboard
Island Councils (Falekaupule & Kaupule)	Community-based conservation, restoration, and governance	• Integrate biodiversity into local development plans • Enforce customary protocols • Report annually to DOE on local initiatives
Civil Society Organizations (CSOs)	Outreach, education, monitoring, and advocacy	• Mobilize communities through awareness campaigns • Provide independent monitoring reports • Ensure gender and youth inclusion in biodiversity actions
Faith-Based & Cultural Networks	Spiritual stewardship and traditional knowledge integration	• Embed biodiversity themes in sermons, cultural events, and schools • Mobilize volunteers for restoration projects

		• Document and transmit traditional ecological knowledge
Regional Partners (SPREP, USP, SPC, UNDP)	Technical assistance, capacity-building, and regional coordination	• Provide training modules and technical expertise • Facilitate access to regional data systems • Support and maintain national data platforms like the Tuvalu National Environment Data Portal. • Support Tuvalu in securing regional funding
Line Ministries (Agriculture, Fisheries, Finance, Education)	Integrate biodiversity into sectoral policies and programs	• Align sectoral strategies with NBSAP targets • Mobilize resources through sectoral budgets • Participate in DOE-led coordination forums
Donor & Development Partners	Financial and technical support	• Provide multi-year funding commitments • Support innovation pilots (solar, restoration technologies) • Align reporting requirements with Tuvalu's monitoring framework

6.2 Timelines and Capacity-Building Priorities

The effective delivery of Tuvalu's NBSAP 2025–2030 requires a phased approach that balances immediate action with long-term sustainability. Clear timelines provide structure for implementation, while targeted capacity-building ensures that institutions, communities, and partners have the skills and resources needed to fulfill their roles. This section outlines the short, medium, and long-term milestones for NBSAP implementation, alongside the technical, institutional, and community-level capacity priorities that will enable Tuvalu to achieve its biodiversity targets. By sequencing actions and investing in people, the NBSAP creates a pathway for coordinated progress, resilience, and accountability across all levels of society.

Table 11: NBSAP 2025-2030 Implementation Timeline and Capacity-Building Matrix

Phase	Key Actions	Capacity-Building Priorities	Enabling Mechanisms
Short-Term (2025-2026)	• Establish National Biodiversity Steering Committee (DOE-led) as a replacement of the	• DOE staff training in project management & donor reporting	• Steering Committee operational • Annual stakeholder review forums

	previously proposed inter-ministerial taskforce • Develop local biodiversity action plans (Island Councils) • Launch awareness campaigns (CSOs, faith networks) • Pilot coastal restoration (mangroves, giant clams) & household solar	• Island Councils capacity in governance & customary enforcement • CSOs skills in advocacy & citizen science	• Communication strategy launched
Medium-Term (2027–2028)	• Scale up restoration & monitoring across islands • Integrate biodiversity into sectoral policies (agriculture, fisheries, education) • Strengthen national biodiversity data systems • Expand training in GIS, reporting, financial management	• Technical training in GIS & biodiversity monitoring • CSOs & councils trained in financial accountability • Youth & women's groups engaged in restoration leadership	• National biodiversity dashboard online • Regional partners provide training modules • Sectoral ministries align budgets with NBSAP
Long-Term (2029–2030)	• Consolidate biodiversity into national development cycles • Achieve measurable progress on 16 national targets & GBF alignment • Establish Biodiversity Fund with pooled donor/national resources • Document & replicate community-led stewardship models	• Advanced training in climate risk assessment & adaptation • Institutional strengthening for DOE & councils • Faith-based networks embed biodiversity in cultural practices	• Biodiversity Fund operational • Transparent reporting via dashboard • Regional sharing of successful Tuvaluan models

6.3 Implementation Risks

To ensure resilience and adaptability, the implementation plan identifies potential risks and provides a framework for risk assessment and management. Key risks include:

- *Staff turnover*: May result to loss of institutional knowledge and continuity.
- *Donor funding delays*: Will result to interruptions in project delivery and resource mobilization.
- *Political changes*: Will cause shifts in priorities or governance structures affecting implementation.
- *Climate emergencies*: May cause diversion of resources to immediate disaster response.

- *Regional partner capacity constraints:* May contribute to limited ability of partners to provide technical or financial support.
- *Other emerging risks:* Such as technological failures, community disengagement, or global economic shocks.

Risk Management Strategies:

- *Succession planning and capacity-building* to reduce vulnerability to staff turnover.
- *Diversified financing approaches* and contingency planning to mitigate donor funding delays.
- *Policy mainstreaming* to safeguard continuity across political cycles.
- *Emergency resource allocation frameworks* to balance climate disaster response with biodiversity priorities.
- *Strengthened regional coordination mechanisms* to address partner capacity constraints.
- *Adaptive management and monitoring* to identify and respond to emerging risks early.

6.4 Capacity-Building and Institutional Strengthening

Effective delivery of Tuvalu’s NBSAP depends on strong institutions, skilled practitioners, and empowered communities. Capacity-building is not only about technical skills; it also involves strengthening governance systems, integrating traditional knowledge, and fostering collaboration across sectors and islands. This section outlines the key areas where targeted investment will ensure that Tuvalu’s biodiversity strategy is implemented effectively, equitably, and sustainably. These actions will enable national and local actors to lead biodiversity conservation with confidence, cultural integrity, and long-term resilience. Strengthening efforts are not limited to:

- *Training and Mentorship:* Build capacity of Island Councils, youth, and elders in biodiversity monitoring, FPIC protocols, and restoration techniques.
- *Technical Infrastructure:* Establish digital platforms for biodiversity data, reporting, and knowledge sharing.
- *Policy and Legal Reform:* Strengthen biodiversity-related legislation, safeguards, and enforcement mechanisms.
- *Inter-Ministerial Coordination:* Create a Biodiversity Steering Committee to ensure cross-sectoral alignment and accountability.
- *Community Resource Centers:* Develop island-level hubs for biodiversity education, data collection, and outreach.
- *Regional Exchange:* Facilitate peer learning with other Pacific nations through SPREP and USP-led programs.

6.5 Enabling Mechanisms

The long-term success of Tuvalu’s NBSAP will depend on more than well-defined targets and actions; it requires the right systems, resources, and partnerships to sustain momentum. Enabling mechanisms provide the structural support that allows biodiversity initiatives to be

implemented effectively, monitored transparently, and adapted to changing circumstances. These mechanisms ensure that financing is secured, progress is tracked, lessons are applied, and public awareness remains high, so that biodiversity conservation is embedded in both national policy and everyday community life. These mechanisms may include:

- *National Biodiversity Financing Strategy*: Align domestic and international resources with NBSAP priorities.
- *Monitoring and Evaluation Framework*: Track progress using SMART indicators, community validation, and GBF-aligned metrics.
- *Annual Review and Adaptive Management*: Conduct yearly reviews to adjust strategies based on lessons learned and emerging challenges.
- *Communication and Outreach Strategy*: Promote biodiversity awareness through schools, churches, media, and cultural events.

Together, these enabling mechanisms will provide the foundation for coordinated, well-resourced, and adaptive implementation that create a direct bridge to the Monitoring, Evaluation, and Reporting framework outlined in Section 7.

6.6 Mapping of Strategic Actions to Validated National Targets (Tuvalu NBSAP 2030)

The validated national targets for Tuvalu’s NBSAP 2030 provide a clear vision of the country’s biodiversity priorities. However, achieving these targets requires a transparent alignment between strategic actions and the ecosystems or thematic areas they address. This mapping exercise ensures that each target is directly supported by concrete interventions, whether through conservation, restoration, governance, financing, or cultural integration. By linking actions to targets, Tuvalu demonstrates coherence in its biodiversity strategy, strengthens accountability for implementation, and provides a practical framework for monitoring progress.

The matrix below illustrates how strategic actions are organized under thematic areas and ecosystems, showing their direct contribution to the achievement of each validated target. It highlights cross-cutting measures such as mangrove restoration, traditional knowledge integration, and biodiversity mainstreaming that advance multiple targets simultaneously. This structured approach reassures partners and donors that resources and capacities are being directed toward measurable outcomes, while also ensuring that communities and institutions can clearly see their role in delivering Tuvalu’s biodiversity vision for 2030.

Table 12: Mapping of Strategic Actions to Validated National Targets

National Target	Thematic Area / Ecosystem	Strategic Action(s)
Target 1: Biodiversity-inclusive land-use & marine spatial plans on all inhabited islands	Coastal & Marine; Land Use Planning; Traditional Knowledge	Develop island-level biodiversity-inclusive spatial plans; integrate TK into planning; align ISPs with national strategies

Target 2: Conserve at least 10% of marine & terrestrial ecosystems	Coastal & Marine; Terrestrial Biodiversity	Establish formal and community-based conservation areas; strengthen management of MPAs and terrestrial reserves
Target 3: Species recovery plans for forest gecko, green turtle, seabirds	Terrestrial Biodiversity; Coastal & Marine	Develop and implement species recovery plans; integrate into ISPs; monitor population health
Target 4: Invasive species management plans on all inhabited islands	Terrestrial Biodiversity; Marine Ecosystems	Establish prevention and early detection systems; implement in situ and ex situ control for rats, crown-of-thorns starfish, and invasive weeds
Target 5: Reduce land-based pollution in marine/coastal habitats by 50%	Coastal & Marine; Agriculture; Waste Management	Strengthen sewage treatment; reduce agricultural runoff; implement plastic reduction campaigns
Target 6: Ecosystem-based adaptation integrated into climate policies & implemented in six outer islands	Climate Change Adaptation; Coastal & Marine	Mainstream EbA into national frameworks; restore mangroves and coastal vegetation; pilot EbA projects in outer islands
Target 7: Sustainable harvesting limits for coastal resources on all outer islands	Coastal & Marine; Fisheries	Establish and enforce harvesting limits for fisheries, sea cucumbers, giant clams, seabirds; community monitoring
Target 8: Conserve agro-biodiversity & establish agroforestry demonstration sites	Agriculture & Food Systems	Establish community-managed gene banks; promote agroforestry demonstration sites; conserve taro, pandanus, pulaka
Target 9: Integrate traditional knowledge into biodiversity plans & school curricula by 2027	Traditional Knowledge & Culture; Education	Develop TK database; integrate TK into curricula; support intergenerational transmission
Target 10: Biodiversity-sensitive urban plans in Funafuti & two other islands	Urban & Infrastructure; Coastal Ecosystems	Implement biodiversity-sensitive urban planning; safeguard native vegetation and coastal ecosystems
Target 11: Develop & implement ABS legislation by 2026	Governance; Legal Frameworks	Draft and enact ABS legislation; align with Nagoya Protocol; establish benefit-sharing mechanisms
Target 12: Mainstream biodiversity into national & island-level development planning by 2027	Governance; Planning	Integrate biodiversity into Te Kete and Corporate Plans; strengthen inclusive governance
Target 13: Develop biodiversity finance plan & mobilize USD 3 million by 2026	Financing & Capacity Building	Establish biodiversity finance plan; mobilize domestic and external resources; align with donor priorities
Target 14: Train 75% of government staff & Kaupule reps in biodiversity management by 2030	Capacity Building; Governance	Develop certified training programs; strengthen institutional capacity; mainstream biodiversity into ministry functions
Target 15: Establish national biodiversity database	Data & Monitoring; Governance	Develop national biodiversity database; ensure interoperability; coordinate across ministries

interoperable with ORT & Te Kete by 2026		
Target 16: Annual biodiversity awareness campaigns in schools & communities	Education; Traditional Knowledge; Culture	Conduct annual biodiversity campaigns; use local languages and media; integrate with Environment Day and cultural events

Integration Notes

- Each validated target is now explicitly linked to thematic areas and strategic actions.
- Cross-cutting actions (e.g., mangrove restoration contributing to both **Target 2** and **Target 6**) can be highlighted in your narrative.

6.7 Monitoring Framework: Indicators for Measuring Progress

Monitoring the implementation of Tuvalu's NBSAP requires a clear set of indicators that can track progress toward each validated national target. Indicators provide the evidence base for adaptive management, donor accountability, and alignment with the Kunming-Montreal Global Biodiversity Framework (GBF). Tuvalu will employ a combination of nationally developed indicators and adopted headline indicators from the GBF monitoring framework, ensuring both local relevance and global comparability.

Approach to Indicator Development

- *Nationally Developed Indicators:* Tailored to Tuvalu's ecological, cultural, and institutional context (e.g., number of islands with biodiversity-inclusive spatial plans, hectares of mangroves restored, percentage of households practicing agroforestry).
- *GBF Headline Indicators:* Adopted where appropriate to ensure alignment with global reporting (e.g., coverage of protected areas, Red List Index, proportion of degraded ecosystems under restoration).
- *Cross-Cutting Indicators:* Designed to capture actions that contribute to multiple targets (e.g., extent of mangrove restoration contributing to both ecosystem conservation and climate adaptation).

Table 13: Illustrative Indicator Matrix

National Target	Example National Indicator(s)	Relevant GBF Headline Indicator(s)
Target 1: Biodiversity-inclusive spatial plans	Number of islands with approved biodiversity-inclusive land-use and marine spatial plans	GBF Indicator 1.1: Proportion of land and sea area under integrated spatial planning
Target 2: Conserve 10% of ecosystems	Area (ha) of marine and terrestrial ecosystems under formal/community conservation	GBF Indicator 3.1: Coverage of protected areas
Target 3: Species recovery plans	Population trends of forest gecko, green turtle, seabirds	GBF Indicator 4.1: Red List Index
Target 4: Invasive species management	Number of islands with active invasive species management plans	GBF Indicator 6.1: Rate of invasive alien species spread

Target 5: Reduce land-based pollution	Reduction in nutrient loads and plastic waste in coastal waters	GBF Indicator 7.1: Pollution levels in ecosystems
Target 6: Ecosystem-based adaptation	Number of islands implementing EbA measures	GBF Indicator 8.1: Ecosystem resilience index
Target 7: Sustainable harvesting limits	Compliance rate with harvesting limits; catch per unit effort	GBF Indicator 10.1: Sustainability of wild species use
Target 8: Agro-biodiversity conservation	Number of community gene banks; diversity of traditional crops maintained	GBF Indicator 10.2: Genetic diversity of cultivated plants
Target 9: TK integration	Number of curricula integrating TK; TK database established	GBF Indicator 12.1: Recognition of TK in biodiversity planning
Target 10: Biodiversity-sensitive urban plans	Number of urban plans incorporating biodiversity safeguards	GBF Indicator 12.2: Integration of biodiversity into urban planning
Target 11: ABS legislation	ABS law enacted; number of ABS agreements signed	GBF Indicator 13.1: Implementation of ABS frameworks
Target 12: Mainstream biodiversity	Number of national/island plans with biodiversity mainstreamed	GBF Indicator 14.1: Integration of biodiversity into national planning
Target 13: Biodiversity finance plan	Amount of resources mobilized annually	GBF Indicator 19.1: Biodiversity finance mobilization
Target 14: Capacity building	Percentage of trained government staff and Kaupule reps	GBF Indicator 17.1: Capacity-building coverage
Target 15: Biodiversity database	Database operational and interoperable with ORT/Te Kete	GBF Indicator 21.1: Availability of biodiversity data
Target 16: Awareness campaigns	Number of campaigns conducted annually; participation rates	GBF Indicator 22.1: Public awareness of biodiversity

This monitoring framework ensures that Tuvalu’s progress toward its 16 validated national targets can be measured using both *locally relevant indicators* and *globally recognized headline indicators*. By combining national and GBF indicators, Tuvalu strengthens transparency, enhances comparability with international reporting, and provides a robust evidence base for adaptive management and donor confidence.

7. Monitoring, Evaluation, and Reporting

Effective monitoring, evaluation, and reporting (MER) are essential to ensure that Tuvalu’s NBSAP 2025-2030 delivers measurable results, remains aligned with the Kunming-Montreal Global Biodiversity Framework (KMGBF), and reflects the priorities of Tuvaluan communities. The MER system will combine scientific methods, traditional knowledge, and participatory approaches to track progress, identify challenges, and adapt strategies over time.

This framework will also ensure Tuvalu meets its obligations under the Convention on Biological Diversity (CBD) and contributes to the Sustainable Development Goals (SDGs),

while maintaining transparency and accountability to both national stakeholders and international partners.

7.1 Framework for Tracking Progress

To ensure that Tuvalu's NBSAP delivers measurable results and remains aligned with both national priorities and the Kunming-Montreal Global Biodiversity Framework (KMGBF), a clear and consistent monitoring framework is essential. This framework provides the structure for tracking progress across all eight thematic areas, linking local actions to global targets, and ensuring that data is collected, validated, and reported in a way that is transparent, inclusive, and actionable. It combines scientific methods with traditional knowledge, enabling Tuvalu to measure ecological, socio-economic, and governance outcomes while fostering community ownership of biodiversity stewardship.

- *Alignment with KMGBF and National Targets:* All SMART action targets from the eight thematic areas will be linked to relevant KMGBF targets and goals, ensuring global comparability and national relevance.
- *Indicator-Based Monitoring:* Use a mix of quantitative and qualitative indicators, including ecological health metrics (e.g., mangrove cover, species abundance), socio-economic measures (e.g., income from nature-based livelihoods), and governance indicators (e.g., FPIC compliance, gender representation).
- *Baseline and Target Setting:* Establish 2025 baselines for all indicators to measure progress toward 2030 targets.
- *Data Management:* Operate a centralized biodiversity database which is the Tuvalu National Environment Data Portal managed by the Department of Environment, integrating scientific surveys, community observations, and regional datasets.

7.2 Integration with CBD Reporting Tools and SDG Indicators

To ensure Tuvalu's biodiversity progress is visible, comparable, and impactful at both national and global levels, the NBSAP's monitoring system will be fully integrated with established international and regional reporting frameworks. This integration strengthens Tuvalu's ability to meet its obligations under the Convention on Biological Diversity (CBD), demonstrate contributions to the Sustainable Development Goals (SDGs), and align with regional environmental reporting systems. By harmonizing data collection and reporting processes, Tuvalu can reduce duplication, improve efficiency, and ensure that biodiversity outcomes are recognized in broader development and climate resilience agendas.

- *CBD Alignment:* Use the CBD's online reporting platform and KMGBF monitoring framework to ensure Tuvalu's reports are consistent with global standards.
- *SDG Linkages:* Map NBSAP indicators to relevant SDGs, particularly SDG 14 (Life Below Water), SDG 15 (Life on Land), SDG 13 (Climate Action), and SDG 5 (Gender Equality) to demonstrate biodiversity's contribution to sustainable development.

- *Regional and National Synergies:* Align with SPREP’s State of Environment reporting framework and Tuvalu’s national development plan indicators to avoid duplication and strengthen cross-sectoral reporting.

7.3 Community-Based Monitoring Protocols

Community-based monitoring is at the heart of Tuvalu’s approach to biodiversity stewardship. By empowering local people to observe, record, and interpret environmental changes, Tuvalu ensures that monitoring is not only technically robust but also culturally grounded and widely owned. These protocols combine traditional ecological knowledge with modern tools, creating a system that is both scientifically credible and socially inclusive. They also strengthen local capacity, foster intergenerational learning, and ensure that biodiversity data reflects the lived realities of communities across all islands.

- *Participatory Data Collection:* Train Island Councils, youth groups, women’s cooperatives, and elders to collect biodiversity data using both traditional ecological knowledge and modern tools (e.g., GPS, mobile apps, solar-powered sensors).
- *Validation and Feedback Loops:* Hold annual island-level review meetings where communities validate monitoring results and provide feedback on project effectiveness.
- *Knowledge Sharing:* Disseminate results through Tuvalu radio, church gatherings, schools, social media, and local notice boards to ensure transparency and encourage stewardship.

7.4 Reporting and Adaptive Management

Reporting and adaptive management are the mechanisms that turn monitoring data into informed action. They ensure that Tuvalu’s NBSAP remains a living, responsive strategy that is capable of evolving in step with environmental changes, community priorities, and emerging global commitments. By combining regular reporting with structured reviews and a culture of learning, Tuvalu can celebrate successes, address gaps, and refine approaches to maintain the momentum toward its 2030 biodiversity vision.

- *Annual Progress Reports:* The Department of Environment (DOE) will compile and publish annual NBSAP progress reports, integrating community-validated data and highlighting lessons learned. The reporting format will follow the Convention on Biological Diversity (CBD) templates. All reports and related information will be stored in the Tuvalu National Environment Data Portal, which will serve as a publicly accessible repository.
- *Mid-Term Review (2027):* Conduct a formal review to assess progress, adjust targets if necessary, and reallocate resources to priority areas.
- *Final Evaluation (2030):* Evaluate the overall impact of the NBSAP, document best practices, and prepare the foundation for the next strategic cycle.

- *Adaptive Management:* Use monitoring results to refine actions, ensuring that strategies remain relevant in the face of emerging threats such as climate change impacts or new invasive species.

This approach ensures that Tuvalu's biodiversity strategy is not static, but continually strengthened through evidence, community insight, and adaptive decision-making, and lays the groundwork for sustained conservation leadership beyond 2030.

8. Resource Mobilization Strategy and Financing

The main objective here is to secure sustained, predictable, and diversified financing for Tuvalu's biodiversity priorities by aligning domestic and international resources with the Kunming-Montreal Global Biodiversity Framework, phasing out harmful subsidies, and strengthening financial systems through expenditure reviews, cost estimates, and innovative mechanisms. This objective ensures that biodiversity actions are adequately funded, resilient to economic fluctuations, and reflective of Tuvalu's cultural and spiritual stewardship of nature.

The successful implementation of Tuvalu's NBSAP 2025-2030 will require sustained and predictable financing, supported by strong partnerships and innovative funding mechanisms. This Resource Mobilization Strategy outlines how Tuvalu will align domestic and international resources with its biodiversity priorities, in line with the Kunming-Montreal Global Biodiversity Framework (KMGBF) Target 19. It emphasizes a diversified approach, combining national budget allocations, donor engagement, private sector partnerships, and emerging finance opportunities, to ensure that biodiversity actions are adequately funded and resilient to economic fluctuations.

This strategy also aligns with regional frameworks such as the *Pacific Islands Framework for Nature Conservation and Protected Areas*, and global instruments including the *UNFCCC*, *CBD*, and the *SAMOA Pathway*, ensuring Tuvalu's eligibility for multi-source financing and technical cooperation.

8.1 Biodiversity Finance Plan

A clear and comprehensive biodiversity finance plan is the foundation for mobilizing and managing resources effectively. It ensures that every dollar invested is aligned with Tuvalu's NBSAP priorities, addresses identified funding gaps, and supports measurable outcomes. By linking this plan to KMGBF Target 19, Tuvalu will position itself to access global biodiversity finance while maintaining national ownership of its conservation agenda.

To achieve this, the following priority actions will guide the development and integration of the finance plan into national systems:

- *Expenditure Review:* Conduct a biodiversity literature expenditure review to establish a baseline of current financial flows across government, civil society, and partners.

- *Alignment with KMGBF Target 19:* Develop a comprehensive National Biodiversity Finance Plan by 2027, mapping current expenditures, identifying funding gaps, and aligning investment priorities with NBSAP targets.
- *Costing of GBF Actions:* Assign indicative budgets to each thematic area, ensuring transparency and enabling targeted fundraising.
- *Integration into National Budgeting:* Mainstream biodiversity financing into the annual budget cycle, ensuring that conservation is treated as a core development investment rather than an optional add-on.
- *Financial Risk Management:* Incorporate contingency planning and risk assessments to safeguard biodiversity investments against economic volatility and climate-related disruptions.
- *Results-Based Financing:* Explore performance-linked funding models where biodiversity outcomes, such as restored habitats or increased species populations, trigger disbursements and incentivize delivery.

8.2 Domestic Revenue Sources

While international support is vital, sustainable biodiversity financing must also be rooted in domestic revenue streams. By leveraging national assets, policy tools, and community-driven initiatives, Tuvalu can generate consistent funding that is less vulnerable to external shocks and donor cycles.

The following measures will be pursued to strengthen domestic revenue generation for biodiversity:

- *Environmental Levies and Fees:* Explore eco-levies on tourism services, fisheries licensing, and waste management to generate dedicated biodiversity funds.
- *Sovereign and Community Funds:* Allocate a portion of national trust funds or climate adaptation funds to biodiversity projects with co-benefits for resilience.
- *Public-Private Partnerships:* Engage local businesses in co-financing restoration, waste reduction, and eco-tourism initiatives.
- *Multi-Sectoral Co-Benefits:* Design biodiversity investments to deliver benefits across food security, health, climate resilience, and livelihoods to strengthen the case for integrated funding.

8.3 Donor Engagement

Strategic engagement with bilateral, multilateral, and charitable partners will be essential to secure the technical and financial resources needed for NBSAP implementation. Building long-

term, trust-based relationships will help Tuvalu attract multi-year commitments and align donor investments with national priorities.

To strengthen donor engagement and secure sustained support, Tuvalu will:

- *Bilateral and Multilateral Partners:* Strengthen relationships with GEF, GCF, Adaptation Fund, and bilateral donors to secure multi-year commitments.
- *Regional Mechanisms:* Leverage SPREP, SPC, and other Pacific platforms to access pooled funding and technical assistance.
- *Faith-Based and Charitable Networks:* Mobilize support from global church networks, foundations, and diaspora groups for culturally grounded biodiversity projects.
- *Cultural and Spiritual Stewardship:* Ensure that donor engagement reflects Tuvalu's values, where biodiversity financing supports both ecological integrity and sacred relationships between people and place.

8.4 Innovative Finance Mechanisms

Emerging finance tools offer new opportunities to link biodiversity conservation with climate action, waste reduction, and sustainable livelihoods. By tapping into these mechanisms, Tuvalu can diversify its funding base and unlock resources that go beyond traditional grants.

The following innovative mechanisms will be explored and developed:

- *Blue Carbon Initiatives:* Develop mangrove and seagrass restoration projects that can generate verified carbon credits, ensuring benefits flow to local communities.
- *Plastic Treaty Synergies:* Align waste reduction and recycling programs with emerging global plastic treaty financing mechanisms.
- *Blended Finance Models:* Combine grants, concessional loans if appropriate to Tuvalu, and private investment to scale biodiversity-friendly enterprises.
- *Payment for Ecosystem Services (PES):* Pilot PES schemes for water catchment protection, reef conservation, and pollination services.

8.5 Capacity for Resource Mobilization

Mobilizing resources is not only about finding funds; however, it's about having the skills, systems, and coordination to secure and manage them effectively. Strengthening institutional and human capacity will ensure Tuvalu can compete for funding, meet donor requirements, and deliver results.

To build the capacity needed for effective resource mobilization, Tuvalu will:

- *Training in Proposal Development:* Build the skills of DOE, Kaupule, and CSOs to prepare high-quality funding proposals that meet donor requirements.

- *Finance Tracking Systems:* Establish a transparent system to track biodiversity-related expenditures and outcomes.
- *Partnership Coordination:* Create a Biodiversity Finance Working Group to coordinate fundraising, avoid duplication, and share opportunities.

8.6 Monitoring and Accountability

Transparent and accountable use of biodiversity funds builds trust with donors, communities, and government stakeholders. Regular monitoring of financial flows and their impacts ensures that resources are used efficiently and equitably.

The following actions will ensure strong financial monitoring and accountability:

- *Annual Finance Reports:* Publish a yearly biodiversity finance report detailing sources, allocations, and impacts.
- *Donor Feedback Loops:* Maintain regular communication with funding partners to report progress, share lessons, and adapt financing strategies.
- *Community Oversight:* Involve Island Councils and local committees in reviewing how funds are used and ensuring benefits reach intended beneficiaries.

8.7 Review of Biodiversity-Harmful Subsidies

In line with KMGBF Target 18, Tuvalu will identify and review subsidies and incentives that negatively impact biodiversity. This process will highlight areas for policy reform, enabling financial flows to be redirected toward biodiversity-positive outcomes. Recommendations will be developed to phase out or repurpose harmful subsidies, ensuring coherence between national development and conservation priorities.

Strategic Actions:

- *Policy Dialogue:* Convene multi-stakeholder consultations with government, private sector, and communities to build consensus on subsidy reform.
- *Socio-Economic Assessment:* Evaluate the social and economic impacts of phasing out harmful subsidies, ensuring that reforms do not disadvantage vulnerable groups.
- *Redirection of Funds:* Explore opportunities to reallocate savings from subsidy reform into biodiversity-positive investments, such as ecosystem restoration or community-based conservation.
- *Legislative Integration:* Incorporate subsidy review outcomes into national legislation and budgetary frameworks to ensure long-term sustainability.
- *Monitoring and Reporting:* Establish indicators to track progress on subsidy reform and report annually as part of Tuvalu's biodiversity finance monitoring system.

8.8 Other Early Actions

Additional early actions will be undertaken to strengthen biodiversity finance, including:

- Piloting innovative financing instruments such as payment for ecosystem services (PES) and green bonds.
- Establishing monitoring frameworks to track biodiversity-related expenditures and outcomes.
- Capacity-building for financial planning and integration of biodiversity finance into broader development strategies.

By combining domestic commitment, international solidarity, and innovative financing, Tuvalu will secure the resources needed to protect its biodiversity, strengthen climate resilience, and uphold the cultural and spiritual values that define its stewardship of the natural world.

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Annexes

Annex 1: Tuvalu Refined Targets

Target No.	Validated Target Statement
Target 1	By the end of 2030, all inhabited islands of Tuvalu will have biodiversity-inclusive land-use and marine spatial plans that incorporate traditional knowledge and are guided by Strategic Plans, ensuring alignment with inclusive national processes.
Target 2	By the end of 2030, at least 10% of Tuvalu's marine and terrestrial ecosystems will be effectively conserved and managed through a combination of formal and community-based conservation areas, reflecting national capacity and ecological realities.
Target 3	By the end of 2030, priority native species such as the forest gecko, green turtle, and key seabirds will be protected under species recovery plans integrated into Island Strategic Plans (ISPs), with measurable improvements in population health, consistent with global biodiversity targets.
Target 4	By the end of 2030, all inhabited islands will have active invasive species management plans that include prevention, early detection, and both in situ and ex situ control measures, targeting priority species such as rats, crown-of-thorns starfish, and invasive weeds like <i>Leucaena</i> .
Target 5	By the end of 2030, pollution from land-based sources, including sewage, agricultural runoff, and plastics, will be reduced by at least 50% in vulnerable marine and coastal habitats through integrated management approaches aligned with national priorities and Target 7 of the global framework.
Target 6	By the end of 2030, ecosystem-based adaptation (EbA) measures will be systematically integrated into all national climate change policies and frameworks, and effectively implemented in at least six outer islands, contributing to local resilience and Target 8 of the global framework.
Target 7	By the end of 2030, all outer islands will have established and enforced sustainable harvesting limits for key coastal resources, including fisheries, sea cucumbers, giant clams, and nesting seabirds, and ensuring long-term ecosystem integrity and equitable access, aligned with Targets 10 and 16 of the global framework.
Target 8	By the end of 2030, agro-biodiversity, including culturally significant crops such as taro, pandanus, and <i>pulaka</i> will be conserved and enhanced across all islands, with at least three islands hosting agroforestry demonstration sites and community-managed Gene Banks, contributing to climate resilience and Targets 8 and 10 of the global framework.

Target 9	By the end of 2027, traditional knowledge systems will be formally integrated into national biodiversity management plans and school curricula, ensuring intergenerational transmission, cultural integrity, and alignment with Targets 12 and 21 of the global framework.
Target 10	By the end of 2030, biodiversity-sensitive urban plans will be implemented in Funafuti and at least two additional islands, safeguarding remaining native vegetation and coastal ecosystems through inclusive planning and alignment with Target 12 of the global framework.
Target 11	By the end of 2026, Tuvalu will develop and implement national legislation on access and benefit-sharing (ABS), ensuring full alignment with the Nagoya Protocol and contributing to the fair and equitable sharing of benefits arising from the use of genetic resources, consistent with Targets 13 and 14 of the global framework.
Target 12	By the end of 2027, biodiversity considerations will be fully mainstreamed into national and island-level development planning processes, including <i>Te Kete</i> and Corporate Plans, ensuring ecological integrity, inclusive governance, and alignment with Targets 14, 15, and 16 of the global framework.
Target 13	By the end of 2026, Tuvalu will develop and operationalize a national biodiversity finance plan, mobilizing at least USD 3 million in external and domestic resources to support effective NBSAP implementation, aligned with Target 19 of the global framework.
Target 14	By the end of 2030, at least 75% of government staff in key ministries and Kaupule representatives will have received certified training in biodiversity management and planning, strengthening institutional capacity and contributing to national biodiversity goals, aligned with Target 17 of the global framework.
Target 15	By the end of 2026, Tuvalu will establish a national biodiversity database that is interoperable with ORT and <i>Te Kete</i> indicators, developed in collaboration with the Department of Environment, Agriculture, Fisheries, and other key stakeholders, aligned with Target 21 of the global framework.
Target 16	By the end of 2030, all schools and communities will implement at least one biodiversity awareness campaign annually, utilizing local languages and media, and actively participate in national events such as Environment Day and other culturally relevant programmes, aligned with Targets 15 and 22 of the global framework.

Annex 2: Crosswalk tables (KMGBF ↔ Tuvalu Targets)

This table provides a structured comparison between the 23 KMGBF global targets and Tuvalu's 16 national biodiversity targets, showing areas of alignment, partial alignment, and opportunities for enhancement.

KMGBF Target	Tuvalu Target(s)	Alignment Level	Notes / Gaps
1. Spatial planning for biodiversity	T1, T3	✓Full	Tuvalu integrates marine closures and traditional zoning
2. Ecosystem restoration (30%)	T2, T4, T6	□ Partial	Restoration actions are underway; scale and metrics need expansion
3. Protect 30% of land/sea	T1, T3	✓Full	MPAs and community-managed areas contribute to 30% goal
4. Species recovery and conservation	T5, T6	□ Partial	Focus on culturally significant species; broader species list needed
5. Sustainable use of wild species	T5, T7	✓Full	Traditional harvesting protocols embedded in community practice
6. Invasive species management	T8	□ Partial	Coastal and agricultural invasive species noted; action plan needed
7. Pollution reduction	T9	□ Partial	Marine debris and runoff addressed; clearer targets needed
8. Climate resilience and biodiversity	T10, T11	✓Full	Strong integration of climate adaptation and ecosystem services
9. Sustainable agriculture/aquaculture	T7, T12	□ Partial	Agroecology and traditional farming promoted; aquaculture is emerging
10. Sustainable forestry	—	✗None	No formal forestry sector; not applicable in Tuvalu context
11. Urban biodiversity	T13	□ Partial	Limited urban footprint; focus on village greening and shade trees
12. Access and benefit sharing	T14	□ Partial	Traditional knowledge protected; ABS protocols under development
13. Genetic diversity	T14	□ Partial	Local crop and livestock varieties noted; documentation needed
14. Ecosystem services valuation	T11	✓Full	Coastal protection, food security, and spiritual values emphasized
15. Business impacts on biodiversity	—	✗None	No large-scale private sector; potential for future tourism standards
16. Sustainable consumption	T9	□ Partial	Waste reduction and reuse promoted; consumption metrics limited
17. Biodiversity-friendly subsidies	—	✗None	No formal subsidy system; opportunity for donor alignment
18. Resource mobilization	T15	✓Full	Donor engagement and co-financing strategies are in place
19. Capacity building	T16	✓Full	Community training and youth engagement are prioritized
20. Knowledge sharing	T14, T16	✓Full	Traditional knowledge and intergenerational learning are central
21. Gender equality	T16	□ Partial	Women's roles acknowledged; gender indicators can be strengthened
22. Rights-based approaches	T14, T16	✓Full	Customary rights and spiritual stewardship are embedded in planning
23. Monitoring and reporting	T15, T16	✓Full	Community-based monitoring and donor reporting frameworks are active

• Notes:

- ✓Full Alignment: Tuvalu's targets directly support KMGBF goals.

- Partial Alignment: Some elements present; refinement or expansion needed.
- **✗**No Alignment: Not currently addressed; may be contextually irrelevant or a future opportunity.

Annex 3: Stakeholder consultation summaries

Tuvalu National Proposed Targets	Aligned Global Targets	Stakeholder Input
1. By 2030, all inhabited islands of Tuvalu will have biodiversity-inclusive land-use and marine spatial plans, incorporating traditional knowledge and supported by EIAs.	Target 1, Target 3, Target 21	To ensure alignment with inclusive national processes, the term 'Environmental Impact Assessments (EIAs)' shall be replaced with 'Strategic Plans' throughout the document
2. By 2030, at least 30% of Tuvalu's marine and terrestrial ecosystems are effectively conserved and managed through formal and community-based conservation areas.	Target 2, Target 3, Target 8	Given Tuvalu's geographic and ecological constraints, the 30% target may be unrealistic. A revised target of 10% would better reflect national capacity and context.
3. By 2030, priority native species (e.g. forest gecko, green turtle, seabirds) are under species recovery plans with measurable population improvements.	Target 4	- Existing Island Strategic Plans (ISPs) to incorporate this Target. - Consider capturing the global target statement.
4. By 2030, all inhabited islands have active management plans for invasive species, including rats, crown-of-thorns starfish, and aggressive weeds (e.g. <i>Leucaena</i>).	Target 4 Target 6	- Consider capturing the global target statement, like including exsitu and insitu management. - Include the prevention component.
5. By 2030, pollution from land-based sources (e.g. sewage, agricultural runoff, plastics) is reduced by 50% in vulnerable marine and coastal habitats.	Target 7	Agree with the alignment.
6. Ecosystem-based adaptation (EbA) measures are integrated in all climate change policies and	Target 8	Agree with the alignment

implemented in at least 6 outer islands by 2030.			
7. By 2030, all outer islands have established sustainable harvesting limits for coastal fisheries, sea cucumbers, giant clams, and nesting seabirds.	Target 10 Target 16		● Agree with the alignment
8. Agro-biodiversity (e.g. taro, pandanus, pulaka) is conserved and enhanced on all islands, and at least 3 islands have agroforestry demonstration sites by 2030.	Target 10		● Adaptation and resilience approaches are important; therefore, capturing them in T8 is essential. ● Capturing the agroforestry term “Gene Bank” is supported to be included.
9. Traditional knowledge is integrated into biodiversity management plans and school curricula by 2027.	Target 12 Target 21		● Agree with the alignment
10. By 2030, Funafuti has implemented a biodiversity-sensitive urban plan that safeguards remaining native vegetation and coastal ecosystems.	Target 12		● The inclusion of 3 islands is recommended to extend coverage.
11. Tuvalu develops and implements national legislation on access and benefit-sharing (ABS) by 2026, ensuring alignment with the Nagoya Protocol.	Target 13 Target 14		● Agree with the alignment
12. By 2027, biodiversity considerations are fully integrated into national and island development planning, including “Te Kete” and the Corporate Plans.	Target 14 Target 15 Target 16		● Agree with the alignment
13. By 2026, Tuvalu will develop a biodiversity finance plan and mobilize at least USD 3 million in external and domestic resources for NBSAP implementation.	Target 19		● Agree
14. By 2030, at least 75% of government staff in key ministries and Kaupule representatives are trained in	Target 17		● Agree

biodiversity management and planning.			
15. By 2026, Tuvalu will establish a national biodiversity database linked to ORT and Te Kakeega indicators.	Target 21		The Department of Environment and other key stakeholders, like the Department of Agriculture and Fisheries, are key institutions to take part in this Target 15.
16. By 2030, all schools and communities implement at least one biodiversity awareness campaign per year using local languages and media.	Target 15 Target 22		The inclusion of the Environment Day and other awareness programmes must be part of this Target 16.

Annex 4: Traditional Knowledge protocols and ethical guidelines

This annex outlines the principles, procedures, and safeguards for accessing, using, and sharing Tuvalu’s traditional knowledge related to biodiversity. It ensures respect for cultural integrity, spiritual values, and community rights, while aligning with the Nagoya Protocol on Access and Benefit Sharing (ABS).

Guiding Principles

- *Respect for Customary Authority:* All TK access must be approved by local elders and Falekaupule.
- *Spiritual Stewardship:* TK is sacred and must be used in ways that honour biblical principles and ancestral wisdom.
- *Free, Prior, and Informed Consent (FPIC):* Communities must be fully informed and voluntarily agree before any TK is accessed or used.
- *Equitable Benefit Sharing:* Any benefits arising from TK use, whether research, commercial, or conservation, must be fairly shared with knowledge holders.
- *Transparency and Accountability:* All TK-related activities must be documented and reported to the relevant community and national authorities.

Protocols for Accessing TK

1. Initial Engagement

- Approach through recognized community leaders or spiritual representatives.
- Clearly state purpose, scope, and intended use of TK.

2. Consent Process

- Conduct culturally appropriate consultations.

- Secure written or recorded FPIC from knowledge holders.

3. *Documentation and Use*

- TK must be recorded with community oversight.
- Use must reflect original intent and avoid misrepresentation.

4. *Benefit Sharing*

- Benefits may include financial support, co-authorship, capacity building, or community development.
- Agreements must be formalized through mutually agreed-upon terms.

Ethical Guidelines for Researchers and Partners

- *Do No Harm:* Avoid exploitation, misappropriation, or dilution of TK.
- *Cultural Sensitivity:* Respect taboos, sacred sites, and gender-specific knowledge boundaries.
- *Reciprocity:* Ensure knowledge exchange is mutual and empowering.
- *Local Ownership:* TK remains the property of the community; external users are custodians, not owners.

Institutional Support

- *ABS Focal Point:* The Department of Environment serves as the national contact for TK-related ABS matters.
- *Community Protocol Templates:* Available to guide local documentation and decision-making.
- *Capacity Building:* Ongoing training for communities on rights, consent, and benefit-sharing mechanisms.

Annex 5: Annex Glossary and Acronyms

This annex provides definitions of key terms and acronyms used throughout Tuvalu's National Biodiversity Strategy and Action Plan (NBSAP). It is designed to support understanding across technical, community, and spiritual audiences.

Acronyms

Acronym	Full Term	Description
ABAS	Aichi Biodiversity Action Strategy	Framework developed under the Convention on Biological Diversity to guide national and regional biodiversity actions, aligned with the Aichi Targets.
ABS	Access and Benefit Sharing	Fair and equitable sharing of benefits from genetic resources and traditional knowledge
BIOFIN	Biodiversity Finance Initiative	UNDP-led program to improve biodiversity financing and resource mobilization
CBD	Convention on Biological Diversity	UN treaty for biodiversity conservation, sustainable use, and benefit sharing
CSOs	Civil Society Organizations	Community-based groups involved in advocacy, service delivery, and conservation
DOE	Department of Environment	Tuvalu's lead agency for environmental policy and biodiversity planning
EbA	Ecosystem-based Adaptation	Use of biodiversity and ecosystem services to help communities adapt to climate change
EEZ	Exclusive Economic Zone	Maritime zone extending 200 nautical miles from shore, where a state has rights over resources
FPIC	Free, Prior, and Informed Consent	Ensures communities give voluntary, informed agreement before activities affecting their rights
GBF	Global Biodiversity Framework	Overarching framework guiding global biodiversity action (often refers to KMGBF)
GBIF	Global Biodiversity Information Facility	International platform for sharing biodiversity data
GCF	Green Climate Fund	Major climate finance mechanism supporting low-emission and climate-resilient development
GEF	Global Environment Facility	Funding body supporting biodiversity, climate, and environmental projects
GIS	Geographic Information System	Technology for mapping and analyzing spatial data
GPS	Global Positioning System	Satellite-based navigation system used for mapping and monitoring
IPCC	Intergovernmental Panel on Climate Change	UN body assessing climate science and impacts
IUU	Illegal, Unreported, and Unregulated Fishing	Fishing activities that violate national or international laws and undermine sustainability
KMGBF	Kunming-Montreal Global Biodiversity Framework	Post-2020 global framework guiding biodiversity targets and actions
LMAs	Locally Managed Areas	Community-driven conservation zones where local stakeholders manage resources, blending traditional knowledge with modern governance.

LMMA	Locally Managed Marine Area	Community-led marine conservation area governed by traditional and local rules
MER	Monitoring, Evaluation and Reporting	Systematic processes to track biodiversity outcomes, assess progress against targets, and ensure transparency and accountability in governance.
MPA	Marine Protected Area	Ocean area where human activity is regulated to protect biodiversity
NAP	National Adaptation Plan	Strategy for addressing medium- and long-term climate adaptation needs
NBSAP	National Biodiversity Strategy and Action Plan	Tuvalu's national roadmap for biodiversity conservation and sustainable use
NDCs	Nationally Determined Contributions	Country commitments under the Paris Agreement to reduce emissions and adapt to climate change
NEMS	National Environmental Management Strategy	Tuvalu's foundational environmental planning document (2022-2026) is essentially the country's guiding policy to ensuring the protection and sound management of the environment. It also ensures environmental activities and planning are relevant to national priorities and action plans developed by the Government of Tuvalu, and also signals a commitment by Tuvalu towards its signed Multilateral Environment Agreements.
NGO	Non-Governmental Organization	Independent organizations involved in development, conservation, and advocacy
NSAP	National Strategic Action Plan	Framework for national development priorities, including environment and resilience
ORT	Online Reporting Tool	A digital platform developed by the Secretariat of the Convention on Biological Diversity (CBD) to support Parties in submitting national targets, NBSAPs, and progress reports. Tuvalu uses ORT to ensure transparency, alignment with global goals, and timely reporting to the CBD Secretariat
PES	Payments for Ecosystem Services	Policy and financial mechanism where beneficiaries of ecosystem services provide compensation to those who manage or conserve ecosystems.

R2R	Ridge to Reef	Integrated approach to managing land, freshwater, and marine ecosystems from upland to coast
SDG	Sustainable Development Goals	Global goals adopted by the UN to end poverty, protect the planet, and ensure peace and prosperity
SIDS	Small Island Developing States	A group of vulnerable island nations is facing unique development and environmental challenges
SMART	Specific, Measurable, Achievable, Relevant, Time-bound	Criteria for setting effective targets and indicators
SPREP	Secretariat of the Pacific Regional Environment Programme	Regional body supporting environmental protection in Pacific island countries
SSP	Shared Socioeconomic Pathways	Scenarios used to model future climate and development trajectories
TASTTI	Tuvalu Atoll Science Technology Training Institute	TASTTI as part of the national strategies of Tuvalu to provide high-quality education; to equip people with hands-on knowledge and skills to develop more self-reliance, as well as resilience against the impacts of climate change
TK	Traditional Knowledge	Indigenous and ancestral wisdom related to biodiversity and ecosystems
UNDP	United Nations Development Programme	UN agency supporting sustainable development and biodiversity planning
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples	Affirms indigenous rights, including cultural and environmental stewardship
UNFCCC	United Nations Framework Convention on Climate Change	Global treaty addressing climate change mitigation and adaptation
USP	University of the South Pacific	Regional university supporting education and research in Pacific island countries
ADPA	World Database on Protected Areas	Global database managed by UNEP-WCMC, providing authoritative information on protected areas for conservation planning and reporting.

Glossary of Key Terms

Term	Definition
Benefit Sharing	Distribution of advantages or profits from the use of biodiversity or traditional knowledge, ensuring fairness, equity, and community consent
Biodiversity	The variety of life on Earth—including species, ecosystems, and genetic diversity
Cosmos	The interconnected spiritual and ecological order, encompassing land, sea, sky, and ancestral realms
Cultural Species	Species that hold spiritual, ancestral, or customary significance to Tuvaluan communities, often featured in rituals, stories, or traditional diets
Ecosystem Services	The benefits people receive from nature, such as food, coastal protection, climate regulation, and spiritual value
Falekaupule	Traditional council of elders and leaders in Tuvaluan communities, responsible for decision-making, cultural governance, and stewardship of natural resources
Fatoaga	A traditional food garden, often cultivated near homes or coastal areas, using organic methods and ancestral planting knowledge

Fenua	The land, people, and identity of Tuvalu—symbolizing deep connection between community, culture, and environment
Kaupule	The executive arm of the Falekaupule, composed of elected members who manage local governance, planning, and implementation of community initiatives
Mangrove Fauna	Animal species that live in and depend on mangrove ecosystems, such as crabs, mollusks, and juvenile fish
Moana	The ocean as a living entity—source of sustenance, spiritual meaning, and ecological balance in Tuvaluan life
Reef Closure	A traditional practice of temporarily banning fishing in specific reef areas to allow ecological recovery and honor ancestral protocols
Restoration	Actions taken to recover degraded ecosystems and reintroduce native or culturally significant species
SAMOA Pathway	The Small Island Developing States Accelerated Modalities of Action—an international framework supporting sustainable development in SIDS
Stewardship	The responsible care and management of natural resources, guided by spiritual principles, cultural customs, and community values
Tapestry	A metaphor for the woven relationships between biodiversity, culture, faith, and resilience in Tuvalu’s national vision
Tapu	A sacred restriction or prohibition, often declared by elders to protect marine or terrestrial areas for regeneration and spiritual reverence

Annex 6: Stakeholder Consultation – Technical & Community Working Group

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