



Developing a framework and methodology to carbon sinks from the forestry sector in Samoa

Deliverable 2.3_Minutes of the Inception Workshop

1. TA project overview

Samoa, in alignment with its commitment to the United Nations Framework Convention on Climate Change (UNFCCC), submitted its second Nationally Determined Contribution (NDC) in 2021. Within this submission, Samoa outlined specific targets aimed at enhancing the carbon absorption function of its forests and bolstering them against potential climate impacts.

In pursuit of these objectives, Samoa has set a commendable target to increase its total forest area by 2% by the year 2030. To achieve this, the nation plans to implement afforestation and reforestation projects facilitated by external financing. Sustainable forest management techniques are also proposed to be adopted to improve overall forest functions (UNFCCC, 2021). However, accomplishing these goals requires a strategic approach, particularly in light of the challenges posed by Samoa's current greenhouse gas (GHG) emissions profile.

Samoa's total annual GHG emissions stand at 352.03 Gg CO₂e, with the energy sector accounting for approximately 50%, and the agriculture, forestry, and other land use (AFOLU) sector contributing about 38% to the total emissions. Notably, GHG uptake from AFOLU decreased by approximately 26% from 2000 to 2007 (-35.2 Gg CO₂e). In acknowledgment of these challenges, Samoa's second NDC emphasizes the necessity for external financial and technical assistance to enhance AFOLU sinks.

A critical facet of this TA involves the need for accurate carbon estimation technology, particularly in the context of Samoa's vast tropical rainforests and resource constraints. With limited manpower and budget, the application of remote sensing technology becomes indispensable for

quantifying carbon in these hard-to-reach rainforests. This involves a multi-faceted approach, encompassing the selection of target sites through local stakeholder engagement, analysis of previous studies, collection of land/forest information, and the establishment of a comprehensive plan to estimate carbon levels through the installation of fixed sampling stations.

Therefore, the TA initiative for Samoa aims to establish a framework for estimating forest carbon sinks, including creating a baseline, developing models, and implementing monitoring for sustainable forest management. This initiative is a strategic approach to enhance Samoa's capabilities in accurate forest carbon sinks estimation and sustainable forest management practices.

The National Institute of Green Technology (NIGT) has partnered with the Ministry of Natural Resources and Environment (MNRE) to deliver the CTCN TA project titled "Developing a framework and methodology to carbon sinks from the forestry sector using earth observation in Samoa". Under this project, the MNRE and NIGT delivered a one-day multi-stakeholder workshop, in order to inform the stakeholders of the start of this TA and ensure their adequate participation throughout the implementation process.

2. Inception workshop

2.1 Overview

The National Institute of Green Technology (NIGT) has partnered with the Ministry of Natural Resources and Environment (MNRE) to deliver the CTCN TA project titled "Developing a framework and methodology to carbon sinks from the forestry sector using earth observation in Samoa". Under this project, the MNRE and NIGT delivered a one-day multi-stakeholder workshop,

in order to inform the stakeholders of the start of this TA and ensure their adequate participation throughout the implementation process.

The workshop took place on August 4, 2023 at the Ministry of Natural Resources and Environment (MNRE) of Samoa. The participants included researchers from NIGT, as well as Korea University, a key consortium partner responsible for forest mapping and carbon sinks potential assessment, as well as officials from the Climate Change Division and Forestry Division of MNRE. Additionally, representatives from academia, including the National University of Samoa, were actively involved in the workshop.

2.2 Key discussions

2.2.1 Understanding of the TA

Agenda 1: Necessity of sustainable forest management in Samoa.

Deforestation poses a significant threat to the ecological balance, as it results in the loss of crucial forest functions that directly impact the well-being of both the environment and its inhabitants. One of the primary concerns is the release of carbon emissions, contributing to climate change. According to the UN-REDD Programme, up to 11 percent of global carbon emissions stem from deforestation and forest degradation. Beyond its role as a carbon sink, forests play a vital role in water regulation, soil protection, and the provision of non-timber forest products such as food and fiber. Approximately 1.6 billion people depend on forests for their livelihoods, emphasizing the social and economic importance of preserving these ecosystems. Sustainable forest management is not just a conservation effort; it is an essential strategy for safeguarding the interconnected

ecological, social, and economic values that forests provide to the people.

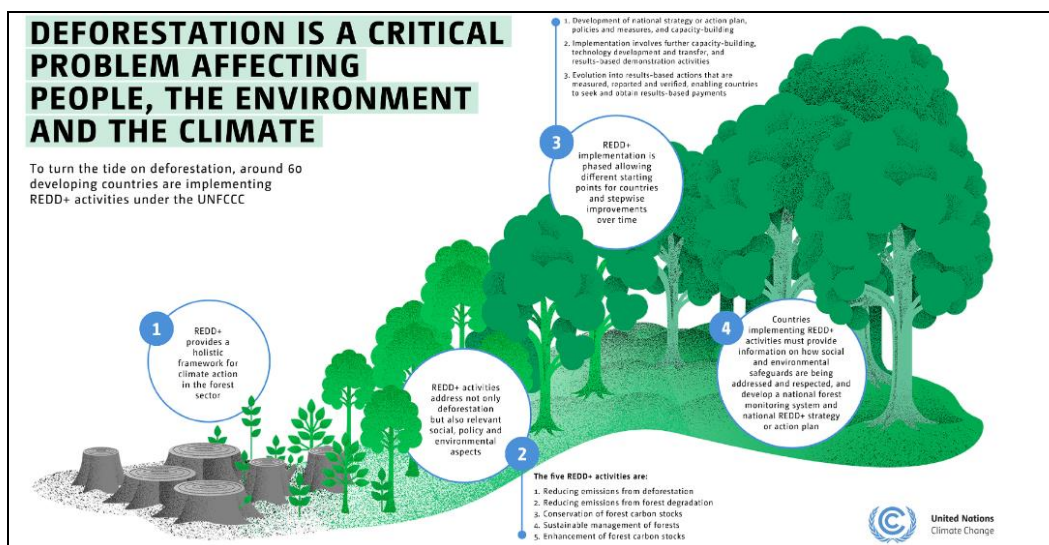


Figure 1. Why deforestation matters

Source: UNFCCC (2023)

Sustainable forest management is imperative for Samoa due to its crucial role in addressing significant sources of carbon emissions. According to the UN-REDD Programme, up to 11 percent of global carbon emissions result from deforestation and forest degradation. In the context of Verified Carbon Markets (VCM) and Result-Based Payments (RBP), the conservation of forest carbon sinks becomes instrumental. Furthermore, adopting Nature-Based Solutions (NBS) is vital for achieving Samoa's Nationally Determined Contributions (NDC), aiming to reduce greenhouse gas (GHG) emissions in the Agriculture, Forestry, and Other Land Use (AFOLU) sector by 26 percent in 2030 compared to 2007 levels, or by 35.2 Gg CO₂ equivalent compared to the updated reference year. Beyond carbon sequestration, Samoa's forests provide essential ecosystem services, including water regulation, soil protection, and the sustenance of non-timber forest products such as food

and fiber. The commitment to increasing total forest cover by 2 percent by 2030, as outlined in Samoa's NDC adaptation target, reflects the nation's dedication to balancing environmental, social, and economic considerations in its forest management strategies.

Agenda 2: Concept of REDD+ Readiness. REDD+ is an initiative developed by the UN-REDD Programme in order to encourage and incentivize developing countries to actively participate in climate change mitigation efforts within the forest sector. The key objectives of REDD+ include the reduction of carbon emissions arising from deforestation and forest degradation. Additionally, the initiative focuses on the conservation of existing forest carbon stocks, the sustainable management of forests, and the enhancement of forest carbon stocks. By addressing these aspects comprehensively, REDD+ aims to promote a holistic and effective approach to mitigating climate change through sustainable practices and the preservation of crucial forest ecosystems.

The REDD+ process consists of three key phases. The first, Readiness Phase, involves designing national strategies, action plans, and building capacity for implementation, along with developing policies and measures related to REDD+. In the Demonstration Phase, these strategies and plans are tested, often through results-based demonstration activities, requiring potential adjustments and additional capacity building. The final phase, Implementation, sees the execution of results-based actions at the national level, with full measurement, reporting, and verification. Access to results-based payments is granted upon completion of the necessary reporting and assessment processes under the UNFCCC. These phases collectively guide countries in their efforts to mitigate climate change through effective and

sustainable forest management.

REDD+ Readiness refers to the preparatory measures a country takes to build the necessary capacities for demonstrating and implementing REDD+ and meeting the requirements outlined by the UNFCCC. This phase is essential in establishing the foundational elements for effective REDD+ implementation. Support during REDD+ readiness is often provided to developing countries through both bilateral and multilateral initiatives, encompassing financial and technical assistance across various areas. These areas include governance, stakeholder engagement, the development of a REDD+ national strategy/action plan, the design of a safeguards information system, and the establishment of a forest emission reference level and a national forest monitoring system. REDD+ readiness serves as a crucial step in ensuring that countries are well-equipped and compliant with the necessary prerequisites before advancing to the demonstration and implementation phases of REDD+.

REDD+ has four pillars envisioned in the Cancun decisions and further elaborated by the Warsaw Framework. Decision 1/CP.16 highlights four main pillars of national REDD+ arrangements, all of which Samoa will need to address in order to proceed with REDD+. The following figure illustrates these four pillars.

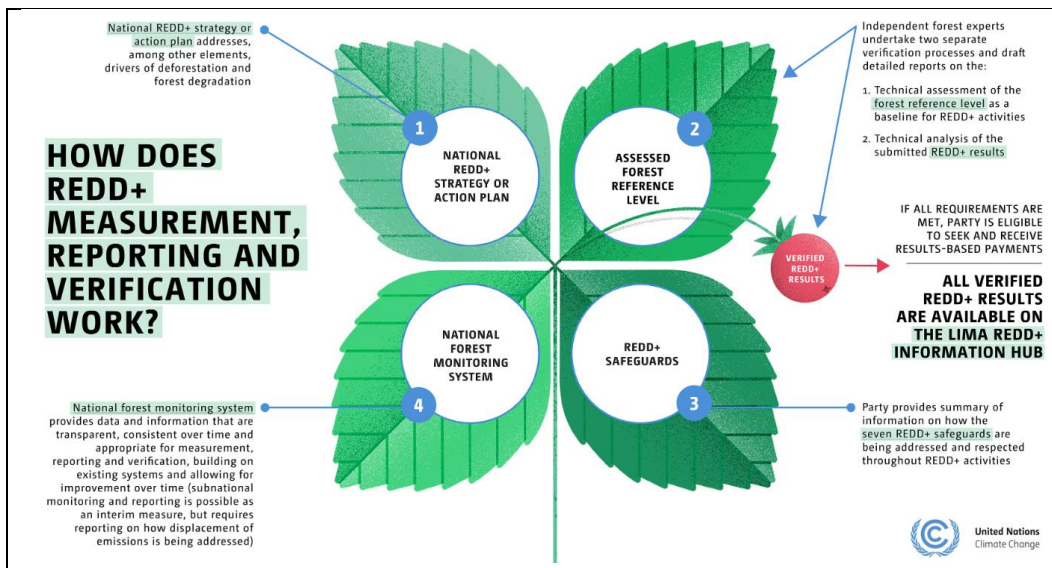


Figure 2. Four elements of REDD+

Source: UNFCCC (2023)

Agenda 3: TA project scope. The TA initiative for Samoa aims to establish a framework for estimating forest carbon sinks, including creating a baseline, developing models, and implementing monitoring for sustainable forest management. This initiative is a strategic approach to enhance Samoa's capabilities in accurate forest carbon sinks estimation and sustainable forest management practices.

In the TA project consortium, a collaborative effort between the National Designated Entity (NDE) of Samoa, represented by the Ministry of Natural Resources and Environment (MNRE), and the Technical Assistance (TA) team comprised of NIGT and Korea University has been established. NIGT is responsible for project design, coordination, communication, and reporting. Under Output 1, NIGT will collaborate with the NDE to establish a working group. Output 3 involves analyzing national strategies and opportunities to formulate a REDD+ implementation framework for Samoa, developing a

sustainable forest management framework, and organizing workshops for policy actions, with active stakeholder consultation. Korea University, focusing on Output 2, will classify forest and land cover, assess map accuracy through field data collection, develop a methodology to estimate carbon sinks, and conduct GIS/Remote Sensing Analysis on earth observation data. The team, including NIGT and Korea University, will engage with the working group for validation and ensure a comprehensive approach to advancing REDD+ initiatives in Samoa.

The TA project envisions a series of comprehensive outcomes to support Samoa's efforts in implementing REDD+ and achieving sustainable forest management. On the technical front, the project aims to deliver a time-series map of land-use and land cover, conduct an in-depth analysis of factors influencing land-use changes, compile detailed datasets incorporating forest and land use information, develop a robust model for estimating forest carbon, and provide technical support workshops and manuals for capacity building in data interpretation. Concurrently, policy outputs include the proposal of alternatives to prevent deforestation and forest degradation, the formulation of visions and missions for the 'Sustainable Forest Management Framework in Samoa' based on stakeholder surveys, identification of key policy actions through surveys and case studies, and the collection of valuable feedback from stakeholders on proposed policy suggestions. This holistic approach ensures a well-informed and participatory strategy, addressing both technical intricacies and policy imperatives for the successful implementation of REDD+ in Samoa.

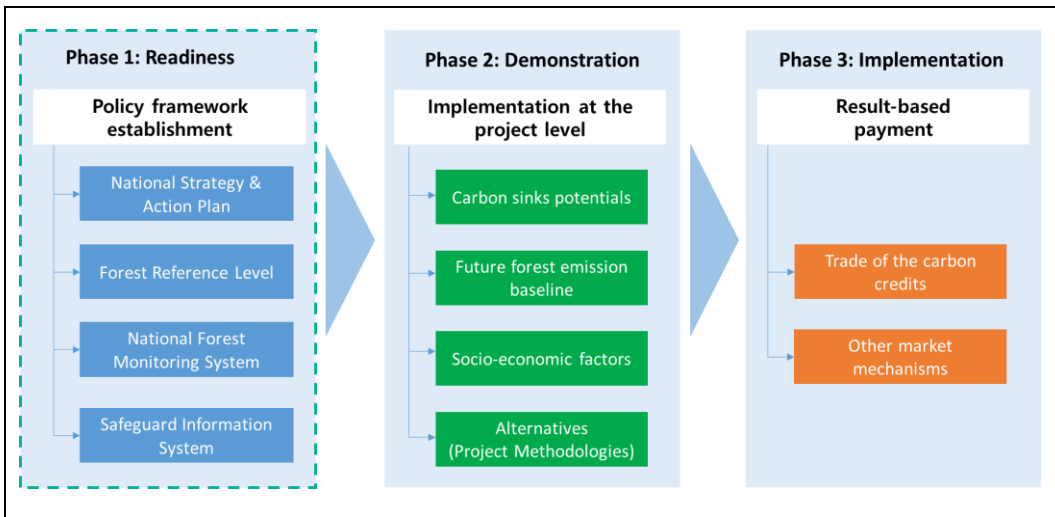


Figure 3. Levels of the Framework

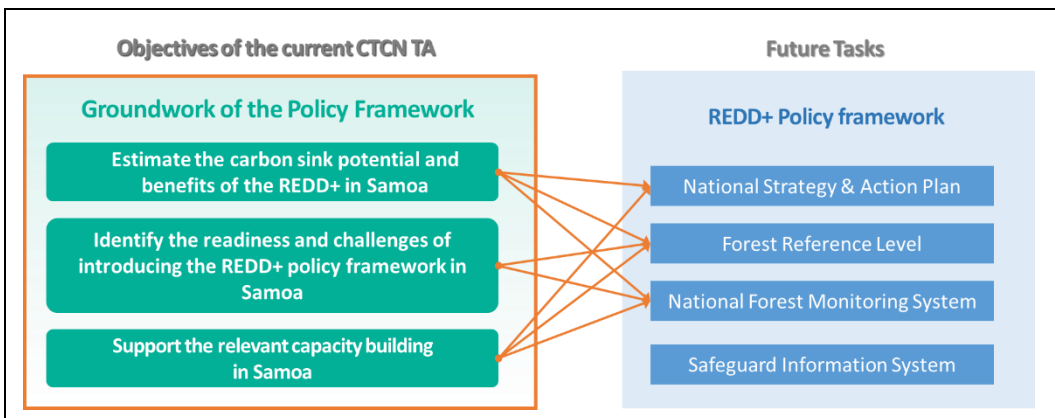


Figure 4. Goal and objective of the TA project

2.2.2 Implementation of the TA

Agenda 4: Working Group and Steering Committee of the TA project. The TA initiative for Samoa aims to establish a framework for estimating forest carbon sinks, including creating a baseline, developing models, and implementing monitoring for sustainable forest management. This initiative is a strategic approach to enhance Samoa's capabilities in accurate forest

carbon sinks estimation and sustainable forest management practices.

The operational objectives of the Working Group (WG) and Steering Committee (SC) within the context of the TA project, as specified in the Project Cooperation Agreement (PCA), are integral to the successful execution of the project. The establishment of both the WG and SC is deemed necessary for the effective implementation of activities outlined in the PCA. Section '1-B. Roles' defines the anticipated responsibilities of each entity, emphasizing their crucial roles in overseeing and contributing to various aspects of the project. These roles encompass not only the direct execution of activities but also extend to the review and active participation in related initiatives. The formation and collaborative functioning of the WG and SC serve as essential components, ensuring a coordinated and participatory approach to the TA project, fostering effective decision-making, and contributing to the overall success of the project's objectives.

Following the Inception Workshop, the MNRE and the NIGT will collaborate to convene and organize members of the WG and SC. Comprising representatives from the government, international organizations (including SPREP), and academia, these key stakeholders will be strategically positioned within the WG and SC to align their expertise and resources with the goals outlined in the PCA. The MNRE and NIGT will meticulously assign roles to each member based on their respective strengths and competencies, ensuring a synergistic effort that supports the successful realization of PCA outputs.

Agenda 5: Expert survey. Within the TA project, the expert survey will be conducted to identify barriers and opportunities pertaining to REDD+ readiness and activities in Samoa. The survey serves as a valuable tool,

providing Samoa with the opportunity to conduct a self-assessment of progress in each component and subcomponent related to REDD+, enabling the identification of gaps and additional needs. Through engaging key stakeholders from governmental organizations, NGOs, and universities, the survey method involves the development of a comprehensive REDD+ assessment framework. This framework assesses the readiness and urgency of various elements crucial to the success of REDD+. The survey process not only facilitates a collective evaluation of Samoa's REDD+ readiness but also demonstrates the nation's commitment to transparency and the readiness process. The generated feedback from this expert survey is instrumental in guiding the establishment of a robust REDD+ framework through a participatory and multi-stakeholder assessment approach.

2.3 Workshop materials

The workshop material in a ppt format is attached to this minute.





Background of the project



01 Samoa's ratification of the UNFCCC in 1994

- Article 4.1(d): Samoa is obliged to enhance sinks and reservoirs of GHG, including forests and other terrestrial, coastal and marine ecosystems

02 Samoa updated the NDC in 2021

- Samoa aims to expand the area under agroforestry to an additional 5% of the agricultural land by 2030 (relative to 2018)
- Samoa aims to manage forests sustainably and increase total forest cover by 2% by 2030 (relative to 2013)

03 The Samoa's 2nd GHG inventory in 2022

- Samoa's existing forests are an important carbon sink and could absorb up to 800,000t CO₂ annually



Necessity of Sustainable Forest Management in Samoa (2)



Why sustainable forest management for Samoa?

- **Significant sources of carbon emissions**
 - ✓ Up to 11 percent of carbon emissions are caused by deforestation and forest degradation (UN-REDD Programme)
 - ✓ Forest carbon sinks for VCM (Verified Carbon Market) – RBP (result-based payment)
 - ✓ NBS (Nature-Based Solutions) for achieving NDC (Nationally Determined Contributions) - reduce GHG emissions in the AFOLU sector by 26 percent in 2030 compared to 2007 levels (or by 35.2 Gg CO₂ e compared to the new reference year once the GHG emissions inventory is updated)
- **Forests are valuable in many other ways**
 - ✓ Water regulation, soil protection, non-timber forest products including food and fibre, climate regulation and biodiversity
 - ✓ Manage forests sustainably and increase total forest cover by 2 percent by 2030 relative to 2013 (NDC adaptation target)



About REDD+ (6)

2. Forest Reference Emission Level (FREL)

- **FREL considerations:** 1) Forest definition, 2) Scope, 3) Scale, 4) Data and methodologies (UNFCCC Guidance)

1) Forest definition

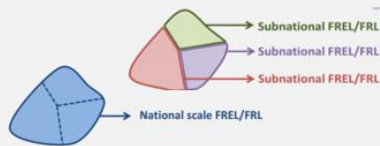
- A country must provide a definition of forest
- minimum tree crown cover (%)
 - minimum land area (ha)
 - minimum tree height (m)

2) Scope

- mitigation potential
- REDD+ strategy
- technical capacity (accuracy, cost)

3) Scale

REDD+ can be implemented at multiple levels (national, sub-national)



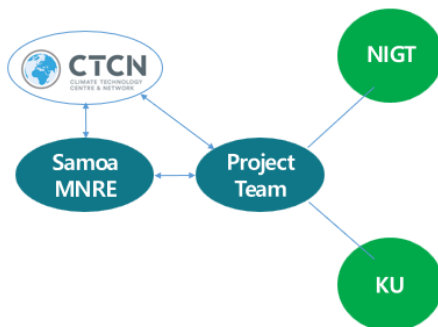
4) Data and methodologies

- Historic data
- consistency between MRV and FREL/FRL

Historic emissions (from MRV)



Project Consortium



• Project design, coordination, communication, reporting

• Output 1

- ✓ Establish working group in consultation with the NDE

• Output 3

- ✓ Analyze national strategies and opportunities to develop REDD+ implementation framework in Samoa
- ✓ Develop a framework for sustainable forest management of Samoa and consult with the stakeholders on the results
- ✓ Organize the workshops for policy actions

• Output 2

- ✓ Classify the forest and land cover by categories
- ✓ Assess map accuracy through field data collection
- ✓ Develop a methodology and model to estimate the amount of carbon sinks
- ✓ Conduct GIS/Remote Sensing Analysis on the primary and secondary earth observation data
- ✓ Meet the working group for validation etc.



Expected Outcomes

Technical Outputs

- Time-series mapping of land-use and land cover
- Analysis of factors changing land-use
- Detail data with forest and land use in Samoa
- Model to estimate forest carbon in Samoa
- Technical support workshop and technical manuals
- Capacity building workshops for REDD+ implementation

Policy-related Outputs

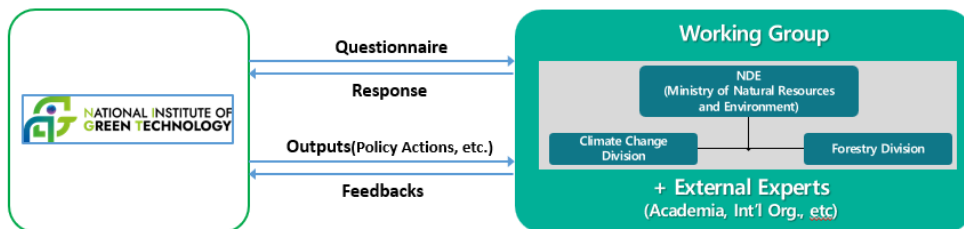
- Policy alternatives to prevent deforestation and forest degradation
- Visions and missions of the 'Sustainable Forest Management Framework in Samoa' based on the survey of the Stakeholders
- Key policy actions for developing the Framework based on the survey and case studies of other countries
- Feedbacks from the stakeholders on the policy suggestions



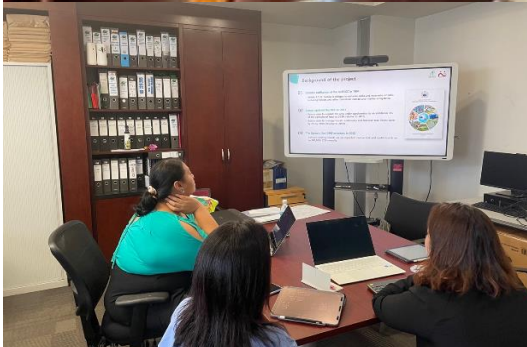
Role of the Working Group

Participation and Engagement of Key Stakeholders

Participatory and inclusive process



2.4 Workshop photos





Note: The photos also from a series of workshops conducted in Samoa under the TA project



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