ICAT-Samoa

Report on Adaptation Actions and Indicators to be Tracked and Integrated into the National MRV System

Ministry of Natural Resources and Environment
Matagaluega o le Puna'oa Faalenatura ma Siosiomaga

ICAT Initiative for Climate Action Transparency

UN environment programme | copenhagen climate centre
supported by UNOPS

Initiative for Climate Action Transparency - ICAT

Deliverable title:

5.1: Report on Adaptation Actions and Progress Indicators to be Tracked and Integrated into the National MRV System

AUTHORS

Name: Muliufi Nickel
Affiliation: KVAConsult Ltd

DATE:

15 January 2025

DISCLAIMER

PREPARED UNDER

The Initiative for Climate Action Transparency (ICAT), supported by Austria, Canada, Germany, Italy, and the Children's Investment Fund Foundation.

The ICAT project is hosted by the United Nations Office for Project Services (UNOPS).

Table of Contents

Executive Summary

This report, prepared under the Initiative for Climate Action Transparency (ICAT), focuses on identifying and prioritising adaptation actions in Samoa's Agriculture, Forestry, and Other Land Use (AFOLU) and Marine sectors. The report aligns these actions with Samoa's national development goals, as outlined in the Pathway for the Development of Samoa (PDS), and its international climate commitments under the Paris Agreement.

Key Findings and Recommendations:

1. Prioritised Adaptation Actions:
    a. *Mangrove Ecosystem Enhancement*: Aimed at achieving a 5% expansion of mangrove forests by 2030, this action includes mapping existing mangroves, establishing community-based nurseries, and implementing restoration protocols that incorporate traditional knowledge.
    b. *Climate-Smart Agroforestry Development*: This action seeks to increase agroforestry on agricultural land by 5% by 2030, focusing on distributing climate-resilient crop varieties, providing technical training, and establishing demonstration plots.
    c. *Forest Cover Enhancement*: Targeting a 2% increase in total forest cover by 2030, this action involves updating forest inventories, establishing native species nurseries, and implementing forest restoration in priority watersheds.

2. Indicators for Tracking Progress: The report proposes a comprehensive set of indicators for each adaptation action, covering areas such as ecosystem health, community engagement, and economic benefits. These indicators are designed to provide measurable and transparent data on the implementation and effectiveness of the adaptation actions.

3. Proposed MRV System: A robust Monitoring, Reporting, and Verification (MRV) system is proposed to track progress on the adaptation actions. The system includes detailed methodologies for data collection, quality assurance protocols, and a centralised database for managing and reporting data. The MRV system also outlines institutional arrangements, with the Ministry of Natural Resources and Environment (MNRE) playing a central role in coordination and implementation.

4. Integration with National and Sectoral Plans: The adaptation actions and MRV system are closely aligned with Samoa's national and sectoral plans, including the PDS, NESP, and AFSP. This integration ensures that climate adaptation efforts are embedded in broader development strategies, enhancing their effectiveness and sustainability.

5. Capacity Development and Resource Requirements: The report highlights the need for capacity development, particularly in areas such as GIS and remote sensing, data management, and field measurement techniques. It also provides an estimated annual budget of USD 400,000 for the MRV system, covering personnel costs, equipment, training, and data collection activities.

This report provides a clear and actionable framework for Samoa to enhance its climate adaptation efforts in the AFOLU and Marine sectors. By prioritising key adaptation actions, establishing a robust MRV system, and aligning these efforts with national and international goals, Samoa can build resilience, protect its natural resources, and achieve sustainable development in the face of climate change. The recommendations in this report offer a pathway for Samoa to meet its climate commitments and secure a resilient future for its communities.

1.0 | Introduction

Climate change poses significant challenges to Samoa, impacting its ecosystems, communities, and economic stability. In response, Samoa has committed to ambitious climate adaptation and mitigation goals, as outlined in its Nationally Determined Contributions (NDC) under the Paris Agreement. This report, prepared under the Initiative for Climate Action Transparency (ICAT), focuses on identifying and prioritising adaptation actions in the Agriculture, Forestry, and Other Land Use (AFOLU) and Marine sectors. These actions are designed to enhance resilience, protect biodiversity, and support sustainable development in the face of climate change.

The report builds on Samoa's existing strategic frameworks, including the Pathway for the Development of Samoa (PDS), the National Environment Sector Plan (NESP), and the Agriculture and Fisheries Sector Plan (AFSP). It proposes a comprehensive set of adaptation actions, supported by detailed indicators and a robust Monitoring, Reporting, and Verification (MRV)[1] system. The goal is to integrate these actions into Samoa's national MRV system, ensuring transparency, accountability, and effective implementation of climate adaptation measures.

This document outlines the prioritised adaptation actions, their linkages to national and sectoral plans, and the proposed indicators for tracking progress. It also provides a detailed framework for the MRV system, including institutional arrangements, data collection methods, and reporting mechanisms. By aligning adaptation actions with national development goals and international climate commitments, this report aims to support Samoa in building a resilient and sustainable future.

[1] As it relates to climate change adaptation, the system will focus on Monitoring, Evaluation and Learning (MEL). However, the MRV terminology is maintained throughout this report for consistency with other project related reports, also covering climate change mitigation.

2.0|Adaptation Framework

Samoa's adaptation framework integrates key actions from multiple strategic documents (List of Documents researched presented in Annex 2), with the **Pathway for the Development of Samoa FY2021/22–FY2025/26 (PDS)** serving as the cornerstone national development planning instrument. The PDS prioritizes enhanced resilience by strengthening community-level adaptation through Community Integrated Management (CIM) Plans, while simultaneously affirming the Government's ongoing commitment to raising awareness about climate emergency impacts and fostering international partnerships for implementing appropriate adaptation and mitigation measures.

The sector plans are additional source documents for sectoral development contributing to the propelling and achievement of national development objectives stipulated in the PDS. Given that the scope of this report is on the Agriculture, Forestry, and Other Land Uses (AFOLU) and Marine sectors, the relevant sector plans are:

- **National Environment Sector Plan 2023–2027 (NESP)**: A strategic framework addressing environmental challenges from Samoa's Fourth State of Environment (SOE) Report. The plan targets four long-term outcomes and thirteen specific goals focused on biodiversity, waste management, and climate resilience. Implementation involves coordination between government, civil society, and international partners.
- **Agriculture and Fisheries Sector Plan 2022/23–2026/27 (AFSP)**: A five-year plan to strengthen Samoa's agriculture and fisheries sectors through sustainable food systems, improved food security, and rural development. Led by the Ministry of Agriculture and Fisheries (MAF), it targets private sector growth and enhanced stakeholder coordination to boost agribusiness and exports.

The NESP emphasizes strengthening community resilience through strategic development investments in adaptation initiatives. This comprehensive approach encompasses both infrastructure-based and non-structural solutions. The first Long-Term Outcome (LTO) of the NESP, "Sustainable Environment Secured," is strongly focused on climate adaptation by promoting sustainable management and development of critical natural resources. It emphasizes enhancing water resource resilience, improving forest and land management, and conserving terrestrial and marine biodiversity. Additionally, the integration of spatial information and technical services ensures data-driven decision-making for sustainable land use and development planning. The NESP also calls for the development and execution of the National Adaptation Plan (NAP), which will be integrated through dedicated Sectoral Climate Change Adaptation Strategies. This integration aims to climate proof sector-specific developments and investments.

The AFSP outlines a comprehensive framework for enhancing resilience against climate change, external shocks, and biological threats through a multi-faceted approach that strengthens human capacity among farmers and fishers while promoting resilient materials and methodologies. Under its strategic outcome of "Resilient and sustainable food, agricultural and fisheries systems enhanced," the AFSP advances nature-positive production practices, institutional capacity development, and evidence-based methodologies, while prioritizing sustainable practices through organic farming techniques and the development of climate-resilient varieties across crops, livestock, and fisheries production. The plan emphasizes environmental stewardship through chemical usage controls and

waste management protocols, while taking an inclusive approach that incorporates stakeholder participation and traditional knowledge systems in its implementation framework.

Moreover, the **Samoa Climate Change Policy 2020**'s vision is "A resilient, safe and prosperous Samoa addressing climate change and associated impacts while achieving sustainable development goals". One of the Policy's objectives is to "Implement adaptation measures to protect Samoa from the impacts of climate change". That objective proposes taking an integrated approach to climate change adaptation in Samoa through five key mechanisms. The framework begins with integrating Climate Change Risk considerations across agricultural, health, and energy sectors, followed by securing adaptation funding sources. It then focuses on implementing adaptation actions across 368 Samoan Communities through CIM Plans and community-based projects. The fourth strategy expands adaptation measures across twelve critical sectors, from built infrastructure to water resources, while the final strategy incorporates Disaster Risk Reduction. These coordinated efforts aim to deliver concrete outcomes including finalized sector strategies, implemented adaptation activities, and enhanced resilience across public, private, and community sectors.

A more direct and quantitative target for climate adaptation action is found in **Samoa's Second Nationally Determined Contribution** (NDC) which stipulates specific focus of adaptation actions in the AFOLU and marine sectors (below Figure 1).

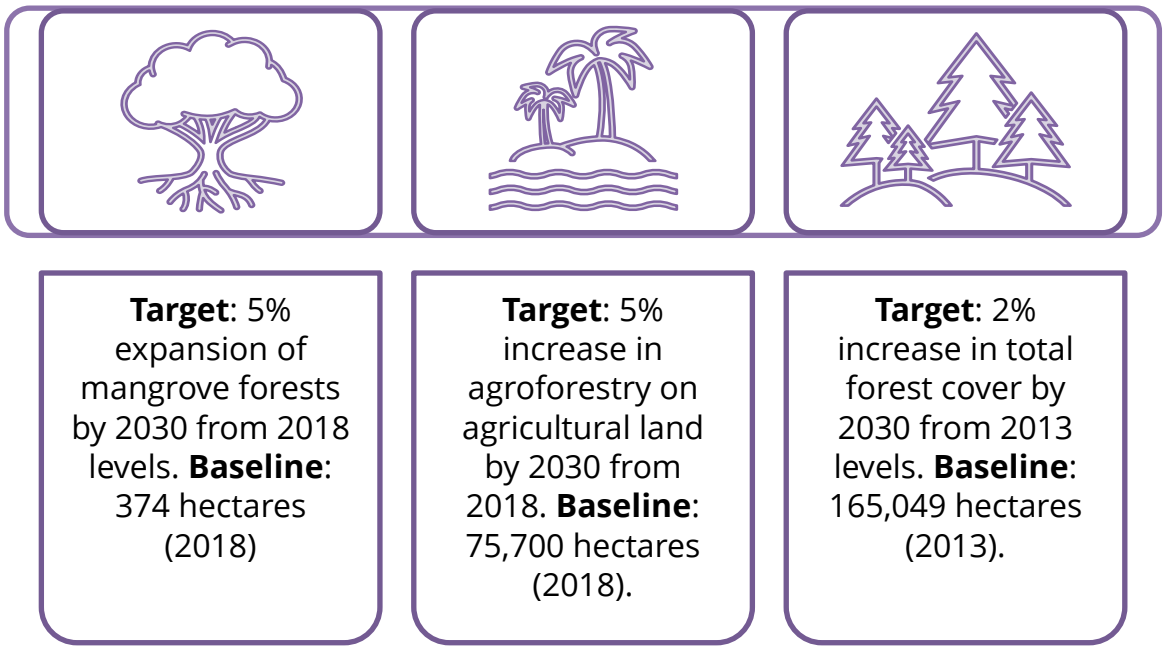


Figure 1 | Quantitative Targets that contribute to Adaptation in AFOLU and Marine Sectors
Source: Samoa's Second NDC (2021)

The **Samoa Ocean Strategy 2020 – 2030** which is a comprehensive framework for managing Samoa's marine resources that integrates sustainable development, conservation, and climate adaptation priorities. The strategy addresses six key thematic areas including offshore waters, maritime safety, species protection, coastal ecosystems, food security, and ocean knowledge. Its climate adaptation components focus on ecosystem-based approaches, including protecting coral reefs and mangroves, strengthening coastal resilience, implementing disaster risk reduction strategies, and integrating traditional knowledge with modern science.

Furthermore, the **Community Integrated Management (CIM) Plans** in Samoa are strategic frameworks designed to enhance climate resilience across various sectors by integrating community input and government resources. Developed initially between 2002 and 2007 and revised in 2015, these plans address climate change impacts through an integrated approach that encompasses infrastructure, environmental management, biological resources, and governance. They emphasize community involvement and long-term implementation timelines, often spanning ten years, to ensure local priorities shape adaptive strategies. CIM Plans align with national policies, facilitating coordinated efforts among government ministries, local communities, and international partners to build a resilient future for Samoa.

From consultations with officials of the Ministry of Natural Resources and Environment (MNRE) confirmed that the Samoa National Adaptation Plan (NAP) is now being developed and is set to be finalised before the end of government fiscal year 2024/25.

3.0| Prioritized Adaptation Actions

Based on the consultations with MNRE and other relevant stakeholders (List of Stakeholders consulted presented in Annex 3), assessment of Samoa's strategic frameworks, current implementation capacity, and vulnerability assessments, the following adaptation actions have been prioritized for tracking NDC implementation in the AFOLU and Marine sectors. These actions were selected based on their:

- Direct contribution to NDC targets
- Linkages to existing national development plans, strategies, and documentation (Section 2.0| Adaptation Framework)
- Implementation feasibility, existing institutional capacity, and cost-effectiveness
- Community impact

The following key actions/activities work together to form comprehensive approaches to each adaptation priority. When implemented effectively, they create a cycle of assessment, planning, implementation, and monitoring that drives continuous improvement in climate resilience. The activities bridge scientific and traditional knowledge while engaging multiple stakeholders from government agencies to local communities. Additionally, the MNRE highlighted in discussions the need for clear pathway and procedures for integration of additional sectors and their adaptation actions into the framework.

Priority Action 1: Mangrove Ecosystem Enhancement

Goal

Achieve 5% expansion of mangrove forests by 2030 from 2018 baseline (374 hectares)

Key Activities

1.1. Map existing mangrove areas and identify priority restoration sites

Explanation: This foundational activity involves creating detailed spatial inventories of current mangrove distribution and identifying degraded or lost mangrove areas with restoration potential.

Implementation considerations:

- Requires GIS expertise, satellite imagery, and ground-truthing
- Should incorporate historical data to identify areas where mangroves previously existed
- Priority sites should be selected based on multiple criteria: restoration potential, vulnerability to climate impacts, biodiversity value, and community support
- Maps should be digitized and accessible to multiple stakeholders for planning purposes

1.2. Establish community-based mangrove nurseries in 5 coastal villages annually

Explanation: This activity creates local infrastructure for mangrove seedling production while building community ownership of restoration efforts.

Implementation considerations:

- Site selection should consider water access, protection from extreme weather, and community accessibility
- Technical training must include seed collection, propagation techniques, and nursery management
- Operating protocols should incorporate traditional knowledge about local mangrove species
- Clear governance structures are needed for nursery operation and seedling distribution
- Income-generating opportunities should be explored to ensure nursery sustainability

1.3. Implement restoration protocols incorporating traditional knowledge

Explanation: This activity ensures that restoration techniques are ecologically sound and culturally appropriate by blending scientific and traditional knowledge.

Implementation considerations:

- Requires documentation of traditional mangrove management practices through community consultations
- Should identify specific species traditionally valued and their cultural significance
- Traditional planting times, techniques, and maintenance practices need documentation
- Restoration protocols should be formalized in accessible guidelines for consistency
- Knowledge exchange between communities should be facilitated through workshops

1.4. Create buffer zones around existing mangrove forests

Explanation: This activity establishes protected areas surrounding mangroves to reduce human pressures and allow for natural expansion.

Implementation considerations:

- Buffer dimensions should be science-based but adapted to local conditions
- May require legal designation or community agreements on land use restrictions
- Alternative livelihoods may need to be developed for communities previously using buffer areas
- Demarcation through signage or natural boundaries is important for compliance
- Monitoring systems should be established to track buffer zone effectiveness

1.5. Monitor growth rates and ecosystem health quarterly

Explanation: This activity tracks restoration success and enables adaptive management through regular assessment of mangrove conditions.

Implementation considerations:

- Requires standardized monitoring protocols that can be implemented consistently
- Should include both biophysical indicators (growth, survival) and ecosystem function measures
- Community monitors should be trained to supplement technical assessments
- Data management systems need to be established for trend analysis
- Results should be communicated back to communities and policymakers

Priority Action 2: Climate-Smart Agroforestry Development

Goal

Increase agroforestry on agricultural land by 5% by 2030 from 2018 baseline (75,700 hectares)

Key Activities

2.1. Identify suitable agricultural lands for agroforestry conversion

Explanation: This activity involves assessing current agricultural land and determining where agroforestry systems would be most beneficial and feasible.

Implementation considerations:

- Requires land capability assessment based on soil, slope, water availability, and current use
- Should prioritize degraded agricultural lands where productivity is declining
- Must consider land tenure and farmer willingness to adopt new practices
- GIS mapping helps visualize opportunities across landscapes
- Assessment should include climate vulnerability to identify adaptation priorities

2.2. Distribute climate-resilient crop varieties to 1,000 households (targeting farmers and landholders) annually

Explanation: This activity provides farmers with plant materials specifically selected to thrive in agroforestry systems and withstand climate stresses.

Implementation considerations:

- Requires identification of appropriate tree, crop, and understory species for local conditions
- Distribution systems need to be efficient and equitable
- Should include basic guidance on planting and maintenance requirements
- Household (farmers and landholders) selection process should be transparent and inclusive
- Follow-up support is essential to ensure proper utilization

2.3. Provide technical training on agroforestry techniques to farming communities

Explanation: This activity builds farmer capacity to implement and maintain agroforestry systems effectively.

Implementation considerations:

- Training should be practical, hands-on, and adapted to local literacy levels
- Should cover species selection, spacing, pruning, harvest timing, and other management practices
- Farmer-to-farmer training models can increase reach and effectiveness
- Training materials should be available in local languages with visual aids
- Regular refresher trainings help address emerging challenges

2.4. Establish demonstration plots in each district

Explanation: This activity creates living examples of successful agroforestry systems that farmers can observe, learn from, and replicate.

Implementation considerations:

- Sites should be accessible and visible to maximize farmer exposure
- Multiple agroforestry models should be demonstrated to showcase options
- Should be established on representative soils and conditions
- Detailed record-keeping of inputs, management, and outputs is essential
- Regular field days and workshops should utilize these sites for education

2.5. Monitor crop yields and soil health

Explanation: This activity tracks the productivity and environmental benefits of agroforestry systems to demonstrate value and inform improvements.

Implementation considerations:

- Requires baseline data collection before agroforestry implementation
- Should include both productivity and environmental indicators
- Participatory monitoring involving households, farmers, landholders increase ownership and learning
- Economic analysis should capture both short and long-term benefits
- Results should inform adaptive management of techniques and species selection

Priority Action 3: Forest Cover Enhancement

Goal

Increase total forest cover by 2% by 2030 from 2013 baseline (165,049 hectares)

Key Actions/Activities

3.1. Update forest inventory and identify degraded areas

Explanation: This activity establishes the current forest baseline and identifies priority areas for restoration based on level of degradation and restoration potential.

Implementation considerations:

- Should utilize remote sensing combined with field verification
- Forest classification should include forest types, condition classes, and degradation levels
- Inventory should note special values like watershed protection or biodiversity hotspots
- Historical forest cover data helps identify areas of recent loss for potential restoration
- Results should be integrated into national land use planning

3.2. Establish native species nurseries

Explanation: This activity creates infrastructure to produce seedlings of indigenous species for reforestation efforts.

Implementation considerations:

- Species selection should prioritize native trees adapted to local conditions
- Technical capacity is needed for seed collection, treatment, and propagation
- Nursery design should consider scale of reforestation plans and water availability
- Community involvement in nursery operation creates local employment
- Quality control systems ensure seedling health and genetic diversity

3.3. Implement forest restoration in priority watersheds

Explanation: This activity focuses reforestation efforts on watersheds that provide critical services like water supply and flood protection.

Implementation considerations:

- Watershed prioritization should consider population served, vulnerability, and restoration potential
- Restoration techniques should be appropriate to site conditions (e.g., direct seeding vs. planting)
- Implementation should follow a landscape approach that integrates with surrounding land uses
- Community engagement is essential, especially when watersheds cross multiple jurisdictions
- Monitoring should track both forest establishment and watershed service improvements

3.4. Strengthen forest protection measures

Explanation: This activity enhances the policy, legal, and on-ground measures that prevent deforestation and forest degradation.

Implementation considerations:

- May require updating forestry legislation or enforcement protocols
- Community forest monitoring systems can extend official protection efforts
- Fire management infrastructure and practices may need strengthening
- Economic incentives for conservation can complement regulatory approaches
- Protection measures should address specific threats identified for each forest area

3.5. Monitor forest growth and biodiversity indicators

Explanation: This activity tracks the success of forest restoration and enhancement efforts through regular assessment of forest conditions.

Implementation considerations:

- Permanent sample plots provide consistent data on forest growth over time
- Biodiversity monitoring should include indicator species that signal ecosystem health
- Remote sensing can be combined with ground monitoring for cost-effectiveness
- Data management systems need to support trend analysis and reporting
- Results should inform adaptive management of restoration techniques

4.0|Indicators for Adaptation Actions

The Adaptation Actions Framework's source documentation establishes indicators for monitoring progress on proposed actions. However, the absence of baseline data in many instances creates challenges for establishing quantifiable targets for these proposed interventions.

Linkage of Priority Actions to the Overarching PDS Targets

The **Monitoring, Evaluation, and Learning Framework (MELF) for the PDS FY2021/22–FY2025/26** provides the following framework (Table 1) to track progress of *Key Strategic Objective 4 – Secured Environment and Climate Change.* The following framework should be used as the overarching framework to track progress of actions identified, with the intention to enhance streamlining of the NDC targets through the PDS to ensure national commitment.

EXPECTED OUTCOME	NATIONAL INDICATOR	BASELINE	TARGET	IMPLEMENTING SECTOR(S)	IMPLEMENTING AGENCY	DATA SOURCE
Key Priority Area (KPA) 15: Build Climate Resilience						
15.1. Climate and disaster resilience and responsive planning in all sectors strengthened	15.1.1. Proportion of sectors that implement climate resilience strategies	57% (2021/22)	100%	All Sectors (Environment Sector Lead	All Government Ministries and Agencies	All Sector Plans
	15.1.2 Proportion of sectors that implement disaster risk reduction strategies.	57% (2021/22)	100%	All Sectors (Environment Sector Lead	All Government Ministries and Agencies	All Sector Plans
15.2 International binding mechanisms, including sustainable climate financing support for climate resilience programs strengthened	15.2.1 Level of investment in climate resilience programs	35.5 million (2021/22)	Increase baseline by 50%	All Sectors (Environment Sector Lead)	All Government Ministries and Agencies	Ministry of Finance (MOF) Approved Budget Estimates
	15.2.2 Number of climate and disaster risk financing instruments	7 (2021/22)	More than 7	Finance Sector Environment Sector	MOF, MNRE	MOF DRF Policy
KPA 16: Effective Environmental Protection and Management Frameworks						
16.1 Environmental impacts reduced through strengthened environmental safeguards, including effective monitoring systems	16.1.1 Percentage of major development projects compliant with national safeguard requirements	75% (2021)	100%	Transport and Infrastructure Sector Environment Sector	MWTI, MNRE	MWTI

EXPECTED OUTCOME	NATIONAL INDICATOR	BASELINE	TARGET	IMPLEMENTING SECTOR(S)	IMPLEMENTING AGENCY	DATA SOURCE
16.2 Sustainable solid and chemical waste management enhanced	16.2.1 Percentage of waste generated and managed by streams	Solid Waste stream 42% Chemical and Hazardous Waste stream – Data not captured (2018/19)	Solid Waste stream 53% Chemical and Hazardous Waste stream – Inventory identified	Environment Sector	MNRE	National Waste Management Strategy 2019-2023
16.3 Green development strengthened, and initiatives increased	16.3.1 Number of sectors implementing green initiatives	6 (2021/22)	14	All Sectors (Environment and Energy Sectors Lead)	All Government Ministries and Agencies	All Sectors Annual Review Reports Ministry Annual Reports
KPA 17: Enhanced Conservation and Sustainable Use of Natural Resources						
17.1 Increased land and in-shore reefs conserved and sustainable from ridge to reef	17.1.1 Percentage of species at risk (International Union for Conservation of Nature Red List)	6.6% (120 species) (2020)	6% (108 species)	Environment Sector	MNRE	Statement of Environment and Conservation in the Pacific Islands Report
	17.1.2 Marine protected areas and terrestrial protected areas	Marine: 6508.87 hectares Terrestrial: 239.90 hectares (2022)	Increase by 5% of baseline	Environment Sector	MNRE	MNRE Division of Environment Conservation (DEC) Database
	17.1.3 Total area coverage of mangroves	370 hectares (2011)	Increase by 30%	Environment Sector	MNRE	State of Environment Report
17.2 Invasive species impact reduced and eliminated	17.2.1 Scope of invasive species which have undertaken control and/or eradication programs	Terrestrial Plants Invasives: 16 species Terrestrial Animals Invasives: 9 species Marine and Aquatic Invasives: 2 species (2018/19)	Invasives on Native Biodiversity: 5 top priority species Agriculture and Livestock pests: 4 species Marine invasives: 1 Species Potential invasive: 1 Species	Environment Sector Agriculture and Fisheries Sector	MNRE, MAF	National Invasive Species Strategy and Action Plan 2019-2024
17.3 Resilience of water resources management enhanced	17.3.1 Proportion of total hectares of prioritized watershed areas rehabilitated	412.2 hectares (2020/21)	512.2 hectares	Water, Sanitation and Hygiene Sector	MNRE SBS	WASH Sector Plan 2022-2025

EXPECTED OUTCOME	NATIONAL INDICATOR	BASELINE	TARGET	IMPLEMENTING SECTOR(S)	IMPLEMENTING AGENCY	DATA SOURCE
	and/or declared reserves					
17.4 Sustainable and innovative use of natural resources increased	17.4.1 Number of Community Conservation Areas	41 (2021)	At least 20 Additional	Environment Sector Community Development Sector	MNRE, MWCSD, STA	MNRE DEC Database
KPA 18: Sustainable Energy Development Enhanced						
18.1 Renewable energy investment and generation sustained	18.1.1 Percentage of renewable energy in the final energy mix	30% (2019)	55%	Energy Sector	MOF EPC MNRE SROS LTA	Energy Report 2019 Energy Sector Plan Review Report
18.2 Energy efficient products accessible and affordable	18.2.1 Percentage level of products in compliance with the minimum energy efficient standards	5% (2021/22)	20%	Energy Sector	MOF EPC MNRE SROS MCR	Pacific Appliance Database System (MOF) Energy Shop Audit Report
18.3 Petroleum supply, administration and safety strengthened	18.3.1 Percentage of compliance on Health Safety, Security and Environment (HSSE) standards, Petroleum Guidelines for distribution, handling, and storage of petroleum products	70% (2022)	100%	Energy Sector	Petroleum Taskforce	National Petroleum Taskforce Inspection Report

Table 1| PDS Monitoring, Evaluation, and Learning Framework
Source: Monitoring, Evaluation, and Learning Framework for the PDS FY2021/22–FY2025/26

The linkages of the above indicators identify several strategic alignments with the three prioritized NDC adaptation actions for the AFOLU and Marine sectors. Specifically, the PDS provides strong strategic alignment with all three NDC adaptation priorities, with explicitly strong support for mangrove ecosystem enhancement (30% increase target compared to NDC's 5% target). While it does not contain specific percentage targets for agroforestry and overall forest cover, its broader framework of climate resilience, conservation, and green development creates a supportive policy environment for these initiatives.

Priority Action 1: Mangrove Ecosystem Enhancement

Strategic Alignments

- KPA 17: Enhanced Conservation and Sustainable Use of Natural Resources directly supports mangrove ecosystem enhancement, with indicator 17.1.3 specifically focused on mangrove coverage.
- KPA 15: Build Climate Resilience provides overarching support for all climate adaptation measures, including mangrove ecosystem initiatives.

- KPA 16: Effective Environmental Protection and Management Frameworks creates the regulatory environment necessary for successful mangrove protection and expansion.

Specific Indicators

- 17.1.3: Total area coverage of mangroves explicitly targets mangrove expansion with a baseline of 370 hectares (2011) and a target to increase by 30%.
- 17.1.1: Percentage of species at risk supports biodiversity conservation within mangrove ecosystems.
- 17.1.2: Marine protected areas and terrestrial protected areas includes targets to increase protected areas by 5%, which would support mangrove conservation.

Target Comparison

- NDC Target: 5% expansion of mangrove forests by 2030 from 2018 baseline (374 hectares)
- PDS Target: 30% increase from 370 hectares (2011 baseline)

The PDS target is significantly more ambitious than the NDC target, providing strong policy support for mangrove ecosystem enhancement.

Priority Action 2: Climate-Smart Agroforestry Development

Strategic Alignments

- KPA 15: Build Climate Resilience provides the general framework for climate adaptation that would include agroforestry approaches.
- KPA 17: Enhanced Conservation and Sustainable Use of Natural Resources supports sustainable land use practices necessary for agroforestry.
- KPA 16.3: Green development strengthened, and initiatives increased supports the adoption of climate-smart agricultural practices.

Specific Activities/Indicators

- 16.3.1: Number of sectors implementing green initiatives would encompass agroforestry practices in the agriculture sector.
- 15.1.1: Proportion of sectors that implement climate resilience strategies supports implementation of climate-smart agriculture practices.
- 17.4.1: Number of Community Conservation Areas could include community-managed agroforestry areas.

Target Comparison

- NDC Target: Increase agroforestry on agricultural land by 5% by 2030 from 2018 baseline.
- PDS Target: No specific agroforestry target, but supporting targets include increasing sectors with climate resilience strategies to 100% and increasing green initiatives across all 14 sectors.

While the PDS does not include a specific agroforestry percentage target, its broad climate resilience and conservation targets provide a supportive policy environment.

Priority Action 3: Forest Cover Enhancement

Strategic Alignments

- KPA 17: Enhanced Conservation and Sustainable Use of Natural Resources supports forest conservation and expansion.

- KPA 15: Build Climate Resilience supports forest enhancement as a climate adaptation strategy.
- KPA 16: Effective Environmental Protection and Management Frameworks provides the regulatory environment for forest protection.

Specific Activities/Indicators

- 17.1.2: Marine protected areas and terrestrial protected areas with a target to increase by 5% from baseline of 239.90 hectares for terrestrial areas would support forest conservation.
- 17.3.1: Proportion of total hectares of prioritized watershed areas rehabilitated and/or declared reserves with a target of 512.2 hectares would include forested watersheds.
- 17.4.1: Number of Community Conservation Areas with a target of at least 20 additional areas would include forest conservation.

Target Comparison

- NDC Target: Increase total forest cover by 2% by 2030 from 2013 baseline (165,049 hectares)
- PDS Target: No specific forest cover percentage target but includes targets for increasing terrestrial protected areas by 5% from 239.90 hectares and increasing watershed rehabilitation.

The PDS supports forest conservation but does not specify the same quantitative target for overall forest cover as the NDC.

Additional Supporting Elements

Climate Finance and Implementation Support

- 15.2.1: Level of investment in climate resilience programs with a target to increase baseline by 50% from 35.5 million (2021/22) provides financial backing for all three adaptation actions.
- 15.2.2: Number of climate and disaster risk financing instruments with a target of more than seven would help fund implementation.

Cross-Sectoral Coordination, Monitoring and Evaluation

The PDS emphasizes implementation across "All Sectors" with "Environment Sector Lead" for most climate and environment indicators, demonstrating a whole-of-government approach to implementation. The implementing agencies include "All Government Ministries and Agencies" for climate resilience targets, ensuring comprehensive support. The PDS establishes clear baselines, targets, and data sources for tracking progress on all indicators, creating accountability for the achievement of adaptation goals.

Linkage to Indicators and Activities of Other Sectoral Plans and Documents

The NESP built on indicators from the **Samoa State of Environment Report 2023** which gave a comprehensive insight into the state of each sector. The indicators, however, had differing and inconsistent collection points due to paucity of data availability. This challenge extends to the AFSP, where adaptation-specific indicators, while aligned with corresponding actions, lacked essential contextual information including baselines, targets, and data sources (Refer to Annex 1 for more

information). The Samoa Ocean Strategy 2020 presents a similar pattern in its monitoring framework, where key adaptation indicators are defined but lack precise baseline measurements from 2020. Instead, the strategy relies on generalized references such as "2020 levels" or "current status (2019)" as comparative benchmarks.

Moreover, the CIM Plans are action-oriented frameworks which has AFOLU- and marine-specific adaptation actions focused on environmental sustainability and agricultural resilience. Examples of such adaptation-related actions include the establishment and expansion of fish reserves to promote marine biodiversity and sustainable fishing practices, reforestation of mangrove areas, the implementation of improved land-use techniques to mitigate soil erosion and enhance productivity, and the adoption of inter-cropping methods to diversify crops, improve soil fertility, and ensure food security. These initiatives underscore the integration of traditional knowledge and modern practices to build resilient communities that can better adapt to climate change impacts. Discussions with the Climate Change Division of the MNRE indicated that there is currently no systematic monitoring of CIM Plan implementation. Instead, any tracking is largely reliant on activities carried out through the District Development Plans and Programs which are implemented through the Ministry of Women, Community, and Social Development.

Proposed List of Indicators to Track the Priority Actions

Below is a detailed explanation of the indicators for each NDC adaptation priority action, including why each indicator matters, how it can be measured, and its significance for tracking progress toward climate resilience goals. *These are proposed for MNRE to consider and refine further*:

Priority Action 1| Mangrove Ecosystem Enhancement

PROPOSED INDICATORS	EXPLANATION	SIGNIFICANCE
AREA AND COVERAGE INDICATORS		
Total mangrove area (hectares) measured annually	This fundamental indicator directly measures progress toward the goal of 5% expansion. Satellite imagery combined with ground verification provides the most accurate measurement of total mangrove coverage.	Annual monitoring allows for trend analysis and early intervention if expansion targets aren't being met.
Percentage change in mangrove area from 2018 baseline (374 hectares)	Calculating the percentage change relative to the baseline provides a clear metric of progress toward the 5% expansion goal.	This percentage allows for standardized reporting to both national plans and international commitments.
Spatial distribution of mangrove coverage by district/region	Beyond total area, this indicator tracks where mangroves are expanding or declining, helping identify regional success stories or problem areas.	Ensures that mangrove expansion isn't concentrated in a single area while other regions experience losses.
Number of buffer zones established around existing mangroves	Buffer zones protect existing mangroves from encroachment and pollution. This indicator counts how many have been officially established.	Directly measures implementation of a key NDC activity and predicts long-term mangrove health.

PROPOSED INDICATORS	EXPLANATION	SIGNIFICANCE
Width of buffer zones (average meters)	The effectiveness of buffer zones depends on their width. This indicator measures the average width to ensure adequate protection.	Wider buffer zones generally provide better protection from human impacts and coastal dynamics.
Number of mangrove seedlings planted annually	This count measures active restoration efforts and can predict future coverage increases.	A leading indicator that shows implementation momentum before changes in total area become apparent.
RESTORATION INDICATORS		
Number of mangrove seedlings planted annually	This count measures active restoration efforts and can predict future coverage increases.	A leading indicator that shows implementation momentum before changes in total area become apparent.
Survival rate of planted seedlings (%)	This measures the percentage of planted seedlings that survive to maturity, indicating restoration effectiveness.	Low survival rates signal problems with planting techniques, species selection, or site conditions that need addressing.
Area of restored/ rehabilitated mangrove (hectares)	This measures the extent of active restoration efforts, distinguishing between natural mangrove expansion and human-assisted restoration.	Helps evaluate the effectiveness and efficiency of restoration programs.
Number of degraded sites identified for restoration	This indicator tracks the planning phase of restoration efforts and helps establish restoration priorities.	Shows forward planning and helps predict future restoration activities.
Percentage of degraded sites where restoration has commenced	This measures implementation progress against identified needs.	Indicates whether planning is being converted to action effectively.
COMMUNITY ENGAGEMENT INDICATORS		
Number of community-based mangrove nurseries established	This directly measures implementation of the NDC activity to "establish community-based mangrove nurseries in 5 coastal villages annually."	Community nurseries ensure local ownership of restoration efforts and sustainable supply of appropriate seedlings.
Number of villages/communities actively involved in mangrove conservation	This measures the breadth of community participation beyond just nursery establishment.	Wider community involvement suggests greater sustainability of conservation efforts.
Number of residents trained in mangrove restoration techniques	This tracks capacity building at the individual level within communities.	Technical capacity is essential for effective and sustainable community-led restoration.
Number of traditional knowledge practices documented and incorporated	This measures implementation of the NDC activity to "implement restoration protocols incorporating traditional knowledge."	Integration of traditional knowledge increases cultural relevance and often improves ecological outcomes.
Community perception of mangrove ecosystem value	This survey-based indicator measures how communities value mangroves, which influences conservation behaviours.	Positive valuation is often a prerequisite for sustained community protection efforts.
ECOSYSTEM HEALTH INDICATORS		
Species diversity within mangrove ecosystems	This measures the number and variety of flora and fauna species present in mangrove areas.	Higher diversity generally indicates healthier ecosystems with greater resilience.

PROPOSED INDICATORS	EXPLANATION	SIGNIFICANCE
Mangrove forest density (trees per hectare)	This measures how densely packed mangrove trees are within the ecosystem.	Optimal density varies by species but is critical for ecosystem function and carbon sequestration.
Carbon sequestration rate in mangrove areas	This measures the amount of carbon dioxide captured and stored by mangrove ecosystems.	Quantifies climate mitigation co-benefits and can potentially support carbon finance mechanisms.
Water quality parameters in and around mangroves	Measurements of water clarity, nutrient levels, and contaminants indicate ecosystem health and function.	Mangroves filter water, so these measurements indicate whether this ecosystem service is functioning.
Presence of indicator species for ecosystem health	Certain species are particularly sensitive to ecosystem changes and serve as early warning systems.	Changes in indicator species abundance can signal problems before they affect the entire ecosystem.

Priority Action 2| Climate-Smart Agroforestry Development

PROPOSED INDICATORS	EXPLANATION	SIGNIFICANCE
AREA AND ADOPTION INDICATORS		
Total area under agroforestry (hectares)	This fundamental indicator directly measures progress toward the goal of 5% increase in agroforestry.	Regular monitoring allows for trend analysis and evaluation against the NDC target.
Percentage change in agroforestry area from 2018 baseline	Calculating the percentage change relative to the 75,700 hectares baseline provides a standardized metric.	Directly measures progress toward the 5% increase target in the NDC.
Number of farms adopting agroforestry practices	This counts the individual farming operations that have implemented agroforestry systems.	Measures the breadth of adoption across different farmers rather than just total area.
Average area of agroforestry per participating farm	This measures the depth of adoption—how much of their land farmers are converting to agroforestry.	Helps distinguish between widespread but shallow adoption versus deep commitment from fewer farmers.
Spatial distribution of agroforestry adoption by district/region	This maps where agroforestry is being adopted across Samoa.	Ensures that agroforestry adoption isn't concentrated in a single region and helps identify successful models.
IMPLEMENTATION INDICATORS		
Number of climate-resilient crop varieties distributed	This tracks implementation of the NDC activity to "distribute climate-resilient crop varieties to 1,000 farmers annually."	Variety distribution is a leading indicator for agroforestry adoption.
Number of farmers receiving climate-resilient varieties	This counts the farmers reached through distribution efforts, directly measuring the NDC target of 1,000 farmers annually.	Measures the reach of extension services and input distribution systems.
Diversity of tree species used in agroforestry systems	This counts the variety of tree species incorporated into agroforestry systems.	Greater diversity generally indicates more resilient systems and broader ecosystem benefits.
Number of demonstration plots established per district	This tracks implementation of the NDC activity to "establish demonstration plots in each district."	Demonstration plots are critical for farmer education and technology diffusion.
Attendance at agroforestry technical training sessions	This measures participation in capacity-building activities related to the NDC activity of providing	Training is essential for effective implementation and maintenance of agroforestry systems.

PROPOSED INDICATORS	EXPLANATION	SIGNIFICANCE
	"technical training on agroforestry techniques."	
PRODUCTIVITY INDICATORS		
Crop yield per hectare in agroforestry systems compared to conventional farming	This compares productivity between agroforestry and conventional systems to demonstrate benefits or trade-offs.	Productivity is a primary concern for farmers considering adoption of new practices.
Income generated from agroforestry plots	This measures the economic returns from agroforestry systems, including both short-term crops and long-term tree products.	Economic viability is essential for sustainable adoption without continued subsidies.
Reduction in chemical inputs in agroforestry systems	This measure decreases in fertilizer and pesticide use compared to conventional systems.	Input reduction represents both cost savings for farmers and environmental benefits.
Tree growth rate and biomass accumulation	This measures how quickly trees in the system are growing and accumulating biomass.	Faster growth indicates system health and predicts future timber/fruit yields and carbon benefits.
Value of ecosystem services from agroforestry	This estimates the monetary value of services like pollination, water purification, and soil formation.	Quantifying these benefits can justify support programs and demonstrate full system value beyond crops.
SOIL HEALTH INDICATORS		
Soil organic matter content in agroforestry plots	This measures the percentage of organic material in soil, a key indicator of soil health.	Higher organic matter improves fertility, water retention, and carbon sequestration.
Soil erosion rates (tons/hectare/year)	This measures soil loss from agricultural lands, which agroforestry should reduce.	Soil conservation is a critical adaptation benefit that maintains long-term productivity.
Soil moisture retention capacity	This measures how well soil holds water during dry periods, which agroforestry should improve.	Improved water retention reduces drought vulnerability and irrigation needs.
Soil biodiversity indices	These measure the diversity and abundance of soil organisms in agroforestry systems.	Soil biodiversity supports nutrient cycling, pest suppression, and overall system resilience.
Nutrient cycling efficiency	This measures how effectively nutrients are recycled within the agroforestry system.	Efficient nutrient cycling reduces fertilizer requirements and environmental impacts.
CLIMATE RESILIENCE INDICATORS		
Crop survival rates during extreme weather events	This measures the percentage of crops that survive droughts, storms, or floods in agroforestry versus conventional systems.	Directly measures the climate adaptation benefit of agroforestry systems.
Water use efficiency in agroforestry systems	This measures crop production per unit of water used, which agroforestry should improve.	Water efficiency is increasingly important with climate change-induced water scarcity.
Temperature difference under agroforestry canopy versus open fields	This measures the microclimate modification effect of agroforestry systems.	Cooler temperatures under canopy can reduce heat stress on crops and improve working conditions.
Recovery time after climatic stress events	This measures how quickly production returns to normal after extreme weather events.	Faster recovery indicates greater system resilience and reduces economic impact.

PROPOSED INDICATORS	EXPLANATION	SIGNIFICANCE
Pest and disease incidence compared to monoculture systems	This compares pest and disease problems between agroforestry and conventional systems.	Reduced pest pressure is a key potential benefit of diverse agroforestry systems.

Priority Action 3| Forest Cover Enhancement

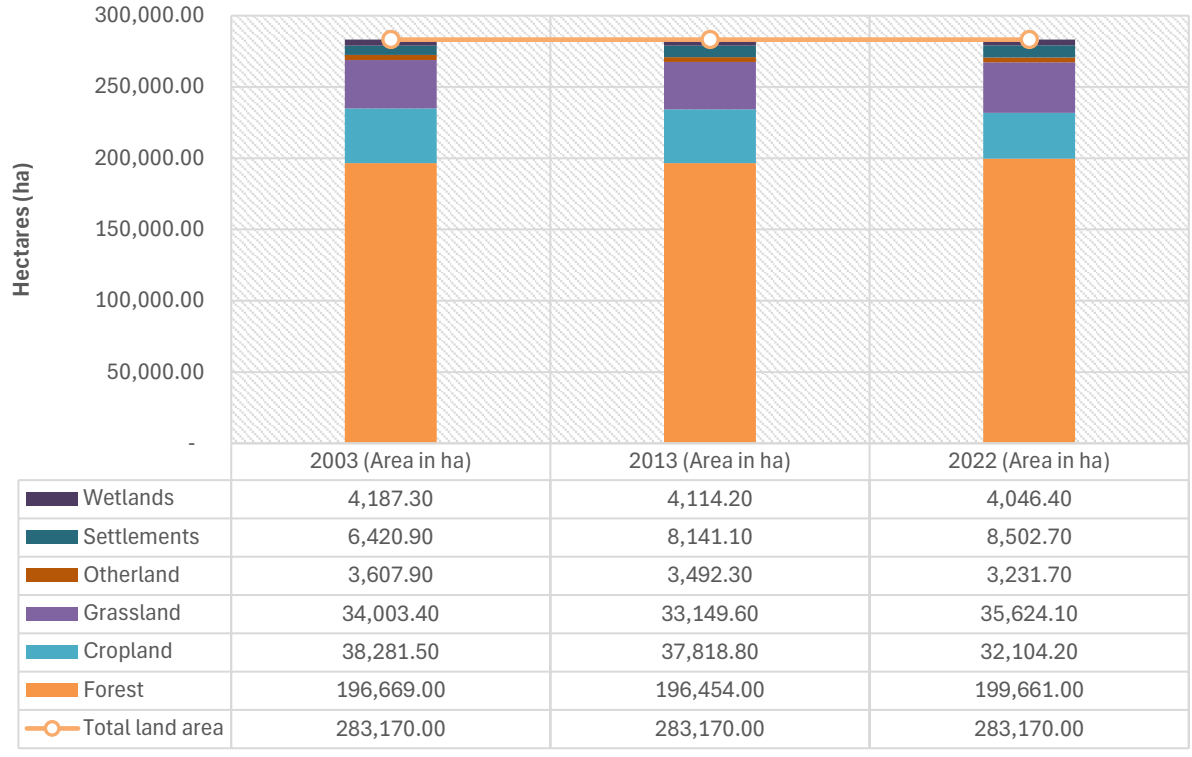
PROPOSED INDICATORS	EXPLANATION	SIGNIFICANCE
AREA AND COVERAGE INDICATORS		
Total forest cover (hectares)	This fundamental indicator directly measures progress toward the goal of 2% increase in forest cover.	Regular monitoring allows for trend analysis and evaluation against the NDC target.
Percentage change in forest cover from 2013 baseline	Calculating the percentage change relative to the 165,049 hectares baseline provides a standardized metric.	Directly measures progress toward the 2% increase target in the NDC.
Area of new forest established (hectares)	This specifically measures newly forested areas, distinguishing between natural regeneration and active reforestation.	Helps attribute changes to specific interventions versus natural processes.
Forest fragmentation index	This measures how continuous, or fragmented forest areas are across the landscape.	Continuous forest provides greater ecological benefits than the same area in fragmented patches.
Forest connectivity metrics	These measures track how well forest patches are connected to allow species movement.	Connectivity is critical for biodiversity conservation and ecosystem function.
IMPLEMENTATION INDICATORS		
Number of native species nurseries established	This tracks implementation of the NDC activity to "establish native species nurseries."	Nurseries are essential infrastructure for sustainable reforestation efforts.
Number and diversity of seedlings produced annually	This measures the capacity of nurseries to supply reforestation efforts.	Seedling availability can be a bottleneck for implementation if not adequately planned.
Area of degraded forest rehabilitated (hectares)	This measures forest improvement activities in existing but degraded forest areas.	Rehabilitation of degraded forests often provides faster ecological benefits than new plantings.
Number of priority watersheds with active forest restoration	This tracks implementation of the NDC activity to "implement forest restoration in priority watersheds."	Watershed-based prioritization maximizes hydrological and community benefits.
Number of forest protection measures implemented	This counts specific actions taken to protect forests from threats like fire, illegal logging, or encroachment.	Protection of existing forests is often more cost-effective than restoration after loss.
FOREST QUALITY INDICATORS		
Tree density (trees per hectare)	This measures how many trees exist in each forest area.	Optimal density varies by forest type but influences ecosystem function and carbon storage.
Species diversity in restored forests	This measures the variety of tree and understory species in forest areas.	Higher diversity generally indicates healthier ecosystems with greater resilience.
Canopy cover percentage	This measures the proportion of ground covered by tree canopies when viewed from above.	Canopy cover influences understory conditions, erosion protection, and habitat quality.
Forest age structure	This characterizes the distribution of trees by age class within forest areas.	Diverse age structure indicates ongoing regeneration and long-term sustainability.

PROPOSED INDICATORS	EXPLANATION	SIGNIFICANCE
Presence of indicator species for forest health	Certain plant or animal species serve as indicators of overall forest ecosystem health.	Changes in indicator species can signal problems before they affect the entire ecosystem.
ECOSYSTEM SERVICE INDICATORS		
Carbon stock and sequestration rates	This measures the amount of carbon stored in forest biomass and soils, and the annual rate of additional capture.	Quantifies climate mitigation co-benefits and can potentially support carbon finance.
Watershed protection effectiveness	This measures improvements in water quality, flow regulation, and reduced sedimentation in forested watersheds.	Water-related benefits are often the most immediately valuable to local communities.
Incidence of landslides and flooding in forested versus deforested areas	This compares the frequency and severity of disasters between areas with and without forest cover.	Disaster risk reduction is a key adaptation benefit of forests in steep terrain.
Biodiversity indices in restored forest areas	These measure species richness, abundance, and evenness in forest ecosystems.	Biodiversity conservation is both an adaptation strategy and a co-benefit of forest restoration.
Economic value of forest ecosystem services	This estimates the monetary value of services like water purification, erosion control, and pollination.	Economic valuation helps justify forest investments and incorporate forests into national accounting.
MANAGEMENT AND PROTECTION INDICATORS		
Area of forest under formal protection status	This measures forest area with legal protection from conversion or degradation.	Legal protection is often necessary to prevent future deforestation.
Number of forest management plans developed and implemented	This counts active management plans that guide sustainable forest use and protection.	Formal planning improves the effectiveness and sustainability of forest management.
Frequency and effectiveness of monitoring activities	This measures how often forests are monitored and whether monitoring detects and addresses threats.	Regular monitoring is essential for enforcement and adaptive management.
Number of reported forest encroachment incidents	This counts unauthorized forest clearing, logging, or other damaging activities.	Encroachment trends indicate the effectiveness of protection measures.
Community participation in forest monitoring and protection	This measures local involvement in forest management activities.	Community participation often improves effectiveness and sustainability of forest protection.

These detailed indicators provide a comprehensive framework for tracking progress on Samoa's adaptation priorities, with specific attention to both implementation activities and outcome measures. They can be incorporated into existing monitoring systems or used to develop new data collection protocols tailored to Samoa's particular context and capacity.

5.0| Proposed Revised Baseline for High-Level NDC Targets

A more recent datapoint for the overarching targets or adaptation actions in the AFOLU and Marine sectors were found in the **National REDD+ Forest Reference Emission Level / Forest Reference Level 2023**. The following Figure 2, Figure 3, Figure 4 developed from data in that report to illustrate a trend over three datapoints. It is proposed for the overarching targets for the three priority actions to consider using the updated 2022 data as baseline. However, it is important to note that the Forest Reference is based on imagery analysis, with further ground-truthing work that needs to be conducted.

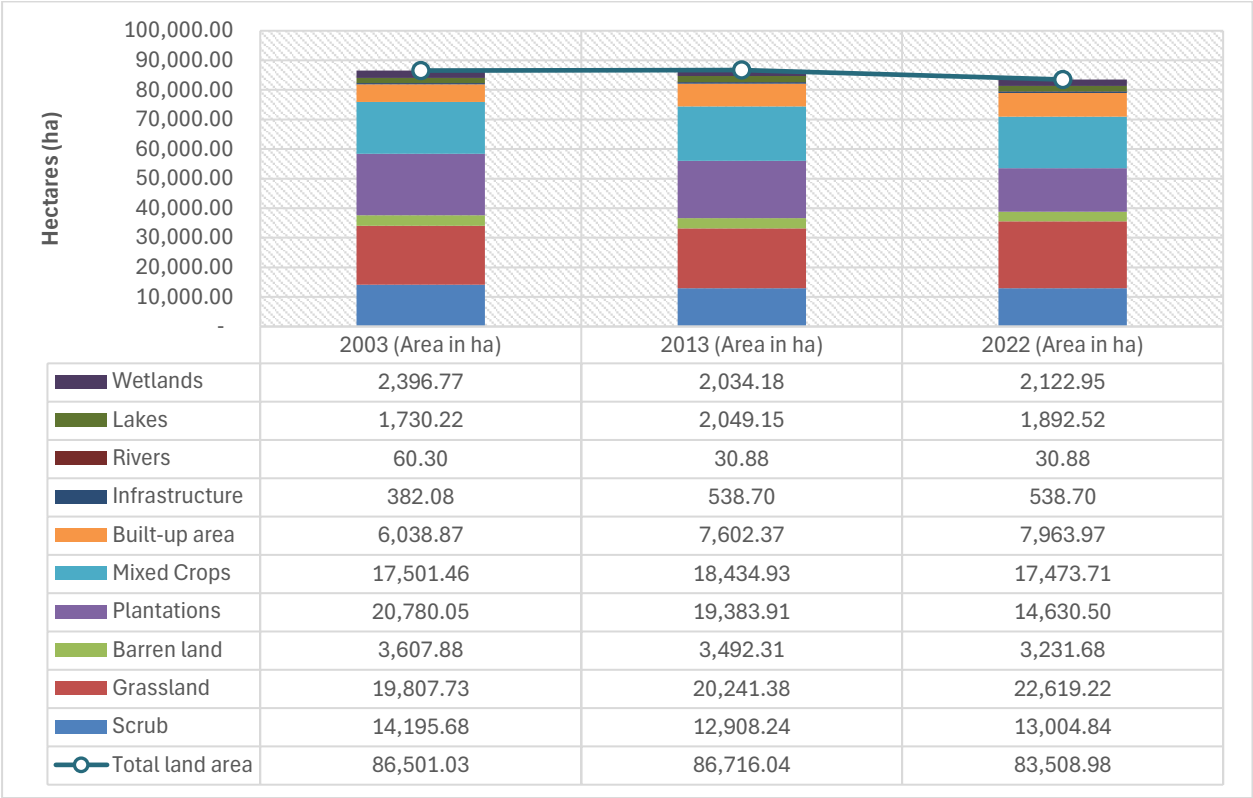


	2003 (Area in ha)	2013 (Area in ha)	2022 (Area in ha)
Wetlands	4,187.30	4,114.20	4,046.40
Settlements	6,420.90	8,141.10	8,502.70
Otherland	3,607.90	3,492.30	3,231.70
Grassland	34,003.40	33,149.60	35,624.10
Cropland	38,281.50	37,818.80	32,104.20
Forest	196,669.00	196,454.00	199,661.00
Total land area	283,170.00	283,170.00	283,170.00

Figure 2| Distribution of land area (ha) across land use categories for 2003, 2013, and 2022
Source: National REDD+ Forest Reference Emission Level / Forest Reference Level 2023

	2003 (Area in ha)	2013 (Area in ha)	2022 (Area in ha)
Mangrove Forest	1,329.80	1,364.60	1,017.60
Forest Plantation	5,274.70	5,054.90	4,086.00
Secondary Forest	34,162.10	36,623.60	43,792.70
Open Forest	37,045.00	34,125.50	28,528.60
Medium Dense Forest	72,460.60	72,858.10	70,963.40
Closed Forest	46,396.80	46,427.30	51,272.70
Total land area	196,668.97	196,453.97	199,661.02

Figure 3| Distribution of land area (ha) across forest sub-categories for 2003, 2013, and 2022
Source: National REDD+ Forest Reference Emission Level / Forest Reference Level 2023



	2003 (Area in ha)	2013 (Area in ha)	2022 (Area in ha)
Wetlands	2,396.77	2,034.18	2,122.95
Lakes	1,730.22	2,049.15	1,892.52
Rivers	60.30	30.88	30.88
Infrastructure	382.08	538.70	538.70
Built-up area	6,038.87	7,602.37	7,963.97
Mixed Crops	17,501.46	18,434.93	17,473.71
Plantations	20,780.05	19,383.91	14,630.50
Barren land	3,607.88	3,492.31	3,231.68
Grassland	19,807.73	20,241.38	22,619.22
Scrub	14,195.68	12,908.24	13,004.84
Total land area	86,501.03	86,716.04	83,508.98

Figure 4| Distribution of land area (ha) for non-forest sub-categories in 2003, 2013, and 2022
Source: National REDD+ Forest Reference Emission Level / Forest Reference Level 2023

6.0|Proposed National MRV System

There is no centralised system for the national measurement, reporting, and verification (MRV) of adaptation actions. Following discussions with the MNRE the following adaptation actions MRV system is proposed for tracking the priority actions.

MRV System Overview

Purpose and Objectives

This MRV system provides a structured framework to track, report, and verify progress on Samoa's NDC adaptation priority actions in the AFOLU and Marine sectors. The system aims to:

- Provide reliable, consistent, and transparent data on adaptation implementation
- Support evidence-based decision-making for adaptive management
- Enable accurate reporting to national stakeholders and international bodies
- Verify achievement of adaptation targets and outcomes
- Facilitate learning and continuous improvement

This system aligns with the intentions of the MNRE to centralise their efforts for data collection and reporting, as per their institutional restructuring proposal to the Public Service Commission. Hence, although this proposed system primarily focusses on adaptation actions in AFOLU and marine sectors, it does set a pathway and framework for the Ministry to centralise all their data collection, verification, and reporting in compliance with national and international reporting requirements.

Scope

This MRV system covers all three priority adaptation actions:

- Mangrove Ecosystem Enhancement
- Climate-Smart Agroforestry Development
- Forest Cover Enhancement

Guiding Principles

- Transparency: All methodologies, data, and analyses are accessible and well-documented
- Accuracy: Methods conform to international best practices and minimize bias
- Consistency: Methodologies remain consistent over time to allow trend analysis
- Completeness: All relevant sources, sinks, and activities are included
- Efficiency: The system leverages existing data collection efforts where possible
- Participation: Multiple stakeholders are engaged in data collection and verification

Institutional Arrangements

High-level Institutional Body

Samoa's high-level monitoring and evaluation framework, established under the NDC Implementation Roadmap and Investment Plan, establishes a transparent, accountable, and structured system to track progress and ensure effective implementation of its climate commitments. The framework assigns responsibilities across three tiers of governance (Figure 5):

- Supervisor oversees NDC implementation and ensures alignment with national climate objectives; this responsibility currently resides with the MNRE CEO.
- Sector Leaders monitor progress within their assigned sectors, such as electricity or agriculture.
- Executors manage project implementation.

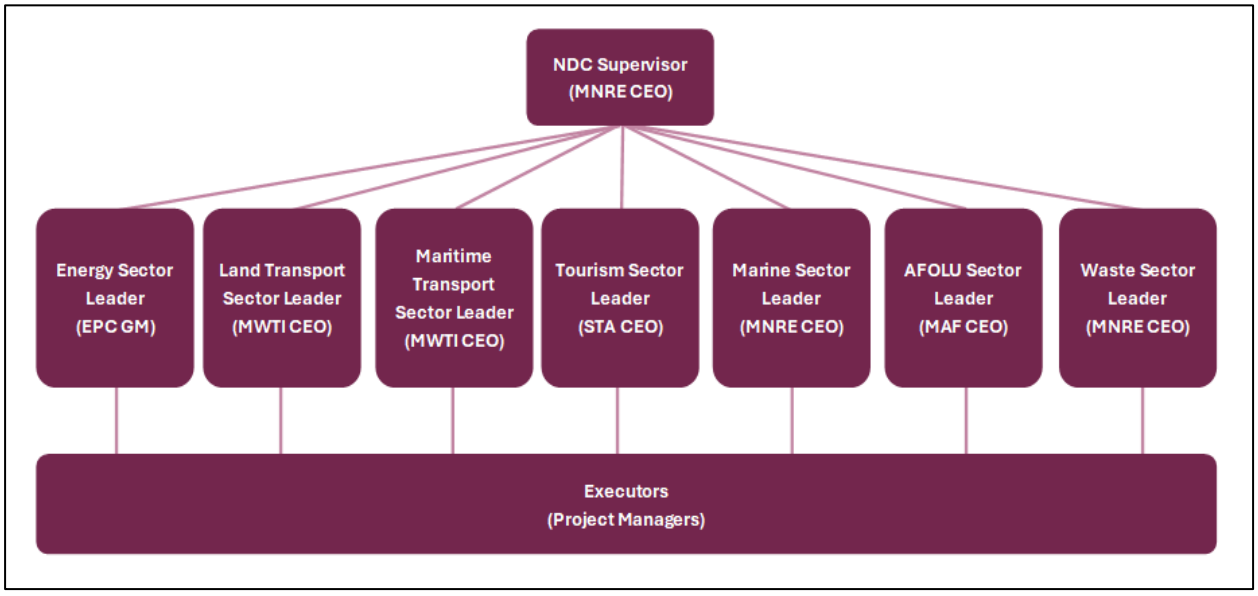


Figure 5| NDC Governance and Reporting Structure
Source: Samoa NDC Roadmap and Implementation Plan 2021

The discussions with MNRE confirmed they do *ad hoc* reporting which is usually facilitated and reported through standalone spreadsheets and reports, intermittently tracking project status, funding, emission reductions, and barriers to progress.

The governance of Samoa's marine sector is established through the Fisheries Management Act 2016, implemented by MAF and MNRE. Key ministerial oversight includes MCIL (industrial relations), MoF (climate investments), MNRE (environmental resources), and MWTI (transportation). Operational entities comprise the Samoa Ports Authority, Shipping Corporation, Shipping Services, and Water Authority, while the Samoa Conservation Society supports environmental initiatives through an ecosystem-based approach framework.

The AFOLU sector in Samoa is governed by multiple policies including the Forest Act 1967, Forest Management Act 2011, and the National Environment Sector Plan 2017-2021. Key ministerial oversight includes MAF (agricultural regulation and food security), MNRE's Forestry Division

(environmental resources and conservation), and MCIL (industry relations). The Samoa Conservation Society supports biological diversity initiatives. This framework is underpinned by the Agriculture Sector Plan (2016-2020), the National Policy on Conservation of Biological Diversity 2007, and the National Policy on Forestry for Sustainable Development 2007.

Proposed Additional Institutional Arrangements

Lead Coordination Agency:

- MNRE Climate Change Division serves as the cornerstone institution for the MRV system, establishing standardized protocols for environmental data collection and maintaining central data repositories.

Implementation Responsibilities:

- Mangrove Ecosystem Enhancement – Lead: MNRE - Division of Environment and Conservation. Supporting: Ministry of Agriculture and Fisheries (MAF), Samoa Tourism Authority (STA), Village Councils
- Climate-Smart Agroforestry Development – Lead: Ministry of Agriculture and Fisheries (MAF). Supporting: MNRE, Scientific Research Organisation of Samoa (SROS), Samoa Bureau of Statistics (SBS)
- Forest Cover Enhancement – Lead: MNRE - Forestry Division. Supporting: MAF, Ministry of Women, Community and Social Development (MWCSD)

Technical Working Group (TWG):

A dedicated Technical Working Group comprising representatives from:

- Government ministries (MNRE, MAF, MWCSD, Ministry of Finance)
- Research institutions (SROS, National University of Samoa)
    - Technical expertise flows primarily through the Scientific Research Organization of Samoa (SROS), which provides crucial scientific support for adaptation initiatives through targeted research and development across terrestrial and marine sectors:
        - **In agriculture and forestry**: SROS could assist MNRE and MAF develop climate-resilient agroforestry systems that integrate traditional crops with native species, while identifying drought-tolerant livestock breeds and crop varieties adapted to changing rainfall patterns.
        - **In marine research**: Looking to advance thermal-resistant coral species for reef restoration, implement science-based fisheries management, improve mangrove restoration techniques for coastal protection, and design adaptive aquaculture systems.
    - By combining scientific research with traditional ecological knowledge, the SROS can play a pivotal role in supporting MNRE and MAF to create evidence-based adaptation strategies tailored to Samoa's unique environmental challenges.
- Civil society organizations
- Community representatives
- Private Sector Organisations and Businesses
    - The private sector has significant potential to drive climate adaptation efforts in Samoa, particularly across key economic sectors including agriculture, fisheries,

tourism, and power generation. These industries are already heavily influenced by private sector participation, positioning them well to implement meaningful adaptation measures through their established presence, operational experience, and capacity for innovation. To fully leverage this potential, however, two key barriers need to be addressed:
    - Adaptation strategies must be more thoroughly integrated into operational guidelines and standards across all sectors
    - Samoa's underdeveloped financial market creates funding constraints, particularly for smallholders and micro-businesses
  - By resolving these challenges through improved access to finance and comprehensive adaptation guidelines, the private sector could substantially advance Samoa's climate resilience objectives while bringing valuable resources, expertise, and implementation capacity to adaptation efforts.
- Development partners

The TWG will meet quarterly to review data, address methodological issues, and ensure coordination.

Establish Adaptation Actions Information and Data Focal Point within the MNRE Climate Change Division to:

- Maintain central adaptation MRV database
- Provide quality assurance and control for collected data
- Develop data collection templates and tools
- Provide technical support to implementing agencies
- Generate reports and visualizations

Measurement Framework

Priority Action 1| Mangrove Ecosystem Enhancement

Primary Indicators (measured annually)

- Total mangrove area (hectares): Method: Remote sensing analysis using medium-resolution satellite imagery (Sentinel-2) with ground truthing, Responsibility: MNRE with technical support from SPC/regional partners, Frequency: Annual comprehensive assessment
- Number of community-based mangrove nurseries established: Method: Direct counting and geo-referencing of operational nurseries, Responsibility: MNRE with village councils, Frequency: Quarterly updates
- Area of restored/rehabilitated mangrove (hectares): Method: GPS mapping of restoration sites combined with survival assessments, Responsibility: MNRE field teams with community monitors, Frequency: Bi-annual assessments
- Number of buffer zones established: Method: GPS mapping of established buffer zones, Responsibility: MNRE with village councils, Frequency: Annual update
- Seedling survival rate (%): Method: Sampling of restoration sites using standardized plots, Responsibility: MNRE with community monitors, Frequency: 3-, 6-, and 12-months post-planting

Secondary Indicators (measured periodically)

- Species diversity within mangrove ecosystems: Method: Standardized biodiversity survey protocols in sample plots, Responsibility: MNRE with scientific partners, Frequency: Every 2-3 years
- Carbon sequestration in mangrove areas: Method: Combination of allometric equations and soil carbon sampling, Responsibility: MNRE with technical experts, Frequency: Every 3-5 years
- Community perception surveys: Method: Structured questionnaires in participating villages, Responsibility: MWCSD with MNRE, Frequency: Every 2 years

Priority Action 2| Climate-Smart Agroforestry Development

Primary Indicators (measured annually)

- Total area under agroforestry (hectares): Method: Combination of farmer reporting, extension officer verification, and sample-based remote sensing, Responsibility: MAF with MNRE support, Frequency: Annual assessment
- Number of farmers receiving climate-resilient varieties: Method: Distribution records with farmer verification, Responsibility: MAF extension services, Frequency: Continuous recording with quarterly compilation
- Number of demonstration plots established and maintained: Method: Direct counting and quality assessment, Responsibility: MAF extension services, Frequency: Semi-annual updates
- Number of farmers trained in agroforestry techniques: Method: Training attendance records with follow-up verification, Responsibility: MAF with supporting partners, Frequency: Continuous recording with quarterly compilation
- Crop yield in agroforestry systems (tons/hectare): Method: Crop cutting surveys in sample plots across agroforestry systems, Responsibility: MAF research division with SROS, Frequency: Each harvest season

Secondary Indicators (measured periodically)

- Soil organic matter content (%): Method: Soil sampling and laboratory analysis, Responsibility: MAF with SROS, Frequency: Every 2-3 years
- Income generated from agroforestry plots: Method: Structured farmer surveys with sample verification, Responsibility: MAF economics division with SBS, Frequency: Annual for sample farms, comprehensive every 3 years
- Resilience to extreme weather events: Method: Post-event damage assessments comparing agroforestry to conventional farms, Responsibility: MAF with Disaster Management Office, Frequency: After significant weather events

Priority Action 3| Forest Cover Enhancement

Primary Indicators (measured annually)

- Total forest cover (hectares): Method: Remote sensing analysis using medium to high-resolution imagery with ground truthing, Responsibility: MNRE Forestry Division, Frequency: Annual comprehensive assessment
- Area of new forest established (hectares): Method: GPS mapping of reforestation sites combined with establishment success assessments, Responsibility: MNRE field teams, Frequency: Annual update

- Number of native species nurseries established: Method: Direct counting and capacity assessment, Responsibility: MNRE Forestry Division, Frequency: Annual update
- Number of seedlings produced and planted: Method: Nursery production records and planting verification, Responsibility: MNRE Forestry Division, Frequency: Quarterly compilation
- Seedling survival rate (%): Method: Sampling of restoration sites using standardized plots, Responsibility: MNRE with community monitors, Frequency: 6- and 12-months post-planting

Secondary Indicators (measured periodically)

- Carbon stock in forest areas: Method: National Forest inventory procedures with carbon calculation, Responsibility: MNRE with technical experts, Frequency: Every 5 years
- Forest fragmentation index: Method: GIS analysis of forest cover patterns, Responsibility: MNRE GIS unit, Frequency: Every 2-3 years
- Implementation of forest protection measures: Method: Policy tracking and enforcement activity reports, Responsibility: MNRE Forestry Division, Frequency: Annual assessment

Data Collection and Management

Data Collection Tools

- **Mobile Data Collection Apps**: Custom forms developed for field data collection, Offline functionality with GPS capabilities, Photo documentation features
- **Community Monitoring Sheets**: Simplified paper forms for community monitors, Regular collection and digitization process
- **Remote Sensing and GIS**: Standardized image processing protocols, Cloud-based processing where appropriate
- **Household and Farm Surveys**: Standardized questionnaires for consistency, Tablet-based data collection where possible

Quality Assurance/Quality Control

- **Data Collection Protocols**: Standardized field manuals for each indicator, Regular training for data collectors
- **Data Validation Procedures**: Automated validation checks in digital systems, Cross-verification of subsample of data points
- **Uncertainty Assessment**: Quantification of measurement uncertainty, Transparent reporting of confidence levels

Central Database System

- **Structure**: Web-based relational database, User permissions based on institutional roles, Backup and disaster recovery protocols
- **Data Entry and Integration**: Direct digital data entry where possible, API connections to existing sectoral databases, Regular synchronization schedule
- **Data Security**: Encryption of sensitive data, Regular security audits, Change logging and version control

Reporting Framework

Internal Reporting

- **Quarterly Progress Reports**: Implementing agencies report to MNRE, Focus on activity implementation and immediate outputs, Identification of implementation challenges
- **Annual Indicator Reports**: Comprehensive assessment of all indicators, Analysis of trends and progress toward targets, Recommendations for adaptive management
- **Dashboard System**: Online visualization of key indicators, Restricted access for government stakeholders, Updated quarterly with validated data

National Reporting

- **Annual NDC Implementation Report**: Public document synthesizing progress across all adaptation actions, Presented to Cabinet and Parliament, Published on government websites
- **State of Environment Report Contribution**: Integration of adaptation MRV data, Linkage to broader environmental outcomes
- **Community Feedback Sessions**: Village-level presentations of local results, Collection of community perspectives, Documentation of traditional knowledge observations

International Reporting

- **Biennial Transparency Reports (BTR)**: As required under the Enhanced Transparency Framework, Standardized reporting of adaptation progress
- **National Communications to UNFCCC**: Integration of adaptation MRV data, Contextualizing adaptation within national circumstances
- **NDC Updates**: Evidence-based assessment of adaptation progress, Informing target revisions and new commitments

Verification Procedures

Internal Verification

- **Technical Review**: Technical Working Group reviews all indicator reports, Methodology assessment and data quality review, Documentation of findings and recommendations
- **Cross-Sectoral Validation**: Cross-checking with related sectoral data, Identification of inconsistencies or gaps
- **Management Response**: Formal response to verification findings, Action plan for addressing issues

Independent Verification

- **Third-Party Technical Audit**: Biennial review by independent experts, Assessment of methodological rigor, Verification of sample data points
- **Civil Society Review**: Formal review opportunity for NGOs and civil society, Documentation of stakeholder feedback, public response to major concerns

- **International Expert Review**: Through UNFCCC processes, technical expert review teams, recommendations for improvement

Adaptive Management Framework

Annual Review and Planning Cycle

- **Annual Review Workshop**: Multi-stakeholder assessment of progress, Identification of success factors and barriers, Documentation of lessons learned
- **Adaptation of Implementation Approaches**: Evidence-based adjustments to activities, Reallocation of resources based on effectiveness, Documentation of changes and rationale
- **MRV System Improvement**: Regular assessment of system effectiveness, Refinement of indicators and methodologies, Capacity development for implementing agencies

Mid-term Evaluation

- **Comprehensive Progress Assessment**: Independent evaluation at 2.5-year mark, Assessment against original targets, Recommendations for course correction
- **Stakeholder Consultation**: Structured feedback from all stakeholder groups, Documentation of diverse perspectives
- **Strategic Realignment**: Evidence-based adjustments to targets, Potential revision of implementation strategies

Capacity Development Plan

Technical Training Program

- **Core Skills Development**: GIS and remote sensing analysis, Field measurement techniques, Data management and analysis, Report writing and visualization
- **Specialized Training**: Carbon measurement methodologies, Biodiversity assessment techniques, Socio-economic survey methods, Advanced statistical analysis

Institutional Strengthening

- **Equipment and Infrastructure**: Field measurement tools, Data storage and processing capacity, Transportation for monitoring activities
- **Procedural Development**: Standard operating procedures, Quality assurance protocols, Documentation systems
- **Knowledge Management**: Information sharing platforms, best practice documentation, technical resource library

Budget and Resource Requirements

Staffing Requirements

- **Dedicated MRV Team**: MRV Coordinator (1 FTE), Data Management Specialist (1 FTE), GIS/Remote Sensing Specialist (1 FTE), Field Team Coordinators (3 FTE, one per priority action)
- **Part-Time Contributors**: Technical specialists from implementing agencies, Community monitors with stipends, Periodic technical consultants

Equipment and Technology

- **Field Equipment**: GPS units, tablets for data collection, Forest/mangrove measurement tools, Water quality testing equipment, Soil testing kits
- **IT Infrastructure**: Database server and software, GIS and remote sensing software licenses, Mobile data collection platform, Reporting and visualization tools

Annual Budget Estimate

- **Estimated Total Annual Budget**: USD $400,000
- **Indicative Budget Lines**: Personnel Costs (USD $180,000); Equipment and Supplies (USD $45,000); Training and Capacity Building (USD $35,000); Data Collection Activities (USD $90,000); Reporting and Verification (USD $30,000); Independent Assessments (USD $20,000).

Implementation Roadmap

Phase 1: System Establishment (Year 1)

- **Quarter 1**: Finalize institutional arrangements, Develop detailed methodologies for priority indicators, Begin baseline data collection
- **Quarter 2**: Develop and test data collection tools, Train core MRV team and field staff, Establish database infrastructure
- **Quarter 3**: Complete baseline data collection, Finalize reporting templates, Initial stakeholder workshop
- **Quarter 4**: First quarterly reports, System review and refinement, Capacity needs assessment

Phase 2: System Consolidation (Years 2-3)

- **Key Activities**: Regular data collection and reporting, Methodological refinement, Expanding to secondary indicators, Mid-term evaluation

Phase 3: System Maturity (Years 4-5)

- **Key Activities**: Full implementation of all indicators, independent verification processes, Integration with broader national statistics, Comprehensive evaluation to inform NDC updates

This MRV system equips Samoa to track adaptation progress, meet domestic and international reporting needs, and guide evidence-based decision-making.

7.0|Conclusions

Samoa's commitment to climate adaptation is evident in its strategic frameworks and ambitious targets outlined in its NDC. This report has identified three priority adaptation actions in the AFOLU and Marine sectors: Mangrove Ecosystem Enhancement, Climate-Smart Agroforestry Development, and Forest Cover Enhancement. These actions are closely aligned with Samoa's national development goals and international climate commitments, providing a clear pathway for enhancing resilience and sustainability.

The proposed MRV system offers a structured and transparent framework for tracking progress on these adaptation actions. By integrating scientific and traditional knowledge, engaging multiple stakeholders, and leveraging existing data collection efforts, the MRV system ensures that Samoa can effectively monitor, report, and verify its adaptation efforts. This system not only supports domestic policy needs but also enables Samoa to meet its international reporting obligations under the Paris Agreement.

As Samoa continues to face the impacts of climate change, the implementation of these adaptation actions, supported by a robust MRV system, will be crucial for building resilience and achieving sustainable development. The recommendations in this report provide a solid foundation for Samoa to enhance its climate adaptation efforts, protect its natural resources, and secure a resilient future for its communities.

Annexes

Annex 1 | Linkages of Samoa NDC to Sector-level Planning

Linkages Between Samoa's NESP and the NDC Adaptation Actions

The NESP creates a strong policy and programmatic framework for all three NDC adaptation actions, though it typically does not specify the same quantitative targets (5% mangrove expansion, 5% agroforestry increase, 2% forest cover increase) found in the NDC document.

Priority Action 1: Mangrove Ecosystem Enhancement

Strategic Alignments:

- LTO 1: Sustainable Environment Secured and specifically ESPO 1.4: Conservation and sustainable management of terrestrial and marine biological diversity improved directly supports mangrove ecosystem enhancement.
- The NESP emphasizes "strengthening management of coastal and marine biodiversity and the associated environment" which directly supports mangrove conservation and expansion.
- The Samoa Ocean Strategy 2020-2030 referenced in the NESP provides a framework for managing marine resources that would include mangrove areas.

Specific Activities in NESP:

- "Conservation and management of marine and coastal ecosystems and habitat" under ESPO 1.4 targets
- "Develop and implement programs and biosecurity measures to control the spread of invasive species" which would benefit mangrove health
- "Conduct regular surveys to collect necessary biodiversity and associated information" supports mapping efforts
- The Community-based approach mentioned throughout the document supports establishing community-based nurseries

Targets:

While the NESP doesn't specify a 5% mangrove expansion target, its approach to marine ecosystem management creates the policy framework necessary to achieve this NDC goal.

Priority Action 2: Climate-Smart Agroforestry Development

Strategic Alignments:

- ESPO 1.2: Sustainable management and development of forests improved aligns perfectly with agroforestry objectives
- The NESP specifically mentions a "national 3 million tree planting campaign 2022-2028" which directly supports increasing forest and agroforestry coverage
- ESPO 1.3a: Sustainable management and development of lands improved supports land use planning necessary for agroforestry expansion

Specific Activities in NESP:

- "Lead the implementation of the national 3 million tree planting campaign 2022-2028"
- "Support forestry scientific research studies for lesser-known forestry tree species"
- "Facilitate the update of the current count and status of the Land tenure including systems

and processes" which would support identifying suitable agricultural lands
- "Development of the National Sustainable Land Management & Land use Policy" which would enable agroforestry planning

Targets:
The NESP's 3 million tree campaign provides a mechanism to achieve the NDC's 5% agroforestry increase goal, even though the percentage target isn't explicitly stated in the NESP.

Priority Action 3: Forest Cover Enhancement

Strategic Alignments:
- ESPO 1.2: Sustainable management and development of forests improved directly supports forest cover enhancement
- The NESP indicates plans to "Update National Forestry Inventory" which would identify degraded areas for restoration
- "Develop and review management plans for National Parks State Forest Land and Community Conservation Areas (CCAs)" supports forest expansion efforts

Specific Activities in NESP:
- "Update National Forestry Inventory" (last completed in 2013)
- "Rehabilitate and maintain key watershed areas through reforestation and sediment control"
- "Establish native species nurseries" is implicitly supported through the forestry initiatives
- "Monitor forest growth and biodiversity indicators" is supported through regular biodiversity surveys mentioned in the plan

Integration with Climate Resilience
The NESP strongly emphasizes climate resilience through LTO 3: Climate Change and Disaster Resilience enhanced in all sectors, which provides additional policy support for all three NDC actions by framing them as climate adaptation measures.

Cross-Cutting Implementation Mechanisms:
The NESP includes several mechanisms that would support implementation of all three NDC actions:
- "Coordinate implementation of CIM Plans including through the rollout of the Government's 1million District Development initiative"
- "Develop Sectoral Climate Change Adaptation Strategies"
- "Coordinate the development of current vulnerability and adaptation efforts"
- "Strengthen community engagement and involvement in sector developments"

Linkages Between Samoa's AFSP and NDC Adaptation Actions

While the Agriculture and Fisheries Sector Plan provides a supportive strategic framework for the NDC adaptation actions, the specific quantitative targets and activities for mangrove expansion, agroforestry development, and forest cover enhancement are not explicitly stated. This suggests an opportunity for greater target and activity alignment between these planning documents in future iterations.

Priority Action 1: Mangrove Ecosystem Enhancement

Strategic Alignments:
- Strategic Outcome 1 "Resilient and sustainable food, agriculture, fisheries and aquaculture systems enhanced" supports mangrove protection.
- Strategy 1.1 "Boosting nature-positive production and sustainable food, agriculture, fisheries and aquaculture practices" aligns with restoration goals.
- The Community-based Fisheries Program (Activity 1.1.4) provides a framework for community-based mangrove initiatives.

- Strategy 1.3.3 on capturing traditional knowledge supports implementing restoration protocols incorporating traditional knowledge.

Target Comparison:

- NDC Target: 5% expansion of mangrove forests by 2030 from 2018 baseline (374 hectares)
- Sector Plan: No specific quantitative targets for mangrove expansion, though indicators for sustainable fish stocks and marine ecosystem health are included.

Activity Alignment:

- Activity 1.1.4: "Continue and strengthen the Community-based Fisheries Program incorporating environmentally friendly aquaculture/mariculture farming practices." This activity supports community engagement in coastal ecosystem management, which could include the community-based mangrove nurseries specified in the NDC.
- Activity 1.3.3: "Capture traditional/local/indigenous knowledge about resilient and sustainable food, agriculture and fisheries systems." This directly supports the NDC activity to "implement restoration protocols incorporating traditional knowledge."
- Activity 1.4.1: "Improve environmental protection policy and regulatory measures on core components (land use, ocean, water, waste, species, etc.) of the food, agriculture and fisheries systems." This could support creating buffer zones around existing mangrove forests as specified in the NDC.
- Activity 1.4.3: "Implement robust monitoring, control, surveillance and enforcement measures for different aspects/components of the food, agriculture and fisheries systems." This aligns with the NDC activity to "monitor growth rates and ecosystem health quarterly."

Priority Action 2: Climate-Smart Agroforestry Development

Strategic Alignments:

- Strategy 1.1.2 on sustainable agriculture and land use planning supports agroforestry development.
- Activity 1.1.5 aims to "Develop diversification of local food production... more resilient to climate change" aligning with climate-resilient crop distribution.
- Extension services focus (Strategy 2.4) provides mechanisms for technical training.
- Strategy 3.5 emphasizes capacity building supporting farmer training initiatives.

Target Comparison:

- NDC Target: Increase agroforestry on agricultural land by 5% by 2030 from 2018 baseline
- Sector Plan Targets:
    - Increase agricultural land from 11.5% (2018) to 12.0% by 2028
    - Increase hectares per person from 0.17 to 0.2
    - Increase average agricultural holdings from 4 to 5 acres
    - No specific agroforestry percentage targets

Activity Alignment:

- Activity 1.1.2: "Implement initiatives/programs/projects and activities to foster sustainable agricultural and fisheries resource management and utilisation of land capability, soil suitability assessment and integrated land use planning to plan farm developments." This supports the NDC activity to "identify suitable agricultural lands for agroforestry conversion."
- Activity 1.1.5: "Develop and improve the diversification of local food production including crops, livestock, and fisheries production that are more resilient to climate change and other environmental impacts." This directly supports the NDC activity to "distribute climate-resilient crop varieties."
- Activity 2.4.2: "Adopt and implement measures to strengthen the extension services across Samoa." This supports the NDC activity to "provide technical training on agroforestry

techniques."
- Activity 3.2.2: "Scale-up district and village-based projects in agriculture and fisheries development." This could support the NDC activity to "establish demonstration plots in each district."
- Activity 1.4.2: "Strengthen monitoring and evaluation of crops… production and consumption." This aligns with the NDC activity to "monitor crop yields and soil health."

Priority Action 3: Forest Cover Enhancement

Strategic Alignments:
- Strategy 1.2 on strengthening the enabling environment supports policy frameworks for forest enhancement.
- The monitoring frameworks (1.4.2-1.4.6) could support tracking forest growth and biodiversity.
- Rural transformation focus (Strategic Outcome 3) supports community engagement in restoration.

Target Comparison:
- NDC Target: Increase total forest cover by 2% by 2030 from 2013 baseline (165,049 hectares)
- Sector Plan: No specific forest cover targets, though the plan includes indicators for biodiversity conservation and ecosystem health.

Activity Alignment:
- Activity 1.1.1: "Implement programs/projects/initiatives to support further development of organic farming and/or nature-positive farming." Nature-positive approaches include forest conservation and expansion, supporting the NDC goal of increased forest cover.
- Activity 1.2.3: "Extend technologies, tools and methods for sustainable use and management of ecosystems and productive assets that build resilience and support sustainable agriculture production systems." This could support the NDC activities for forest restoration in priority watersheds.
- Activity 1.3.1: "Develop evidence-based knowledge about the current and future capacities of the food, agriculture and fisheries systems and its underpinning landscapes and resources." This supports the NDC activity to "update forest inventory and identify degraded areas."
- Activity 5.3.3: "Based on the assessment conducted under 5.3.1, develop/review priority policy requirements for the sector." This could include strengthening forest protection measures as specified in the NDC.
- Activity 1.3.5: "Strengthen biosecurity systems including building wider understanding of biosecurity issues and controls for improved awareness and compliance." This supports forest health protection, including protection of native species nurseries mentioned in the NDC.

Additional Relevant Sector Plan Targets:
- Reduce pesticide consumption from 41% to 35% by 2028
- Increase organic fertilizer use from 5% to 20%
- Reduce postharvest losses from 20% to 10%
- Reduce food waste from 36% to 26%

Annex 2| List of Key Documents

- Agriculture and Fisheries Sector Plan 2022/23 – 2026/27
- Community Integrated Management Plans (CIMPs)
- First Biennial Update Report Samoa 2023
- International Monetary Fund (IMF), Samoa Technical Assistance Report – Climate Macroeconomic Assessment Program 2022
- National Environment Sector Plan (NESP) 2023–2027
- National REDD+ Forest Reference Emission Level/Forest Reference Level, 2023
- NDC Implementation Roadmap and Investment Plan 2021
- Pathway for the Development of Samoa (PDS) FY2021/22–FY2025/26
- PDS Monitoring, Evaluation, and Learning Framework
- Samoa Climate Change Policy 2020–2030
- Samoa Ocean Strategy (2020–2030)
- Samoa State of the Environment Report 2023
- Samoa's Second National Communication to the United Nations Framework Convention on Climate Change (NDC)

Annex 3| List of People Consulted

STAKEHOLDER	DATE	PEOPLE CONSULTED	VENUE
Chief Executive Officer, MNRE	Mon, 3-Feb	Lealaisalanoa Frances Brown Reupena, CEO	MNRE Office, Level 3 TATTE
Climate Change Division, MNRE	Thu, 28-Dec Fri, 21-Feb	Elisapeta Areta-Toma (Acting-ACEO, Climate Change Division) Bernadette Amosa, Senior CC Officer	MNRE Office, Level 3 TATTE
Environment Sector (Marine), MNRE	Tue, 26-Nov	Amituanai Moira Faletutulu (ACEO, Environment Sector)	MNRE Office, Level 3 TATTE
Transport Sector (Land & Maritime), MWTI	Wed, 27-Nov	Maselusi Amiatu (ACEO, Land Transport Division) Makerita Atonio (ACEO, Maritime Transport Division) Rainer Brown (Principal Policy & Planning Officer) Alexander Meafou (Principal M&E Officer) Ruby Folau (Principal Projects Officer) Faith Matagi (Senior Policy & Planning Officer) Taaitulagi Taavili (Policy & Planning Officer)	MWTI Office, Level 4 TATTE
Energy Sector, MWTI	Wed, 27-Nov	Tupuivao Vaiaso (ACEO-Energy Division) Cerella Lei Sam Faatauvaa Vavatau	MWTI Office, Level 4 TATTE
PUMA, MWTI	Wed, 27-Nov	Talamau Della Savaiinaea Siomia (ACEO, PUMA) Dorlyn Lafaele	MWTI Office, Level 4 TATTE
Tourism Sector, STA	Thu, 28-Nov	Toleafoa Pativaine Tevita (CEO) Tracy Wong-Ling Warren (ACEO, Tourism Sector) Roland Setu (Principal Climate Change Officer) Senior Offices Planning (2)	STA Office, Level 1 FMFM 2
Agriculture & Fisheries Sector, MAF	Fri, 29-Nov	Tai Matatumua (ACEO, Policy and Agriculture Sector Division) Lina Tone, Edward Williams Fereni Shalom Tofilau Rajnfotu Ameto	MAF Office, Level 1 TATTE
Trade, Commerce, & Manufacturing Sector, MCIL	Fri, 29-Nov	Hermine Raeli-McCarthy (ACEO, Policy, Planning, & Projects Division) Tone Williams (Princpal Officer)	MCIL Office, Level 3 ACC
Forestry Division, MNRE	Thu, 5-Dec	Moafanua A T Pouli (ACEO, Forestry Division)	MNRE Office, Level 3 TATTE
Division for Environment Conservation, MNRE	Thu, 5-Dec	Su'emalo Talie Foliga (ACEO, Division for Environment and Conservation)	MNRE Office, Level 3 TATTE
Ministry of Finance	Tue, 10-Dec	Tofilau Luamanuvae Lae Siliva, Mila Posini, Peresitene Kirifi, Faavae Mulitalo, Olivetti Bentin, Wilhelmina Lilomaiava, Victoria Lauina	MOF Office, Level 3Central Bank Building
Samoa Bureau of Statistics	Thu, 12-Dec	Papalii Benjamin Sila, Tausulu Vaai-Reupena, Faigalotu Taamilosaga	SBS Office, Level 1Government Building