Scaling up Climate Actions in Pacific Small Island Developing States

ENHANCING CAPACITIES FOR IMPROVED SOIL CARBON AND HEALTH

OVERVIEW

Agriculture and climate change are two pressing priorities for Pacific Small Island Developing States (SIDS). Indeed, Pacific SIDS are highly exposed and vulnerable to climate variability and extreme events as highlighted in the Intergovernmental Panel on Climate Change (IPCC) Working Group II report on Impacts, Adaptation and Vulnerability (March, 2022).

Within this context, soils can provide key solutions as they play a fundamental role in food production and climate change adaptation and mitigation. However, over the years, the productivity and sustainability of several cropping systems have been threatened by a serious decline in the chemical, physical and biological health of soils which is linked to changes in farming practices. Soils play a significant role in the global carbon cycle. If sustainably managed, soils could sequester up to 2.05 gigatonnes of CO$_2$ equivalent per year and have the potential to offset yearly as much as one third of agricultural global greenhouse gas (GHG) emissions$^1$.

Healthy soils can store more carbon. Improving soil carbon, soil health and soil fertility is crucial to achieve biodiversity objectives under the Convention on Biological Diversity (CBD), climate change adaptation and mitigation objectives under the United Nations Framework Convention on Climate Change (UNFCCC), and other international conventions and platforms.

The Food and Agriculture Organization of the United Nations (FAO) provides countries with technical support to adapt to and mitigate climate change through webinars, workshops, knowledge products and evidence-based data. This workshop aimed to bring stakeholders together to discuss sustainable solutions for Pacific SIDS.

$^1$ Global emissions of carbon are estimated at 135 Pg due to land use change and soil cultivation (Global Soil Partnership)
OBJECTIVES

1. Raise awareness on the urgent need to improve agricultural soil carbon and soil health in Pacific SIDS.
2. Discuss and plan science-based and feasible options, as well as opportunities and ways forward for the region.
3. Enhance knowledge and capacities of key stakeholders on the benefits of soil data, available tools and how these could contribute to climate targets including Nationally Determined Contributions (NDCs).

PARTICIPANTS

The two-day virtual workshop brought together agriculture, soil and climate experts from the region but also other stakeholders from around the world.

HIGHLIGHTS

• Presentations provided a snapshot of NDC submissions from Pacific SIDS and highlighted the variety of approaches to climate finance, illustrating the diversity and vulnerability of the region. The panel discussion provided an opportunity for countries to share challenges in a number of areas including GHG measurement and estimates, inventories and carbon markets.

• The increasing threat of global warming is a major challenge for the region. Evidence points towards a devastating impact for Pacific SIDS if global warming were to increase by 1.5°C. It is therefore essential to adopt and implement climate smart practices tailored to Pacific SIDS’ national circumstances and policies. New technologies, expertise and local resources (e.g. cover crops) must be scaled up to reverse the current downward soil trend in the region.

• There is a strong need for reliable soil data for decision making at all levels – from farmers to policy makers to facilitate reporting on international conventions and agreements. However, collecting updated and consistent data on soil remains a challenge. Some countries in the region do not have soil experts and/or laboratories, and soil data is scarce. Collaboration with soil experts in the region is essential to assess capacities and needs, and to identify where targeted international support could help. Nevertheless, with basic data, countries can estimate Carbon Stock Change (CSC) using the IPCC tier 1 method.

• An online survey was conducted by FAO and IGES (Institute for Global Environmental Strategies) to gain a better understanding of soil CSC in national inventories. Targeting GHG inventory (GHGI) experts and soil scientists from more than 100 countries including from Pacific SIDS, the survey revealed that for most respondents, estimating CSC was done to fulfil international requirements, while the minority saw it as an opportunity to evaluate investment and access to finance. The four recommendations made based on the findings are: 1) raise awareness on the importance of adequate and updated soil policies; 2) establish joint programs for GHGI experts and soil scientists; 3) ensure guidance on data collection and analysis and, 4) provide financial and technical resources. More pressure on the international research community to explore new IPCC methodology on CSC estimates with less data collection is also required.

• Implementing the Global Soil Doctors Programme of the GSP (Global Soil Partnership) was favoured with a promoting institute in the region to connect farmers and international platforms including GSP. A government agency or institution could be a promoting institute and could highlight local expertise and good practices.
WAY FORWARD

Awareness raising
In line with the Sustainable Development Goals (SDGs), Paris Agreement and other platforms and networks, and with support from local soil experts and the GSP, it is fundamental to continue raising awareness on the important role of soils towards food and water security and climate change resilience for communities in the Pacific.

Identify and adopt sustainable practices, and implement these practices while adapting to local conditions
Soil health is an important indicator of soil management. Indeed, healthy soils increase resilience to climate change and support a wide range of essential ecosystem services such as retaining water and nutrients, storing carbon, limiting water and wind erosion, fostering micro-biodiversity, and increasing productivity. Furthermore, carbon sequestration in soils is a slow process but sequestered carbon can be lost rapidly, mainly through unsustainable agricultural practices or deforestation. Thus, it is fundamental to halt soil degradation which eventually leads to loss of soil functions and productivity, and increased GHG emissions.

Balance emission reduction and food security
Environment and agriculture policymakers should work together to find the right balance between reducing emissions and maintaining production and food security. Soil carbon retention is important and there is an increased interest in its capacity to improve soil health and fertility and its impact on productivity levels. In order to move forward, a consistent approach to soil sampling and testing is needed.

Involvement at political level
It is crucial that soil carbon and management are discussed, included, and conceptualized adequately in policies. Soil should be prioritized as it is closely linked to water and food security. Collective actions to halt the downward spiral of decreased soil carbon, health, and fertility can only be achieved with strong political will.

Strengthen regional scientific collaboration
Some experts have expressed the desire and need to implement sustainable soil management practices that will retain soil carbon, but they have also stressed the need for guidance and assistance to fill the absence of soil scientists in their countries. Soil scientists in the region and/or international organizations could work together to provide skills and fill knowledge gaps.

Implementation of the Global Soil Doctors Programme
The GSP and its related activities are a formidable example of international support and collaboration and can support soil testing for sustainable soil management, reporting, and capacity building on data management. GSP has expressed its readiness to work together with Pacific SIDS on ways forward.

PROGRAMME

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<tr>
<th>TIME</th>
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<th>SPEAKER</th>
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<tbody>
<tr>
<td>10 MAY 2022</td>
<td>Opening of the virtual meeting</td>
<td>Akiko Nagano, Office of Climate Change, Biodiversity and Environment (OCB), FAO</td>
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<tr>
<td>14:30</td>
<td>Welcoming remarks</td>
<td>Martial Bernoux, OCB, FAO</td>
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<td>Tilafono David Hunter, Ministry of Agriculture and Fisheries, Samoa</td>
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<td>Ryudai Oshima, Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan</td>
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### 11 MAY 2022

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter(s)</th>
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<tbody>
<tr>
<td>14:30</td>
<td>Opening of the second day</td>
<td>Malia Talakai, FAOSAP</td>
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<td>14:35</td>
<td>Recap of first day</td>
<td>Tekini Nakidakida, Fiji</td>
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<td>14:45</td>
<td>Visualization of Soil Carbon and GHG emissions from soil</td>
<td>Yasu Shirato, NARO, Japan</td>
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<td>15:00</td>
<td>Understanding countries’ status and challenges for estimating carbon stock changes in mineral soil in national GHG inventories</td>
<td>Chisa Umemiya, Institute of Global Environmental Strategy (IGES)</td>
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<td>15:15</td>
<td>Role of land representation in preparing the national GHG inventory for the LULUCF sector under the Paris Agreement Enhanced Transparency Framework (ETF)</td>
<td>Iordanis Tzamtzis, OCB, FAO</td>
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<td>15:35</td>
<td>Q&amp;A</td>
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<td>15:45</td>
<td>Implementing sustainable soil management in the Pacific region</td>
<td>Lucrezia Caon, Global Soil Partnership (GSP)</td>
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<td>16:00</td>
<td>Discussion on way forward</td>
<td>Beau Damen, FAO Regional Office of Asia and the Pacific</td>
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<td>16:25</td>
<td>Summary and closing</td>
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### ADDITIONAL RESOURCES

- FAO–IGES survey on: Understanding countries’ status and challenges for the estimation of carbon stock changes from mineral soils in national greenhouse gas inventories: Preliminary survey findings
- Office of Climate Change, Biodiversity and Environment (OCB) [www.fao.org/koronivia](www.fao.org/koronivia) [Koronivia-JWA@fao.org](Koronivia-JWA@fao.org)