



EU Soil Observatory



Healthy soils for healthy food, people, nature and climate
within the European Green Deal



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Director Sustainable Resources

UN World Soil Day, 4th December 2020

Joint
Research
Centre

Launch event to celebrate World Soil Day 2020

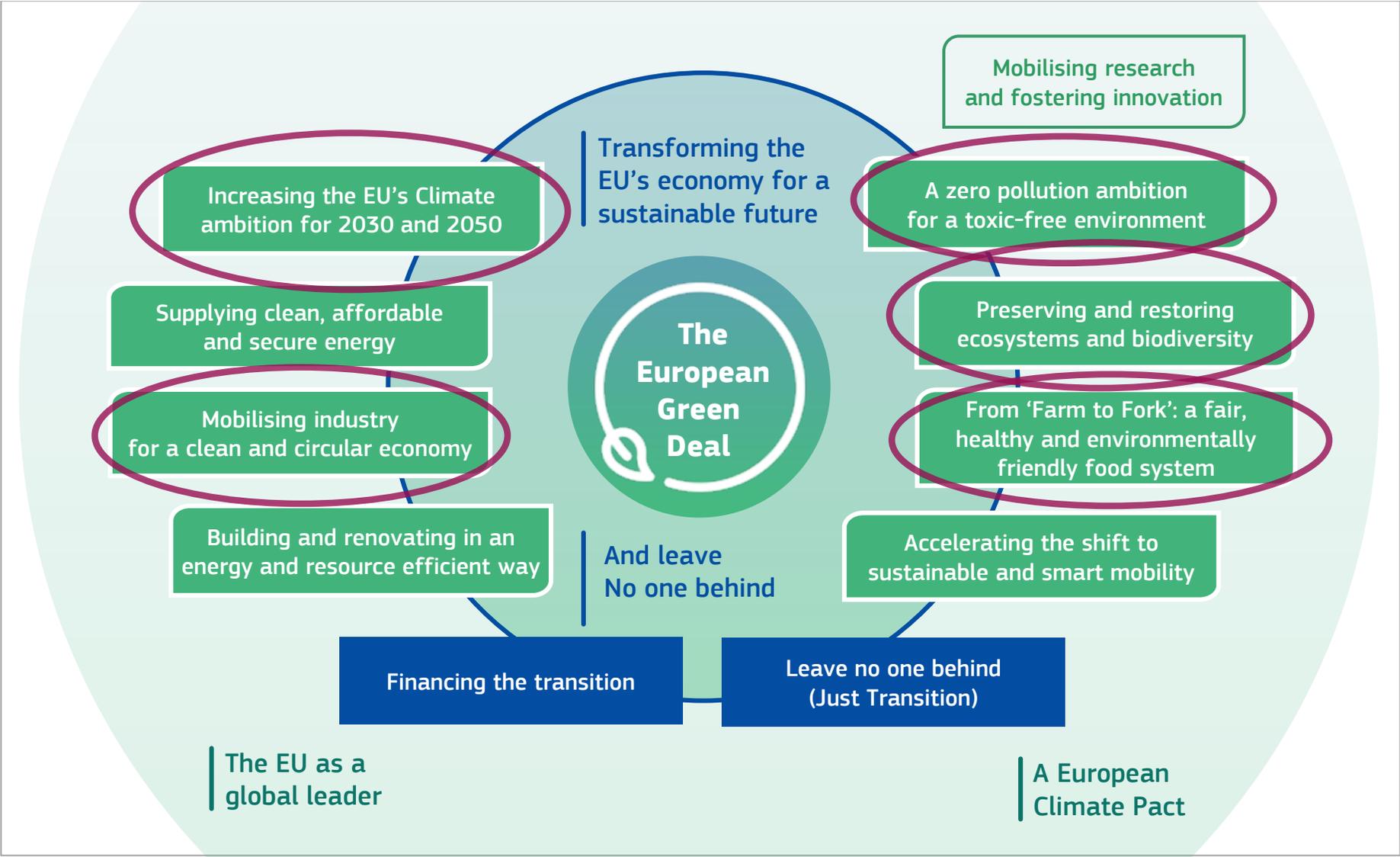


EU SOIL
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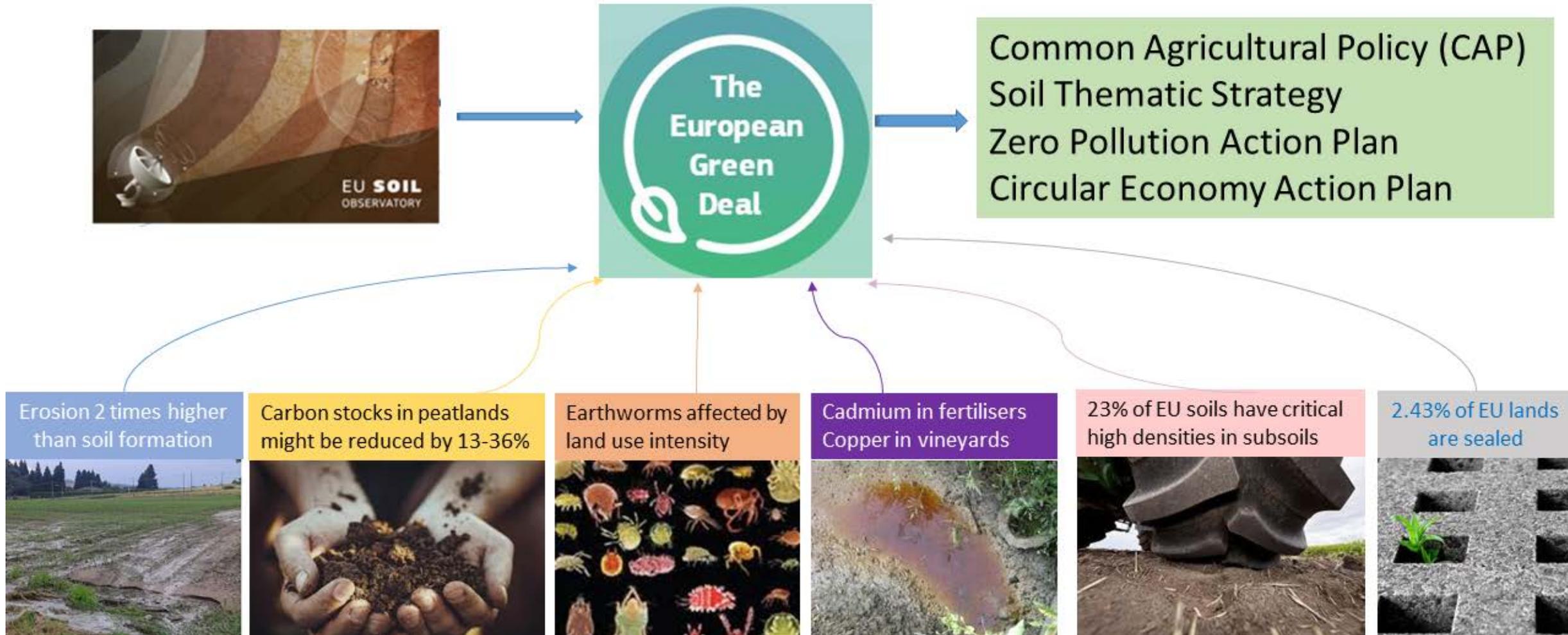


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Soils are a cross-cutting theme within the **European Green Deal**



Soil knowledge for the Green Deal policies

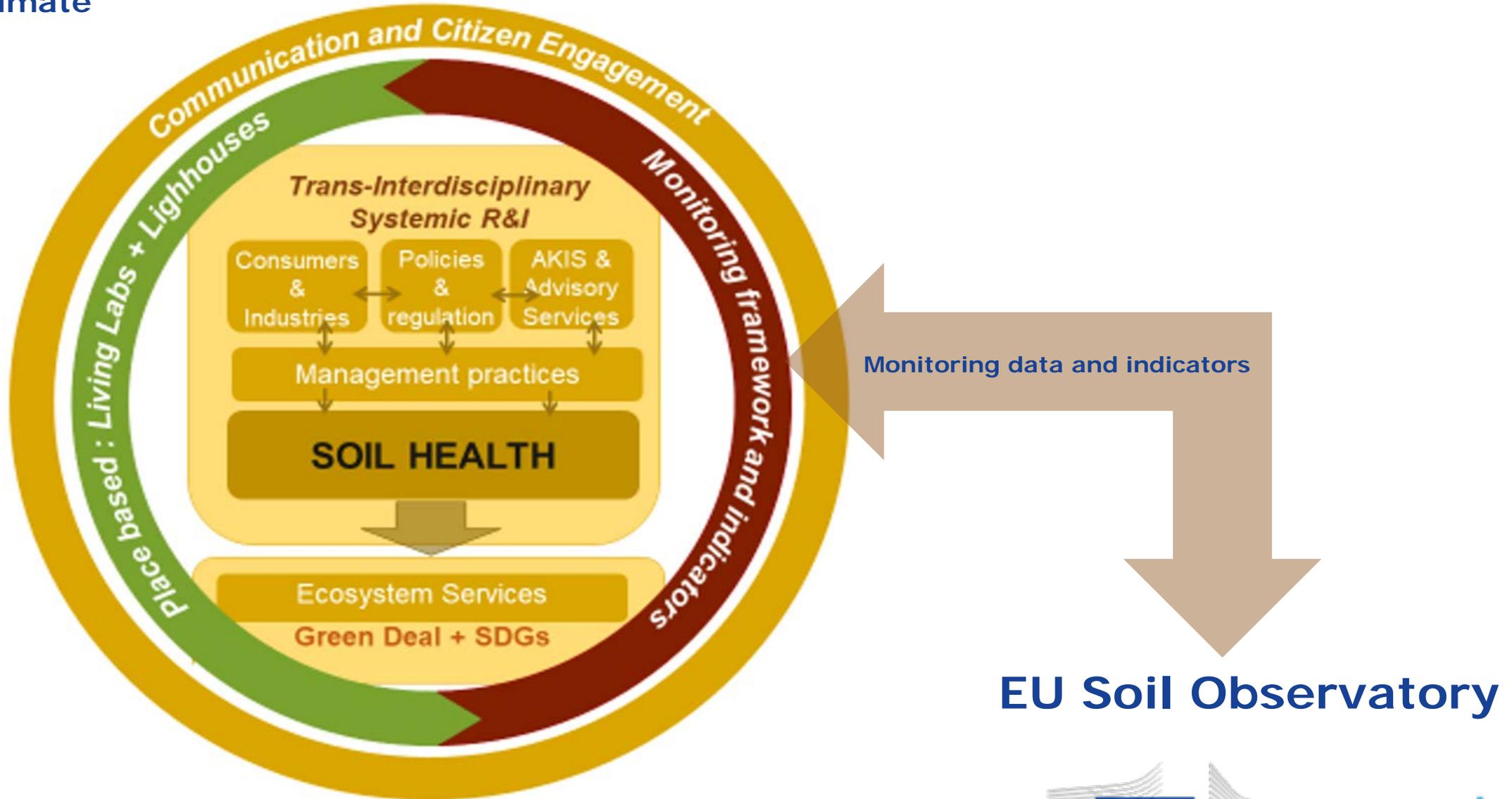


Soils in Horizon Europe and Missions

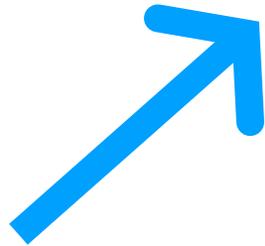


Recommendations by the Mission Board for Soil Health and Food

Caring for soil is caring for life – Ensure 75% of soils are healthy by 2030 for healthy food, people, nature and climate



EU Soil Observatory Goal 1: An EU-Wide Soil Monitoring System



Goal 1: EU-Wide Soil Monitoring

Goal 1: EU-Wide Soil Monitoring



From LUCAS (ca. 25,000 sites) to the EU Integrated Soil Monitoring (ISM) (ca. 250,000 sites)



LUCAS SOIL

- Systematic approach for 25,000 locations across the EU
- Harmonized sampling protocol
- Standard analytical procedures to measure parameters
- Single laboratory
- Data from 2009, 2015, 2018, 2021/2022...
- EU/Regional statistics, point-based applications

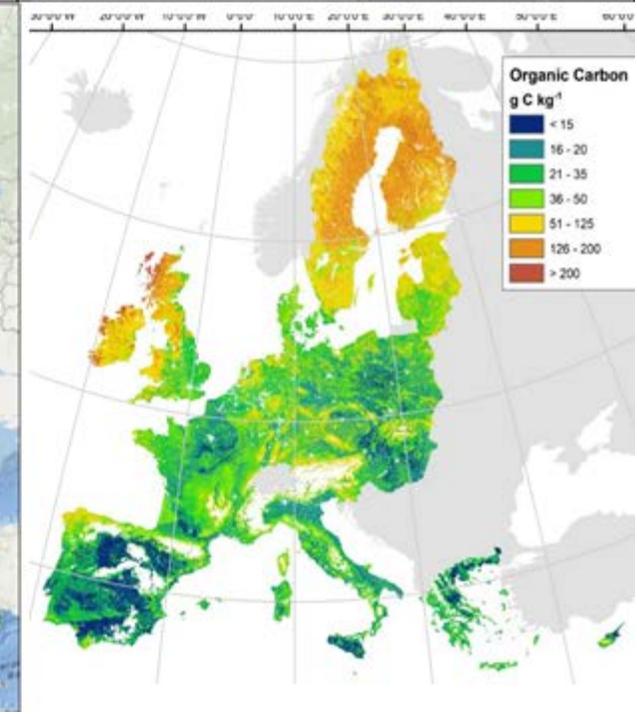
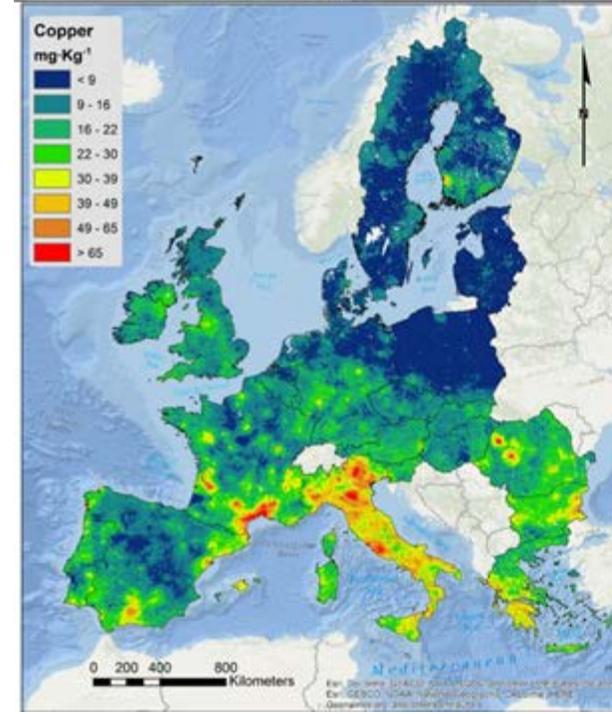
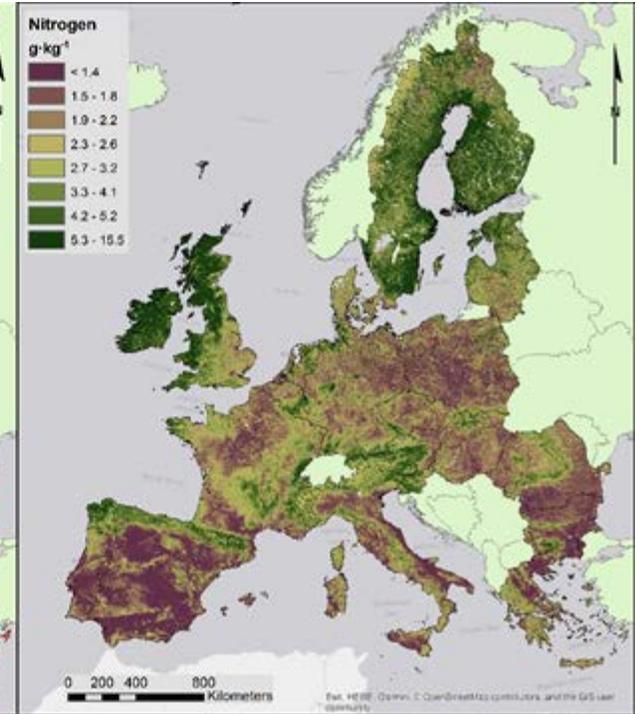
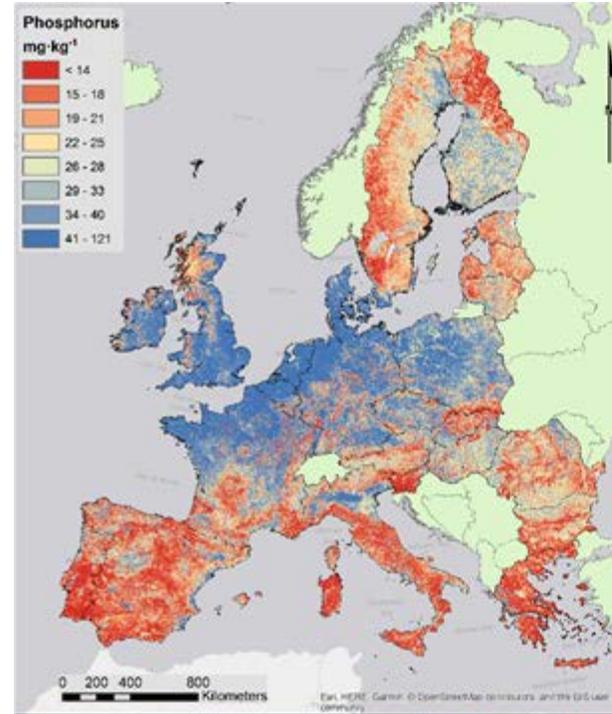
Future expansion within the EUSO

- Systematic approach for ca. 250,000 locations across the EU
- Full integration of National soil monitoring systems

Goal 1: EU-Wide Soil Monitoring

From monitoring chemical, physical and biological soil properties to modelling the spatial distribution of soil properties in the EU

- Coarse fragments
- particle-size distribution (clay, silt, sand)
- pH
- **Organic carbon**
- Carbonate content
- **Total nitrogen content**
- **Extractable potassium content**
- **Phosphorous content**
- Cation exchange capacity
- Electrical conductivity
- Heavy Metals
- Multispectral properties
- Pesticides (90 substances)
- Neonicotinoid insecticides
- **Fungicides (e.g. copper in soils)**
- Herbicides
- Antibiotics
- Soil Biodiversity



EU Soil Observatory Goal 2: A stronger European Soil Data Centre



Goal 1: EU-Wide Soil Monitoring

Expanding the already existing databases in ESDAC by integrating the data and knowledge available in MS in a fully shared and integrated system: From LUCAS Soil to an Integrated Soil Monitoring System for the EU

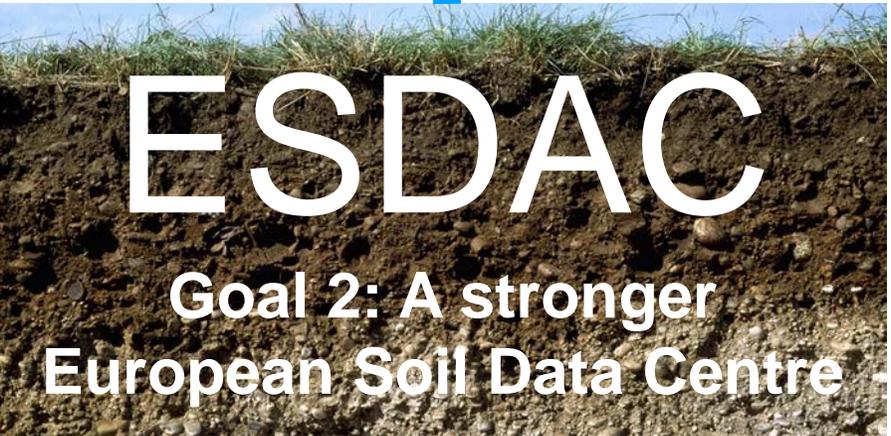
EU Soil Observatory Goal 3: Indicators for monitoring EU Policies



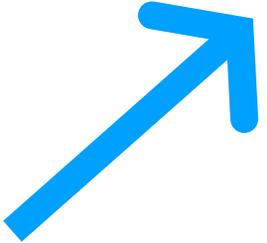
Goal 3: Monitoring of soil related policies



Support to policy implementation: Monitoring and indicators for the EU Soil Thematic Strategy



Goal 1: EU-Wide Soil Monitoring

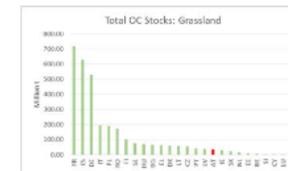
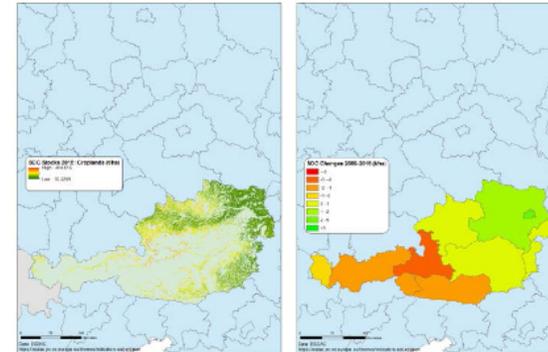


A EU Soil Indicator Dashboard: Indicators for Policy Options and Reporting

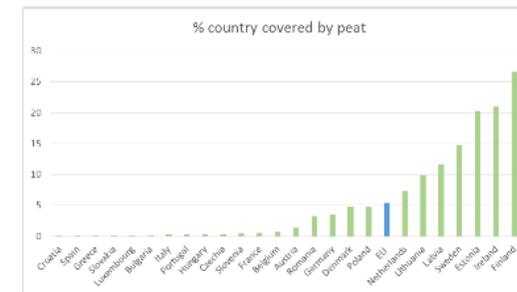


- EU Soil Thematic Strategy
- Common Agricultural Policy
- Zero Pollution Action Plan
- Circular Economy Action Plan
- Farm to Fork Strategy
- Climate Action
- EU Biodiversity Strategy
- SDG's Goals and Targets
-

Soil organic carbon stocks⁴



Cumulative soil organic carbon stocks – arable (Mt): **115.4**
 Cumulative soil organic carbon stocks – grassland (Mt): **64.2**
 Change in arable stocks 2009-2015 (Mt): **0.280**
 Change in grassland stocks 2009-2015 (Mt): **-0.054**

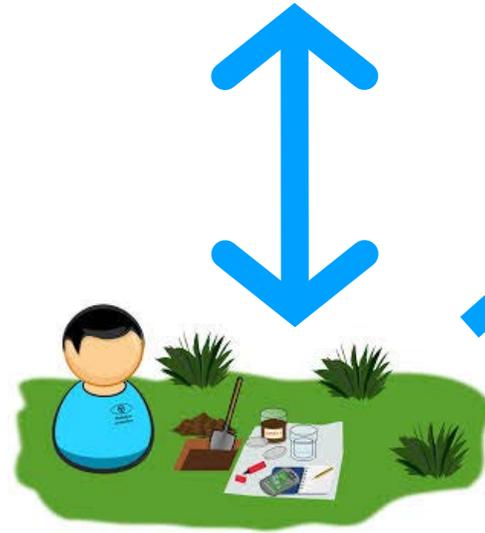


⁴ Panagos et al 2020. Soil-related indicators to support agri-environmental policies
⁵ Tanneberger et al 2017. The peatland map of Europe. DOI: 10.19189/MaP.2016.OMB.264

EU Soil Observatory Goal 4: Support to Research and Innovation



Goal 4: Support to Research & Innovation



Goal 1: EU-Wide Soil Monitoring



Goal 3: Monitoring of soil related policies

Support to policy implementation: Monitoring and indicators for the EU Soil Thematic Strategy



Goal 4: Support to Research & Innovation

- Pesticide and antibiotic residues
- Soil biodiversity (DNA-based approach)
- Antibiotic-resistance genes
- Micro-plastics



EU Soil Observatory: An open and inclusive Forum



Goal 4: Support to Research & Innovation

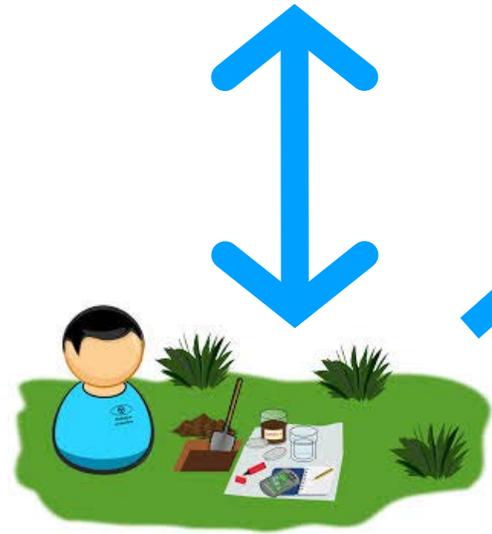


Goal 3: Monitoring of soil related policies

Support to policy implementation: Monitoring and indicators for the EU Soil Thematic Strategy



Goal 2: A stronger European Soil Data Centre



Goal 1: EU-Wide Soil Monitoring



Goal 5: Provide an European Soil Forum

The Forum: Scientific Debate & Citizen Engagement



- Inclusive and open to all stakeholders:
 - Relevant Commission Services
 - European Agencies
 - International Organizations
 - Member States representatives
 - Farming Associations
 - Industry representatives
 - NGO's
 - Interested citizens
- Setup of dedicated **Working Groups** addressing specific scientific and policy questions
- Issue scientific papers, policy support reports and assessments
- Citizen Engagement and Awareness Raising activities



Conclusions

- The **EU Soil Observatory** fills a gap by providing the **policy relevant and harmonized EU-wide soil data and indicators** in support of the new **European Green Deal** and the **Mission on Soil Health and Food**
- Integrate **JRC and National soil monitoring activities** in a coherent and fully shared joint system
- It provides an **open and inclusive Forum** for discussion
- **Kick-off meeting** will be organized during the **first quarter of 2021**
- Stay tuned on the next steps on the dedicated web site:
<https://ec.europa.eu/jrc/en/eu-soil-observatory>

Thank you for your attention!



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