



Food and Agriculture
Organization of the
United Nations

Rosa M Poch

Work of the Intergovernmental Technical Panel on Soils (ITPS)

GLOBAL SOIL
PARTNERSHIP

11th Plenary Assembly

12-14 July 2023



ITPS Letters <https://www.fao.org/global-soil-partnership/itps/itps-soils-letter/en/>





**Food and Agriculture
Organization of the
United Nations**

ITPS SOIL LETTERS
INTERGOVERNMENTAL
TECHNICAL PANEL
ON SOILS # 6
February
2023

SOILS, WHERE FOOD BEGINS: HOW CAN SOILS CONTINUE TO SUSTAIN THE GROWING NEED FOR FOOD PRODUCTION IN THE CURRENT FERTILIZER CRISIS?

Hunger is a painful crisis that persists despite global efforts to eradicate it, affecting 828 million people worldwide in 2021 (FAO *et al.*, 2022). In addition, the COVID-19 pandemic has led to an additional 150 million people suffering from hunger, making healthy diets even less accessible for some segments of the world's population (Foch *et al.*, 2020; FAO *et al.*, 2022). The State of Food Security and Nutrition in the World 2022 report concludes by urgently calling on governments to rethink how to redistribute resources in ways that make healthy and sustainably produced foods available to all. In a world where resources are increasingly threatened, healthy, fertile soils underpin the continuing supply of wholesome, responsibly-produced foods with minimal environmental impacts and a neutral carbon footprint.

Soils are directly and indirectly involved in the provision of most ecosystem services vital for humans, including food production, which is fundamental for food security and sovereignty. Soils are the basis for producing more than 95 percent of our food, according to the analysis of data available in FAOSTAT (FAO, 2022). Basic grains, oilseeds, sugar, vegetables, nuts and fruits directly rely on soils, and livestock meat and products, such as eggs and dairy products, are supported by animal feeds that also grow in soils. When produced by healthy and fertile soils, these foods are wholesome and nutritious. However, one-third of the world's soils are degraded to some extent due to erosion, loss of organic carbon and biodiversity, salinization, acidification, compaction, and nutrient imbalance, among other causes (FAO and ITPS, 2015). There is a close link between soil degrading processes and fertility loss, and the loss of topsoil and the exposure of subsoil can greatly reduce nutrient availability.

Healthy food production is hampered or limited if soils are degraded. Together with poor diets, nutrient-deficient soils contribute to micronutrient deficiencies in crops which in turn endanger human health: a condition called "hidden hunger", which affects more than two billion people worldwide (WHO, 2016).

Soil health and fertility depend on a vital triad of physical, chemical and biological soil properties. Physical properties such as texture and structure help to regulate pore spaces, aeration and consequently drainage conditions and the water available for plants



(Tan, 2009), while clay particles and some organic constituents in the soil help to regulate nutrient availability, thanks to their electrochemical activities, as well as assisting other important functions associated with soil health.

Soils are nature's recycling system (Weil and Brady, 2017). Through the mineralization processes of the soil organic matter (SOM), nutrients are released and become readily available for plant uptake. SOM has multiple direct and indirect effects enabling the availability of nutrients, gas exchange, water infiltration and retention capacity in soils, and the flourishing of soil organisms. Soil organisms are among the most diverse terrestrial communities on Earth and maintain soil fertility through numerous complex reactions and processes involving



ITPS
INTERGOVERNMENTAL
TECHNICAL PANEL ON SOILS



**GLOBAL SOIL
PARTNERSHIP**



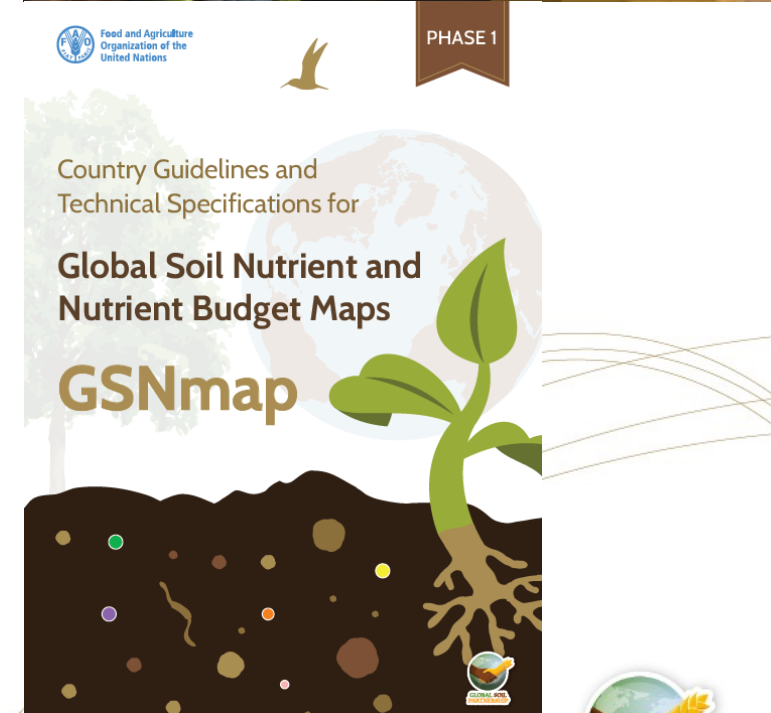
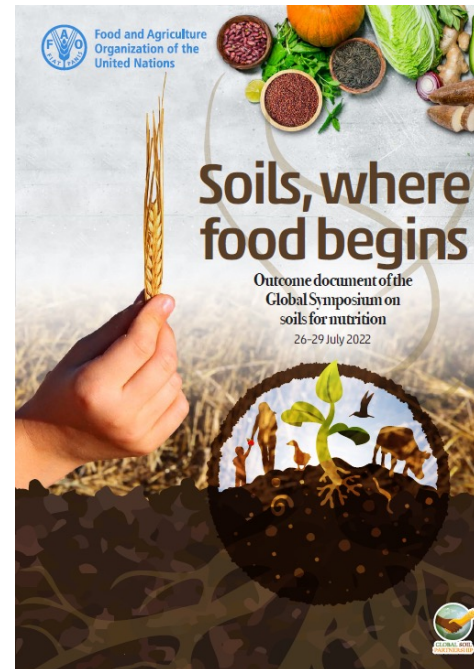
4.1 Report by the Chairperson on main activities and outcomes of the work programme 2022-23



26 to 29 July 2022

<https://www.fao.org/events/detail/symposium-soils-for-nutrition/en>

International Network on Soil Fertility and Fertilizers (INSOILFER)



GLOBAL SOIL PARTNERSHIP | 11th Plenary Assembly | 12-14 July 2023



4.1 Report by the Chairperson on main activities and outcomes of the work programme 2022-23



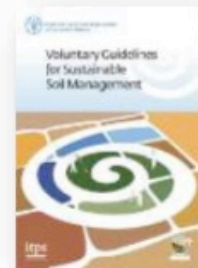
REC SOIL 'toolkit'

Technical feasibility

Country-driven global data products



Technical Training and Capacity Building



MRV Protocols



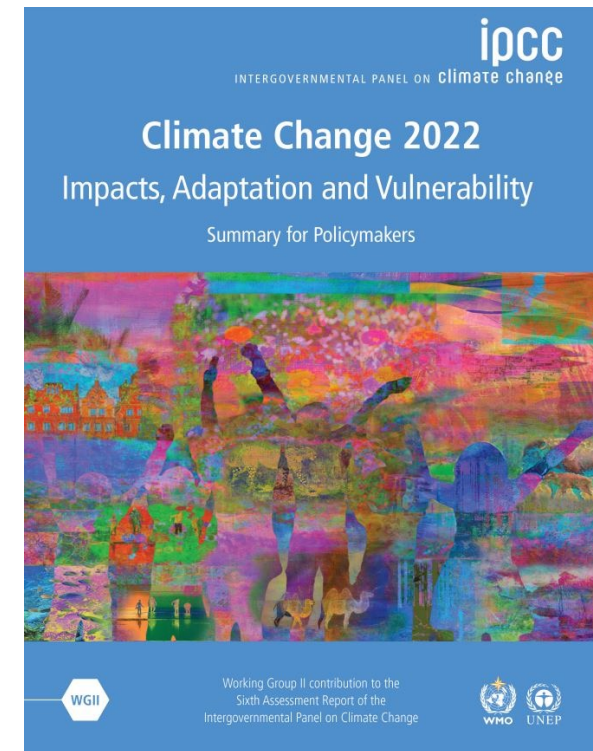
Indicator	Parameter units	Soil physical properties	Bulk density (kg dm ⁻³)
Soil productivity	Agricultural productivity or biomass in dry matter (t/ha year ⁻¹)		In some cases, bulk density can be complemented by available water capacity, or other relevant soil physical properties (Drachler/Schmidt)
Soil organic carbon	Organic carbon (%)	Soil biological activity	Soil respiration rate (g CO ₂ -C m ⁻² d ⁻¹)
			Ideally combined with at least one other biological indicator (see methodology panel)





Preparation on the report on the Global Assessment of Salt Affected Soils

Review of the IPCC 6th Assessment Report



Working Group to develop the Indicator System of the GSP Action Framework (ISAF)



OEWG – Open Ended Working Group

1. Indicators of SSM performance by countries
2. Indicators of Soil Health

4.1 Report by the Chairperson on main activities and outcomes of the work programme 2022-23

<i>Connecting soils with people: initiatives of the Global Soil Partnership</i>	7. Soil securing humanity Humanity securing soil
<i>Strengthen global and national capacities on soil information, soil mapping to support Sustainable Soil Management (SSM) decision planning</i>	1. Spatial decision making and mapping for implementing policies for sustainable soil management
<i>Protect black soils to achieve food and environmental security: Report of the Global Status of Black Soils</i>	8. Sustainable land use
<i>The Global Maps of the Global Soil Partnership: from bottom to top</i>	30. WG1.4 Global Soil Map, main advances and ways forward
<i>Recarbonizing global soils: a technical manual of recommended management practices</i>	2. Soil carbon: From particle to planet
<i>FAO International Network of Salt-Affected Soils: joining efforts to manage salt-affected soils sustainably</i>	10. Land contamination and degradation (Including Urban Land)
<i>Development and Implementation of the International Code of Conduct for the Sustainable Use and Management of Fertilizers</i>	8. Sustainable land use



4.1 Report by the Chairperson on main activities and outcomes of the work programme 2022-23



GLOBAL SOIL PARTNERSHIP | 11th Plenary Assembly | 12-14 July 2023



Global Symposium on Soils and Water (GSOWA) October 2023

1. Soil management and water scarcity
2. Soil health and Water quality
3. Soil and water management in a changing climate
4. Integrated Soil and Water management and governance



WSD 2023

Soil and water, the origin of life

4.2 ITPS work programme 2023-2024



Technical Manual for the Sustainable Management of Mountain Soils (FAO)



Technical Manual on assessing, mapping, monitoring, and reporting on Soil Pollution.

- Support the preparation of the 2nd edition of the Status of the World's Soil Resources Report scheduled for 2025.
- Continued collaboration with international organizations and panels, as:
 - International Union on Soil Science (IUSS)
 - Science-Policy Interface of the UNCCD
 - 4/1000 initiative
 - ORCaSa project and the International Research Consortium (IRC) on Soil Carbon
 - Intergovernmental Panel on Climate Change (IPCC)
 - International Union for Conservation of Nature (IUCN)
 - Convention on Biological Diversity (CBD)
 - Global Soil Biodiversity Initiative (GSBI)





Food and Agriculture
Organization of the
United Nations

**Dan Pennock, David Lobb,
Rosa M Poch**

**4.3.
2025 Status of the World's
Soil Resources Report**

**GLOBAL SOIL
PARTNERSHIP**

11th Plenary Assembly

12-14 July 2023



2025 Status of the World's Soil Resources Report is the major international summary of the state of the world's soils.

- Report will be published on World Soil Day (December 5th) 2025.
- Two parts to report:
 - 1) **Summary of the major global advances** since 2015 in our understanding of threats to soil functions and how sustainable soil management can address these threats.
- Sections of this summary are currently under peer-review by experts on soil threats and sustainable soil management.

2) **Regional summaries** of the status of the threats to soil functions in each of the seven GSP regions and the state of sustainable soil management in each region.

- Chapters are overseen by a Panel consisting of **ITPS members** and the **Chairs of the Regional Soil Partnerships**.
- ITPS members are **Lead Authors** of the chapters for their regions.
- Additional Lead Authors have been recruited to address **specific threats** in regions and also through the **National Focal Points**.
- Goal is to have a team of ten to twenty experts from each region contributing to the regional chapters.

- Process is on schedule; initial drafts of regional chapters will be submitted by end of October 2023.
- Draft report will be considered at the March 2025 ITPS meeting and submitted to the GSP Plenary in 2025.





Food and Agriculture
Organization of the
United Nations

GLOBAL SOIL PARTNERSHIP

11th Plenary Assembly

12-14 July 2023

