



Soil mapping for resilient agri-food systems in Central America and sub-Saharan Africa













Healthy soils perform/provide key functions and ecosystem services



Indirect contribution to achieve SDGs

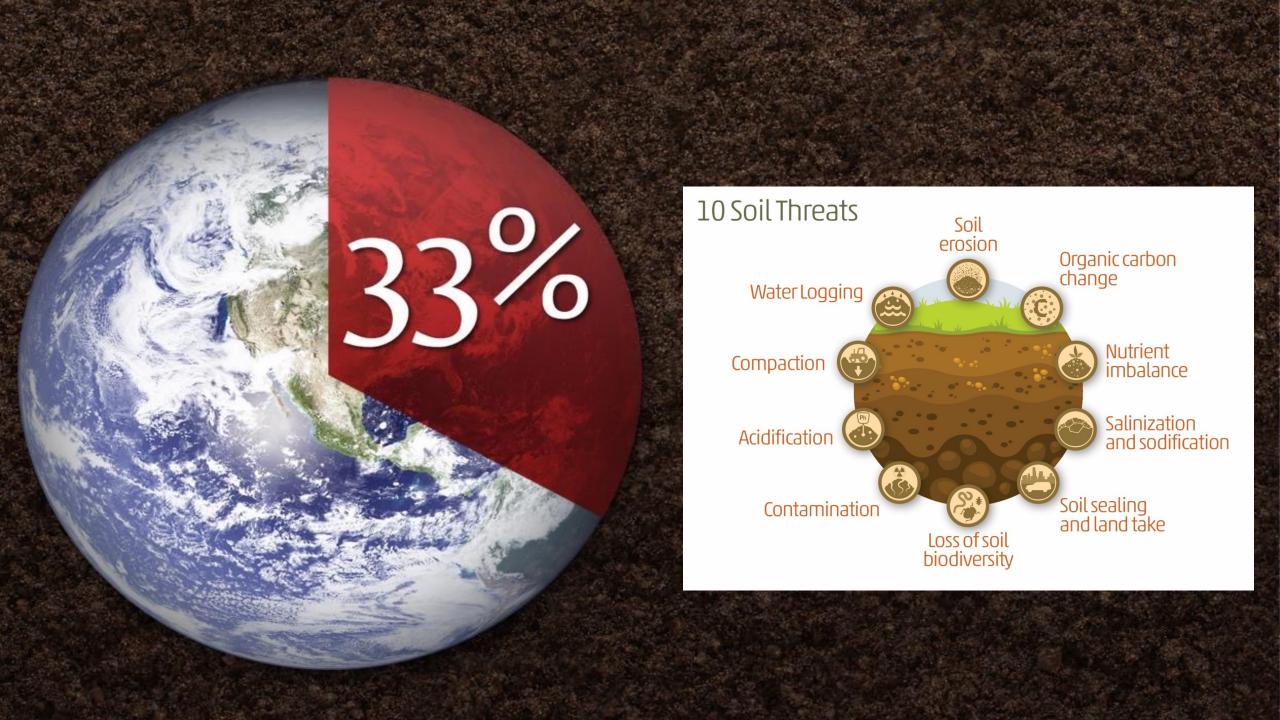




17 PARTNERSHIPS FOR THE GOALS

⊗

16 PEACE, JUSTICE AND STRONG INSTITUTIONS



Healthy soils and Food Security/Nutrition

Food availability

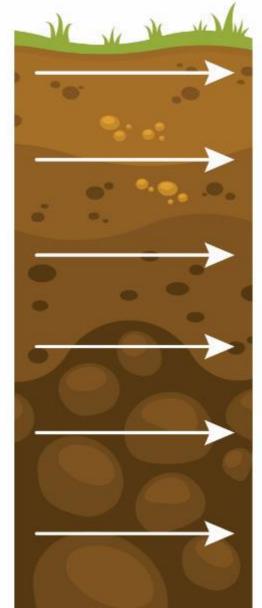
Nutritious food

Food safety

Low environmental impact

Biodiversity

Mitigation and adaptation to climate change



Increase crop yield but also quality

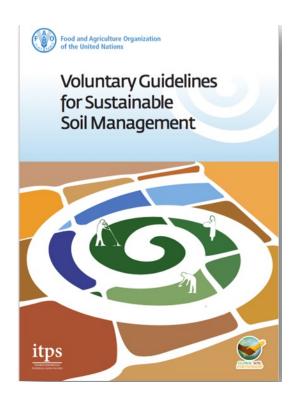
Macro and micronutrients

Crops free of contaminants and pathogens

No degradation of soils and natural resources

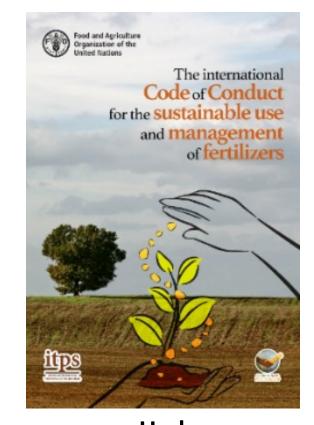
Soil biodiversity fundamental... crop diversity...

Reduce emissions, restore SOC and make soils resilient



Soil management is not a short term activity! It requires a long term perspective to build its resilience!

Sustainable Soil Management



Underuse Misuse Overuse

We cannot manage what we do not







The Problem

• The fertilizer crisis that has been steadily growing since 2021—when the World Bank reported a 66-percent increase in the price of fertilizer, thanks to shortages—is likely to persist throughout 2023 (FAO & WTO). This started with COVID19 and amplified by ongoing conflict in Ukraine.

Shortage will continue into the new year, impacting agricultural production and food security worldwide, particularly in regions that rely heavily on imported inputs—such as Africa.

Affordability Availability Quality Efficiency

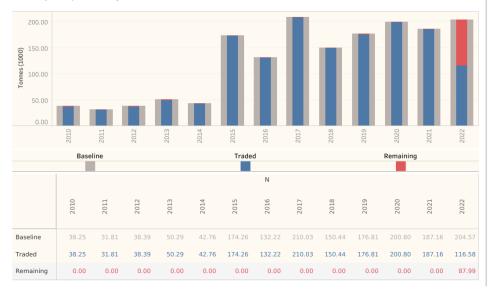
Guatemala - imports in 2022 (Calendar Year) Nutrient N Traded: 147.32 (1000 tonnes) Baseline 193.12 (1000 tonnes) Pemaining 45 90 (1000 tonnes)



Zambia - imports in 2022 (Calendar Year)

Nutrient

Traded: 116.58 (1000 tonnes)
Baseline 204.57 (1000 tonnes)
Remaining 87.99 (1000 tonnes)



Honduras - imports in 2022 (Calendar Year)

utrient

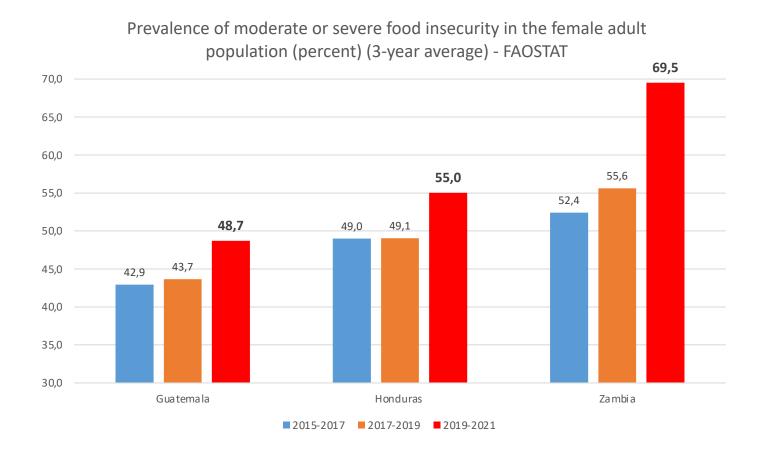
Traded: 74.94 (1000 tonnes)
Baseline 107.70 (1000 tonnes)
Remaining 32.76 (1000 tonnes)



Impact on the ground

Amplified by:

- Climate change
- Soil degradation
- Misuse of inputs





NATIONAL SOIL INFORMATION SYSTEMS

- Soil Analytical Databases
- National Spectral Libraries
- Nutrient and Nutrient Budget Maps
- Soil Property Maps
- National Soil Information Systems (NSIS)
- Soil Monitoring Systems
- Laboratory Information
 Management Systems (LIMS)



DECISION SUPPORT TOOLS & SYSTEMS

- Fertilization Decision Support
 Systems for farmers and
 governments (FerSIS and FerSIS
 App)
- Crop suitability Maps
- Build and strengthen the technical capacities of the government to support the adoption of sustainable soil management practices and integrated soil fertility.



NATION WIDE ADOPTION OF SUSTAINABLE SOIL MANAGEMENT PRACTICES

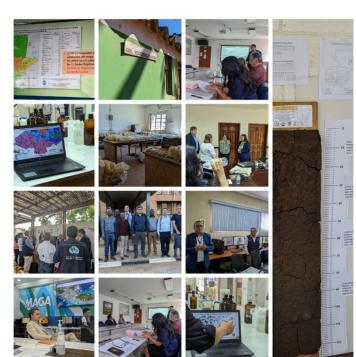
- Socioeconomic, financial and cost-benefit analysis of sustainable soil management practices and fertilizer use.
- Comprehensive Capacity
 Development Programme
- Soil Doctors Programme
- Radio Programs, Podcasts for Farmers



Needs Assessment Missions

- Government representatives
- Research centers
- Farmers and farmers associations
- Digital soil mapping experts
- Fertilizer companies and agro dealers
- Universities
- Soil laboratories
- NGOs

Honduras: 15-19 May 2023 Guatemala: 22-26 May 2023 Zambia: 5-9 June 2023





Key actions to strengthen sustainable soil management in the beneficiary countries

Establishment/strengthening of the National Soil Partnership

03

Establishment of National Soil Laboratory Network

02

Development of the National Soil Law



International Workshops on Soil mapping, soil laboratories and fertilizers

05 Establishi Informati

Establishment of National Soil Information Systems

Description
Establishment of Interface between
National Soil Laboratory Network
and National Soil Information
Systems

Establishment of Lab sections for Fertilizer Quality Analysis

Establishment of Field trials and calibration experiments (fertilizers and good practices)

Establishment of a soil moisture monitoring network

Development of various applications (FerSIS app, etc.)

12 Implementation of the Soil Doctors Programme

Establishment/strengthening of Regulatory framework for fertilizers

Establishment of small factories/labs for producing Biofertilizers and biostimulants

Crosscutting: capacity development and gender















Thanks to the Financial Contribution of the Department of State, United States of America