# Soils

**key** to **unlocking** the **potential** of **mitigating** and **adapting** to a **changing climate**

SUSTAINABLE DEVELOPMENT GOALS

SDG 13 | CLIMATE ACTION | ADAPT / MITIGATE TO CLIMATE CHANGE

## Global warming

Temperature increase

Emissions

$CO_2$

## Unsustainable soil management

leads to soil degradation and $CO_2$ emission into the atmosphere

- Intensive tillage
- Overuse of agro-chemicals
- Removal of vegetation cover
- Wetland / peatland drainage
- Urbanization / soil sealing
- Monocropping
- Loss of soil structure
- Reduction of organic matter inputs
- Soil compaction
- Soil erosion /disturbance

## Plant photosynthesis

$CO_2$

C

- Crop/plant residues = Soil Organic Matter
- Litter fall = Soil Organic Matter
- Secretions = Soil Organic Matter
- Soil Organic Matter
- Soil Organic Carbon
- Soil Organic Carbon

**750** Pg C* in the **ATMOSPHERE**

**560** Pg C* in **VEGETATION**

**1417** Pg C* in the 1st meter of **SOIL**

**2500** Pg C* at 2 meters SOIL depth

## Sustainable soil management

fosters $CO_2$ sequestration to boost soil health and contribute to achieving SDGs

- Conserving /increasing soil biodiversity
- Implementation of the VGSSM*
- Increasing soil organic matter inputs
- Crop rotation / diversification
- Better soil surface coverage
- Reduced tillage
- Preserving wetlands /peatlands
- Monitoring soil organic carbon stocks
- Reduce soil contamination

* Voluntary Guidelines for Sustainable Soil Management

**There is more Organic Carbon in our Soil than in vegetation and the atmosphere combined**

* Pg C = Petagram of Carbon - 1 Pg = $10^{15}$ g = 1 Gigatons

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GLOBAL SOIL PARTNERSHIP