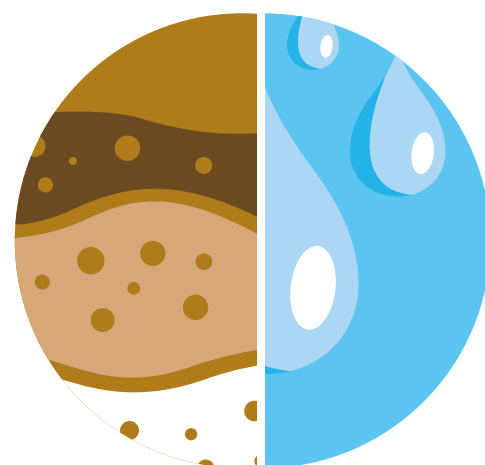




Food and Agriculture  
Organization of the  
United Nations



# KORONIVIA JOINT WORK ON AGRICULTURE

## Summary of workshop on topic 2(c)

### Improved soil carbon, soil health and soil fertility under grassland and cropland as well as integrated systems, including water management

*The Koronivia Joint Work on Agriculture (KJWA) is a landmark decision that was reached at the UN Climate Conference (COP23) in November 2017 on the next steps for agriculture within the United Nations Framework Convention on Climate Change (UNFCCC). The decision officially recognizes the unique role that agriculture can play in tackling climate change while considering the vulnerability of the sector to climate change and approaches to achieve food security.*

#### OVERVIEW

Soil organic carbon (the carbon stored in soil organic matter) is crucial to soil health, fertility and ecosystem services, including food production – making its preservation and restoration essential for sustainable development.<sup>1</sup> Soil degradation leads to loss of soil functions and productivity, and increased greenhouse gas (GHG) emissions so maintaining existing soil carbon stocks or enhancing them where feasible is a priority. Improving soil carbon, soil health and soil fertility has multiple benefits and synergies as part of efforts towards achieving biodiversity objectives under the Convention on Biological Diversity (CBD), land degradation neutrality objectives under the United Nations Convention to Combat Desertification (UNCCD) and the climate change adaptation and mitigation objectives under the UNFCCC.

#### Key facts and figures

- 1 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.**
- 2 Soils can hold three times as much carbon as the atmosphere.**
- 3 Carbon sequestration in soils is a slow process but sequestered carbon can be lost rapidly,** mainly through unsustainable agricultural practices or deforestation.
- 4 It is estimated that one-third of soils globally are moderately to highly degraded.**
- 5 In most countries, reliable national data sets are missing** which makes monitoring and management complex.
- 6 Industrial-scale holdings and large-scale monocultures use one-third of the available global land surface,** and are heavily dependent on chemical fertilizers, which can cause the soil to harden, reduce its ability to retain water and nutrients, and damage soil fertility and biodiversity.

<sup>1</sup> This document provides a summary of discussions which took place at the UNFCCC workshop on topic 2(c) in Bonn in June 2019. The views expressed herein do not necessarily reflect the views or policies of FAO but only aim to facilitate knowledge-sharing and support decision-making in the frame of the KJWA process. All the facts, figures, opinions or statements presented below are issued from the UNFCCC workshop report: <https://unfccc.int/event/improved-soil-carbon-soil-health-and-soil-fertility-under-grassland-and-cropland-as-well-as>

## KEY CHALLENGES AND OPPORTUNITIES

### Ensuring reliable monitoring tools

In order to assess the degradation, maintenance, or restoration of soil health, national capacities should be strengthened to measure, map and monitor the implementation of policies for preventing soil organic carbon losses and for enhancing soil organic carbon sequestration. In order to move forward, a consistent approach to soil sampling including a standardized global protocol and more research into data are needed. Financial accessibility and reliability of data should be ensured as part of this process. Additionally, there is a need for further data collection and research to quantify the co-benefits of sustainable land management. These co-benefits are complex, site-specific and poorly documented, which makes it difficult to estimate their monetary value and include them in cost-benefit analyses.

#### **Potential entry point for the Koronivia Joint Work on Agriculture**

Explore how national systems can be strengthened to improve the provision of robust data on soils and the co-benefits of sustainable land management including the mapping, planning and monitoring of surface water resource management in both watersheds and cropland.

### Identifying sustainable practices

The general consensus is that sustainable soil management (SSM) practices such as using mineral and organic inputs, reducing tillage, optimizing crop rotation, using cover crops, agroforestry, restoring degraded land, not burning crop residues and agro-ecology benefit food production, farmers, resilience to climate change and the environment. Investing in soil health has multiple benefits and could be a 'no-regrets' option for the KJWA moving forward.

#### **Potential entry point for the Koronivia Joint Work on Agriculture**

Develop and implement a portfolio of practices adapted to local conditions.

### Supporting the adoption of change

- **AT A FINANCIAL LEVEL**  
Lack of incentives for farmers to adopt climate-smart practices is a major challenge. It is essential to ensure investments in SSM and scale-up good practices. The implementation of SSM practices will increase crop productivity, secure supply chains and meet the growing demand for food.
- **AT A LOCAL INSTITUTIONAL LEVEL**  
An integrated land-use planning approach should be encouraged, ensuring that municipal, agricultural and conservation planning are conducted together to optimize the response to competing demands for the same land resources, while securing the land rights of farmers and local communities.
- **AT A POLITICAL LEVEL**  
The recognition of the importance of healthy soils should be stated in national adaptation and mitigation strategies, and broken down into concrete measures. Regional cooperation for improving soil and nutrient management, and promoting climate-resilient crop production systems should be strengthened, as well as discussions on reducing activities that contribute to soil degradation such as deforestation, mining, unsustainable farming practices, urbanization and coastal pollution.

#### **Potential entry point for the Koronivia Joint Work on Agriculture**

Recognize the importance of healthy soils and carbon sequestration in national and international decisions.

INFO:  
[www.fao.org/climate-change/our-work/what-we-do/koronivia/en/](http://www.fao.org/climate-change/our-work/what-we-do/koronivia/en/)

CONTACT:  
[Koronivia-JWA@fao.org](mailto:Koronivia-JWA@fao.org)

Thanks to the financial support of



Federal Ministry  
of Food  
and Agriculture



Some rights reserved. This work is available under a [CC BY-NC-SA 3.0 IGO](https://creativecommons.org/licenses/by-nc-sa/3.0/igo/) licence