Food and Agriculture Organization of the United Nations

FAO proposals to address diffuse pollution at farm level

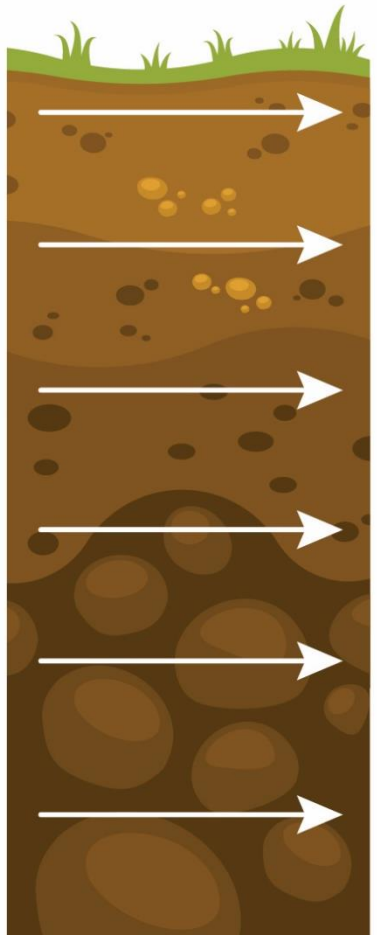
Actions of the Global Soil Partnership towards Zero Pollution worldwide

Natalia Rodriguez Eugenio, GSP Secretariat

Promoting sustainable soil management for all

GLOBAL SOIL PARTNERSHIP

Healthy soils and Food Security/Nutrition

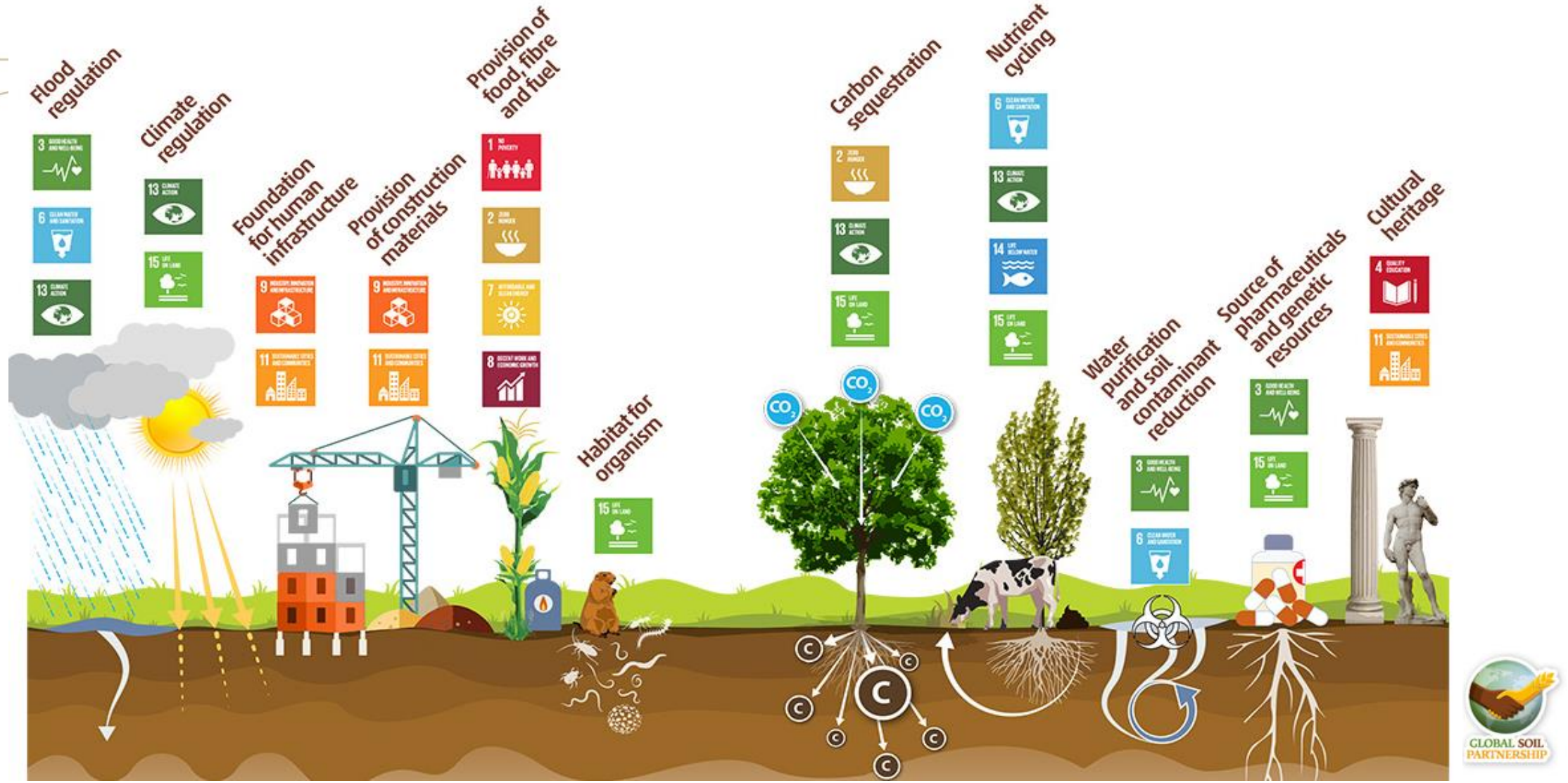


Food availability	Increase crop yield but also quality
Nutritious food	Macro and micronutrients
Food safety	Crops free of contaminants and pathogens
Low environmental impact	No degradation of soils and natural resources
Biodiversity	Soil biodiversity fundamental... crop diversity...
Mitigation and adaptation to climate change	Reduce emissions, restore SOC and make soils resilient

Promoting sustainable soil management for all

GLOBAL SOIL PARTNERSHIP

Soil provides ecosystem services, contributing to achieve the SDGs



GLOBAL SOIL PARTNERSHIP

The state of Food Security

Access to **safe**, nutritious and sufficient food is framed as a human right, but not yet fully achieved.

"Right not to be polluted"

SUSTAINABLE DEVELOPMENT GOAL 2

End hunger, achieve food security and improved nutrition and promote sustainable agriculture

However, for the fourth year in a row, there has been **a rise in world hunger**, reaching levels from a decade ago.

Higher demands to achieve food security and sustainable development

The current world population will reach 8 billion on 15 November 2022 and is expected to reach 8.5 billion by 2030, and 11.4 billion in 2100

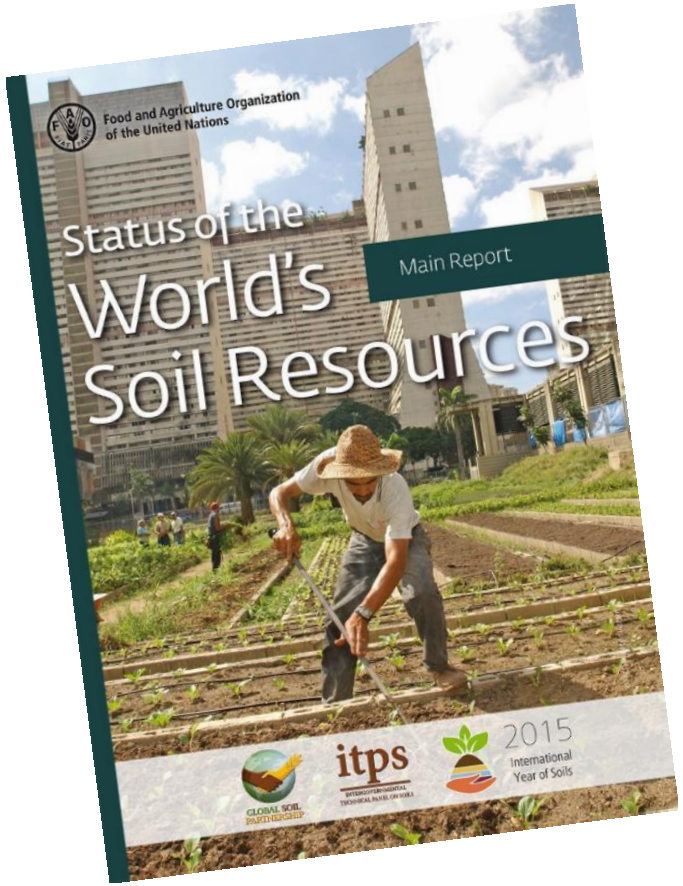
To meet growing food demand, it is necessary to develop more **productive** and **sustainable** farming systems

Promoting sustainable soil management for all

GLOBAL SOIL PARTNERSHIP

But soils are threaten…

1/3 of soils worldwide are in poor or very poor conditions



Global Summary of Threats to Soil Functions

Region	Soil erosion	Organic carbon change	Nutrient imbalance	Salinization	Soil sealing	Loss of biodiversity	Soil pollution	Acidification	Compaction	Water-logging	Comments
Sub-Saharan Africa	Poor	Poor	Poor	Fair	Good	Fair	Good	Poor	Good	Good	Erosion, loss of organic carbon, and nutrient imbalance are the most critical threats to soils in sub-Saharan Africa. Erosion constitutes >80% of degradation, affecting about 22% of agricultural land.
Asia	Poor	Poor	Poor	Poor	Poor	Fair	Poor	Poor	Poor	Fair	The most important forms of degradation in Asia are erosion, loss of organic carbon, and salinization. Water erosion covers 21% of the land area and wind erosion 9% of the land area in the region.
Europe and Eurasia	Fair	Poor	Poor	Poor	Poor	Fair	Poor	Poor	Fair	Fair	In densely populated Western Europe, soil ealing is one of the most threatening phenomena. Salinization is a widespread threat in Central Asia and in some areas in Spain, Hungary, Turkey, and Russia.
Latin America and the Caribbean	Poor	Poor	Poor	Poor	Fair	Poor	Fair	Fair	Poor	Fair	Erosion is widespread across the region. Much of the agricultural land is in mountains and has been affected by water erosion over centuries. Increasing erosion in the region is mainly due to rapid population growth, deforestration, overgrazing, and inappropriate agricultural practices.
Near East and North Africa	Very Poor	Poor	Good	Fair	Very Poor	Poor	Very Poor	Good	Poor	Good	Wind erosion and dust storms are a problem throughout the region. Salinization is a widespread problem due to high temperatures, inappropriate irrigation practices, and sea water intrusion in coastal areas.
North America	Fair	Fair	Poor	Good	Fair	Good	Good	Poor	Fair	Good	Reduced tillage and improved residue management have lowered erosion rates in some areas, but water erosion continues to be too high in others. Excess application of fertilizers in many regions causes degradation of surface water resources and N_2O emissions into the atmosphere.
Southwest Pacific	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Fair	Good	Soil acidification is a widespread and serious problem that could cause irreversible damage to soils.

International recognition of soil pollution as a global threat

UNITED NATIONS

EP

UNEP/EA.3/Res.6

Distr.: General
30 January 2018

Original: English

United Nations Environment Assembly of the United Nations Environment Programme

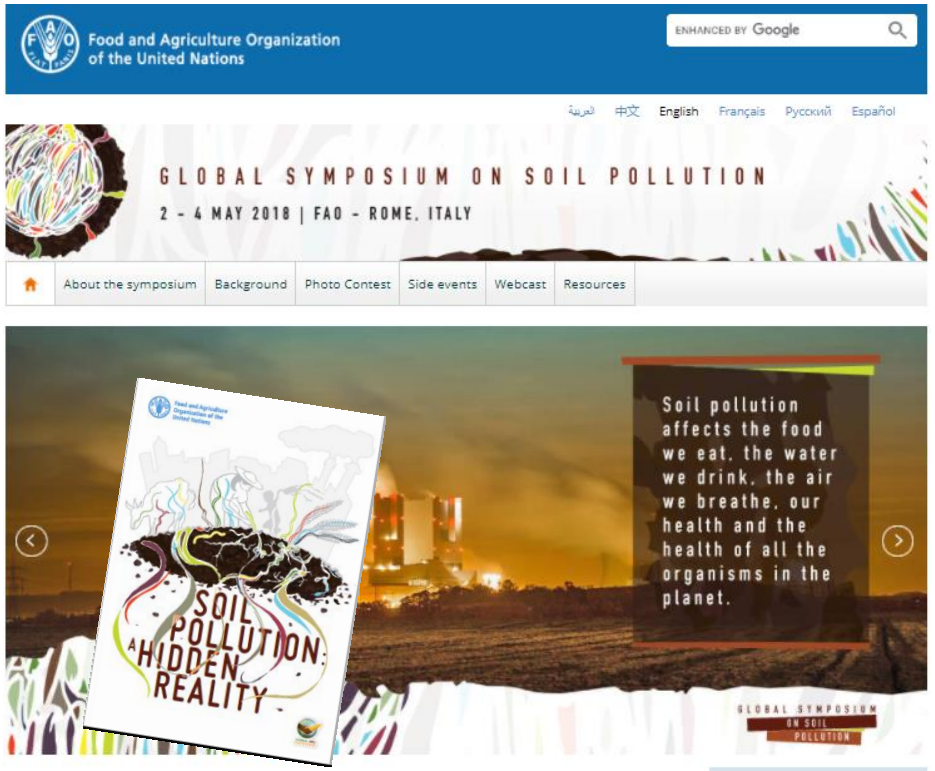
United Nations Environment Assembly of the United Nations Environment Programme
Third session
Nairobi, 4–6 December 2017

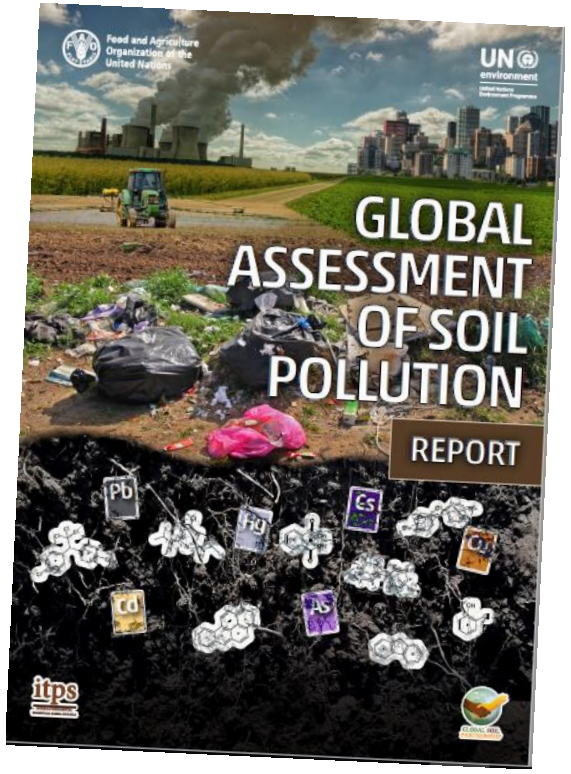
3/6. Managing soil pollution to achieve sustainable development

The United Nations Environment Assembly,

Recalling the adoption of United Nations General Assembly resolution 70/1, entitled "Transforming our world: the 2030 Agenda for Sustainable Development",

Recalling also the revised World Soil Charter, adopted by the Conference of the Food and Agriculture Organization of the United Nations at its thirty-ninth session, held in Rome in June 2015, and reaffirming in that regard that Governments should establish and implement regulations to limit the accumulation of contaminants beyond established levels to safeguard human health and well-being





Promoting sustainable soil management for all

GLOBAL SOIL PARTNERSHIP

Facts and figures

- Over **350.000 chemicals** released into the environment, 250+ gigatons of human emissions
  - 30 mt of industrial chemicals and pesticides
  - 400 mt of hazardous wastes
  - 50 mt e-waste
  - 15 bt of coal, oil and gas
- Many new chemicals not tested for human or environmental safety
- Lack of understanding of billions of mixtures arising from human chemical release
- **> 10 million** potentially contaminated sites worldwide
- Strong evidence that pollution poses a major **threat to the provision of ecosystem services** by soils

Promoting sustainable soil management for all

GLOBAL SOIL PARTNERSHIP

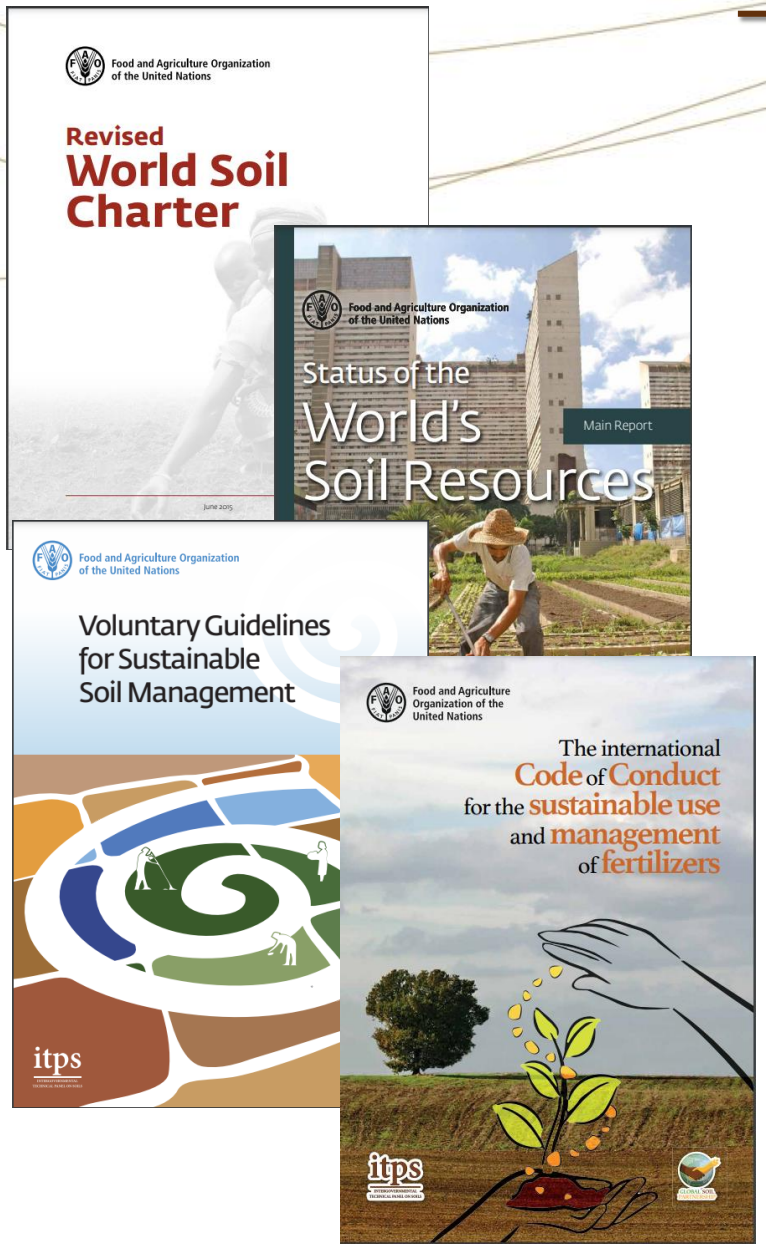
Major sources of soil pollution vary around the globe

Major sources of soil pollution in Europe.
Global Assessment of Soil Pollution. *FAO, 2021*

The share of **soil & water pollution** attributable to **agriculture** varies from region to region, but in all is a major source up to 23% globally (Greg Botto, 2019)

About 80 percent of contaminants present in rivers and oceans have their origin in land-based activities

Global Soil Partnership



- A mechanism established in 2012 to develop a single, strong voice on soil issues and improve collaboration between all stakeholders
- With the common goal of improving soil governance and promoting sustainable soil management
- FAO is a specialized agency of the United nations that leads international efforts to defeat hunger. FAO and its GSP are thus in a unique position to liaise between policy makers, academia, land users, the private sector, and civil society – decisions taken at governmental & UN levels

Promoting sustainable soil management for all

http://www.fao.org/global-soil-partnership/en/

GLOSOLAN

GLOBAL SOIL LABORATORY NETWORK

Assessment - *if you cannot measure it, you cannot manage it*

Improving soil labs capacities

Harmonizing protocols and results (SOPs)

Mapping – *locating the problems to set priorities*

Improving national capacities on DSM

Fostering findability, accessibility, interoperability, and reusability of soil data and info

Management – *promoting sustainable soil management*

Sharing good practices at all levels (policy, farmers, private sector)

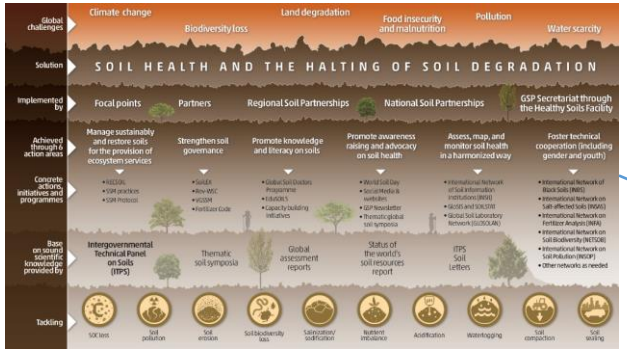
Promoting scientifically-sound site-specific and relevant management

Monitoring and reporting – *quantifying trends in soil health/threats*

Establishing national benchmark sites

Indicators and threshold values, policies

SoilLEX



SoilSTAT GLOSOB

Promoting sustainable soil management for all

GLOBAL SOIL PARTNERSHIP

International Network on Soil Pollution

- Launched on April 22nd 2022, the International Network on Soil Pollution focuses on minimizing soil pollution and achieving the global **goal of Zero Pollution**.
- The mission is to support and **facilitate joint efforts** to reduce the risks of soil pollution and to **share experience and knowledge** to effectively remediate already polluted areas around the world.
- It aims to tackle **point-source** and **diffuse** pollution from multiple **sources** and affecting different **land uses**

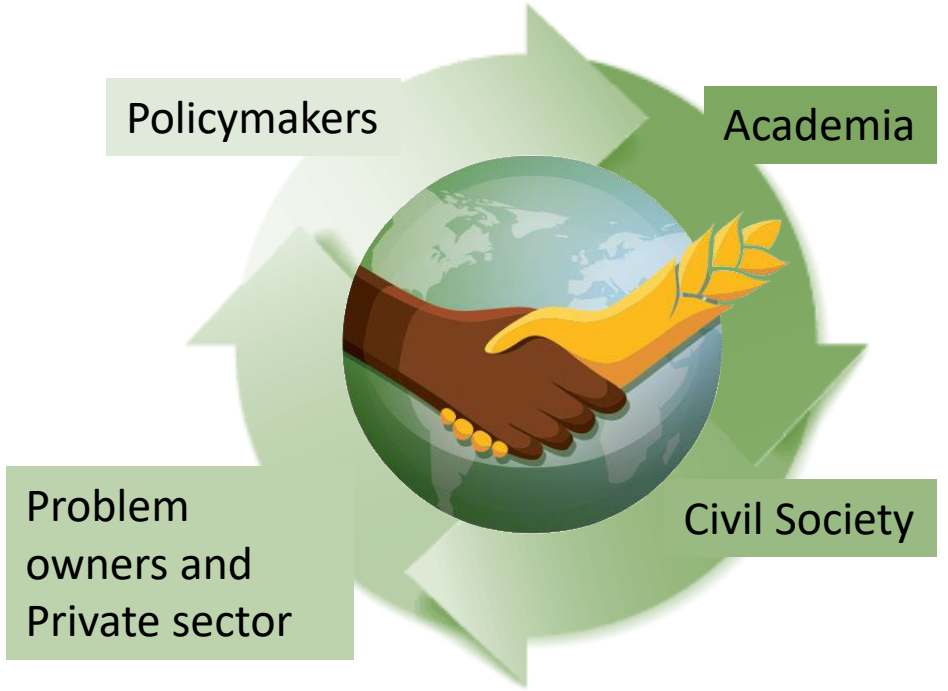
Promoting sustainable soil management for all

GLOBAL SOIL PARTNERSHIP

The importance of INSOP

A network of networks focused on:

- ✓ Providing an **international forum** for the generation and **dissemination of knowledge** on soil pollution;
- ✓ Promoting and exchanging **good practices**, practical and scientific knowledge and **innovative solutions** for managing polluted soils in a sustainable manner;
- ✓ Establishing interdisciplinary **cooperative links** between governments, academia, the private sector, and society to stimulate the development of **cleaner and more sustainable solutions and consumption options**; and
- ✓ Strengthening **technical and technological capacities** through coordination among existing networks.



INSOP areas of work

- INSOP focuses on six main areas of work under each of which various tasks will be carried out to achieve the overall goal
- It will work on **improving knowledge on the full cycle of soil pollution**, from assessment to remediation, as well as on the effect on environmental and human health and the provision of soil ecosystem functions and services

Promoting sustainable soil management for all

GLOBAL SOIL PARTNERSHIP

Technical Guidelines on soil pollution

- A guidelines to navigate technicians/stakeholders/government representatives in the decision making process to identify and assess the risk and take the best management decision

- Focuses on:

1. How to build a Conceptual site model
2. Design of the sampling strategy
3. Map polluted sites
4. Carry out environmental risk assessment
5. Monitor polluted sites
6. Reporting soil pollution and communicating risks

Key actions to tackle contaminated soils

- Awareness of the problem and impacts - World Soil Day and communication campaigns
- Strengthening of technical capabilities - analytical, mapping, monitoring and reporting capabilities
- Legislative frameworks - prevention, liability, risk assessment, guideline values, inventories, coherent instruments among land uses
- Management – management, remediation and adaptation options, knowledge and technology transfer/sharing

Pollution is not a local but a transboundary problem
It requires global coordinated actions

Promoting sustainable soil management for all

GLOBAL SOIL PARTNERSHIP

Food and Agriculture Organization of the United Nations

Soil pollution is a threat to sustainable development
It can only be reverted through collective actions on the ground
Let's work together on healthy soils for food security

Thank you for your attention and collaboration

Promoting sustainable soil management for all

Sergejus.Ustinov@fao.org
Natalia.RodriguezEugenio@fao.org

GLOBAL SOIL PARTNERSHIP

https://www.fao.org/global-soil-partnership/en/
https://www.fao.org/global-soil-partnership/insop/en/