



Food and Agriculture
Organization of the
United Nations



International
Plant Protection
Convention



Department
for Environment
Food & Rural Affairs

Healthy soils for a healthy life

Soil and plant health: a requisite for sustainable development

Ronald Vargas, Secretary Global Soil Partnership

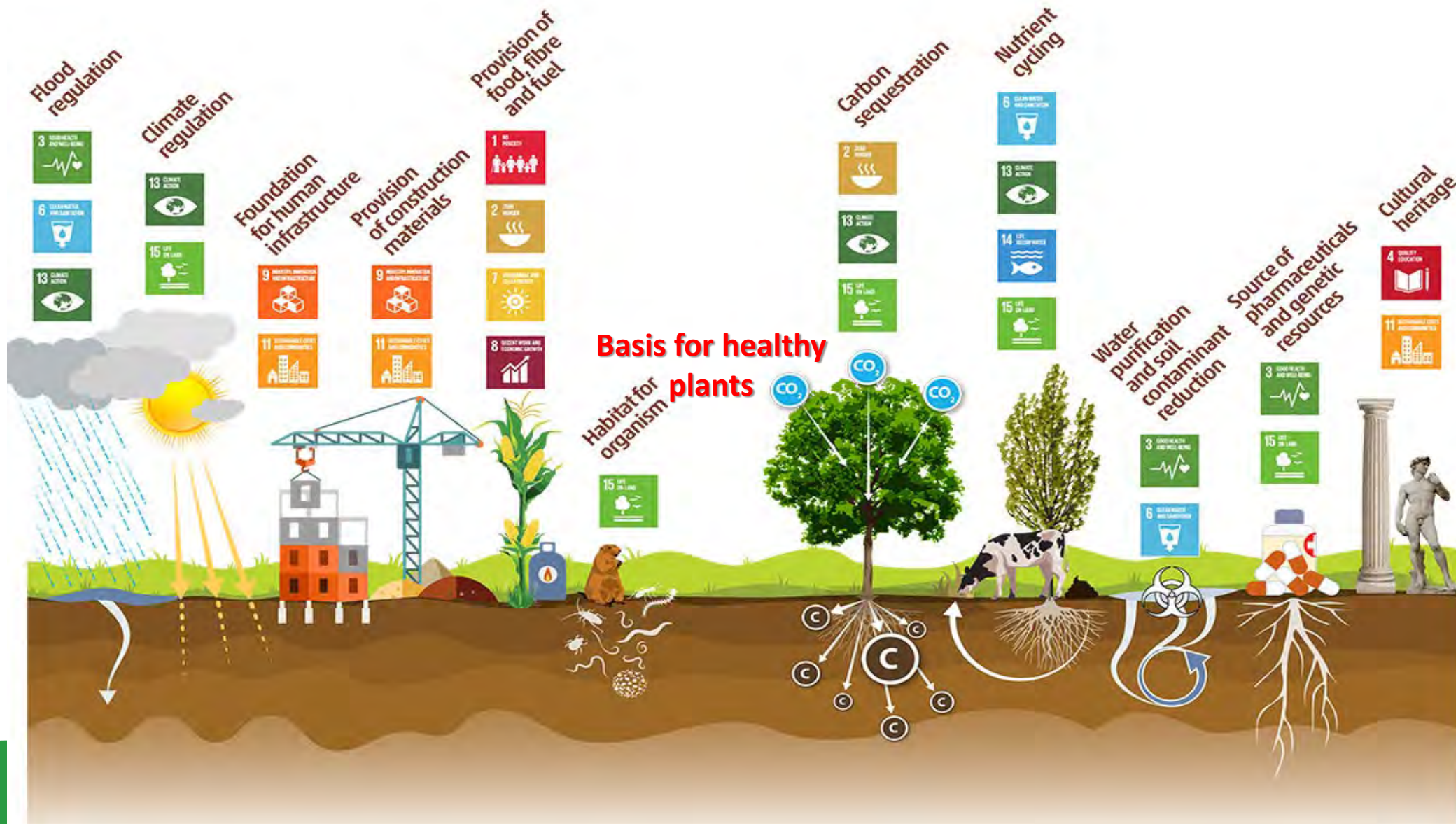
London, 21 – 23 September 2022

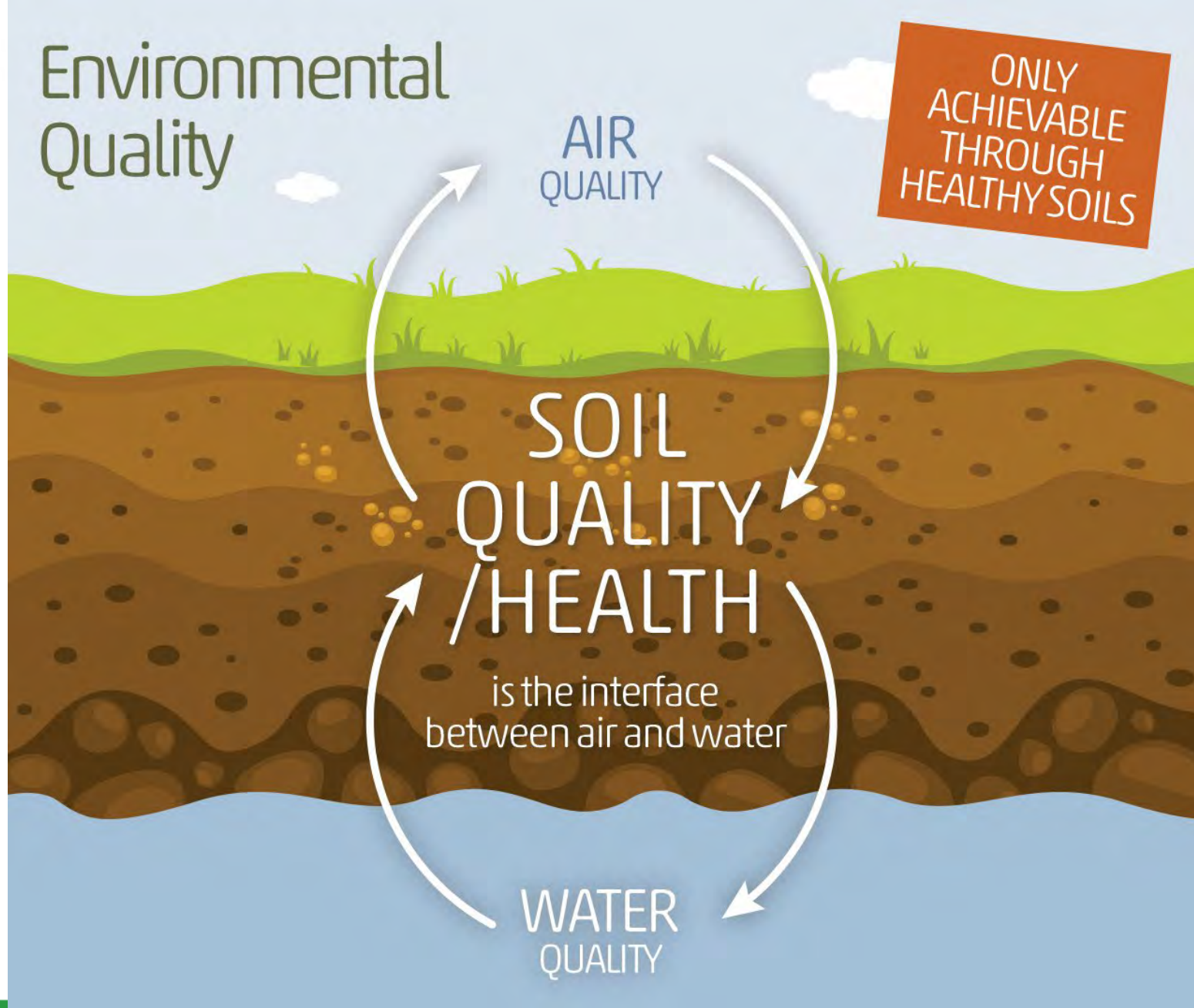
International Plant Health Conference





A healthy soil is capable of providing most terrestrial ecosystem services, therefore contributing to achieve the SDGs and human well-being





Aboveground and belowground biodiversity

An inseparable interaction

Above-ground food web

Pollinators



Herbivores



Energy and matter

Symbiotic beneficial associations

Pathogenic bacteria

Root feeding

Soil organic-matter decomposers

Litter transformers

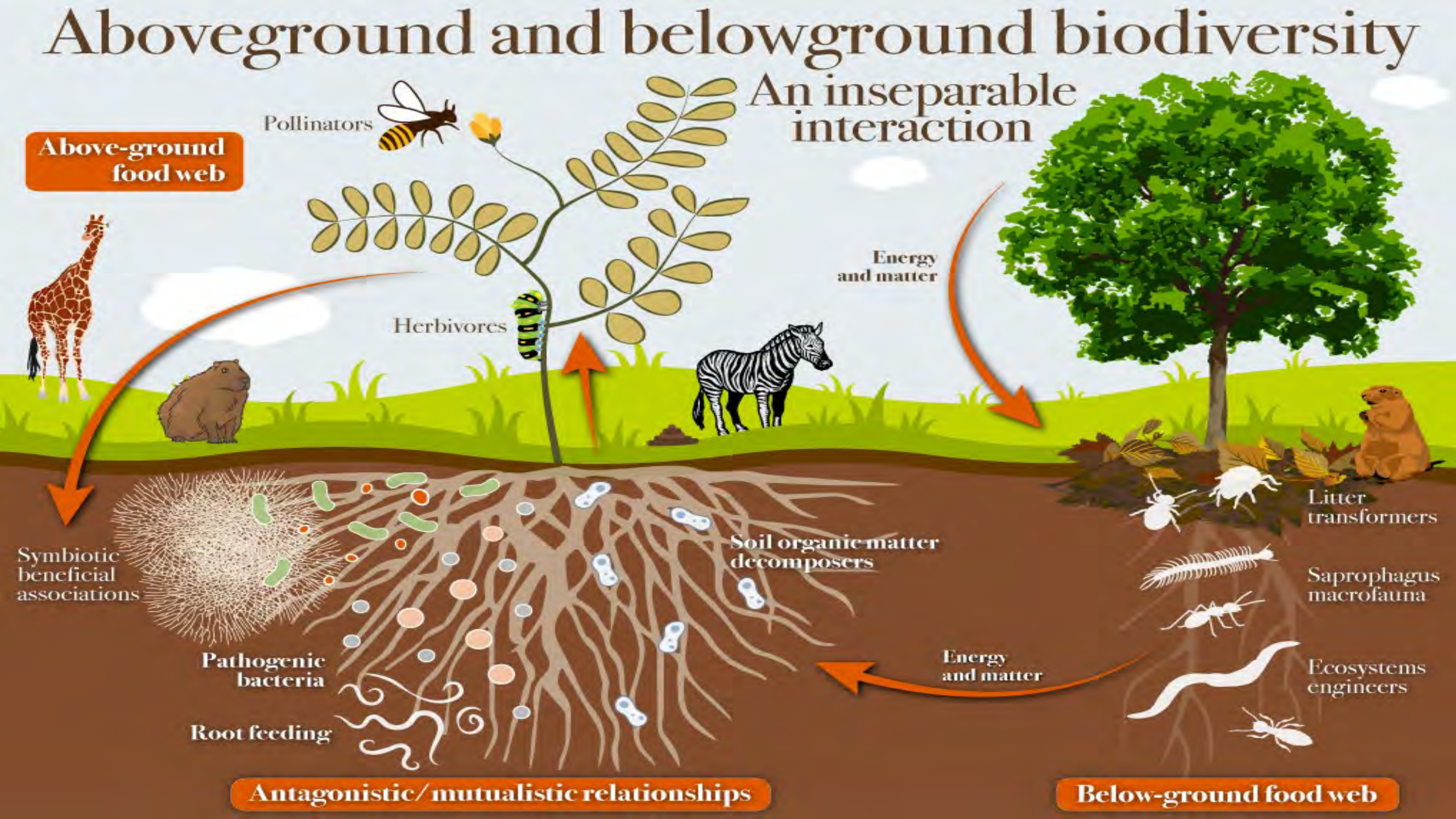
Saprophagous macrofauna

Ecosystems engineers

Energy and matter

Antagonistic/mutualistic relationships

Below-ground food web



Healthy soils and Food Security/Nutrition

Food
availability



Increase crop yield but
also quality

Nutritious
food



Macro and micronutrients

Food
safety



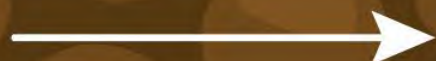
Crops free of contaminants
and pathogens

Low environmental
impact



No degradation of soils
and natural resources

Biodiversity

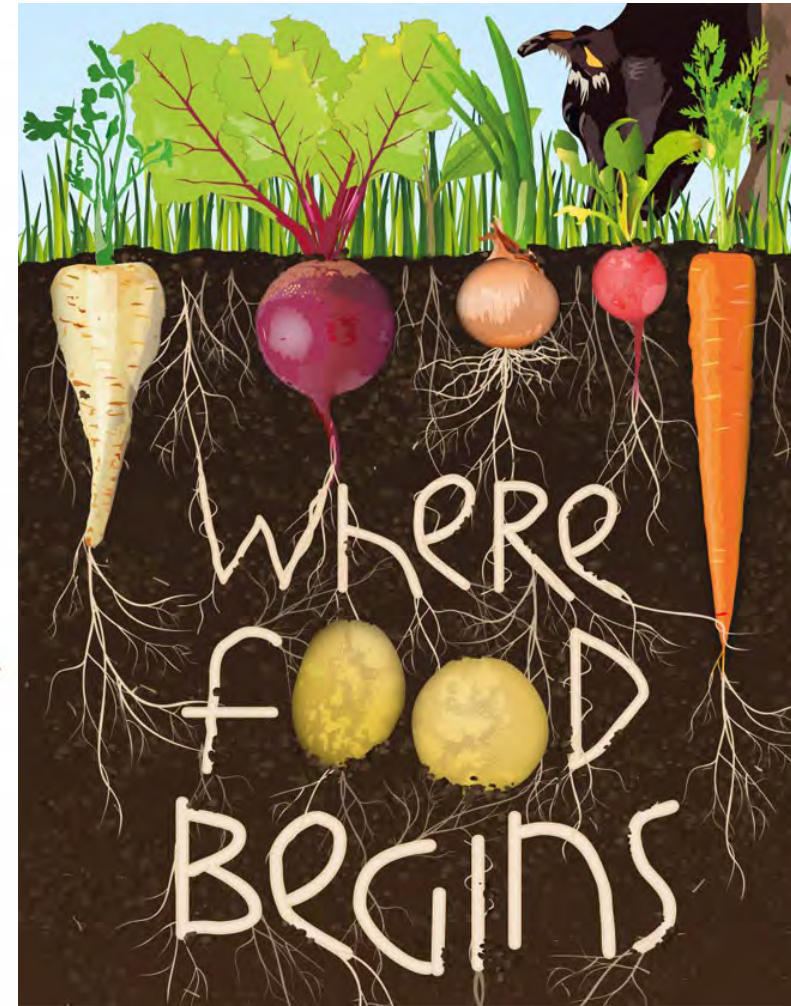


Soil biodiversity
fundamental... crop diversity...

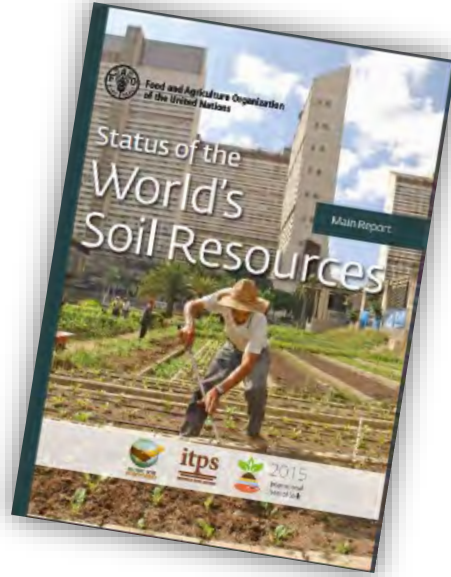
Mitigation
and adaptation
to climate change



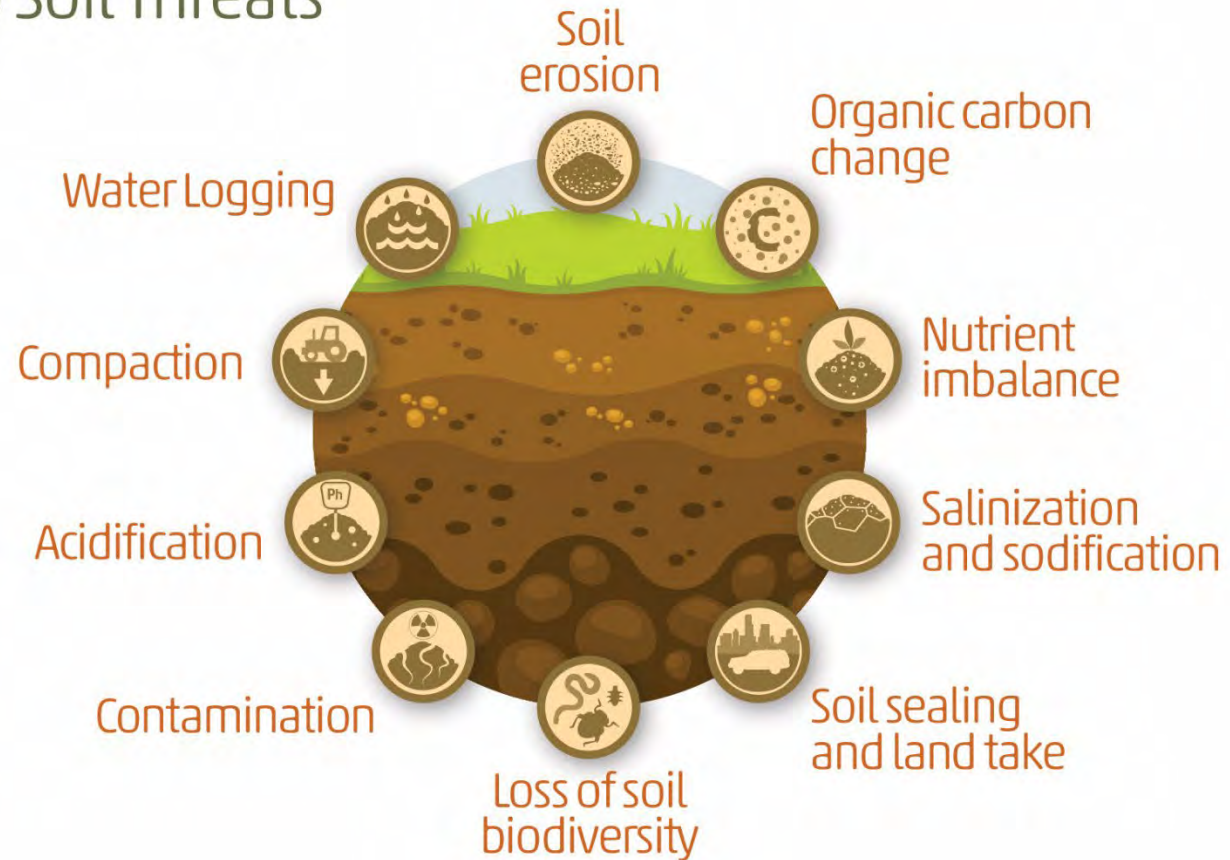
Reduce emissions,
restore SOC and make
soils resilient



Yet the world's soils are at risk



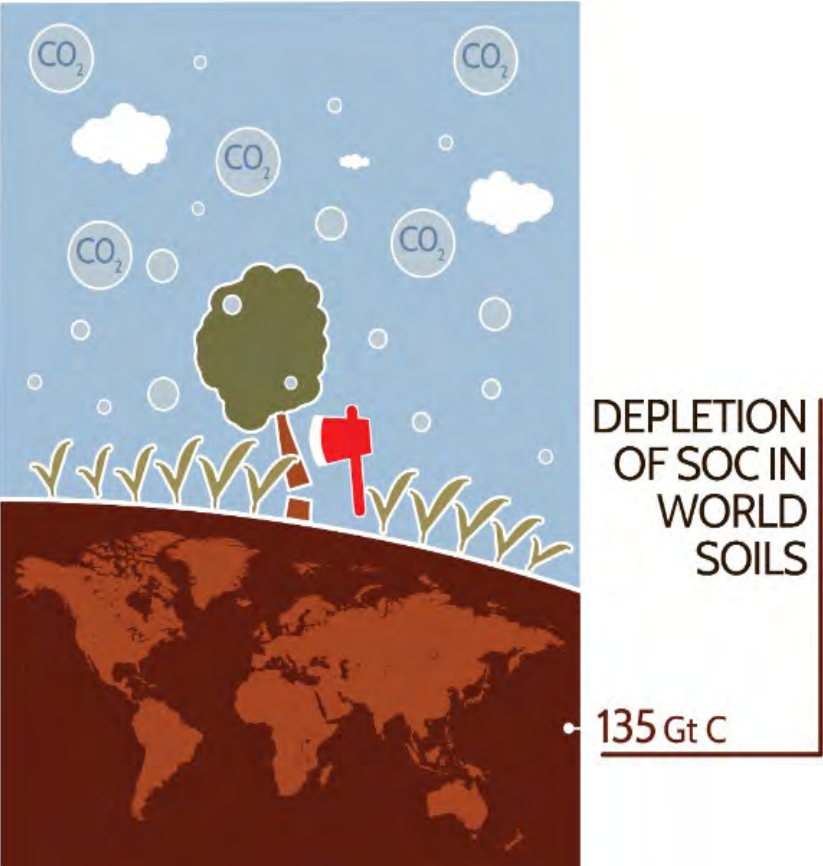
10 Soil Threats



The situation will **worsen** if **business as usual** continues

Soil degradation has negative impact on the provision of ecosystem services but also contributes with GHG emissions (CO₂, N₂O y CH₄)

27% of total global emmisions



Gt = gigatonne = 10¹⁵ g C = billion tonnes

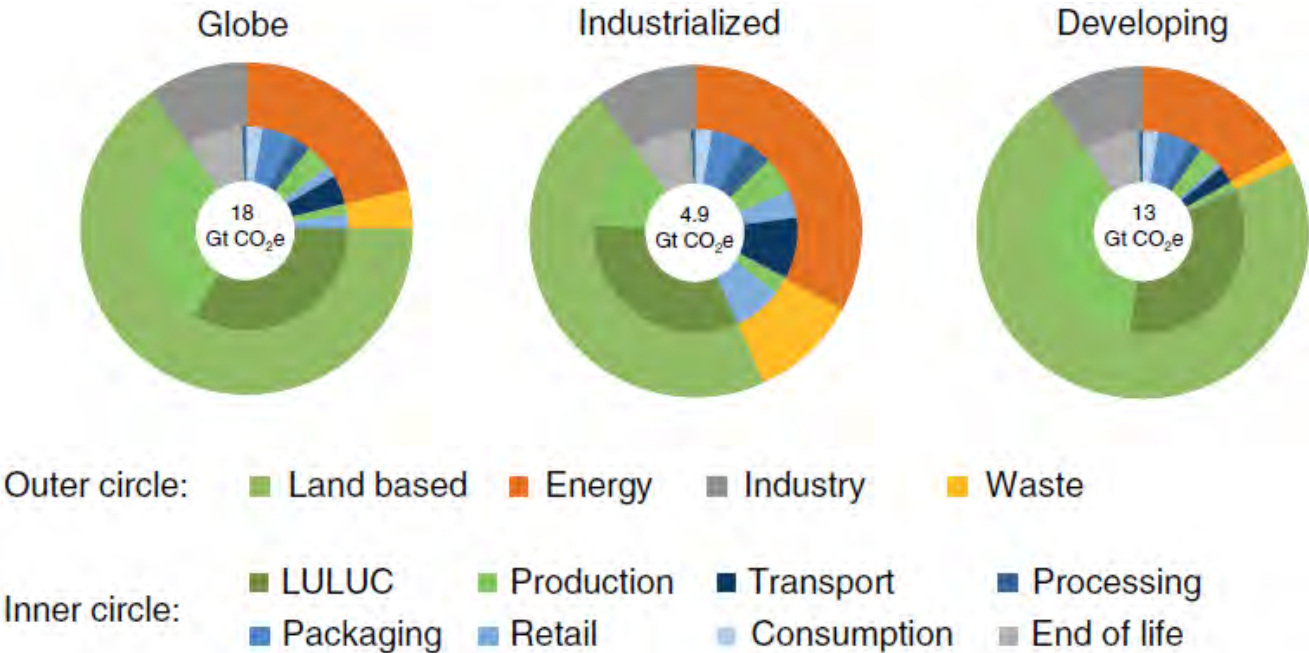
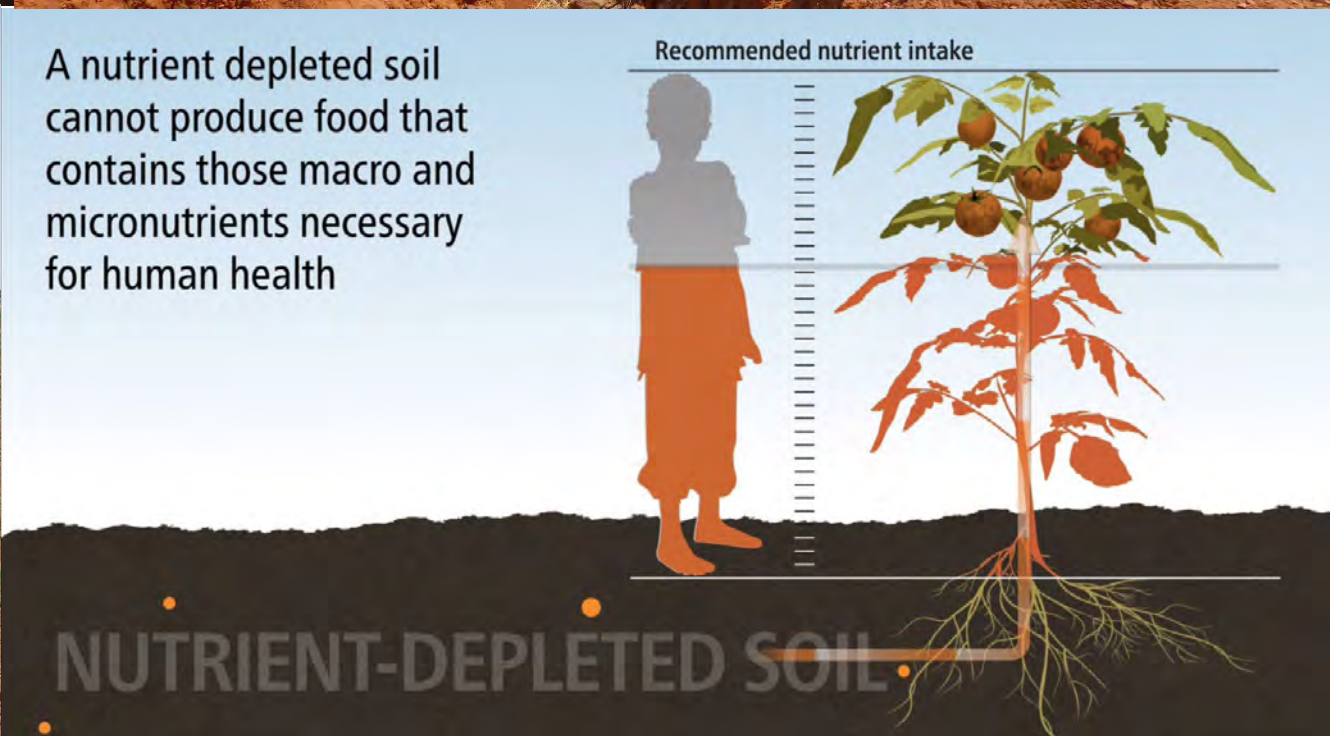
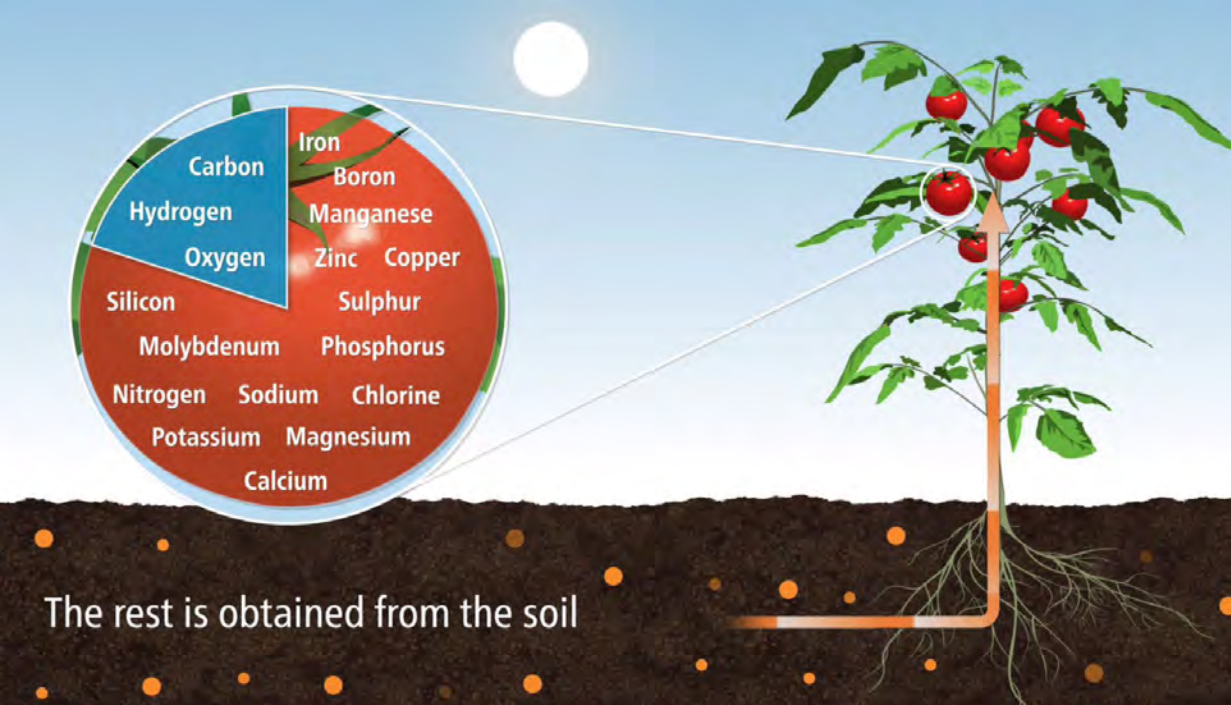
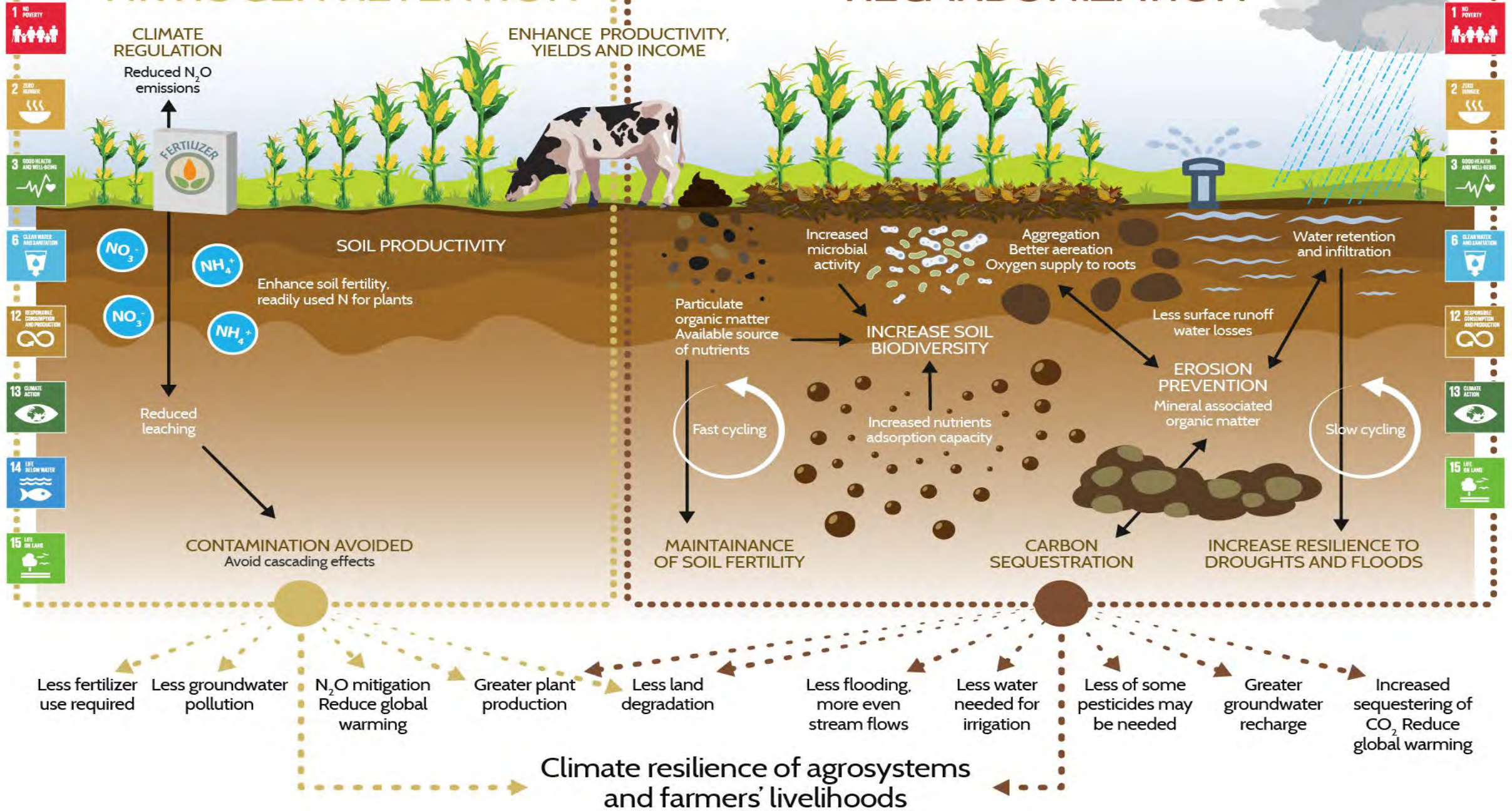


Fig. 1 | GHG emissions from the food system in different sectors in 2015. Total GHG emissions (including CO₂, CH₄, N₂O and F-gases) are expressed as CO₂e calculated using the GWP100 values used in the IPCC AR5, with a value of 28 for CH₄ and 265 for N₂O.



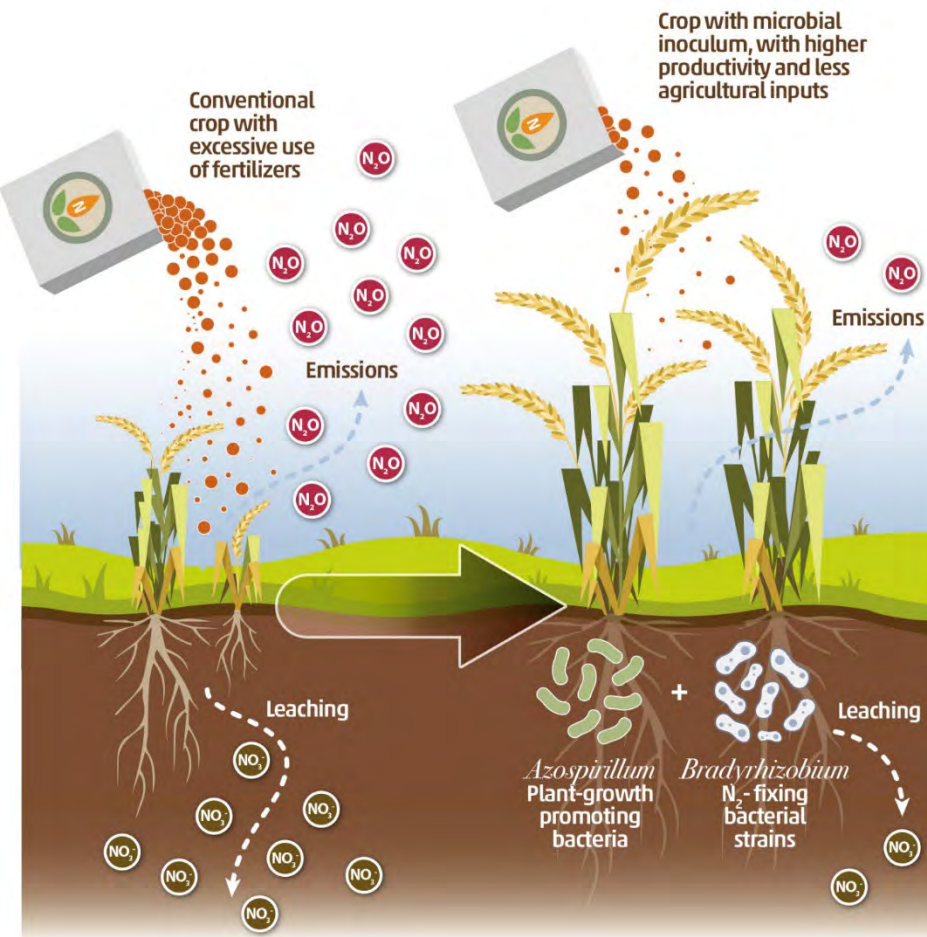
NITROGEN RETENTION

RECARBONIZATION

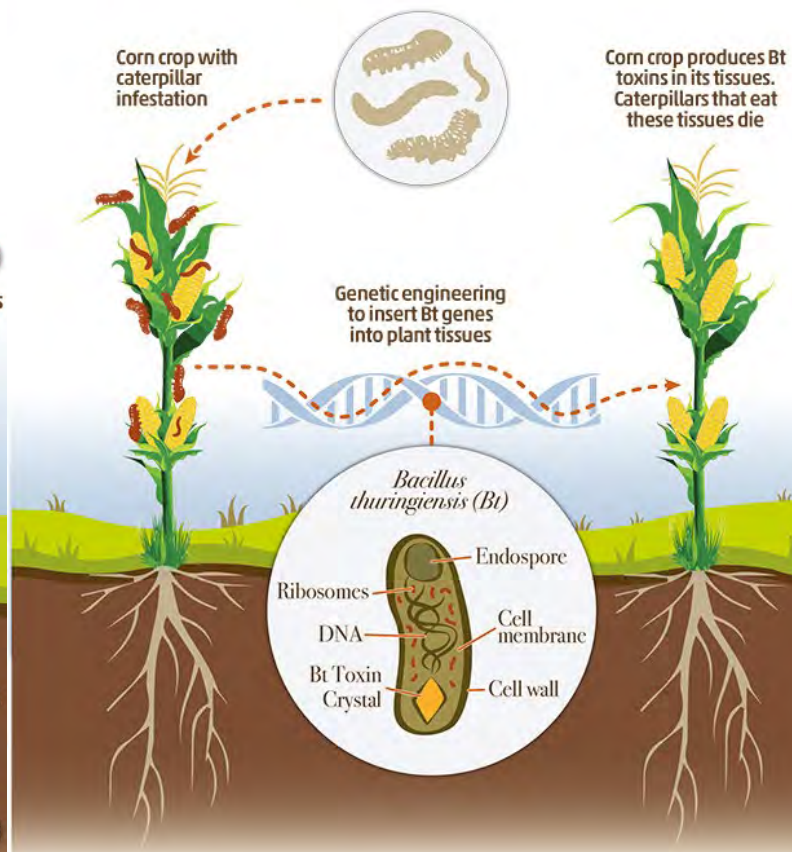


Opportunities on how a healthy soil can enhance plant health

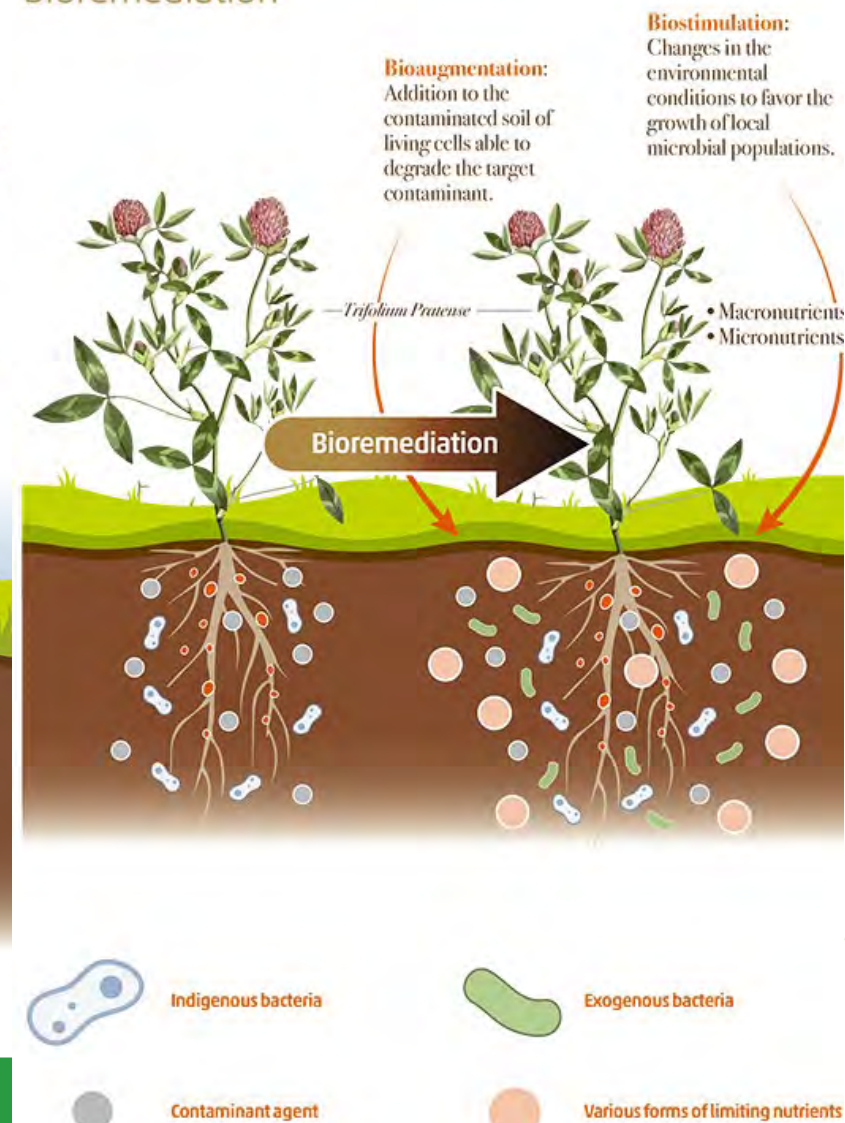
Clean biotechnology in agricultural production

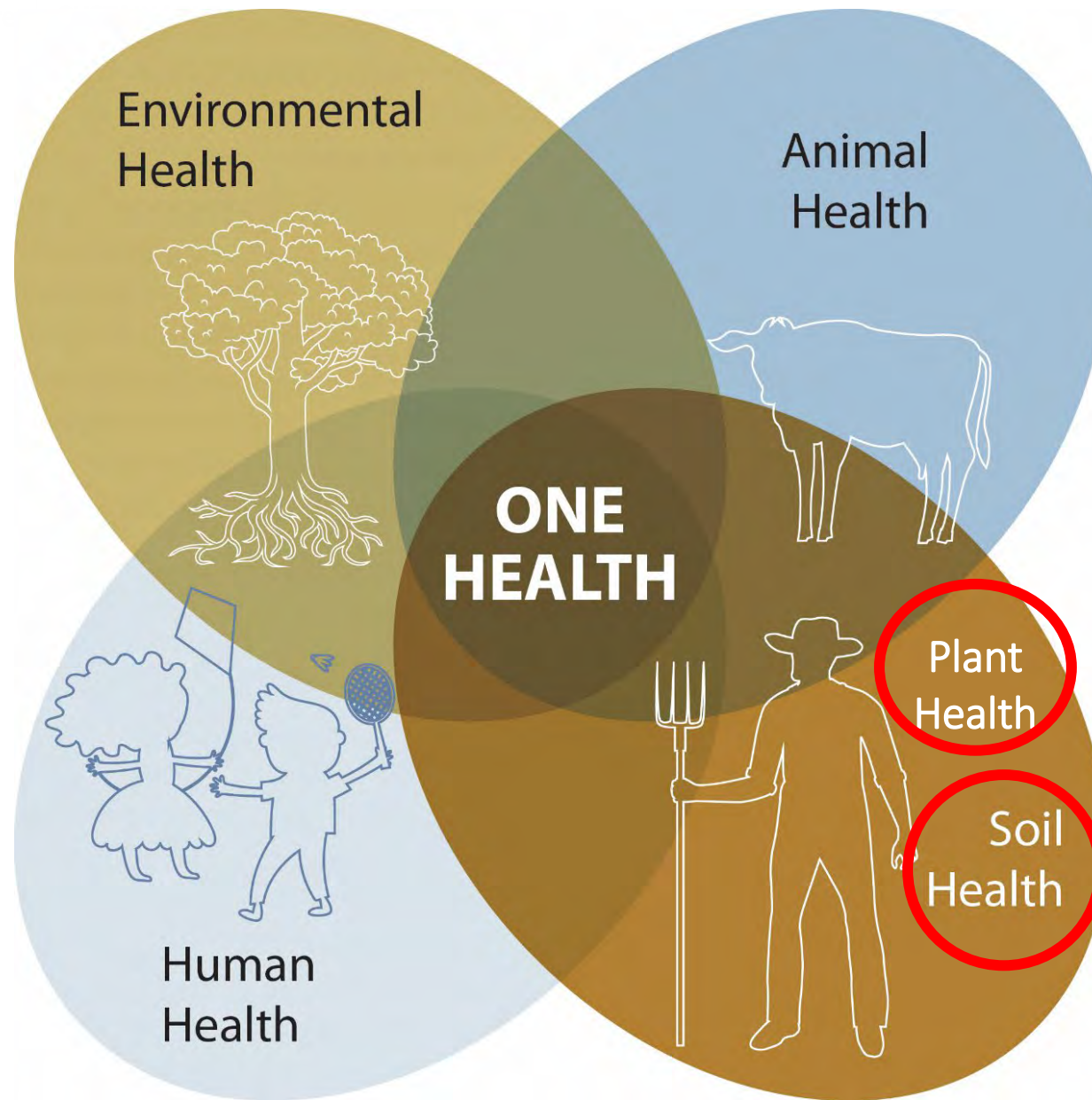


Biological control



Bioremediation





The One Health approach needs to clearly consider Plant and Soil Health, otherwise, there will be a significant gap.

Global challenges

Climate change

Biodiversity loss

Land degradation

Food insecurity and malnutrition

Pollution

Water scarcity

Solution

SOIL HEALTH AND THE HALTING OF SOIL DEGRADATION

Implemented by

Focal points

Partners

Regional Soil Partnerships

National Soil Partnerships

GSP Secretariat through the Healthy Soils Facility

Achieved through 6 action areas

Manage sustainably and restore soils for the provision of ecosystem services

Strengthen soil governance

Promote knowledge and literacy on soils

Promote awareness raising and advocacy on soil health

Assess, map, and monitor soil health in a harmonized way

Foster technical cooperation (including gender and youth)

Concrete actions, initiatives and programmes

- RECSOIL
- SSM practices
- SSM Protocol

- SoILEX
- Rev-WSC
- VGSSM
- Fertilizer Code

- Global Soil Doctors Programme
- EduSOILS
- Capacity building initiatives

- World Soil Day
- Social Media & websites
- GSP Newsletter
- Thematic global soil symposia

- International Network of Soil Information Institutions (INSII)
- GLOSIS and SOILSTAT
- Global Soil Laboratory Network (GLOSOLAN)

- International Network of Black Soils (INBS)
- International Network on Salt-affected Soils (INSAS)
- International Network on Fertilizer Analysis (INFA)
- International Network on Soil Biodiversity (NETSOB)
- International Network on Soil Pollution (INSOP)
- Other networks as needed

Base on sound scientific knowledge provided by

Intergovernmental Technical Panel on Soils (ITPS)

Thematic soil symposia

Global assessment reports

Status of the world's soil resources report

ITPS Soil Letters

Tackling



SOC loss



Soil pollution



Soil erosion



Soil biodiversity loss



Salinization/sodification



Nutrient imbalance



Acidification



Waterlogging



Soil compaction



Soil sealing

Way forward

- Continue advocating for Soil Governance at national level (all countries of the world should have soil governance in place).
- Awareness raising of general public on the importance of soils (where food begins....) and its importance for plant health.
- Implementation of the new GSP action framework and promote the achievement of the goal: **improve and maintain the health of at least 50 percent of the world's soils by 2030.**
- Promoting soils as a solution in the UN Conventions and integrating Sustainable Soil Management to crosscutting fields.
- Promoting the development and application of solutions to real issues (enhancing soil fertility, addressing soil pollution, carbon sequestration, soil information, etc).
- Advocating for investment on sustainable soil management including targeted research on soils.
- Capacity development and supporting provision of technical guidance to farmers on soils.
- Advocate for **Soil and Plant health** to be clearly recognized and included in the **ONE HEALTH APPROACH**.





Food and Agriculture
Organization of the
United Nations



International
Plant Protection
Convention



Department
for Environment
Food & Rural Affairs

London, 21 – 23
September 2022

Thank you for your attention!

International Plant Health Conference

Ronald Vargas
Secretary Global Soil Partnership

