

<b>Country</b>	Samoa
<b>Request ID#</b>	2022000028
<b>Title</b>	<b>Developing a framework and methodology to carbon sinks from the forestry sector using Earth observation in Samoa</b>
<b>NDE</b>	Ministry of Natural Resources and Environment (Ms. Frances Reupena – CEO), Anne Rasmussen, ACEO Climate Change Division
<b>Proponent</b>	Ms. Frances Reupena – Chief Executive Officer – MNRE Ms. Anne Rasmussen – ACEO – Climate Change Division – MNRE

**Summary of Climate Technology Centre and Network (CTCN) technical assistance**

This technical assistance should focus on 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 Samoa national strategies for forest management, AFOLU and Forestry and identify potential barriers or opportunities to access the REDD+ mechanisms
- 6-Develop a framework that help Samoa in managing its forests sustainably<sup>1</sup> and monitor any landscape changes.

<sup>1</sup> 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>

**Agreement:**

(If possible, please use electronic signatures in Microsoft Word file format)

---

**National Designated Entity to the United Nations Framework Convention on Climate Change (UNFCCC) Technology Mechanism**

Name: Lealaisalanoa Frances Reupena

Title: CEO MNRE

Date: 05/08/22

Signature: 

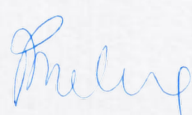
---

**Climate Technology Centre and Network (CTCN)**

Name: Rose Mwebaza

Title: Director of CTCN

Date: 08.08.2022

Signature: 

## 1. Background and context

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 CO<sub>2</sub> 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.<sup>61</sup> Increasing 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.<sup>62</sup> 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.

It is expected that Samoa can manage forests sustainably gradually and increase total forest cover by developing a program for reforestation and forest restoration. 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 to determine the areas on which forest will be planted and who will be responsible for planting and monitoring these areas.

## 2. Problem statement

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.

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.<sup>2</sup>

---

<sup>2</sup> Samoa Forestry Outlook report, 2009

### 3. Logical Framework for the CTCN Technical Assistance:

<b>Objective: Developing a framework and methodology to carbon sinks from the forestry sector using Earth observation in Samoa.</b>												
<b>Outcome:</b> The Technical Assistance will map and estimate the potential of carbon sinks in the island of Samoa, quantify the annual soil loss rates, and develop a framework that help Samoa in managing its forests sustainably <sup>3</sup> and monitor any landscape changes.												
	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
<b>Mandatory output: Development of implementation planning and communication documents</b>												
<b>Activity:</b> <i>All implementers must undertake the following activities at the beginning and at the end of the CTCN technical assistance.</i> i) A detailed work plan of all activities, deliveries, outputs, deadlines and responsible persons/organisations and detailed budget to implement the Response Plan. The detailed work plan and budget must be based directly on this Response Plan. ii) Based on the work plan, a monitoring and evaluation plan with specific, measurable, achievable, relevant, and time-bound indicators used to monitor and evaluate the timeliness and appropriateness of the implementation. The monitoring and evaluation plan should apply selected indicators from the Closure and Data Collection report template and enable the lead implementer to complete the CTCN Closure and Data collection report at the end of the assignment (please refer to item iv below and section 14 in the Response Plan); iii) A two-page CTCN Impact Description formulated in the beginning of the technical assistance and update/revised once the technical assistance is fully delivered (a template will be provided); iv) A Closure and Data Collection report completed at the end of the technical assistance (a template will be provided).												
<b>Mandatory Deliverable:</b> i) Detailed work plan ii) Monitoring and evaluation plan iii) CTCN Impact Description iv) Closure and Data Collection report												
<b>Output 1: TA coordination mechanism established</b>												
<b>Activity 1.1: Map relevant stakeholders and establish a stakeholder working group</b>												

<sup>3</sup> 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>



<p>The classification should be<sup>44</sup>:</p> <ul style="list-style-type: none"> <li>• <i>comprehensive, scientifically sound and practically oriented.</i></li> <li>• <i>meet the needs of a variety of users</i> (neither single-project oriented nor taking a sectoral approach); users can use just a sub-set of the classification and develop from there according to their own specific needs.</li> <li>• <i>potentially applicable as a common reference system</i> and facilitate comparisons between classes derived from different classifications.</li> <li>• be a <i>flexible</i> system, which can be used at different scales and at different levels of detail allowing cross-reference of local and regional with continental and global maps without loss of information.</li> <li>• <i>able to describe the complete range of land cover features</i> (e.g., forest and cultivated areas as well as ice and bare land, etc.), with clear class boundary definition that are unambiguous and unique.</li> <li>• adapted to fully describe the whole variety of land cover types with the <i>minimal set of classifiers</i> necessary (the less classifiers used in the definition, the less the error expected and the less time and resources necessary for field validation); and based on a <i>clear and systematic description of the class</i>, where the diagnostic criteria used to define a class must be clearly defined, with pure land cover criteria distinct from environmental criteria (e.g., climate, floristic and altitude), as the latter influence land cover but are not inherent features.</li> </ul> <p>The categories to be used for the classification should be aligned with Samoa’s strategies and existing classifications.</p> <p>The categories should be discussed and validated by the NDE before initiating the classification.</p>															
<p><b>Activity 2.3: Meeting with the working group</b>          The results of activity 2.1 &amp; 2.2 will be discussed during a meeting (that can be held virtually) with the working group. The classification of the forest cover by categories should be revised and approved by the working group before processing with the rest of the activities. This classification should be aligned with national strategic documents as well as with the data available.          Also, this meeting will enable the implementer to discuss and agree on the sites to be used for the next activity with the working group.</p>															
<p><b>Activity 2.4: Assessment of map accuracy through field data collection at sites selected by stratified random sampling. (Identify trees, nature of the forest)</b></p>															

<sup>44</sup> <https://www.fao.org/3/X0596E/x0596e01f.htm>

During this activity, the implementer will organise a stratified random sampling collection on the sites defined with Samoa during the previous meeting.

The most 'convenient' method of sampling is that in which the investigator selects several sampling units which he considers 'representative' of the whole population. For example, in estimating the whole volume of a forest stand, he may select a few trees which may appear to be of average dimensions and typical of the area and measure their volume.

The object of designing a sample survey is to minimise the error in the final estimates.

A sampling scheme is determined by the size of sampling units, number of sampling units to be used, the distribution of the sampling units over the entire area to be sampled, the type and method of measurement in the selected units and the statistical procedures for analysing the survey data. A variety of sampling methods and estimating techniques developed to meet the varying demands of the survey statistician accord the user a wide selection for specific situations. One can choose the method or combination of methods that will yield a desired degree of precision at minimum cost.

In any sample survey, we must first decide on the type of data to be collected and determine how adequate the results should be. Secondly, we must formulate the sampling plan for each of the characters for which data are to be collected. We must also know how to combine the sampling procedures for the various characters so that no duplication of field work occurs. Thirdly, the field work must be efficiently organised with adequate provision for supervising the work of the field staff. Lastly, the analysis of the data collected should be carried out using appropriate statistical techniques and the report should be drafted giving full details of the basic assumptions made, the sampling plan and the results of the statistical analysis. The report should contain estimate of the margin of the sampling errors of the results and may also include the possible effects of the non-sampling errors. Some of these steps are elaborated further in the following.

*(i) Specification of the objectives of the survey:* Careful consideration must be given at the outset to the purposes for which the survey is to be undertaken. For example, in a forest survey, the area to be covered should be decided. The characteristics on which information is to be collected and the degree of detail to be attempted should be fixed. If it is a survey of trees, it must be decided as to what species of trees are to be enumerated, whether only estimation of the number of trees under specified diameter classes or, in addition, whether the volume of trees is also proposed to be estimated. It must also be decided at the outset what accuracy is desired for the estimates.



<p>of great help in deciding the proper type of design and intensity of sampling that will be appropriate for achieving the objects of the survey.<sup>5</sup></p> <p>The results of the sampling will be fully detailed in report that will be circulated with the working group for review. At least 2 weeks will be provided to the working group for this review and a final report will be edited, taking into consideration all relevant comments received.</p>									
<p><b>2.5 Meeting with the working group to discuss the model to estimate the amount of carbon sinks that could be stored or captured through each category of land/forest</b></p> <p>During this meeting, the implementer will explain the methodology expected to be used to create the model and estimate the amount of carbon sinks that could be stored or captured through each category of land/forest. It would be relevant to invite, or to have a separate meeting with the entity in charge of updating the GHG inventory of Samoa to understand what has been done with regards to carbon sinks, what has not been done, and why. The NDE will kindly connect the implementer with the entity currently working on the GHG inventory.</p>									
<p><b>2.6 Definition of a methodology and creation of a model to estimate the amount of carbon sinks that could be stored or captured through each category of land/forest</b></p> <p>It is expected that the implementer will develop a model to estimate the amount of carbon sinks that could be stored or captured through each category of land/forest based on the classification made previously.</p>									
<p><b>2.7 Presentation of the model in an in-person workshop of a day with the working group and future administrators and users of the model.</b></p> <p>The implementer will organize a one-day in person meeting in Samoa in presence of the working group, as well as any relevant other stakeholders (future users and administrators) or the model to explain the model, the methodology and provide the stakeholders the opportunity to have a working session on the tool so that they can identify and raise their questions relative to the tool.</p>									
<p><b>2.8 Testing of the model by the working group, and selected group of stakeholders (future users and administrators of the model)</b></p> <p>The model will be available for testing during 3 months by a limited number of users and administrators (contact persons will be selected with the working group) to test the model. During this period, the implementer will make sure to provide support and answers to the users and modify/correct / amend the model when and if needed.</p>									
<p><b>2.9 Guide for the use of the model</b></p> <p>A full guide will be prepared that will describe the functionalities of the model, the methodology used for its conception, the assumptions, the source of the data, the options offered by the tool so that future users and</p>									

<sup>5</sup> <https://www.fao.org/3/x6831e/x6831e12.htm>



<p>The results of this analysis will be presented in a report, with clear SWOT analysis and possible options to leverage identified barriers and bottlenecks. The report will also provide a clear roadmap of next steps to be implemented by the country to develop REDD+ projects should this option be identified as feasible. The roadmap will provide a clear pathway of the registration of a project under the REDD+ mechanisms from the “project idea stage” until the emission and selling of the credits.</p>									
<p><b>Activity 3.2: Define the framework’s vision and mission (1 or 2 days – open to all stakeholders).</b> In preparation of this workshop, the implementer will benchmark other countries’ vision and mission on the management of sustainable forest, to explain with examples the importance of these concepts. After providing a definition of vision and mission, as well as the example of other countries from the region or globally, the TA coordination team will define, together and through a participative process, the definition of the vision and mission that the policy framework should adopt. The presence of youth, women, and vulnerable populations is fundamental for this workshop. The vision and mission should be agreed by the stakeholders, including public and private sectors, vulnerable populations, academical, NGOs, etc.</p>									
<p><b>Activity 3.3: Define the framework objectives through a workshop (2<sup>nd</sup> -3<sup>rd</sup> day for TA Steering Committee)</b> Once the vision and mission will be defined, the workshop will continue with the working group to define the objective of the framework and the goals that the framework will aim to achieve. As per the country’s NDC, Samoa has committed to manage its forests sustainably and increase total forest cover by 2 percent by 2030 relative to 2013. The objective should be clear and concise. The implementer will play an important role in moderating the discussion to ensure the objectives that promote sustainable management of forest, and cover the long-term, to balance environmental, socio-economic, cultural and recreational objectives; reduce forest degradation; and conserve and maintain existing forest from potential climate change impacts. The objective should involve local communities or stakeholder’s participation in decision of sustainable environmental management for the forest of Samoa. The implementer will manage the discussion based on his experience to make sure only objectives are listed at this stage.  Members of the working group might not be able to participate to all 5-day workshops. The implementer, along with the members of the working group will decide the relevant participation of each member prior to the selection of the dates for the workshop to make sure relevant representative of the working group are available for their respective workshops. For this workshop, a presence of policy makers (public institutions is required). The Team leader and the senior experts in sustainable forest management should also be present.</p>									
<p><b>Activity 3.4: Define the Guiding principles through a workshop (4<sup>th</sup> and 5<sup>th</sup> day for TA Coordination team).</b> Following the definition of a vision, a mission, and objectives, the working group will look at defining the guiding principles that will guide the implementation of the framework. Members of the working group might not be able</p>									



- 4. Resources required and itemized budget: To be defined but estimated between 250,000 USD**

## 5 Profile and experience of experts

Experts required	Brief description of required profile
<b>International experts</b>	
<b>Team Leader and expert in sustainable forest management and inventory (I1)</b>	<ul style="list-style-type: none"> <li>• A minimum of 15 years relevant work experience in REDD+, sustainable forests, AFOLU GHG inventory, evaluation of carbon sinks, or similar.</li> <li>• At least 5 demonstrated experience in carbon sinks calculation and sustainable forest management.</li> <li>• Excellent abilities to interact with local stakeholders, collect and evaluate data and transform the information into high quality documentation tangible to the target audience.</li> <li>• Excellent written and communication skills in English.</li> </ul>
<b>Policy Expert (I2)</b>	<ul style="list-style-type: none"> <li>• A minimum of 15 years relevant work experience in drafting environmental policies, laws, frameworks.</li> <li>• At least 5 demonstrated experience in drafting environmental laws, frameworks, policies in Africa.</li> <li>• Excellent abilities to interact with local stakeholders, collect and evaluate data and transform the information into high quality documentation tangible to the target audience.</li> <li>• Excellent written and communication skills in English.</li> <li>•</li> </ul>
<b>Earth observation expert (I3)</b>	<ul style="list-style-type: none"> <li>• A minimum of 15 years relevant work experience in earth observation, forestry mapping, GIS, use of drones to develop decision-making tools or affiliate.</li> <li>• At least 5 demonstrated experience using earth observation techniques in the region.</li> <li>• Excellent abilities in the generation and interpretation of maps.</li> </ul>
<b>National experts</b>	
<b>National expert in sustainable forestry (N1)</b>	<ul style="list-style-type: none"> <li>• A minimum of 5 years of relevant work experience in drafting environmental or forestry related policies.</li> <li>• Proven experience of sustainable forest and evaluation of carbon sinks will be valued.</li> <li>• Proven working experience in Samoa is required. Presence in Samoa will be a plus.</li> <li>• Good communication skills.</li> </ul>
<b>Gender Expert (N2)</b>	<ul style="list-style-type: none"> <li>• A minimum of 5 years relevant work experience in the field of gender equality and gender mainstreaming.</li> <li>• Formal training in gender analysis and gender planning and demonstrated expertise in mainstreaming gender in projects and programmes.</li> <li>• Excellent abilities to interact with local stakeholders, collect and evaluate data and transform the information into high quality documentation tangible to the target audience.</li> <li>• Previous work experience in the region is required.</li> <li>• Excellent written and communication skills in English.</li> </ul>

## **6 Intended contribution to the expected impact of the technical assistance**

The technical assistance will contribute to enhance the technological capacities by filling information gaps, provide physical and human capacities and demonstration of these technologies' application. The technical assistance will support technology transfer mechanism for using earth observation and EO tools including drones in monitoring the carbon sinks of Samoa, that will lead to raise the resilience of national ecosystems.

## **7 Relevance to NDCs and other national priorities**

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.

## **8 Links to relevant parallel activities:**

Some initiatives on forestry mapping have been initiated in Samoa:

- **For example, a "Vegetation Mapping of Samoa"<sup>7</sup> held in 2011:**

A map of vegetation and general land cover for the islands of Tutuila, Aunu'u, Ofu, Olosega, and Ta'u 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.

- **Samoa's Forest Resources: Forest Inventory and Analysis, 2012<sup>8</sup>**

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 in 2023.

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

<sup>7</sup> [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fseprd937236.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd937236.pdf)

<sup>8</sup> [https://www.fs.fed.us/pnw/pubs/pnw\\_rb269.pdf](https://www.fs.fed.us/pnw/pubs/pnw_rb269.pdf)

suggests that some former croplands may have been converted back to forests. It is estimated that the net carbon removal in the forest and plantation is 775,937 net CO<sub>2</sub>e removals.

### 9 Anticipated follow-up activities after this technical assistance are completed:

Following the implementation of this TA, it is planned that the country will look at the possibility to use the carbon market mechanisms to generate carbon credits that can be sold to international parties to continue protecting Samoa's environment and forest resources.

### 10 Benefits in terms of gender and co-benefits:

Imbedded into the design of the activities:	<p>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.</p> <p>Labour population of agriculture in Samoa accounts for 67%<sup>9</sup> 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 must draw fisheries management plan and women's committee in the village involves its deliberation.</p>
Gender and co-benefits of the activities:	A better management plan and framework will increase forests sustainability and reduce the population's vulnerability to climate change.

### 11 Main national stakeholders in the implementation of the technical assistance activities:

National Stakeholder	Function in 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.

### 12 Contribution to the SDGs:

Goal:	Sustainable Development Goal	Direct contribution from CTCN TA
1	End poverty in all its forms everywhere	
2	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture	The TA will map the soils using climate technologies to increase the resilience of the country to erosion.

<sup>9</sup> [https://www.jica.go.jp/english/our\\_work/thematic\\_issues/gender/background/pdf/e98sam.pdf](https://www.jica.go.jp/english/our_work/thematic_issues/gender/background/pdf/e98sam.pdf)

3	Ensure healthy lives and promote well-being for all at all ages	
4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	
5	Achieve gender equality and empower all women and girls	
6	Ensure availability and sustainable management of water and sanitation for all	Samoa is facing a forest management issue and estimating the carbon sinks will be a first step in a better management of this ecosystems with strong impact on GHG emissions.
7	Ensure access to affordable, reliable, sustainable, and modern energy for all (consider adding targets for 7)	
	7.1 - By 2030, ensure universal access to affordable, reliable, and modern energy services	
	7.2 - By 2030, increase substantially the share of renewable energy in the global energy mix	
	7.3 - By 2030, double the global rate of improvement in energy efficiency	
	7.a - By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	
	7.b - By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support	
8	Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all	
9	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	
10	Reduce inequality within and among countries	
11	Make cities and human settlements inclusive, safe, resilient, and sustainable	
12	Ensure sustainable consumption and production patterns	
13	Take urgent action to combat climate change and its impacts	<i>All technical assistance should indicate relevance to SDG 13 and at least one of the following targets (13.1 to 13.b).</i>
	13.1 - Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	The mapping of Samoa's carbon sinks will help defining a plan of actions to increase the resilience of the country
	13.2 - Integrate climate change measures into national policies, strategies, and planning	Frameworks, policy briefs, guidance on soil mapping will be delivered.
	13.3 - Improve education, awareness-raising and human and institutional capacity on climate change	Governmental institutions will be trained to soil mapping and will be

	mitigation, adaptation, impact reduction and early warning	able to comment the deliverables before their final approval
	13.a - Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible	
	13.b - Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth, and local and marginalized communities	Mapping the soils will enable Sudan to make a better planning and a better use of its resources.
14	Conserve and sustainably use the oceans, seas, and marine resources for sustainable development	
15	Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	
16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels	
17	Strengthen the means of implementation and revitalize the global partnership for sustainable development	

**13 Classification of technical assistance:**

<i>Please tick the relevant boxes below</i>	Primary	Secondary
<input type="checkbox"/> 1. Decision-making tools and/or information provision	X	
<input type="checkbox"/> 2. Sectoral roadmaps and strategies		
<input type="checkbox"/> 3. Recommendations for legal reforms, policies, and regulations		
<input type="checkbox"/> 4. Financing facilitation		
<input type="checkbox"/> 5. Private sector engagement and market creation		
<input type="checkbox"/> 6. Research and development of new technologies		
<input type="checkbox"/> 7. Feasibility of technology options		
<input type="checkbox"/> 8. Piloting and deployment of technologies in local conditions	X	
<input type="checkbox"/> 9. Technology identification and prioritization		

*Please note that all CTCN technical assistance contributes to strengthening the capacity of in-country actors.*

#### **14 Monitoring and evaluation process**

*Upon contracting the implementing partners to implement this Response Plan, the lead implementer will produce a monitoring and evaluation plan for the technical assistance. This monitoring and evaluation plan must include specific, measurable, achievable, relevant, and time-bound indicators that will be used to monitor and evaluate the timeliness and appropriateness of the implementation. The CTCN Technology Manager responsible for the technical assistance will monitor the timeliness and appropriateness of the Response Plan implementation. Upon completion of all activities and outputs, evaluation forms will be completed by the (i) THE COUNTRY on overall satisfaction level with the technical assistance service provided; (ii) the Lead Implementer on the experience and knowledge gained through the technical assistance; and (iii) the CTCN Director on the timeliness and appropriateness of the activities and outputs.*

#### **Abbreviations and acronyms**

CFC	Climate Finance Centre
CIS	Commonwealth of Independent States
CTCN	Climate Technology Centre and Network
EBRD	European Bank for Reconstruction and Development
EU	European Union
GCF	Green Climate Fund
GHG	Greenhouse Gases
HVAC	Heating, Ventilation and Air Conditioning
NDA	National Designated Authority
NDC	Nationally Determined Contribution
NDE	National Designated Entity
SNiP	Construction Norms and Regulations of the Soviet Union
TA	Technical Assistance