



EUSO

EU Soil Observatory and Soil Pollution

Water and Land Conference
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Acknowledgments

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The EUSO Project

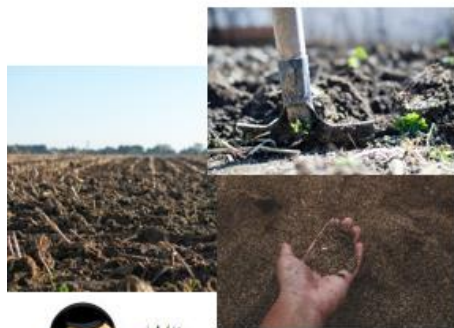
EUSO: the principal provider of reference data and knowledge at EU-level for all matters relating to soil.



Research & Innovation



Monitoring soil related policies



EU-wide Soil Monitoring

Stronger European Soil Data Centre (ESDAC)



European Soil Forum

The EUSO Project

- The EUSO project is well aligned with **key EU strategies on biodiversity, agriculture and zero pollution**.
- It will **gather and generate data** for **baseline and trend analysis** that **assess the condition of soil** and associated **ecosystem functions**, together with the **extent and impact of pressures** such as land degradation, desertification, **chemical pollution** or loss of soil biodiversity.
- How healthy soils can meet the **competing demands** for economic and ecological services?
- **Multiple policy areas** e.g. 8th EAP, bio and circular economy, SDGs, environmental concerns of the CAP.
- **Data-centric approach** supplemented by the production of **value-added policy-relevant knowledge and recommendations** for the management of public goods, supported by novel dissemination approaches that increase societal awareness of the value of soil.

Soil Pollution

Diffuse



Local / Point



Consequences of soil pollution



Ingestion, dermal contact, inhalation, ecosystem services



Ambitions in the EU Soil Strategy

- What does healthy soil mean?
 - Soils are healthy when they are in good chemical, biological and physical condition, and thus able to continuously provide as many of the following ecosystem services as possible: food, protect, basis for life, carbon reservoir, physical platform, raw materials, archive.
- Medium term objectives
 - Reduce nutrient losses by at least 50%, the overall use and risk of chemical pesticides by 50% and the use of more hazardous pesticides by 50% by 2030
 - Significant progress has been made in the remediation of contaminated sites

Ambitions in the EU Soil Strategy

- EU Soil Strategy long term objectives
 - Soil pollution should be reduced to levels no longer considered harmful to human health and natural ecosystems and respect the boundaries our planet can cope with, thus creating a toxic-free environment

Ambitions in Zero Pollution framework

- improving air quality, thus reducing diffuse soil pollution from industrial emissions and transport;
- reducing waste streams to land (e.g. excess nutrients, microplastics in sewage sludge), more sustainable use and management of soils (e.g. reduction in use of hazardous pesticides, plastic mulches).

Ambitions in Zero Pollution framework

- Increased efforts to **identify** and **remediate** contaminated sites, the **prevention** of new soil pollution, the establishment a priority **watch list** for soil contaminants supported by future **LUCAS soil pollution module**, consider of a soil passport scheme, and increased awareness of funding schemes.
- The Living Labs of the Horizon Europe Mission “A Soil Deal for Europe”, the EU’s Destination Earth Programme, and the Zero Pollution Stakeholder Platform, as well as the work of the European Environment Agency (EEA) and the Joint Research Centre’s EU Soil Observatory, will advance the **knowledge base** required to achieve a toxic free environment.
- Efforts will also be made to **minimise** the **EU’s external pollution footprint**.

The EUSO Project team → ZEPHIR

- Arwyn JONES – EUSO Project Leader
- Panos PANOS – Contributor
- Piotr WOJDA – Contributor
- **THE JRC SOIL TEAM**

SOC

Land
Degrada
tion

Soil
Pollution

Nutrient
losses

Soil
Health

- ASSESS the status of soil health, including progress towards policy targets;
- ANTICIPATE the prospects of reaching 2030 and 2050 objectives;
- INNOVATE by developing methodologies and recommending policy interventions.











Heavy
metals

Watch
-list

LUCAS
Soil

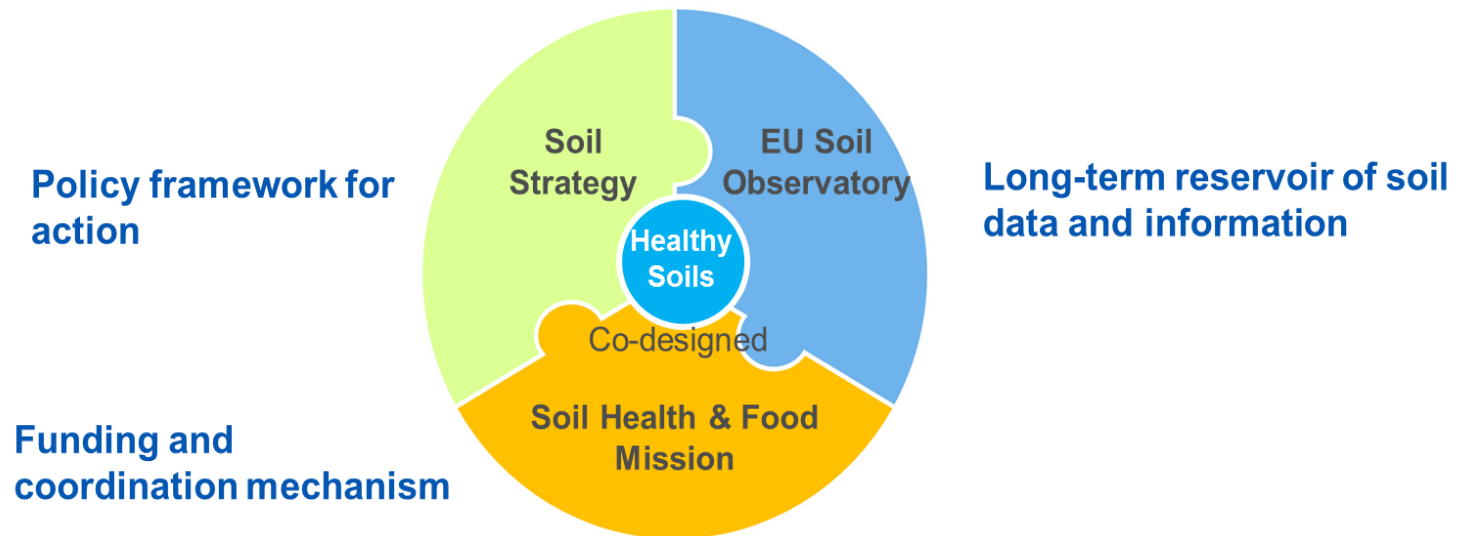
The External Partners and Stakeholders

Main External Partners And Stakeholders

<p>International Organisation</p> <p> United Nations Convention to Combat Desertification (UNCCD)</p> <p>▼</p>	<p>International Organisation</p> <p> European Environment Agency</p> <p>▼</p>	<p>International Organisation</p> <p> European Food Safety Authority</p> <p>▼</p>	<p>International Organisation</p> <p> International Atomic Energy Agency (IAEA)</p> <p>▼</p>
<p>International Organisation</p> <p> Organisation for Economic Co-operation and Development (OECD)</p> <p>▼</p>	<p>International Organisation</p> <p> THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)</p>	<p>International Organisation</p> <p> UN Convention on Biological Diversity</p>	<p>University</p> <p> University of Aarhus</p>
<p>Research Institute</p> <p> WAGENINGEN UNIVERSITY</p>	<p>Government</p> <p> World Data Centre for Soils</p>		

Objectives and contribution to objectives

How to reach objectives



Soil Pollution – high level – deliverables

- Clean Soil Outlook (**Zero Pollution Outlook report**: in 2022 and then 2024)
- Heavy metals analyses based on the LUCAS Soil Samples
- Plant protection products: sampling, analyses, reports, policy-briefs
- Nutrient losses
- **Soil Watch List**: emerging contaminants and a **common list for air/water/soil**
- Integrated modelling framework: a prototype for integration

Outreach and engagement

- To facilitate the way that **society thinks about soils and soil pollution**.
- To satisfy the cross-sectorial knowledge needs of **policy DGs** where information on soil pollution is highly pertinent (AGRI, ENV, CLIMA, ESTAT, ...)
- To support the implementation of **the Green Deal**: Biodiversity Strategy, CAP, F2F, ZP, Climate and Energy Package, the Circular Economy Action Plan.
- To deliver an **integrated monitoring and reporting system on soil health** through the EU Soil Observatory.
- To support the commitment by the EU to achieve **land degradation neutrality by 2030** and to support the implementation of **Horizon Europe's Soil Mission**.

Clean Soil Outlook

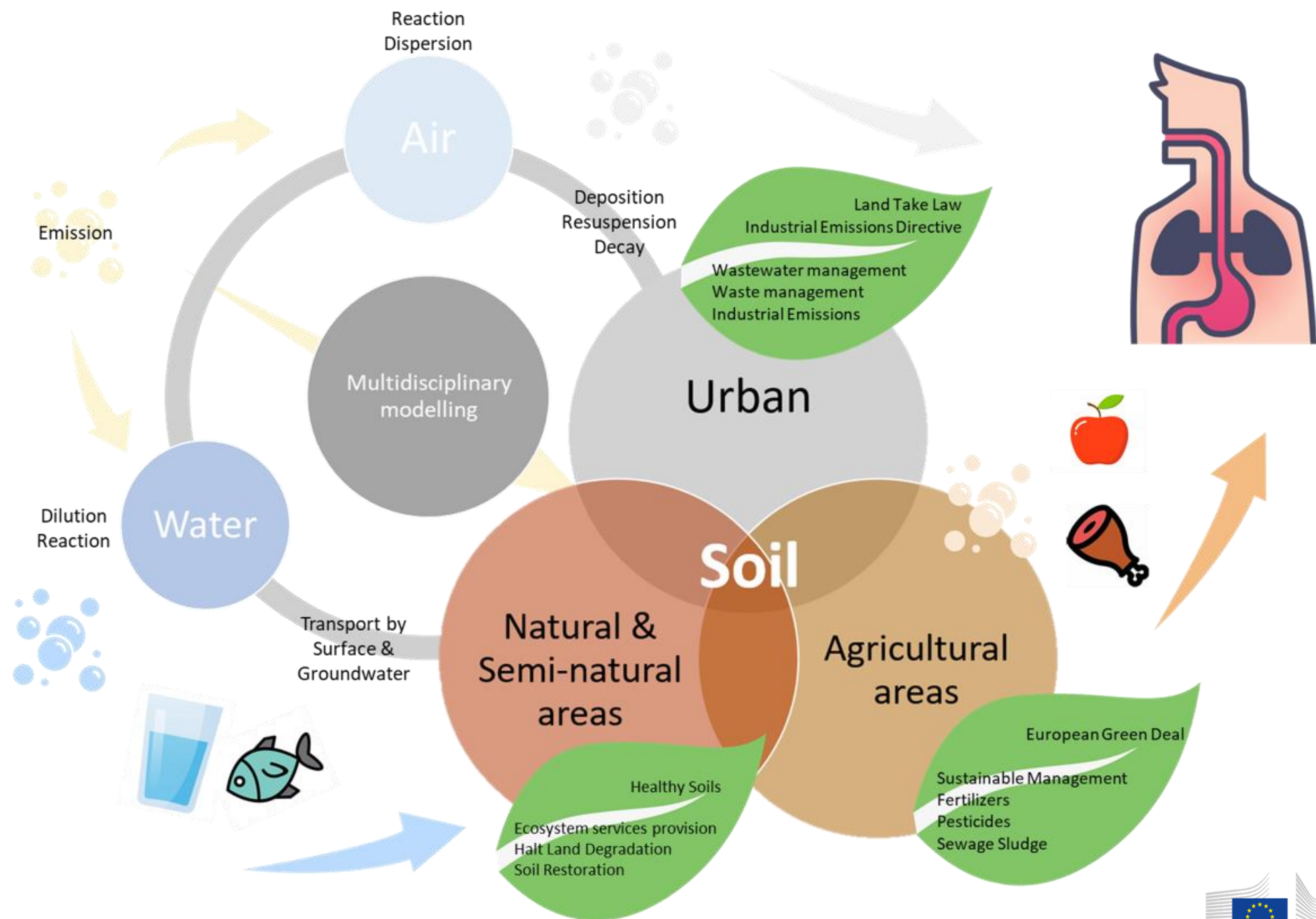
Highlights

Clean soil outlook **highlights**

- The overall risks from soil pollution to human health and environmental well-being are understood. However, **better quantification** through agreed methodologies are required, especially considering **emerging pollutants**.
- Serious **knowledge gaps** exist regarding soil pollution due to a lack of investment in **monitoring, research**, lack of a systematic **inventory**, and **reporting** obligations. → reliable baseline.
- A common **EU framework and definitions** are required to better inventorise both **contaminated sites** and **diffuse sources** → a harmonized approach to assess risks, and to better quantify impacts so to understand the extent of the issue.

Clean soil outlook **highlights**

- The soil compartment with its high **inherent variability** is insufficiently addressed in risk assessment procedures for market authorisation for chemicals – in most cases, the interaction between **cocktails of substances** and the **soil microbiome** are not considered
- Although several **EU policy instruments** partially address soil pollution, a holistic EU-wide legislative approach to protect and sustainably manage soils is currently missing.
- Some policy tools exist, however **a shift in practices**, such as increased trend in organic farming, or an improved inventory of existing contaminated sites may highlight new challenges.



Keep in touch



Second EUSO Stakeholder Forum: 24-25-26 October 2022



EU Science Hub: ec.europa.eu/jrc



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EU Science Hub – Joint Research Centre



EU Science, Research and Innovation



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Thank you



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