UN Climate Technology Centre & Network
UNFCCC Technology Mechanism

CTCN Technical Assistance
Request Submission Form

Guidelines:

This Request Submission Form should be completed by the organisation requesting technical assistance from the Climate Technology Centre & Network (CTCN) in collaboration with the National Designated Entity (NDE) of the country in question

The Form must be signed by the NDE. Please see updated contact list of NDEs here: http://unfccc.int/ttclear/support/national-designated-entity.html

The Form can be submitted as a Word file containing a digital signature or as a signed and scanned PDF file in combination with an un-signed Word file

For requests submitted by multiple countries, all the NDEs of the respective countries shall sign identical Forms before official submission to the CTCN

NDEs have the opportunity to submit CTCN requests in collaboration with National Designated Authorities (NDAs) for the Green Climate Fund (GCF) if targeting the GCF Readiness Programme.

Requesting country or countries:	Samoa
Request title:	Developing a framework and methodology to carbon sinks from the forestry sector using Earth observation in Samoa
NDE	Ministry of Natural Resources and Environment (Ms. Frances Reupena – CEO), Anne Rasmussen, ACEO Climate Change Division,
Request Applicant:	Ms. Frances Reupena – Chief Executive Officer – MNRE Ms. Anne Rasmussen – ACEO – Climate Change Division – MNRE

Climate objective:

- ☐ Adaptation to climate change
- ☐ Mitigation of climate change
- ✓ ☐ Combination of adaptation and mitigation of climate change

Geographical scope:

- ☐ Community level
- ☐ Sub-national
- ✓ ☐ National
- ☐ Multi-country

If the request is at a sub-national or multi-country level, please describe specific geographical areas (provinces, states, countries, regions, etc.).

Problem statement related to climate change (up to one page):

Samoa would like to explore opportunities to work with partners and other countries on approaches in forestry sector However, there are many complications in the different approaches in registry set up and potential projects we can have and not undermining the environmental integrity of the process. We would like to work with CTCN on the development of a framework and methodology to map the forestry sector using Earth observation and estimation of the carbon sinks in Samoa.

Past and on-going efforts to address the problem (up to half a page):

Part of the Samoan archipelago, the Independent State of Samoa is comprised politically of the largest two islands in the group (which also includes six islands): Savaii is 1,820 km2 and 'Upolu is 1,110 km2. The home island of Upolu is home to nearly three-quarters of Samoa's population and its capital city of Apia.

Samoa ratified the UNFCCC in 1994, which means it is obligated to take certain steps to implement this

international agreement. The obligations related to mitigation are, for example:
Article 4.1(d): Samoa is obliged to manage, conserve and enhance sinks and reservoirs of greenhouse gases, including forests and other terrestrial, coastal and marine ecosystems

The results from Samoa's second GHG inventory provide an important starting point from which to assess mitigation options. The GHG inventory was prepared using the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, and assessed emissions in the following four sectors: energy, industrial processes and product use (IPPU), agriculture, forestry and other land use (AFOLU), and waste

As outlined in the second GHG inventory, Samoa's existing forests are an important carbon sink and could be absorbing up to 800,000 t CO2 per annum (GoS, 2008).
A number of government initiatives have played a role in protecting Samoa's forest resources. These include:

- Establishment of National Parks
- Ban on Commercial Logging
- Reforestation Program
- Community Forestry Program

Forest protection is to be promoted to conserve Samoa's indigenous species and maintain biodiversity habitats for Samoans' existence as well as acting as sinks for the GHGs.

More recently in its updated NDC, Samoa aims to expand the area under agroforestry to an additional 5 percent of agricultural land by 2030 relative to 2018.61ncreasing the use of agroforestry is expected to contribute to several important ecosystem services. For example, agroforestry systems help protect crops from cyclone damage, diversify agricultural incomes, and reduce riverine flood risk.

Secondly, Samoa aims to manage forests sustainably and increase total forest cover by 2 percent by 2030 relative to 2013.62 Managing forests responsibly and promoting afforestation is expected to moderate stream flow (reducing the risk of riverine flooding and drought), protect indigenous ecosystems, preserve cultural values, and maintain the supply of non-timber forest products.

Overview of measures and requirements to achieve targets
It is expected that expanding agroforestry will be achieved by awareness raising activities that promote traditional knowledge of agroforestry systems and provide targeted support, including providing seedlings to landholders. Samoa can support the expansion of agroforestry without the need for external financial support, however the success of the agroforestry program will require external technical assistance as well as consent from landholders to determine the areas on which trees will be planted and who will be responsible for planting and monitoring the trees.

The government of Samoa has prioritised a 2 million tree campaign, as a result this target was achieved and has now been extended to 3 million target. This has assisted in managing forests sustainably and gradually increase total Forest. Estimates of removals and capture from this data will be part of the study proposed. Samoa would require external financial support and technical assistance to develop this program. The expansion of forest area would also require consent from various stakeholders in order to determine the areas on which forest will be planted and who will be responsible for planting and monitoring these areas.

Some initiatives on forestry mapping have been initiated in Samoa:

- **For example, a "Vegetation Mapping of Samoa[1]" held in 2011**:

A map of vegetation and general land cover for the islands in Samoa was created based on high resolution QuickBird satellite imagery supported by field observations. Map accuracy was assessed using field data collected at sites selected by stratified random sampling. This updated map provides relatively detailed information about the status of Samoa's vegetation, which is important for land managers and other local decisionmakers as well as researchers and the public.

[1] https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd937236.pdf

- **Samoa's Forest Resources: Forest Inventory and Analysis, 2012**[2]

This analysis defines estimates of forest area, stem volume, biomass, numbers of trees, damages to trees, and tree size distribution as well as overstory and understory vegetation cover and information on invasive plant species presence and cover.

- **Vegetation Mapping Inventory Project for National Park of Samoa:** https://www.nps.gov/im/vmi-npsa.htm

- **National Forest Inventory in the year 2013**

Forest Carbon (IPCC Source Category 3B1a): Samoa has developed the National Forest Inventory in the year 2013. The National Forest Inventory (NFI) sub-component was established through interview surveys and forest surveys in Upolu and Savaii. The study captured information related to landowners, land users, and the production and usage of non-timber forest products. The 2013 forest survey focused on tree biomass and non-tree biomass field surveys, field data entry processing and analysis, and reporting. Based on the forest area in 2013, the current carbon stock for each forest type over Samoa was estimated. The country's total carbon is 45,736,227 ton, which is composed of 8,814,724 ton in Upolu and 36,921,502 ton in Savaii. Most of the carbon (63%) in Savaii is derived from Medium Dense Forest (FM). Savaii island has a larger area of Medium Dense Forest (FM) where higher soil carbon content. Forest-based carbon stock in Samoa decreased from 1999 to 2013 (-1,567,595 c-ton or -3% against 1999), corresponding to the decrease of the forest area.

- **GHG Inventory, 2022**

A current GHG inventory is being finalized in Samoa and should be available and reviewed before the end of 2022.
Samoa's GHG inventory also includes estimates of CO2 removals in forests. However, there is significant uncertainty in these estimates, as they do not include changes in the total area of forest in Samoa that may have occurred during the inventory period. As shown below, the inventory does include CO2 removal and no emissions due to logging and fuel wood extraction and any clearing of forests. There is some anecdotal evidence to suggest that forests are being cleared for cattle farming. However, the general contraction in Samoa's agricultural sector since the 1990s taro blight suggests that some former croplands may have been converted back to forests. It is estimated that the net carbon removal in the forest and planation is 775,937 net CO2e removals.

Specific technology[3] barriers (up to one page):

Some initiatives have been developed in Samoa in the past 15 years to improve the management of forest, and successfully achieved to lower the deforestation rate.
However, no previous seems to have been made to map the forest of Samoa, or to estimate the carbon sinks of Samoa.
The existing barriers are estimated to be both technical, legal, institutional and financial.

There is recognition by Samoa of the links between forests as carbon sinks and climate change. As a party to the Framework Convention on Climate Change and the Kyoto Protocol, Samoa actively contributes at the global level to the debate on ways and means of ameliorating this problem. At the national level, however, outside of the context of public education and awareness activities wherein climate change is discussed, this has yet to translate into real practical action. The issue of carbon credits and carbon sequestration are mere theoretical concepts yet to be concretized into anything tangible and beneficial.[4]

[2] https://www.fs.fed.us/pnw/pubs/pnw_rb269.pdf
[3] *"**Any equipment, techniques, practical knowledge and skills** needed for reducing greenhouse gas emissions and adapting to climate change" (Special Report on Technology Transfer, IPCC, 2000)*

[4] Samoa Forestry Outlook report, 2009

Sectors:

Please indicate the main sectors related to the request:

☐ Coastal zones	☐ Early Warning and Environmental Assessment	☐ Human Health	☐ Infrastructure and Urban planning
☐ Marine and Fisheries	☐ Water	✓ ☐ Agriculture	✓ ☐ Carbon fixation
☐ Energy Efficiency	✓ ☐ Forestry	☐ Industry	✓ ☐ Renewable energy
✓ ☐ Transport	☐ Waste management		

Please add other relevant sectors:

Cross-sectoral enablers and approaches:

Please indicate the main cross-sectoral enablers and approaches

☐ Communication and awareness	✓ ☐ Economics and financial decision-making	✓ ☐ Governance and planning	✓ ☐ Community based
☐ Disaster risk reduction	✓ ☐ Ecosystems and biodiversity	☐ Gender	

Technical assistance requested (up to one page):

We would like to work with CTCN in developing a framework and methodology to map the forestry sector using Earth observation and estimation of the carbon sinks in Samoa and identifying possible issues and opportunities of using REDD+ to increase the carbon sinks of Samoa.

This would include the following activities:

FOREST MAPPING AND CARBON SINKS POTENTIAL IN SAMOA

1 - Mapping of vegetation and general land cover for the island of Samoa (Savai and Upolu Island) through Earth Observation.
2- Classification of the forest and land cover by categories
3- Assessment of map accuracy through field data collection at sites selected by stratified random sampling. (Identify trees, nature of the forest)
4- Definition of a methodology and creation of a model to estimate the amount of carbon that could be stored or captured through each category of land/forest

REDD+ AND CARBON SINKS POTENTIAL IN SAMOA

5- Analyse the REDD+ definition long with Samoa national strategies for REDD+, AFOLU and Forestry and identify potential barriers or opportunities.
6-Develop a framework that help Samoa in managing its forests sustainably[5] and monitor any landscape changes.

[5] NDC: manage forests sustainably and increase total forest cover by 2 percent by 2030 relative to 2013 https://unfccc.int/sites/default/files/NDC/2022-06/Samoa%27s%20Second%20NDC%20for%20UNFCCC%20Submission.pdf

Expected timeframe:

12 months

Anticipated gender and other co-benefits from the technical assistance:

The gender linkages and other co-benefits (e.g., biodiversity, economic, social, cultural, etc.) are likely to be generated because of the technical assistance. Such as ecosystem-based adaptation, potential of ecosystems to participate in the market approaches.

Labour population of agriculture in Samoa accounts for 67%[6] of total labour population. Agriculture women share 73% of total women's labour force. - Cash cropping is needed for agriculture which was formerly done on self-sufficient basis. - Ministry of Agriculture, Fisheries and Forest (MAFF) are promoting policy in response to women's contribution to agriculture and changing their roles. - MAFF is conducting gender sensitization for extension worker and put it duty to have extension to women's farmer as job description. - Each village has to draw fisheries management plan and women's committee in the village involves its deliberation.

A better management plan and framework will increase forests sustainability and reduce the population´s vulnerability to climate change.

Key stakeholders:

Please list the stakeholders who will be involved in the implementation of the requested CTCN technical assistance and describe their role during the implementation (for example, government agencies and ministries, academic institutions and universities, private sector, community organizations, civil society, etc.).

Stakeholders	Role to support the implementation of the technical assistance
National Designated Entity	MNRE
Request Applicant	MNRE
Please add as many stakeholders and lines as required.	All government ministries, environmental NGOS, CBO, women groups, communities and local counterparts.

Alignment with national priorities (up to 2000 characters including spaces):

Please describe how the technical assistance is consistent with national climate priorities such as: Nationally Determined Contribution, national development plans, poverty reduction plans, technology needs assessments, Low Emission Development Strategies, Nationally Appropriate Mitigation Actions, Technology Action Plans, National Adaptation Plans, sectorial strategies and plans, etc.

Reference document (please include date of document)	**Extract** (please include chapter, page number, etc.).
Nationally Determined Contribution (NDC)	Direct alignment and contribution to NDC implementation is required for all CTCN technical assistances. 3 sections on AFOLU, all relevant, mainly those on adaptation to climate change: These are the goals as listed in the NDC,p6 AFOLU - expand the area under agroforestry to an additional 5 percent of agricultural land by 2030 relative to 2018. AFOLU - manage forests sustainably and increase total forest cover by 2 percent by 2030 relative to 2013.
Technology Needs Assessment	Last TNA was developed in 2010 under the Second National Communications report to the UNFCC

[6] https://www.jica.go.jp/english/our_work/thematic_issues/gender/background/pdf/e98sam.pdf

National Adaptation Plans	Pathway for the Development of Samoa, the National CC Policy and CIM Plans which informs the development of Samoa's NAP.
Nationally Appropriate Mitigation Actions	Reference is also made to NAMA in the study TOR.
Add others here as relevant	National Climate Change Policy 2020 – 2030, community integrated management plans, Third National Communications – GHG inventory report

Development of the request (up to 2000 characters including spaces):

This is a request from MNRE on behalf of the government of Samoa. We had submitted the NDE nomination to have CEO MNRE as the NDE to our MFAT. Currently the list of NDE is updated to include CEO of MNRE as the NDE, with alternate – Anne Rasmussen, ACEO Climate Change- MNRE

Forests absorb carbon from the atmosphere, thus offering a potential carbon sink, which can offset carbon dioxide emissions from other sources
Samoa needs to improve data and information on forests, deforestation and forest degradation. This TA will develop a framework and methodology to map the forestry sector using Earth observation and estimation of the carbon sinks in Samoa and its linkage to the international carbon trading market through efforts to reduce emissions from deforestation and degradation (REDD).

Background documents and other information relevant for the request:

- National Forestry Inventory
- Draft GHG inventory for the Third National Communication
- NDC

The Government of Samoa has an NDC Implementation Roadmap and NDC Investment Plan (including project pipeline). This work has been undertaken in parallel with developing Samoa's Second NDC. The NDC Implementation Roadmap and NDC Investment Plan informs the targets included in this NDC and will support Samoa in achieving these targets by setting out practical steps and tangible projects to mitigate GHG emissions across the energy (including sub-sectors), waste, AFOLU, and marine sectors.

Other key documents include the Samoa Climate Change Policy 2020, the National Environment Sector Plan 2017-2021, the Agriculture Sector Plan 2016-2020 (ASP), as well as the National Policy for Gender Equality 2021-2031 (2021) and the Inclusive Governance Policy 2021-2031 (2021).

OPTIONAL: Linkages to Green Climate Fund Readiness and Preparatory Support

The CTCN is collaborating with the GCF in order to facilitate access to environmentally sound technologies that address climate change and its effects, including through the provision of readiness and preparatory support delivered directly to countries through their GCF NDA. These actions are in line with the guidance of the GCF Board (Decision B.14/02) and the UNFCCC, particularly paragraphs 4 and 7 of 14/CP.22 that addresses Linkages between the Technology and the Financial Mechanisms[7].

The CTCN is therefore implementing some of its technical assistance using GCF readiness funds accessed via the country's NDA. Any application for GCF support, including the amount of support provided, is subject to the terms and conditions of the GCF and should be developed in conjunction with the NDA.

Please indicate whether this request has been identified as preliminarily eligible by the NDA to be considered for readiness support from the GCF.

[7] Please see: https://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/auv_cop22_i8b_tm_fm.pdf

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☐ Initial engagement: The GCF NDA of the requesting country has been engaged in the design of this request and the NDA will be involved in the further process leading to an official agreement for accessing GCF readiness support.

☐ Advanced engagement (preferred): The GCF NDA of the requesting country has been directly involved in the design of this request and is a co-signer of this request, the signature indicating provisional agreement to use readiness national funds to support the implementation of the technical assistance.

NDA name:
Date:
Signature:

Monitoring and impact of the assistance:

By signing this request, I affirm that processes are in place in the country to monitor and evaluate the technical assistance provided by the CTCN. I understand that these processes will be explicitly identified in the CTCN Response Plan and that they will be used in the country to monitor the implementation of the technical assistance following standard CTCN procedures.
I understand that, after the completion of the requested assistance, I shall support CTCN efforts to measure the success and effects of the support provided, including its short, medium and long-term impacts in the country.

Signature:

NDE name:	Ms. Lealaisalanoa, Frances Brown Reupena – CEO MNRE
Date:	30th June 2022
Signature:	

THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG
The CTCN is available to answer all questions and provide guidance on the application process.