

Inception Report: Assessment of Gaps, Needs, and Key Priorities for Data Collection and Institutional Arrangements in the MRV System and NDC Tracking in Samoa



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



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Inception Report: Assessment of Gaps, Needs, and Key Priorities for Data Collection and Institutional Arrangements in the MRV System and NDC Tracking in Samoa

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List of Acronyms

- AFOLU – Agriculture, Forestry, and Other Land Use
- BUR – Biennial Update Report
- CIM – Community Integrated Management
- CIMP – Community Integrated Management Plan
- COP – Conference of the Parties
- EPC – Electric Power Corporation
- ETF – Enhanced Transparency Framework
- EV – Electric Vehicle
- GACMO – Greenhouse Abatement Cost Model
- GCF – Green Climate Fund
- GEF – Global Environment Facility
- GGGI – Global Green Growth Institute
- GHG – Greenhouse Gas
- GIS – Geographic Information Systems
- ICAT – Initiative for Climate Action Transparency
- IPCC – Intergovernmental Panel on Climate Change
- MNRE – Ministry of Natural Resources and Environment
- MOF – Ministry of Finance
- MRV – Measurement, Reporting, and Verification
- MWTI – Ministry of Works, Transport, and Infrastructure
- NAMA – Nationally Appropriate Mitigation Actions
- NDC – Nationally Determined Contribution
- PDS – Pathway for the Development of Samoa
- SBS – Samoa Bureau of Statistics
- SDG – Sustainable Development Goal
- SPREP – Secretariat of the Pacific Regional Environment Programme
- UNFCCC – United Nations Framework Convention on Climate Change
- UNDP CAPIT – United Nations Development Programme Climate Action Pathways for Island Transport Project
- UNSEEA – United Nations System of Environmental and Economic Accounting

Executive Summary

Introduction

The Initiative for Climate Action Transparency (ICAT) project, launched in 2015 during the adoption of the Paris Agreement, supports countries in meeting Enhanced Transparency Framework (ETF) requirements. These include detailed, transparent reporting on climate actions and progress toward Nationally Determined Contributions (NDCs). Recognizing the capacity challenges faced by many countries, ICAT provides tailored support to build robust Measurement, Reporting, and Verification (MRV) systems for effective climate transparency.

In Samoa, the ICAT project aims to enhance coordination and strengthen MRV systems by mapping existing processes, identifying gaps in data collection and institutional arrangements, and aligning national climate reporting with international standards. Additionally, the project evaluates mitigation policies using tools like the Greenhouse Abatement Cost Model (GACMO), assesses greenhouse gas (GHG) impacts, and examines sustainable development outcomes for selected sectors. Key deliverables include gap assessments, policy impact analyses, monitoring plans, and stakeholder engagement workshops to validate findings and reinforce national capacity.

The overarching goal of the ICAT project is to strengthen Samoa's capacity for climate transparency, improve its ability to measure progress, attract climate finance, and support NDC implementation.

Samoa's Climate Action Framework

Samoa has embedded climate action into its national agenda, aligning with the Sustainable Development Goals (SDGs) and the Paris Agreement. The Pathway for the Development of Samoa (PDS) 2021–2025 prioritizes sustainable, low-carbon development, supported by sector-specific strategies across energy, transport, agriculture, waste, and marine sectors. Key efforts include the forthcoming Climate Change Bill, enhanced MRV systems, and the NDC Implementation Roadmap targeting a 26% GHG emission reduction by 2030. Community-level initiatives, such as the National Adaptation Plan (NAP) and Community Integrated Management Plans (CIMPs), emphasize ecosystem-based adaptation and disaster risk reduction. Samoa's integrated approach, leveraging both local and international frameworks, reflects its commitment to achieving climate resilience and sustainable development.

Existing MRV Mechanisms

The project team adopted a collaborative approach to map Samoa's existing MRV mechanisms, ensuring alignment with national climate goals and stakeholder validation. The process involved a comprehensive review of climate-related plans and sector strategies, categorizing indicators into GHG (mitigation) and non-GHG (adaptation/supporting) to address emissions reductions and climate resilience. Key findings highlighted strengths in renewable energy tracking and gaps in transport emissions monitoring and non-GHG data collection, such as community resilience initiatives. Current MRV systems, coordinated by MNRE and other ministries, face challenges like fragmented data and limited capacity. Learning from advanced MRV frameworks in Kenya and Vanuatu, Samoa can enhance its systems by integrating centralized data platforms, fostering stakeholder engagement, and addressing capacity constraints to achieve NDC goals.

Key Findings

The report identifies several challenges and opportunities to enhance Samoa's MRV framework:

- **Institutional Coordination:** Clarifying responsibilities and reporting of NDC within the Ministry of Natural Resources and Environment (MNRE) is essential for improving coordination

especially with the targeted sectors. Sector coordinators play a key role in reporting and provision of data to MNRE for effective tracking and monitoring of NDC targets.

- **Capacity Constraints:** Limited technical expertise and personnel hamper MRV implementation. Sector-specific training and resource allocation are needed.
- **Data and Monitoring Gaps:** There are existing MRVs tracking NDC targets but inconsistent data integration and limited tracking of non-GHG indicators impede centralized reporting.
- **Gender and Inclusion Mechanisms:** Stronger integration of social safeguards and gender considerations is required to ensure inclusive project design and implementation.
- **Sector-Specific Challenges:** Scaling renewable energy, low-carbon transport, and waste recycling initiatives requires financial and technical support.

Next Steps

The ICAT project outlines a phased approach to strengthening Samoa's MRV systems:

- **Gap Assessments (Dec 2024 – Jan 2025):** Map existing processes and identify data and institutional priorities for MRV systems and NDC tracking.
- **Capacity Building (Jan – Mar 2025):** Conduct stakeholder training on MRV methodologies and tools, including GACMO.
- **Policy Impact Assessments (Apr – Jun 2025):** Evaluate mitigation actions for GHG reduction and sustainable development outcomes.
- **Validation and Reporting (Jul – Sep 2025):** Finalize findings with stakeholder input and produce comprehensive reports.

Samoa's climate action framework demonstrates significant progress in key sectors, supported by strategic planning and innovative initiatives. Addressing institutional, technical, and financial challenges will enhance the country's capacity to implement robust MRV systems and achieve its NDC targets. The ICAT project provides a critical platform for advancing transparency, accountability, and sustainable development in Samoa's climate journey.

1.0 | Introduction

The **Initiative for Climate Action Transparency (ICAT)** project was established in 2015 during the Conference of the Parties (COP) that adopted the Paris Agreement. The Paris Agreement introduced the **Enhanced Transparency Framework (ETF)**, requiring countries to provide more robust, detailed, and transparent reporting on their climate actions and progress toward achieving their **Nationally Determined Contributions (NDCs)**. Recognizing the capacity challenges many countries face in meeting these requirements, ICAT was designed to support countries in building or enhancing the systems and methodologies needed for effective climate transparency.

Through the ICAT project Samoa aims to provide comprehensive coordination by focusing on building a robust **Measurement, Reporting and Verification (MRV)** system to support Samoa's climate transparency efforts. This report includes a mapping of existing processes, identifying gaps in data collection and institutional arrangements, and aligning national climate reporting with international requirements.

The project will also prioritize and assess mitigation policies using tools like **Greenhouse Abatement Cost Model (GACMO)**, analyze **greenhouse gas (GHG)** impacts of selected policies in the energy sector, and evaluate the impacts on sustainable development for a selected sector. Key deliverables include detailed reports on gap assessments, policy impacts, and monitoring plans, alongside stakeholder workshops to validate project outputs and strengthen national engagement.

The overarching goal is to strengthen Samoa's capacity for climate transparency and enhance its alignment with the ETF. By addressing these gaps, Samoa aims to improve its ability to measure progress, attract climate finance, and support the implementation of its NDC targets.

This report identifies gaps, needs, and priorities in Samoa's MRV systems and institutional frameworks, providing recommendations to enhance transparency and accountability in climate action while promoting sustainable development.

2.0 | Samoa's Climate Action Framework

Samoa has undertaken several initiatives to address GHG emissions and fulfill its commitments under the Paris Agreement while aligning with its **Sustainable Development Goals (SDGs)** and national development priorities. These efforts are encapsulated in various plans, strategies, and policies which are summarized in this section.

Samoa is committed to advancing the **SDGs**, particularly **SDG 13: Climate Action**, by integrating climate goals into its national agenda. The **Pathway for the Development of Samoa (PDS) 2021-2025** emphasizes sustainable development across key sectors, with climate resilience and low-carbon development as central themes. The PDS aligns Samoa's national priorities with international commitments, focusing on inclusive, sustainable growth.

Based on discussions with the **Samoa Bureau of Statistics (SBS)** they are the focal point for the monitoring and tracking of SDGs in Samoa. Samoa's **SDG Tracker Tool** is updated on an ad hoc basis by the division, depending on the availability of survey results from the bureau. Technical assistance for the tool is provided periodically by ESCAP. SBS have also developed the following accounts which related directly to the key sectors under NDC:

- The **Water Accounts**, developed using the United Nations System of Environmental and Economic Accounting (UNSEEA) framework, were first compiled for FY 2013/14, and annual reports have been produced regularly, with the latest covering FY 2019/20. Efforts are ongoing to collaborate with ministries for timely data release to support future reports.
- Similarly, the **Energy Accounts**, also based on the UNSEEA framework, were first compiled for 2020 and officially released in March 2023, marking a milestone in Samoa's environmental economic accounting initiatives. Intention is to have these provided annual to support the Energy Review developed by the Energy Sector.
- Samoa's **Experimental Solid Waste Account** was the first to document the collection and management of solid waste in the country, following the UNSEEA 2012 framework. It focuses on waste flows to landfills, recycling facilities, or the environment, covering financial years 2013/14 to 2015/16. The account includes solid waste collected and disposed of at Tafaigata Landfill on Upolu Island, serving 77% of Samoa's population, and solid waste exports. Data from Savai'i's landfill is not included due to a lack of records. The report highlights waste volumes, collection methods, and management practices, covering both residual waste and exported waste products. Discussions are ongoing with MNRE waste division to see how these accounts be developed on an annual basis.

Samoa is finalizing its **Climate Change Bill** to provide a robust legal framework for climate action. Key elements include:

- Institutional Arrangements: Establishing a National Climate Change Council to oversee NDC implementation and ensure compliance with MRV requirements.

- **Legal Mandate:** Formalizing Samoa's commitments under the Paris Agreement, including the regular updating and reporting of NDCs.
- **Data Management:** Enhancing systems for accurate data collection and reporting to meet international MRV standards.

The current **Samoa Climate Change Policy 2020–2030** provides a framework for integrating climate change considerations into national development, focusing on mitigation, adaptation, and resilience. It promotes sector-specific strategies to reduce emissions and adapt to climate impacts, aligning with Samoa's NDC and broader sustainable development goals.

Samoa's first NDC (2015) focused on transitioning to 100% renewable energy for electricity generation by 2025. The **Second NDC (2021)** built upon the first NDC, targeting a **26% reduction in GHG emissions by 2030** compared to 2007 levels. This translates to reducing 91 Gg CO₂e, contingent upon updated GHG inventory data.



Figure 1: Samoa 2nd NDC Targets

The **NDC Implementation Roadmap and Investment Plan (2021)** outlines strategies to achieve NDC targets. A total of 21 climate change mitigation opportunities were identified across various sectors in Samoa, including electricity (4), land transport (5), maritime transport (5), waste (1), tourism (1), marine (1), and agriculture, forestry, and other land use (AFOLU) (4). These projects were sourced from existing initiatives in Samoa that could be replicated or adjusted, innovative ideas from other countries and sectors, insights from sector experts, and input from local stakeholders. Prioritization of projects involved a multi-criteria analysis—assessing emissions reduction potential, cost-effectiveness, funding attractiveness, and implementation capacity—combined with a stakeholder survey to ensure relevance and feasibility. The plan emphasizes the need for external financial support, capacity building, and technology investment, supported by a detailed project pipeline.

Priority	Project Name	Sector	Description
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1	Grid stabilization projects	Electricity	Prioritize specific locations on EPCs network requiring stabilization; battery storage for rapid frequency response.
2	Building energy efficiency program	Electricity	Introduce a commercial building energy efficiency incentive scheme to stimulate energy efficiency improvements.
3	Agroforestry support program	AFOLU	Expand agroforestry land by 5% through awareness raising activities and targeted support.
4	Manure management using anaerobic digesters	AFOLU	Expand the use of anaerobic digesters for stored manure, particularly for commercial piggeries.
5	Mangrove restoration and planting	Marine	Large-scale program to plant or restore mangrove forests in coastal wetlands.
6	Network loss reduction program	Electricity	Reduce losses in the electricity distribution network through monitoring and upgrades.
7	Reforestation and forest restoration	AFOLU	Program for reforestation and forest restoration supported by incentive payments.
8	Shared electric cars	Land transport	Introduce 200 shared electric cars to displace 2,000 privately owned vehicles.
9	Transport optimization and energy efficiency review	Maritime transport	Conduct a detailed energy efficiency audit and analysis of transport energy efficiency.
10	Energy efficient appliances	Tourism	Program to adopt energy efficient appliances in the hospitality industry.
11	Refrigeration efficiency program	Electricity	Provide an incentive program for commercial businesses to improve refrigeration efficiency.
12	Electrification of commercial fleets	Land transport	Implement EV charging infrastructure and transition 50% of commercial vehicles to EVs.
13	Shore side electric supply for at berth vessels	Maritime transport	Construct shore-side plug-in facilities for vessels to enable them to turn off engines at berth.

14	Landfill gas collection system	Waste	Install geo-membrane covers on landfill cells and flare trapped gas.
15	Expansion of solar panel project	Maritime transport	Install solar panels on large vessels to generate renewable energy.
16	Shared electric micro mobility	Land transport	Introduce an e-scooter and e-bike scheme in Apia to reduce car dependency.
17	Electrification of Government and municipal fleets	Land transport	Electrify 50% of government-owned vehicle fleets with charging infrastructure.
18	Electrification of Samoa's light vehicle fleet	Land transport	Replace 10% of Samoa's light vehicle fleet with EVs, supported by EV charging infrastructure.
19	Biodiesel ferry feasibility study	Maritime transport	Study the feasibility of replacing diesel on passenger ferries with renewable diesel.
20	Electric ferry	Maritime transport	Replace a passenger ferry with an electric ferry powered by solar energy.
21	Improving the efficiency and precision of fertilizer use	AFOLU	Improve nitrogen fertilizer efficiency by better matching nitrogen application with crop needs.

Table 1: NDC Implementation Plan Priority Projects by Sector

MNRE with the support of GGGI is currently undertaking a parallel project to conduct the **“Gap Assessment of Samoa’s NDC Investment Plan and Preparation of Nationally Determined Contribution (NDC) Project Documents.”** Building on the foundational work of Samoa’s NDC Implementation Roadmap and NDC Investment Plan (2021), this project aims to evaluate gaps, engage stakeholders, and prepare comprehensive project documents to enhance climate action financing. The project will look at updating the list of the 21 priority sector projects and also complements the ICAT project in terms of reconfirming what MRV system would be needed to track and monitor the next NDC targets.

The second national **GHG Inventory (2007)** provided emission estimates for the years 1994 to 2007, establishing a baseline for NDC development. The third **GHG Inventory (2021-2022)** is being updated to enhance Samoa’s ability to track progress and inform future NDCs. The country submitted its first **Biennial Update Report (BUR)** in **2023** to the United Nations Framework Convention on Climate Change (UNFCCC). This report provided a detailed account of Samoa's GHG inventory, climate actions, and support needs, reflecting the nation's commitment to transparency and accountability. A summary of progress for each sector based on the 2023 BUR is outlined in

Table 1 below.

Sector	Commitments	Progress
Renewable Energy	70% of electricity generation from renewable energy by 2031	As of 2020, 38% of electricity generation is from renewable energy, with ongoing investments in hydro, solar, and biomass projects.
Energy Efficiency	Improve energy efficiency across all sectors	Programs in place include energy audits and pilot projects for grid stabilization and network loss reduction.
Transport Sector	Promote electric vehicles and biofuels, reduce road transport emissions	Nationally Appropriate Mitigation Actions (NAMA) for transport have been piloted, including the use of electric vehicles in the government fleet. Implementation is ongoing and targets significant reductions in GHG emissions from road transport (96% of transport emissions).
Waste Management	Reduce organic waste, promote composting, and develop waste-to-energy projects	Circular Waste Policy under development; biogas systems are being explored, and enforcement measures against open burning are being strengthened.
Agriculture, Forestry, and Other Land Use (AFOLU)	Reforestation (3 million trees campaign), promote agroforestry, reduce emissions from farming practices	Campaigns and programs are ongoing, including an increase in agricultural holdings. However, challenges persist in tracking and reducing emissions quantitatively.
Industrial Processes (IPPU)	Transition to cleaner industrial processes and refrigerants	Limited data on emissions; investment in air quality monitoring and updates to ozone layer regulation underway.
Overall GHG Reduction Target	26% reduction in GHG emissions by 2030 relative to 2007 levels	Emissions increased by 23% from 2010 to 2020, with efforts ongoing to reverse this trend through planned mitigation activities.

Table 2: NDC Sector Progress from Biennial Update Report 2023

In addition, Samoa's **Nationally Appropriate Mitigation Action (NAMA)** for the transport sector, prepared in 2014, focuses on reducing greenhouse gas (GHG) emissions by promoting sustainable and low-emission transport systems. The NAMA emphasizes the adoption of electric vehicles (EVs), improvements in fuel efficiency, and the development of supportive infrastructure, such as EV charging stations. It also includes measures to enhance public transportation systems and encourage non-motorized transport, such as cycling and walking. By aligning with Samoa's Nationally Determined Contributions (NDCs) under the Paris Agreement, the NAMA for transport

aims to contribute to the country's broader goals of achieving renewable energy targets and fostering climate resilience while supporting economic and social development.

Samoa's climate action integrates several sectoral plans that align with national and international goals:

- **Energy Sector Plan 2023/24–2027/28:** Aims to achieve 70% renewable energy by 2031, reducing GHG emissions in line with NDC targets.
- **Agriculture Sector Plan 2021–2025:** Focuses on sustainable farming practices, reducing emissions, and enhancing carbon sequestration.
- **Transport Sector Plan 2020–2025:** Prioritizes electrification and efficiency in land and maritime transport.
- **Tourism Sector Plan 2022–2026:** Promotes low-carbon practices and sustainable marine resource management, with an emphasis on climate-resilient tourism infrastructure.
- **Samoa Trade, Commerce and Manufacturing Sector Plan 2021–2025:** Highlights the importance of climate-smart trade practices, such as promoting exports of low-carbon products and enhancing the resilience of trade-related infrastructure.

The **Community Integrated Management Plans (CIMPs)** are localized strategies for building resilience and reducing climate risks at the village and district levels. These plans incorporate nature-based solutions, disaster risk reduction, and sustainable resource management to enhance adaptation at the community level.

Building on from its last **National Adaptation Plan of Action (NAPA)** and CIMPs, the Ministry of Natural Resources and Environment (MNRE) is in the process of drafting its **National Adaptation Plan (NAP)**, which will provide a comprehensive framework for integrating adaptation into national policies and development strategies. The NAP will prioritize climate-resilient infrastructure, ecosystem-based adaptation, and capacity building, ensuring alignment with the NDC and other national objectives.

These comprehensive efforts reflect Samoa's commitment to reducing GHG emissions, enhancing resilience, and contributing to global climate goals. By integrating climate action into its national development agenda and leveraging community-based and sectoral strategies, Samoa is paving the way for a sustainable, low-carbon future that aligns with both national priorities and international obligations.

3.0 | Mapping of existing MRV mechanisms in Key Sectors

The project team followed a clear and collaborative approach to map existing MRV mechanisms within the NDC sectors to ensure it captures key elements outlined in Figure 2. This process ensured that the findings were accurate, stakeholder-validated, and aligned with national climate goals. We began by conducting a **comprehensive review of climate-related plans and sector documents**, including NDC updates and sector strategies. This review helped identify existing MRV mechanisms, key indicators, and their alignment with national targets. The initial mapping categorized indicators into GHG (mitigation) and Non-GHG (adaptation/supporting) to address both emissions reductions and climate resilience is outlined in Annex 3.

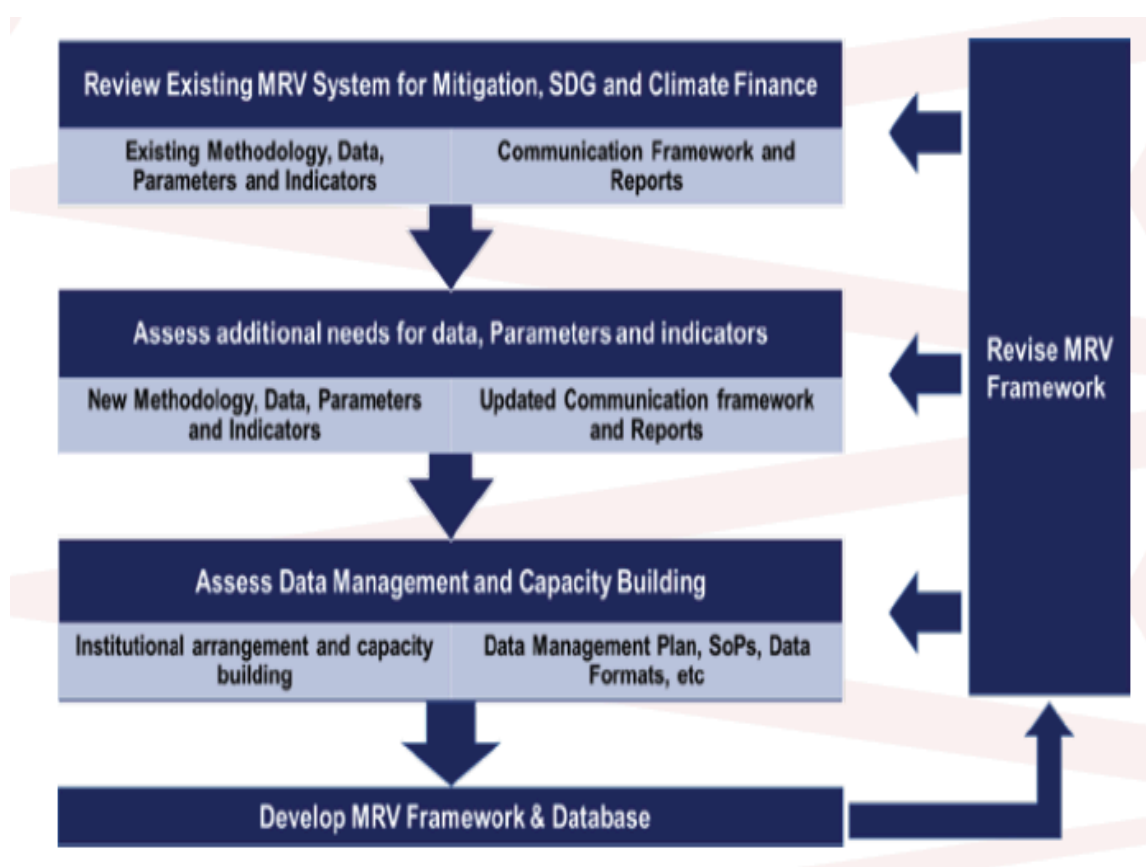


Figure 2: MRV Framework¹

After preparing the draft matrix, we **shared it with sector coordinators for validation**. This step allowed stakeholders to review the findings, confirm their accuracy, and address any gaps.

¹ Source: Samoa BUR 2023

Feedback from these consultations helped refine the indicators and ensure the matrix reflected current priorities and practical implementation needs. A critical part of our work was the **distinction between GHG and Non-GHG indicators**:

- **GHG indicators** focused on tracking emissions reductions, such as renewable energy adoption, EV usage, and energy efficiency compliance. These indicators aligned with international commitments and mitigation targets.
- **Non-GHG indicators** addressed resilience and adaptation, including building code compliance, community awareness, and disaster risk management. These indicators emphasized broader sustainable development outcomes.

The mapping identified several **key findings**:

- **GHG Monitoring**: Tracking systems for renewable energy adoption and energy efficiency were in place but needed strengthening. Gaps existed in monitoring emissions reductions in transport systems and low-carbon infrastructure adoption.
- **Non-GHG Monitoring**: Indicators like community awareness campaigns and resilience-building projects lacked consistent tracking frameworks. Community-based renewable energy systems and infrastructure resilience projects required enhanced monitoring and support.

Existing MRV Systems in Samoa

Samoa has several MRV mechanisms that support its climate commitments under the Paris Agreement. These systems monitor GHG emissions, mitigation and adaptation actions, and climate finance flows. However, challenges such as fragmented data and limited capacity affect their efficiency.

- **GHG Inventory MRV** - The MRV for GHG emissions is coordinated by the MNRE Climate Change and GEF Division. This mechanism collects data from critical sectors including energy, transport, and agriculture, to compile GHG inventory reports. While the MRV tracks sectoral trends and supports reporting requirements, the absence of a centralized database limits data integration and accessibility across ministries.
- **Mitigation Actions MRV** - Mitigation actions are monitored by the MNRE Renewable Energy Division in collaboration with sectoral ministries. This MRV tracks the effectiveness of key policies, including renewable energy adoption, energy efficiency projects, and Nationally Appropriate Mitigation Actions (NAMAs). Progress is evaluated against sectoral targets aligned with Samoa's NDCs.
- **Adaptation Actions MRV** - The MNRE, with support from the Climate Change and GEF Division which houses the CIM Database, manages the MRV for adaptation actions. This system monitors resilience-building initiatives such as Community Integrated Management Plans (CIMPs) and assesses outcomes of adaptation projects. It also ensures that progress aligns with Samoa's national adaptation plans.
- **Climate Finance MRV** - The Ministry of Finance leads the MRV for climate finance. This mechanism tracks financial flows from all development-funded projects which go through the Government Finance One system, like the Green Climate Fund, and evaluates their impacts on NDC implementation. Despite its importance, Finance One is not fully integrated with other MRVs, reducing its ability to link funding to specific mitigation and adaptation actions. Discussions with MOF officials indicate there is interest in tracking and monitoring spending

related to mitigation and adaptation initiatives, both for the recurrent and development budget.

Many sectors lacked integrated data systems for consistent monitoring. Limited stakeholder capacity and awareness made it difficult to fully implement and track both GHG and Non-GHG indicators. This approach not only identified gaps but also provided a **roadmap for improvement**. Differentiating GHG and Non-GHG indicators ensured a balanced focus on emissions reductions and resilience-building. This clarity helped stakeholders allocate resources effectively and align sectoral actions with national and international climate priorities.

Examples of MRVs in Other Countries

Several countries, including those with challenges and contexts similar to Samoa, have implemented advanced Measurement, Reporting, and Verification (MRV) systems. These examples provide valuable lessons, showcasing diverse approaches, specific challenges faced, technologies adopted, and strategies for continuous improvement. Insights into stakeholder engagement and planning for long-term sustainability are also highlighted.

- **Kenya** - Kenya's MRV system is widely regarded as a comprehensive model, integrating data across sectors into a centralized platform. The country faced initial challenges in harmonizing data formats and establishing institutional coordination. These issues were addressed through legislative reforms that clearly defined roles and responsibilities among stakeholders. Kenya uses digital tools and cloud-based platforms to track greenhouse gas (GHG) emissions, mitigation actions, and climate finance. To ensure the system's long-term relevance, Kenya conducts periodic reviews and integrates lessons learned into its framework. Stakeholder engagement is managed through public-private partnerships and community outreach programs, fostering transparency and inclusivity. Regular capacity-building workshops ensure all stakeholders are equipped to contribute effectively.
- **Fiji** - Fiji, another Pacific Island nation, has developed an MRV system focused on both mitigation and adaptation. One of its key challenges was ensuring accurate data collection in remote areas. To address this, Fiji implemented mobile-based data collection tools, enabling real-time updates from field agents. The system emphasizes stakeholder participation, particularly engaging community leaders and non-governmental organizations (NGOs) to gather grassroots-level data. Fiji's MRV framework incorporates feedback loops, where stakeholders provide input to refine methodologies and improve the system over time. Legislative support and international partnerships, particularly with donor agencies, have been crucial in scaling up Fiji's MRV capabilities.
- **Bhutan** - Bhutan, a landlocked country with similar development priorities, has a strong focus on forestry and renewable energy in its MRV system. The country faced challenges with limited financial and technical resources. It partnered with international organizations to access funding and expertise, which helped implement advanced remote sensing technologies for monitoring forest cover and carbon sequestration. Bhutan's MRV framework actively involves local communities in monitoring activities, providing training to enhance their capacity. Stakeholder engagement is facilitated through regular workshops and collaborative governance structures, ensuring alignment with national priorities. Bhutan's MRV system is continuously updated to reflect advancements in technology and evolving climate targets.
- **Papua New Guinea (PNG)** - PNG's MRV system is centered on its forestry sector, addressing

the dual challenges of deforestation and biodiversity loss. The country initially struggled with inconsistent data and lack of coordination among agencies. PNG overcame these challenges by establishing a centralized database and adopting satellite imagery to track changes in forest cover. Stakeholder engagement is a cornerstone of PNG's MRV framework, with active participation from indigenous communities and NGOs. Continuous improvement is driven by annual reviews and the integration of new technologies, such as drone-based monitoring.

- Vanuatu** - Vanuatu's MRV framework focuses on its energy and forestry sectors, addressing the unique challenges of small island developing states (SIDS). Limited technical expertise and fragmented data systems initially hampered progress. To overcome this, Vanuatu adopted Geographic Information Systems (GIS) for monitoring land-use changes and deforestation, combining this with community-based monitoring to enhance localized data collection. A notable aspect of Vanuatu's MRV framework is its integration of traditional knowledge with modern tools, ensuring data reflects the lived realities of its communities. Continuous improvement is built into the system through periodic stakeholder consultations, which assess the system's effectiveness and identify areas for innovation.

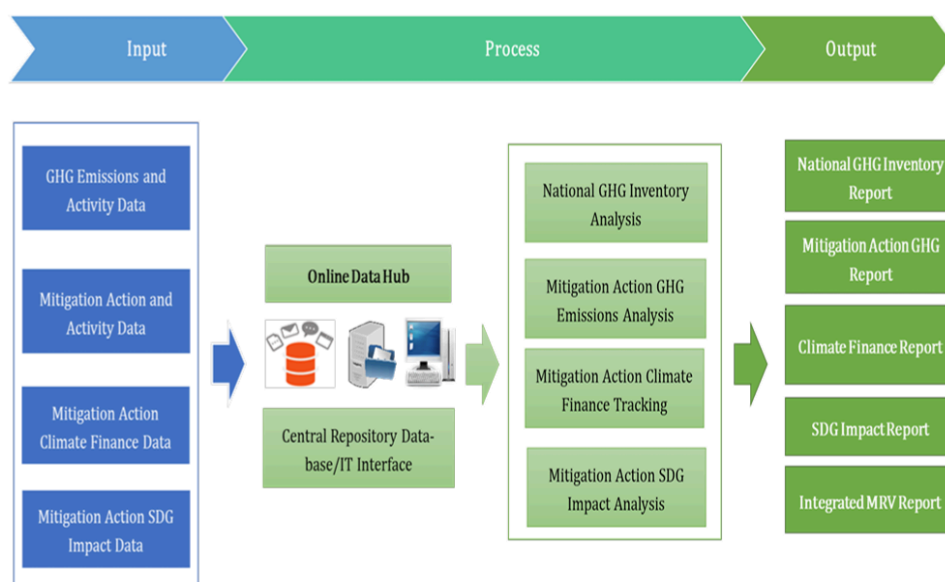


Figure 3: Structure of Vanuatu's Integrated MRV Framework and System²

² "Vanuatu's Integrated Monitoring Reporting and Verification (MRV) Tool for Climate Action Tracking," UNDP 2019

4.0 | Identifying Monitoring Gaps

Samoa's approach to developing its national MRV system centers on the priority sectors outlined in its Second NDC (2021): **Energy (Electricity), Land Transport, Maritime Transport, Tourism, Marine, AFOLU, and Waste**. By leveraging existing platforms like the GHG Inventory (GHGI) and supplementary databases from SPREP and national statistical systems, Samoa aims to enhance data sharing, address sector-specific gaps, and build a robust MRV framework. This approach will strengthen Samoa's ability to meet its NDC targets while improving transparency, accountability, and capacity for climate action.

The **Energy sector** is central to Samoa's climate commitments, targeting 70% renewable electricity generation by 2031. Progress has been significant, with renewable energy contributing 50% of total electricity generation as of 2021. Key initiatives include the Afolau Biomass Gasification Plant and expanded solar installations. However, gaps persist in integrating both GHG and non-GHG indicators, such as household-level energy access and grid efficiency. Data collection is partially tracked through the Electric Power Corporation (EPC), but formalizing the MRV system is critical to comprehensively track renewable energy penetration, emissions reductions, and socio-economic impacts like employment growth in renewable energy. Expanding technical and financial support will enable the implementation of smart grid infrastructure, biogas projects, and EV charging networks. Several sectors are captured within this and include:

- The **Land Transport sector** has made progress in piloting electric vehicle (EV) initiatives and adopting energy efficiency standards for vehicles. Monitoring is led by the Ministry of Works, Transport, and Infrastructure (MWTI), with data being collected on vehicle emissions and fleet composition. However, formal MRV systems for land transport are still under development, and gaps persist in tracking non-GHG indicators such as public transport efficiency and urban mobility resilience. Enhancing private sector collaboration and data standardization will support more robust monitoring and reporting efforts.
- In the **Maritime Transport sector**, progress includes energy efficiency measures for vessels and pilot projects for electric ferries. The Samoa Shipping Corporation and MWTI oversee monitoring efforts. However, challenges remain in scaling up these initiatives and developing a formal MRV framework to comprehensively track emissions reductions. Expanding monitoring capacity and technical resources will support the sector's transition to low-emission maritime operations.
- The **Tourism sector** has embraced sustainable practices, such as energy-efficient accommodations and waste management systems. Monitoring efforts led by the Samoa Tourism Authority focus on integrating climate-smart initiatives into tourism operations. While progress has been observed in emissions reductions, comprehensive MRV systems are needed to track resource efficiency, emissions reductions, and community engagement in climate resilience efforts.
- The **Marine sector** is critical for both mitigation and adaptation, with efforts such as mangrove restoration and solar-powered maritime infrastructure contributing to carbon sequestration and climate resilience. Monitoring is led by the Fisheries Division and MNRE's Coastal Zone

Management Unit, supported by initiatives like the Samoa Ocean Strategy (2020–2030). Achievements include energy efficiency improvements for ferries and enhanced mangrove planting. However, gaps in emissions data and limited resources for large-scale restoration projects hinder comprehensive monitoring. Developing a formal MRV framework will allow better tracking of emissions reductions and adaptation benefits.

The **Agriculture, Forestry, and Other Land Use (AFOLU) Sector** contributes significantly to Samoa's GHG emissions, primarily through livestock and deforestation. Progress includes reforestation projects like the "Two Million Tree Planting Campaign" and the expansion of agroforestry practices. The National Forestry Inventory supports monitoring efforts, but gaps in tracking livestock emissions and land-use changes remain. Formalizing an MRV system will enable better monitoring of emissions reductions, carbon sequestration, and the socio-economic benefits of sustainable agriculture and forestry initiatives.

The **Waste sector** accounts for approximately 9% of Samoa's GHG emissions, primarily from landfill methane. Initiatives such as methane capture, waste-to-energy systems, and composting programs have improved waste management. However, the lack of a formal MRV framework limits the ability to track emissions reductions and non-GHG impacts like community health benefits. Strengthening recycling infrastructure and formalizing MRV systems will enable more comprehensive monitoring and reporting for the sector.

Samoa's 3rd NDC and the Enhanced Transparency Framework

Samoa is in the process of preparing its 3rd NDC, which builds on the commitments made in its previous submissions under the Paris Agreement. Led by MNRE with support from the UNDP Samoa Multi-Country Office (MCO). The 3rd NDC aims to expand mitigation and adaptation targets across key sectors such as energy, transport, agriculture, and forestry. This process includes the development of robust indicators for tracking progress, reflecting Samoa's priorities as a SIDS and its commitment to sustainable development. The 3rd NDC also integrates lessons learned from recent projects, ensuring that updated commitments address vulnerabilities identified through stakeholder consultations.

Under the ETF, Samoa's 3rd NDC must include detailed reporting on greenhouse gas (GHG) inventories, mitigation actions, adaptation progress, and climate finance. This requires collecting and managing comprehensive data through centralized platforms and ensuring alignment with IPCC. Strengthening MRV systems is critical for meeting these requirements, with ongoing efforts to standardize data collection, build stakeholder capacity, and track support needs and gaps. Through this work, Samoa is enhancing transparency and accountability in its climate actions while positioning itself to achieve its national climate goals.

5.0 | Relevant Institutions for Monitoring Missing Impact and Progress Indicators

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: Supervisors, Sector Leaders, and Executors. The **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, while **Executors** manage project implementation. Regular reporting is facilitated through a centralized monitoring system (spreadsheets), which tracks project status, funding, emission reductions, and barriers to progress.



Figure 4: NDC Governance and Reporting Structure³

In practice, this framework is operational in several areas. Stakeholders have approved the reporting structure, and roles have been allocated across key sectors. Projects in priority areas, such as renewable energy, transport electrification, and waste management, are underway, with initial efforts to improve accountability and inter-sector collaboration. Quarterly updates and sectoral meetings are helping to align activities and ensure that progress is effectively communicated to the Supervisor. Notably, MNRE has played a critical role in coordinating this process, and regular reporting is beginning to establish the necessary foundation for transparent monitoring.

However, gaps remain that hinder Samoa's ability to fully monitor and deliver on its NDC

³ Source: Samoa NDC Roadmap and Implementation Plan 2021

commitments. A recent challenge has been the restructuring of MNRE, which has created new boundaries of responsibility between the Ministry of Land and MNRE. This restructuring has added complexity to coordination efforts, as roles for spatial mapping and land management now fall outside MNRE's purview, potentially creating overlaps or gaps in implementation. Additionally, while the framework designates Sector Leaders, the **limited availability of experienced personnel** to lead projects across all sectors places additional pressure on existing staff. For example, the NDC Supervisor is expected to also oversee the waste and marine sectors due to staff shortages, potentially overburdening their role. Furthermore, while the centralized monitoring system (monitoring spreadsheets housed within the Climate Change Division of MNRE) is a significant step forward, **data quality and consistency issues** in project updates need to be addressed to ensure accurate reporting and effective decision-making.

Gender and social inclusion considerations are highlighted within the framework, aiming to ensure that projects are inclusive and deliver equitable benefits. However, practical implementation of these guidelines has been inconsistent. For example, women's participation in consultations and project design remains limited, and mechanisms to address specific gender-related barriers are underdeveloped. Similarly, while environmental and social safeguards are emphasized, gaps in the application of rigorous impact assessments for ongoing projects may expose Samoa to risks and missed opportunities for sustainable development.

To close these gaps, Samoa needs to strengthen the coordination between NDC Supervisor and relevant sector leaders to minimize duplications and clarify responsibilities. Additional resources and training are necessary to ensure sufficient staffing across sectors and improve data collection processes. Enhanced training on gender and social inclusion, as well as stricter adherence to environmental and social safeguards, will be essential to deliver on the full potential of the NDC commitments. By addressing these gaps, Samoa can build on its progress and create a more robust system for monitoring and achieving its climate goals.

Sector-Specific Monitoring Capacity

The **Energy** is critical to Samoa's goal of achieving 70% renewable electricity by 2031. Monitoring efforts are led by the MWTI Energy Division and the Electric Power Corporation (EPC), which have made significant progress in expanding solar, wind, and hydroelectric systems. However, **capacity constraints** include a lack of trained personnel to develop and manage an integrated MRV system. Additionally, **limited technical expertise** and resources delay the formalization of data-sharing agreements and integration of GHG and non-GHG indicators, such as household energy access and grid reliability.

- The **Land Transport sector** aims to reduce emissions through vehicle efficiency improvements, electric vehicle adoption, and shared mobility options. Monitoring is led by the MWTI. While progress has been made in piloting electric vehicles, **capacity constraints include inadequate staff expertise in MRV system design** and **limited coordination with private sector stakeholders** to track alternative fuel adoption. Through the **United Nations Development Programme Climate Action Pathways for Island Transport (UNDP CAPIT) Project** the Decarbonisation Strategy for Land and Maritime Transport is being developed and

underpinned by MRVs including Samoa Transport Emissions Model (STEM). Data standardization is inconsistent, and resources to establish a comprehensive emissions database are insufficient.

- The **Maritime Transport sector** has initiated pilot projects, including energy-efficient vessel systems and electric ferries, overseen by the Samoa Shipping Corporation and MWTI. Despite these successes, the sector faces significant **capacity gaps in scaling initiatives**, with **limited technical expertise to develop emissions-tracking MRV systems**. Financial and institutional resources for expanding shore-side power systems and evaluating the effectiveness of maritime emissions reduction measures remain inadequate.
- The **Tourism sector** has promoted sustainable practices such as energy-efficient accommodations and improved waste management. The Samoa Tourism Authority oversees progress in this sector, but capacity constraints are evident in its ability to **monitor non-GHG indicators**, such as resource efficiency and community engagement. The sector lacks trained staff and funding to integrate climate-smart tourism data into a centralized MRV framework.
- The **Marine sector** contributes to GHG sequestration through mangrove restoration and coastal resilience projects. Monitoring efforts are led by the Fisheries Division and MNRE's Coastal Zone Management Unit, supported by community-based organizations. While progress includes mangrove planting and improved tracking of GHG impacts, **capacity constraints include insufficient financial resources and limited technical expertise** to expand restoration efforts and integrate biodiversity and community resilience data into MRV systems.

In the **AFOLU sector**, progress includes reforestation and agroforestry projects. Monitoring is carried out by MAF and MNRE's Forestry Division, supported by the National Forest Monitoring System (NFMS). However, the sector faces **significant capacity challenges**, including a shortage of technical staff trained in livestock emissions monitoring and the socioeconomic evaluation of forestry initiatives. Resources to expand the NFMS and improve agricultural emissions data collection are also limited.

The Waste sector has advanced initiatives such as methane capture and composting programs, overseen by MNRE's Waste Management Division. Capacity constraints include **insufficient financial resources for scaling recycling infrastructure**, such as e-waste and white goods processing, and a **lack of trained staff** to manage comprehensive data collection for landfill emissions and healthcare waste. Limited technical expertise further hampers efforts to formalize an MRV system for the sector.

In all sectors, **human resource limitations**, including shortages of trained technical staff and institutional capacity, are a recurring issue. Furthermore, **financial constraints** restrict the ability to scale initiatives, implement MRV systems, and secure data-sharing mechanisms. Addressing these gaps through targeted training programs, enhanced funding, and institutional support will be essential for Samoa to effectively monitor and achieve its NDC commitments.

6.0 | Next Steps

As outlined in the project work plan (refer to Annex 4), a structured approach is being undertaken to enhance Samoa's climate transparency framework, with clear tasks, deliverables, and timelines. The project begins with **initial planning and setup** in **December 2024**, focusing on finalizing the work plan. As outlined in this report, the first deliverable is the **gaps and needs assessment**, which maps out existing processes and identifies data and institutional priorities for the MRV system and NDC tracking. A separate **inception workshop report** includes findings from the inception workshop held on 3rd December 2024. The initial training of trainers for GACMO was completed on 17 and 18th December and included members of the project team (KVA), MNRE, MWTI, EPC and SPREP.

Stakeholder engagement and capacity building will take place in **January – March 2025**, to gather additional input from stakeholders and in person training for use of GACMO tool.

In **April – June 2025**, the project shifts to **policy impact assessments**, utilizing the GACMO tool to evaluate selected mitigation actions. Key activities include training local consultants on GACMO, conducting stakeholder consultations to prioritize mitigation actions, and presenting interim results during a national workshop. The **mitigation analysis report** will be finalized by June 2025.

GHG and sustainable development impact assessments will occur between **July – August 2025**, focusing on analyzing GHG impacts of selected policies in the energy sector and evaluating their sustainable development and transformational change outcomes. Monitoring plans for both assessments will also be established during this phase.

The project concludes with **validation and reporting** in **September 2025**, including a final validation workshop with stakeholders and a report summarizing the workshop findings and project outcomes.

This phased approach ensures systematic implementation and builds Samoa's capacity for monitoring, reporting, and achieving NDC-related goals effectively.

Annex 1: List of Key References

1. Agriculture and Fisheries Sector Plan 2022/23 – 2026/27
2. Circular Waste Policy (Draft)
3. Community Integrated Management Plans (CIMPs)
4. Decarbonisation Strategy for Land and Maritime Transport (under the UNDP CAPIT Project)
5. Enhanced Transparency Framework (ETF) under the Paris Agreement
6. First Biennial Update Report Samoa 2023
7. Greenhouse Gas Abatement Cost Model (GACMO) Guidelines
8. ICAT Renewable Energy Methodology (2020)
9. MNRE Waste Sector Documentation on Methane Capture and Composting Initiatives
10. National Environment Sector Plan (NESP) 2023 – 2027
11. NDC Implementation Roadmap and Investment Plan 2021
12. Pathway for the Development of Samoa FY2021/22 – FY2025/26
13. Renewable Energy Investment Reports by the Electric Power Corporation (EPC)
14. Relevant International Standards for MRV (e.g., IPCC Guidelines for National Greenhouse Gas Inventories)
15. Samoa Climate Change Policy 2020–2030
16. Samoa Energy Sector Plan FY2023/24 – 2027/28
17. Samoa National Energy Policy 2007
18. Samoa Ocean Strategy (2020–2030)
19. Samoa State of the Environment Report 2023
20. Samoa Tourism Authority's Climate Resilient Tourism Guidelines
21. Samoa Tourism Sector Plan 2022/2023 – 2026/2027
22. Trade, Commerce, and Manufacturing Sector Plan 2021–2025
23. Samoa's Second National Communication to the United Nations Framework Convention on Climate Change (NDC)
24. Second National Greenhouse Inventory – Samoa's Greenhouse Gas Emissions 1994–2007
25. Sustainable Tourism Sector Progress Reports by Samoa Tourism Authority
26. Trade, Commerce and Manufacturing Sector Plan 2024/2025 – 2028/2029
27. Transport and Infrastructure Sector Plan 2023 – 2028
28. Two Million Tree Planting Campaign Documentation
29. United Nations Framework Convention on Climate Change (UNFCCC) Reporting Guidelines

Annex 2: List of People Consulted

STAKEHOLDER	DATE	PEOPLE CONSULTED	VENUE
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 Amiatsu (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 Faatauva 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)	STA Office, Level 1 FMFM 2

Inception Report: Assessment of Gaps, Needs, and Key Priorities for Data Collection and Institutional Arrangements in the MRV System and NDC Tracking in Samoa

		Senior Offices Planning (2)	
Climate Change Division, MNRE	Thu, 28-Dec	Elisapeta Areta-Toma (Acting-ACEO, Climate Change Division) Bernadette Amosa, Senior CC Officer	MNRE Office, Level 3 TATTE
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 (Principal 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 Lilomaiaava, Victoria Lauina	MOF Office, Level 3 Central Bank Building
Samoa Bureau of Statistics	Thu, 12-Dec	Papalii Benjamin Sila, Tausulu Vaai-Reupena, Faigalotu Taamilosaga	SBS Office, Level 1 Government Building
Waste Division, MNRE	Thu, 12-Dec	Fuimaono Katenia Rasch (ACEO, Waste Division) Setoa Apo (Principal Officer)	MNRE (Waste Division) Office, Tafaigata

Annex 3: Mapping of Sector MRVs, Indicators and Targets

Energy Sector

MRV System	Indicators	Target	Already Monitored	Comments
Energy Accounts (Samoa Bureau of Statistics) Energy Reviews (MWTI Renewable Energy Division)	GHG Renewable energy usage rate	70% renewable energy usage by 2031	Yes	Linked to increased investments in renewable energy sources.
LTA Vehicle Register	EV usage percentage	Percentage of vehicles electrified each year	No	Pilot project for electric vehicle adoption and Samoa Transport Emissions Model (STEM) has been established to track emissions and progress of EV transition.
Energy Review (MWTI) & Tourism Standards Database (STA)	Compliance rate of energy-efficient appliances	Compliance to standards by 2030	Yes	Requires monitoring through Energy Efficiency Regulation. Pilot undertaken by tourism sector for selected tourism properties completed in 2023.
MRV System	Indicators	Target	Already Monitored	Comments
Building Register (MWTI)	Non-GHG Rate of compliance in new public infrastructure	100% compliance in all new public infrastructure	No	Tied to building code for climate resilience and energy efficiency.

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	Number of audits conducted per year	Annual audits in high-energy sectors	No	Part of energy efficiency improvement strategy. Pilot programs initiated by sectors like tourism and environment but no formal mechanism established to monitor.
	Population awareness level on EE appliances	Increase awareness through campaigns annually	No	Requires public engagement and tracking campaigns.
SGP (UNDP) and CSSP (MOF) databases	Number of community-based renewable energy systems	10 new systems by 2027	Yes	Focus on community resilience and renewable energy access.
CIM Database (MNRE)	Number of infrastructure improvements for resilience	100% climate-resilient infrastructure by 2028	Yes	Resilience improvement projects to withstand climate impacts.

Transport (Land & Maritime) Sector

MRV System		Indicators	Target	Already Monitored	Comments
LTA Vehicle Register	GHG	Greener public transport systems implemented	Baseline targets for low-carbon mobility met	Yes	Focus on decarbonization of land transport systems.
Energy Database (MWTI)		Annual fuel consumption reduction of 2%	Achieve 2% reduction annually from baseline	Yes	Targets reducing emissions through fuel efficiency.
		Vessels equipped with climate-resilient features	Climate-ready ports operational by Dec 2026	Yes	Supports low-emission, climate-resilient maritime transport.
		Grant mechanism established for low-carbon systems	Funding and training implemented by Dec 2025	Yes	Promotes use of low-carbon propulsion systems in fishing fleets.

MRV System		Indicators	Target	Already Monitored	Comments
Builders Register (MWTI)	Non-GHG	National Building Code legally enforced	50% of builders nationally certified by 2027	No	Supports climate-resilient infrastructure standards.
		Completion of flood management plan for Apia City	Plan finalized by June 2024	Yes	Focus on managing climate-induced flooding.
Drainage Database (MWTI & LTA)		National drainage master plan implemented	Completion by June 2024	Yes	Addresses climate-induced flood risks through infrastructure planning.
		Rehabilitation of seawall and drainage in Faleolo	Seawall and drainage projects completed by Jan 2028	Yes	Builds climate resilience in key transport infrastructure.
CIM Database (MNRE)		Community CIM Plan reviewed and updated	Plan includes adaptation measures by Jan 2025	Yes	Supports community-level climate adaptation.
		Awareness programs for CIM Plan completed	Completion of awareness in 80% of communities by May 2025	Yes	Enhances community awareness on climate resilience.
Development Consent Register (MWTI)		Formal zoning policy implementation	Zoning Policy completed by July 2025	Yes	Aligns land-use planning with climate resilience. This refers to Sustainable Management Plans
		Drainage legislation enacted	Drainage legislation reviewed by Dec 2024	Yes	Focuses on improved flood management systems.
Development Consent Register (MWTI)		Environmental legislation reviewed and updated	Safeguards reviewed and compliance enforced	Yes	Supports broader environmental and social safeguards for transport and infrastructure sectors.

AFOLU Sector

MRV System		Indicators	Targets	Already Monitored	Comments
Crop Farmers Register	GHG	Number of farms/farmers receiving support for organic farming	Target not specified	Yes	Focus on organic and nature-positive farming initiatives.
Quarantine Database (MAF)		Effectiveness of regulatory measures for chemical usage	Target not specified	Yes	Emphasizes reducing agricultural emissions and chemical impacts.
MRV System		Indicators	Targets	Already Monitored	Comments
MAF Planning and Policy Database	Non-GHG	Status and effectiveness of sustainable agriculture and fisheries programs	Number of initiatives and their impacts to be measured	Yes	Related to sustainable resource management.
		Number/diversity of resilient crops, livestock, and fisheries products	Not specified	Yes	Promotes diversification for adaptation to climate impacts.
		Number of farm households using water management strategies	100% implementation of water use strategies	Yes	Supports efficient use of water in agriculture.
		Number of sectors/sub-sectors with disaster risk and climate adaptation	70% of key stakeholders to mainstream DRR and adaptation	Yes	Integration of DRR and adaptation strategies across sectors.
		Number of sectors/sub-sectors with preparedness and contingency plans	70% of sectors to institutionalize plans	Yes	Builds resilience and preparedness for climate impacts.
		Evidence of knowledge published/disseminated	Target not specified	Yes	Focuses on resilient agriculture and fisheries knowledge systems.

	Documentation and dissemination of indigenous knowledge	Target not specified	Yes	Promotes use of indigenous knowledge for resilient food systems.
	Number and effectiveness of biosecurity measures	Strengthening biosecurity awareness across stakeholders	Yes	Ensures biosecurity in agriculture and fisheries.
	Number of farmers and fishers using early warning systems for adaptation	70% of key stakeholders utilizing early warning systems	Yes	Enhances early warning systems to address climate challenges.

Tourism Sector

MRV System		Indicators	Target	Already Monitored	Comments
STA Operator Database	GHG	Number of business continuity and adaptation plans developed for tourist operators	300 plans	Yes	Supports tourism resilience to climate impacts, indirectly linked to emissions reduction.
		Renewable energy project targeting energy efficiency in the tourism sector	Target not specified	Yes	Aims to increase energy efficiency and adoption of renewable energy in the tourism sector.
		Indicators	Target	Already Monitored	Comments
STA CC Database	Non-GHG	Awareness programmes for climate change and disaster preparedness in the tourism sector	Target not specified	Yes	Focuses on awareness and disaster preparedness for tourism operators.
		Reinstate Climate Change Division to improve coordination with key agencies	Target not specified	Yes	Strengthens institutional frameworks for tourism climate adaptation.

	Identification of potential Climate Change funding or projects for coastal adaptation	Target not specified	Yes	Supports sectoral adaptation and resilience through funding and project opportunities.
Met Office App	Development and improvement of Early Warning System for tourism operators	Target not specified	Yes	Aims to enhance early warning systems and preparedness for tourism operators.

Marine Sector

MRV System	GHG	Indicators	Targets	Already Monitored	Comments
National Forestry Information Management System (MNRE)	Area of mangroves restored (ha)		500 ha	Yes	Supports carbon sequestration and coastal resilience; better tracking needed for GHG reductions.
	Coastal blue carbon sequestration potential assessed		100% coastal zones by 2030	No	Identifies potential for GHG sequestration in coastal ecosystems.
MWTI Maritime Division Database	GHG emissions reductions from energy-efficient maritime transport		Target not specified	Yes	Requires better MRV systems to track reductions from efficiency upgrades and electric ferry use.
	Shore-side power systems for vessels		Target not specified	No	Supports emissions reduction by minimizing vessel idling emissions.
	Percentage of energy-efficient vessels in operation		Target not specified	Yes	Initial data collection underway but limited in scale and consistency.

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MRV System	Non-GHG	Indicators	Targets	Already Monitored	Comments
CIM Database		Number of community-based mangrove restoration projects	20 projects	Yes	Focuses on community engagement and biodiversity conservation; some monitoring systems in place.
CIM Database		Percentage of coastal areas with established marine protected zones	30% by 2030	Yes	Progress is being tracked but coverage and data integration need improvement.
CIM Database		Number of coastal adaptation projects implemented	Target not specified	Yes	Includes projects such as seawall construction and beach nourishment; lacks consistent monitoring.
		Public awareness and training programs on marine resilience	50 programs	No	Aims to improve community and stakeholder understanding of marine ecosystem services and climate adaptation.
CIM Database		Number of early warning systems for coastal communities	Target not specified	No	Focuses on disaster preparedness and adaptation but lacks structured monitoring.
		Coastal biodiversity assessments conducted	Annual assessments	Yes	Limited monitoring of biodiversity changes within coastal and marine ecosystems.

Waste Sector

MRV System	Indicators	Targets	Already Monitored	Comments
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Waste Division informal database excel	GHG	Methane emissions from landfills (tons/year)	Target not specified	No	Methane capture initiatives are underway but lack consistent and detailed emissions monitoring. Plans underway with support of JPRISM project to capture this at Tafaigata						
		Percentage of waste diverted from landfills	40% by 2030	No	Limited data on diversion rates from composting, recycling, and waste-to-energy projects.						
		Number of waste-to-energy facilities operational	At least 2 facilities	Yes	Current monitoring is limited to pilot projects but provides data on methane reduction.						
		Emissions reductions from improved waste management systems	Target not specified	No	Requires structured MRV system for comprehensive tracking of emissions reductions.						
<table> <tr> <th>MRV System</th><th></th><th>Indicators</th><th>Targets</th><th>Already Monitored</th><th>Comments</th></tr> </table>						MRV System		Indicators	Targets	Already Monitored	Comments
MRV System		Indicators	Targets	Already Monitored	Comments						
Waste Division informal database excel	Non-GHG	Percentage of households with access to recycling services	70% by 2030	No	Access is uneven across urban and rural areas; data collection is inconsistent.						
		Volume of recyclable materials processed (tons/year)	Target not specified	Yes	Monitoring is ad hoc and lacks a centralized system to track processing rates and types of recyclables.						
		Number of composting initiatives implemented	50 initiatives by 2030	Yes	Progress is monitored through existing small-scale community composting projects.						
		Number of e-waste recycling programs operational	Target not specified	Yes	No formal system exists to monitor or implement e-waste recycling programs.						

Inception Report: Assessment of Gaps, Needs, and Key Priorities for Data Collection and Institutional Arrangements in the MRV System and NDC Tracking in Samoa

	Public awareness campaigns on waste management	20 campaigns by 2030	Yes	Data is collected inconsistently and lacks assessment of effectiveness or outreach.
	Number of landfill gas capture systems installed	At least 2 systems	Yes	Methane capture systems are operational but require further data on GHG impacts and scalability.

Annex 4: Workplan

Full Work Schedule for ICAT in Samoa				2024																								2025	
Activities/ Deliverables	Description	Lead	Supporting entity 1	Month	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	April	May	Jun	Jul	Aug	Sep				
0	Output 0. Finalized work plan, drafted and approved TORs for national consultants, and successful hiring of consultants within project dead lines																												
0.1	Finalize the work plan, draft TORs national consultants, hiring national consultants	UNEP-CCC																											
0	Final work plan, TORs of national consultants. National consultants are hired.																												
1	Output 1. Gaps and need assessment of climate change reporting requirements at international and national level																												
1.1	Mapping the current processes in place in Samoa and relevant in the context of the international reporting requirements	National Consultants	UNEP-CCC																										
1.2	Gaps and need assessment of data collection, data sources, relevant institutional arrangements, and key priorities for the MRV system and NDC tracking	National Consultants	UNEP-CCC																										
D.1.1	Inception report. Report summarising the result of activities 1.1 and 1.2. Gaps and needs assessment report.																												
1.3	Organize an inception workshop for all relevant stakeholders	National Consultants	UNEP-CCC																										
D.1.2	Inception workshop report highlighting the inputs and comments from participants.																												
2	Output 2. Impact assessment of selected policies and actions for tracking progress of NDC implementation with the GACMO tool																												
2.1	Conduct training of local consultants on GACMO (train-the-trainers)	UNEP-CCC																											
2.2	Prioritize mitigation actions using stakeholder consultations	National Consultants	UNEP-CCC																										
2.3	Revise mitigation action and define targets and ambition	UNEP-CCC	National Consultants																										
2.4	Conduct mitigation analysis using the GACMO tool	National Consultants	UNEP-CCC																										
2.5	GACMO training of national stakeholders and interim results of applying the GACMO tool presented in a national workshop	National Consultants	UNEP-CCC																										
D2	Report of mitigation analysis including conditional and unconditional scenarios using the GACMO tool																												

[illegible]

[illegible]