



# The Mission 'A Soil Deal for Europe'

## *Potential linkage to the Smart Specialisation Strategies*

Nati00ns Thematic Event  
Smart Soils: Smart Specialization meets EU Soil Mission

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European Commission



# Why soils are important?

- Soils support ecosystem services and provide **vital functions**:
  - provide **95% of our food**;
  - **purify and regulate water**, thus providing protection from **droughts and floods**;
  - cycle **nutrients and carbon**;
  - host **biodiversity**;
  - support human activities, **landscapes and cultural heritage**.
- Soils support climate mitigation and adaptation to meet the **Green Deal** ambitions (sustainable food systems, biodiversity, zero pollution and climate).



Healthy soils for achieving the Union's overarching objectives concerning **climate change mitigation and adaptation** and **biodiversity**



Healthy soils for preventing and mitigating the impacts of **natural disasters** and increasing the **drought resilience**



Healthy soils for increasing/ensuring the EU's **long term capacity** to produce **sufficient, safe and nutritious food**

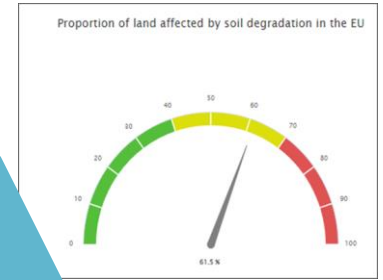


Healthy soils for protecting the **health of EU citizens**

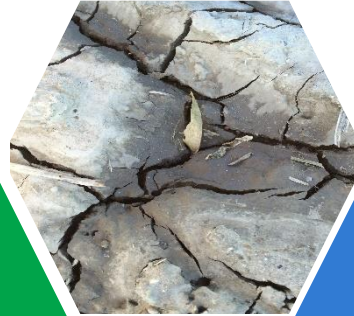
**Healthy soils contribute to 4 EGD objectives**

# Soil needs our attention

Over 60% of soils in Europe are unhealthy



Cropland soils **losing carbon** at a rate of 0.5% per year; 50% of peatlands drained and losing carbon – this is contributing to the climate crisis



24% of land with **unsustainable water erosion rates**

25% of land at High or Very High risk to **desertification** in Southern, Central and Eastern Europe in 2017



2.8 million potentially **contaminated sites** posing major health risks

65-75% of agricultural soils with nutrient inputs at levels risking **eutrophication of soils and water** and affecting biodiversity

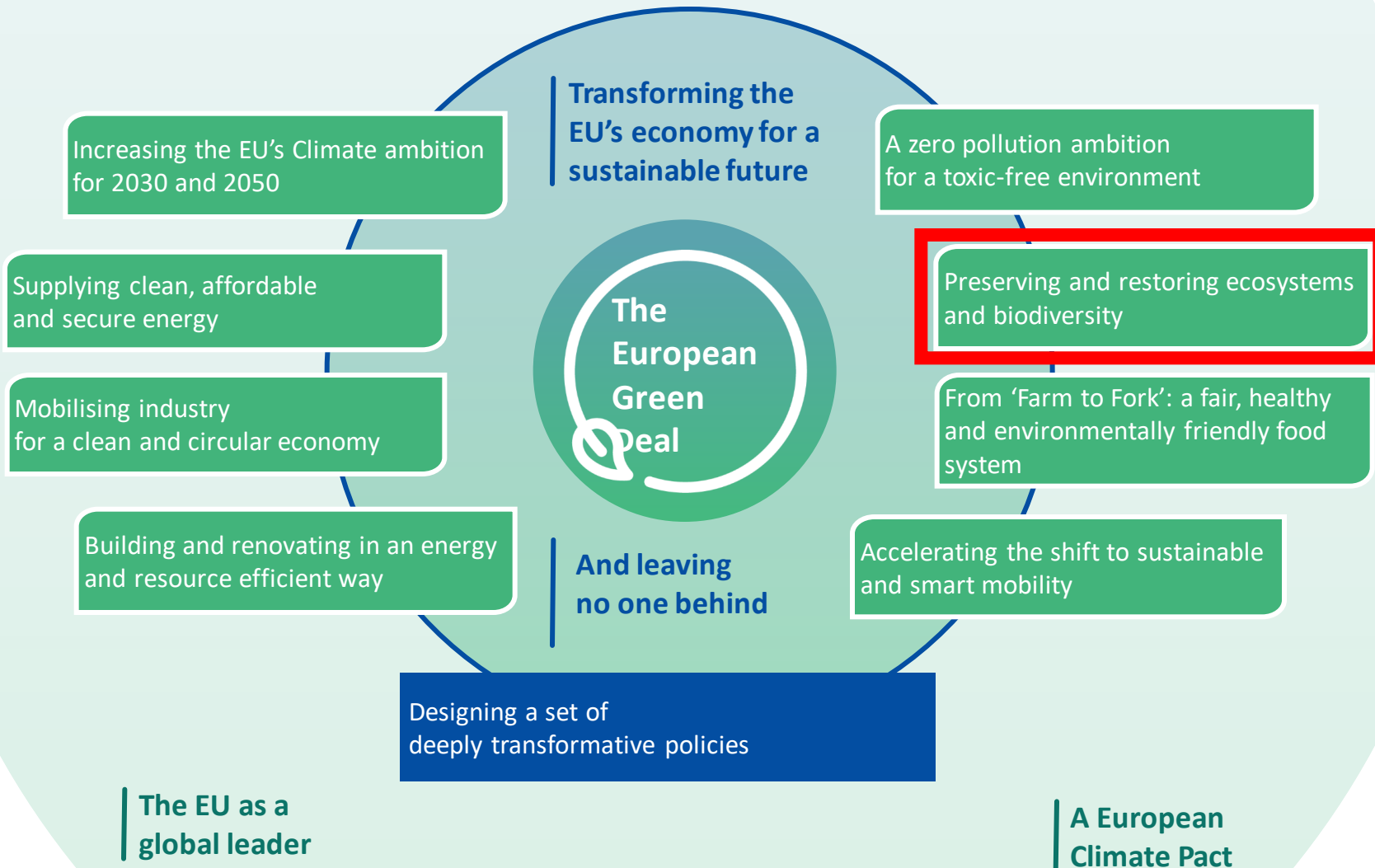


The **costs** associated with **soil degradation** in the EU exceed **50 billion €** per year



The effects of climate change put further pressure on soils and accelerate land degradation!

# European Green Deal (11/12/2019)



EU Biodiversity Strategy  
(20/05/2020)



EU Soil Strategy  
(17/11/2021)

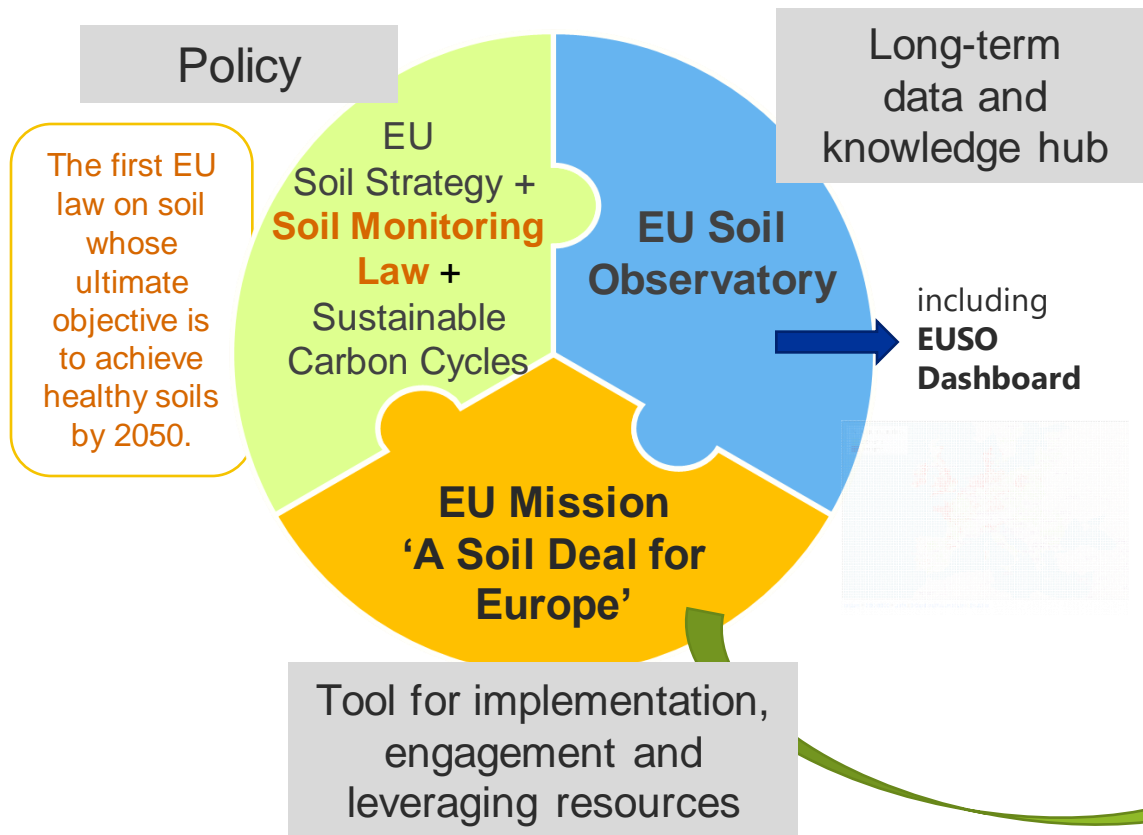


**Proposal Soil Monitoring Law  
(05/07/2023)**



*“ Today, we are filling a major legal gap to bring soil under our legal acquis. This will become the first EU law on soil. Our ultimate objective is to achieve **healthy soils by 2050.** “*

# European pathway to healthy soils: the role of innovation



## Challenges

- Knowledge regarding sustainable soil management is not sufficiently applied in practice (**knowledge – practice divide**).
- More knowledge and data needed to address soil health: **biodiversity, contamination** (pesticides, nutrients...), **carbon farming, waste management**.
- In the EU, **soil monitoring** is **not harmonised** or undertaken in a **systematic** way.

## The Mission Soil

A novel **transdisciplinary**, cross-sectoral, **real-life** testing approach to soil management addressing **all land uses**: agriculture, forestry, urban, industrial.



# Goal: 100 living labs and lighthouses to lead the transition towards healthy soils by 2030

## Specific objectives:




**Living-labs**  
**Real-life sites** in rural or urban areas in which **people** from various sectors and backgrounds experiment and **test solutions** in a co-creative manner.

**Definition and showcase of sustainable and regenerative soil management practices**  
 Harmonized soil monitoring framework  
 Increasing the awareness of the importance of soil

Each specific objective is backed by **one or more quantified targets** and **measurable indicators**.  
 Objectives apply to **all types of land use**.

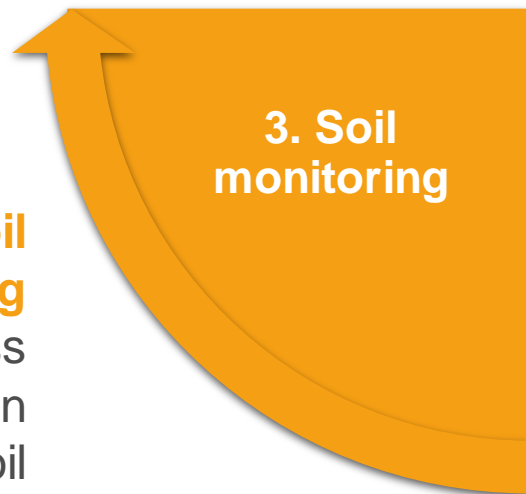


# The Mission Soil strategy

**Communication, training and advise targeted** to different target groups; specialised “soil advisors”



**Knowledge, data, technologies and infrastructures** to support practices and business models for soil health



A comprehensive **network of real-life sites** for co-creating, testing, demonstrating and upscaling of solutions

Harmonization **of soil health monitoring and reporting** across Europe; contribution to European Soil Observatory

Main vehicle for addressing the diversity of conditions and generating **locally adapted solutions**



# 100 Living Labs and Lighthouses

## +1000 testing sites across Europe

### Objectives

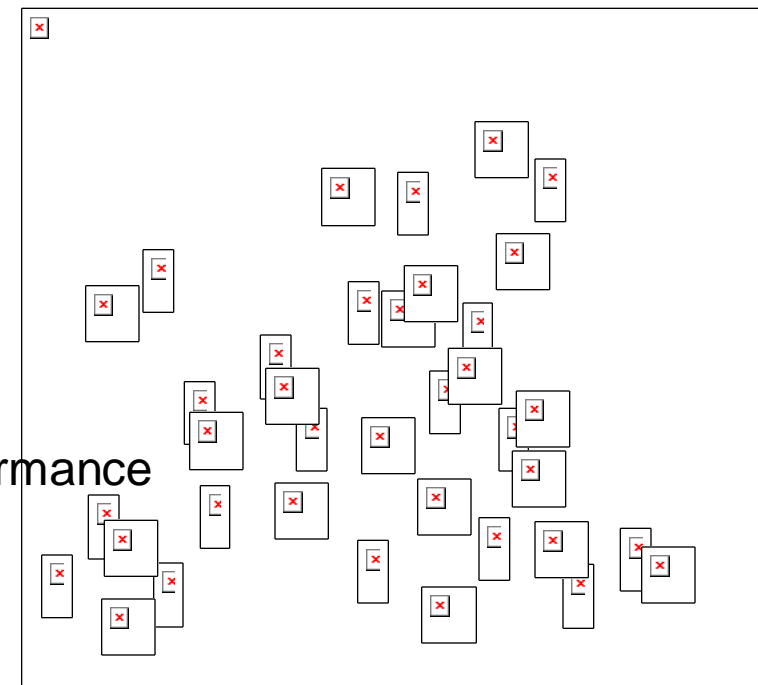
- › Empower a **rapid green transition** by scaling up the **uptake of solutions**.
- › Solutions **adapted** to local, pedo-climatic, socio-cultural-economic conditions across Europe (**systemic** approach).
- › Driven by **end-users' needs**.

### Living labs are a **core element of the Mission**. A living lab is

- › Composed of a **group of (10-20) site**.
- › **Actors** such as farmers, researchers, advisors, SMEs, citizens...
- › **Co-design, test, monitor** and evaluate **solutions** to soil health challenges.
- › **Real-life** conditions, **long-term** set up.
- › All types of soils and **land uses**.

### Lighthouses are **individual sites, such as a single farm**, of exemplary performance to **showcase good practices**.

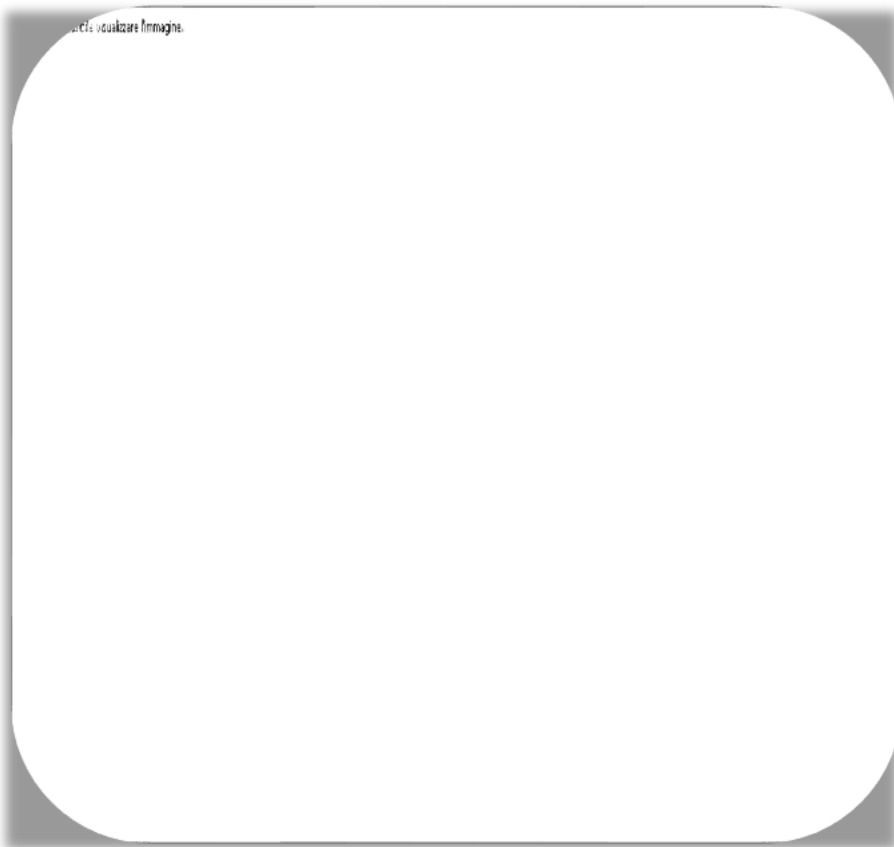
- › Places for **demonstrations, training and communication**.
- › **Practical tools for advisors** to best inform soil managers.
- › Increase the **awareness** of the importance of soil.







## Mission Soil's state of play: R&I projects



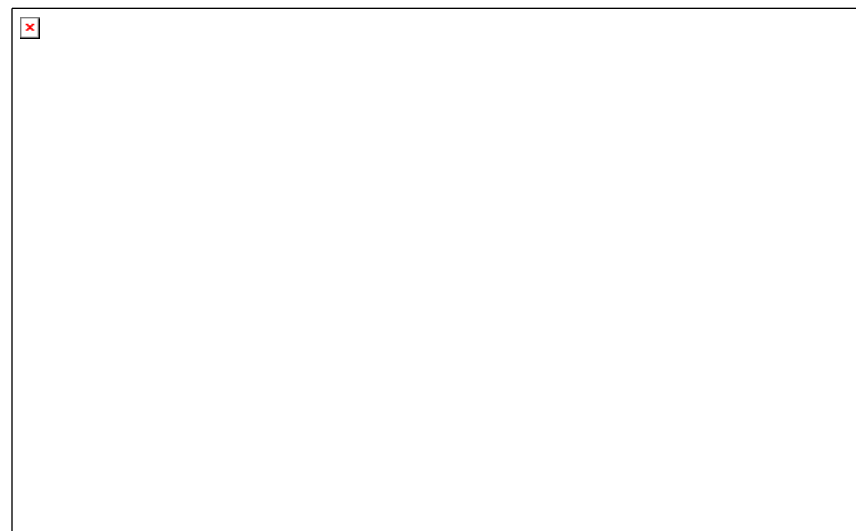
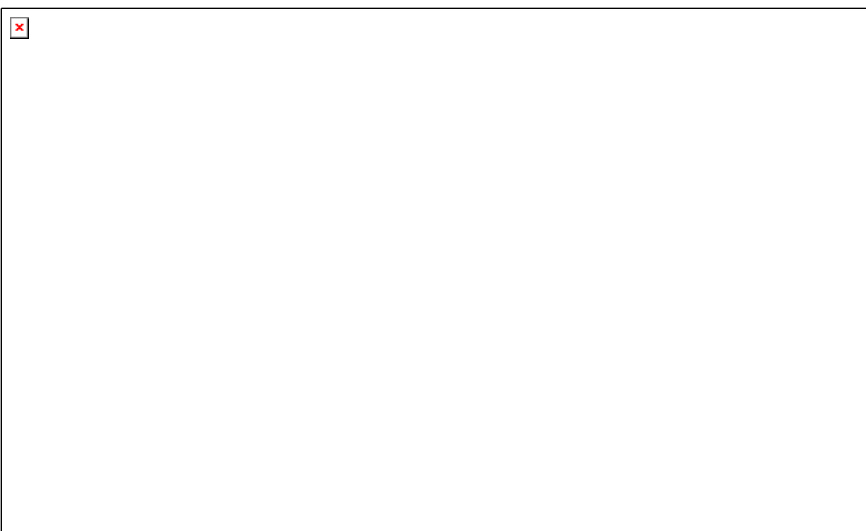
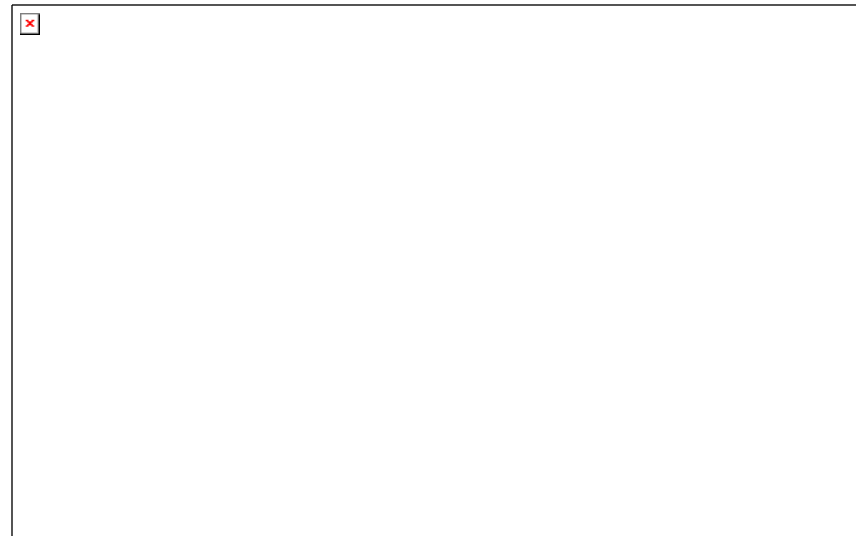
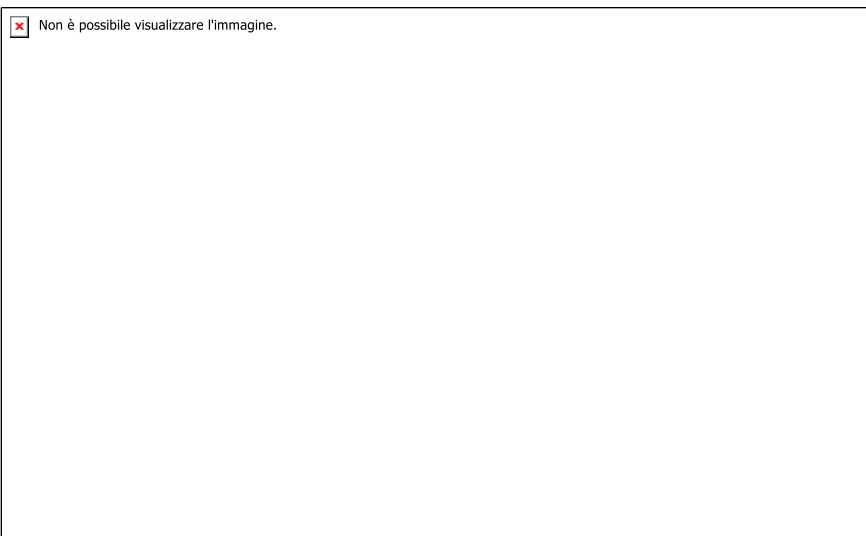
≈EUR 320 million (2021-2023)

- 2021-2022
  - > **28 ongoing projects**
  - > **≈360 participants**
- 2023
  - > **+19 new projects**
  - > **First 20-25 living labs**
- 2024-2027





# Soil health is a territorial issue





# Mission Manifesto – Regional, local authorities and municipalities

**21 Signatories by regional or local authorities and municipalities:**

19 signatories from EU countries

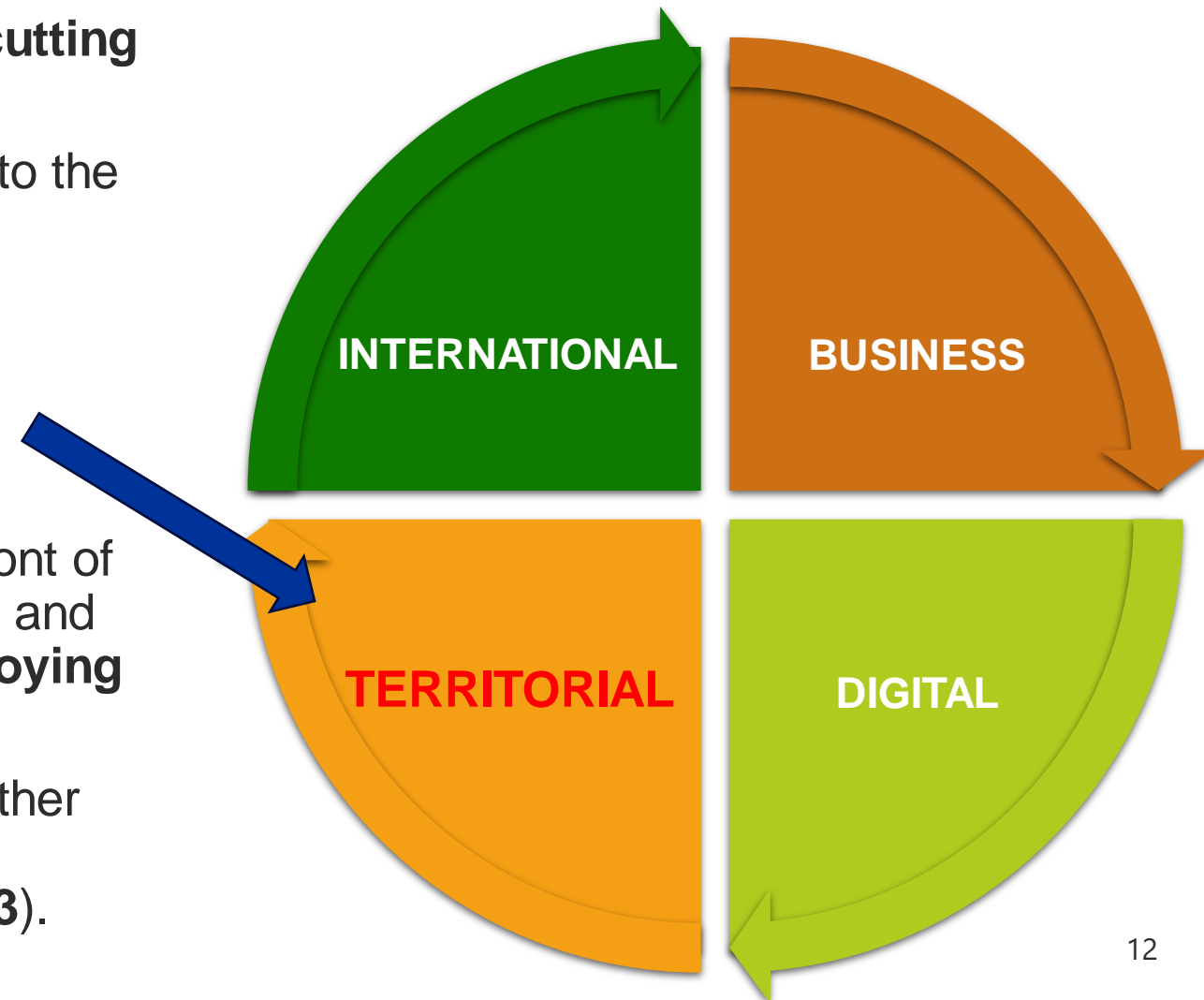
*2 from outside of the EU (Norway, North Macedonia)*

Name	Country	
Flanders	Belgium	EU
South Moravian Region	Czechia	EU
Ministry of Science, Energy, Climate Protection and Environment, Saxony-Anhalt, Germany	Germany	EU
Ministry of climate Action, Food and Rural Agenda. Government of Catalonia	Spain	EU
Commision of Environment of High Consultative Council of Presidency of Valencian Regional Government	Spain	EU
Instituto Regional de Investigación y Desarrollo Agroalimentario y Forestal (IRIAF)	Spain	EU
Generalitat Valenciana	Spain	EU
Région Centre-Val de Loire	France	EU
NVO bedemi	Croatia	EU
Unione Comuni Montani Appennino Pistoiese	Italy	EU
Regione Toscana	Italy	EU
Regione Friuli Venezia Giulia Direzione centrale risorse agroalimentari, forestali ed ittiche	Italy	EU
ANCI Toscana - Associazione Nazionale dei Comuni Italiani Toscana	Italy	EU
Provincie Fryslân	Netherlands	EU
Marshal Office of the Lubelskie Voivodeship	Poland	EU
Województwo Kujawsko-Pomorskie	Poland	EU
Município do Fundão	Portugal	EU
Municipality - City of Agueda - Portugal	Portugal	EU
Regional Council of Southwest Finland / Valonia	Finland	EU
City of Skopje	North Macedonia	non EU
Innlandet County	Norway	non EU



# The territorial dimension and S3 are in the MIP

- The Mission was designed around **4 cross-cutting dimensions**.
- The “**Territorial Dimension**” that contributes to the EU’s Regional Policy priorities
  - Smarter Europe: **innovation**
  - Greener Europe: **sustainability**
  - Europe closer to citizens: **community-led initiatives**
- **Regions and municipalities** are at the forefront of local soil management, regulation, innovation, and community-building. They are **pivotal to deploying the Mission Soil objectives on the ground**.
- The Mission was **co-created** linking up with other **programmes and initiatives** (CAP, LIFE, INTERREG, Education Programmes... and **S3**).





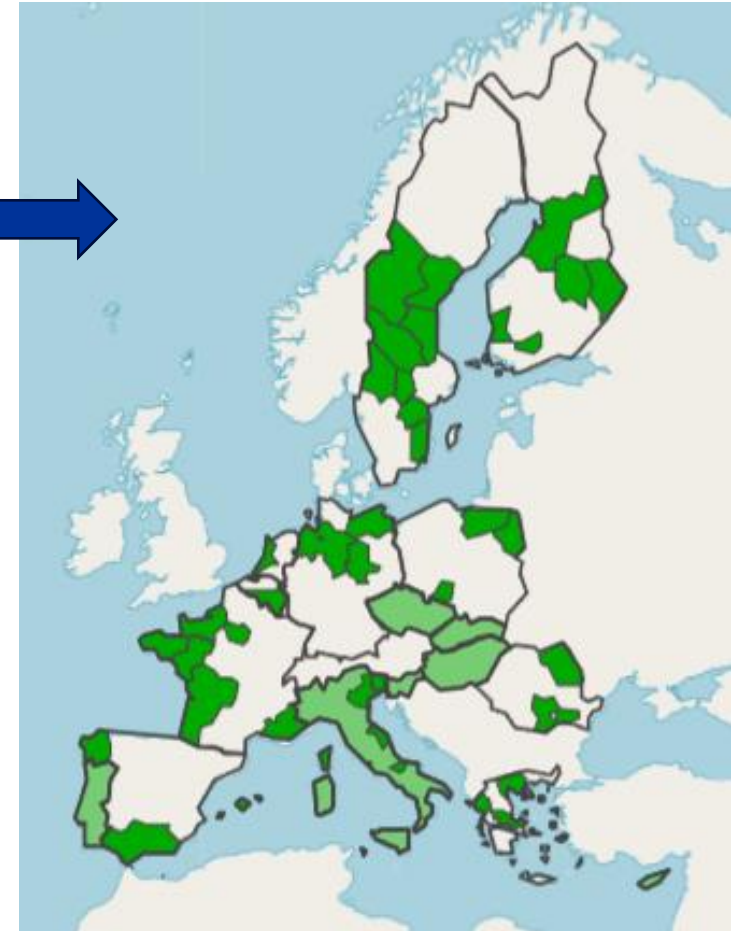
# Linkage to the Smart Specialisation Strategies (S3)

- Significant number of S3 can already be categorized around
  - 02.14 - Protection of soil and groundwater; or
  - 04.25 - General planning of land-use; or
  - 08.73 - Agriculture, forestry and fishery



[\(S3 CoP Observatory\)](#)

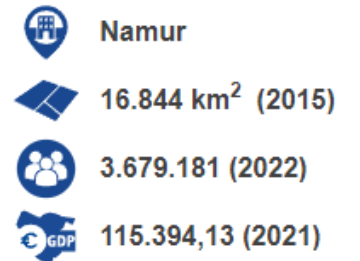
- The **Mission(s)** is a new, dynamic instruments continuously interacting with the society and its challenges, targeting **innovative solutions adapted to local conditions**.
- Regions may identify priorities in their S3 related to soil health and develop **synergies with the Mission** to support the deployment of new approaches.
- **Regions financing soil related activities** (Cohesion Fund, ERDF, Interreg...).





## Example: Walloon Region (BE3)

- S3 priority (Strategic Innovation Area)
  - **Agri-food chains of the future** and innovative environmental management
  - Innovative activities to support the emergence of high value-added and market potential products and services within a **sustainable and circular agro-food system**.
  - In order to ensure the long-term sustainability of natural ecosystems (**soil health and water cycle**), the Walloon potential in the field of **environmental ecosystem and biodiversity monitoring services, agroecology and sustainable agricultural/forestry innovation**.
- Initiative Digibiocontrol
  - 10 universities and research centres + 21 companies
  - Solutions to reduce chemical inputs in agricultural production
  - Digital and robotic solutions for effective into agricultural practices
  - New technologies for observing and modelling agro-system (soil, environment, exchanges with the plant) and modeling their interactions.
  - Validation of new agricultural practices integrating these innovations.
  - Raising awareness and training stakeholders in the agricultural sector in these new practices.





# Possible tools and activities

- **Link with Mission projects**, particularly with Living Labs and Lighthouses to replicate solutions (1,000 sites across Europe).
- Capitalize on the **CAP Operational Groups** that work on agriculture at local level for further support (more than 1,000 expected to work on soil management).
- **Networking activities** involving **CAP Network and Mission Soil** during in events
- **Regional Innovation Valleys** (under HE Pillar III, Innovative Europe, EIE)
  - Connected regional innovation valleys across the EU by building on strategic areas of regional strength and specialisation, in support of key EU priorities.
  - Regional Innovation Valleys on Soil Health?



# Some available tools: project HuMUS

- HuMUS (Healthy Municipal Soils)
  - Developing more than **30 Territorial Management Agreements** for soil health.
  - Between the different actors (municipalities and regional representatives, farmers, farmers' associations, foresters, land managers, civil organisations, industries, builders, local entities, etc.), to **co-design strategies and actions to improve the protection and restoration of soil health** and their subsequent **replication to other territories**.
  - Proposed activities (from the topic text):
    - Enable and **support municipalities and regions** to co-design strategies and actions for the protection and restoration of soil health with citizens, in coherence with EU soil policy and **regional strategies for smart specialisation (RIS3) and for smart specialisation for sustainability (RIS4)**.

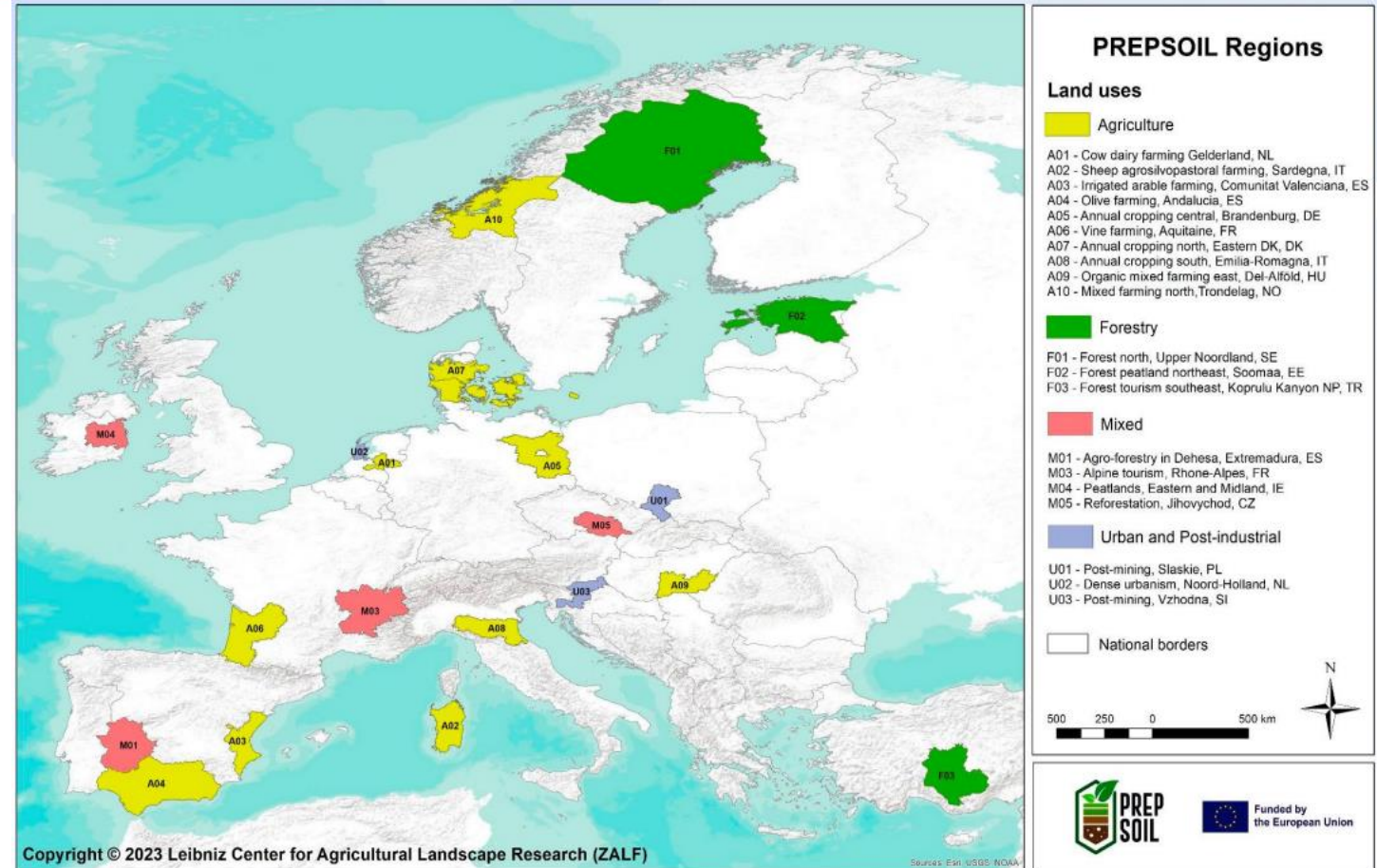






# Project PREPSOIL

- PREPSOIL (Preparing the European Mission towards healthy soils)
  - Facilitates the **deployment of the Mission across European regions.**
  - Through the co-creation and roll out of **tools and spaces for interaction, knowledge-sharing and co-learning, as well as stocktaking and dialogue.**
  - **Soil needs in 21 EU regions**

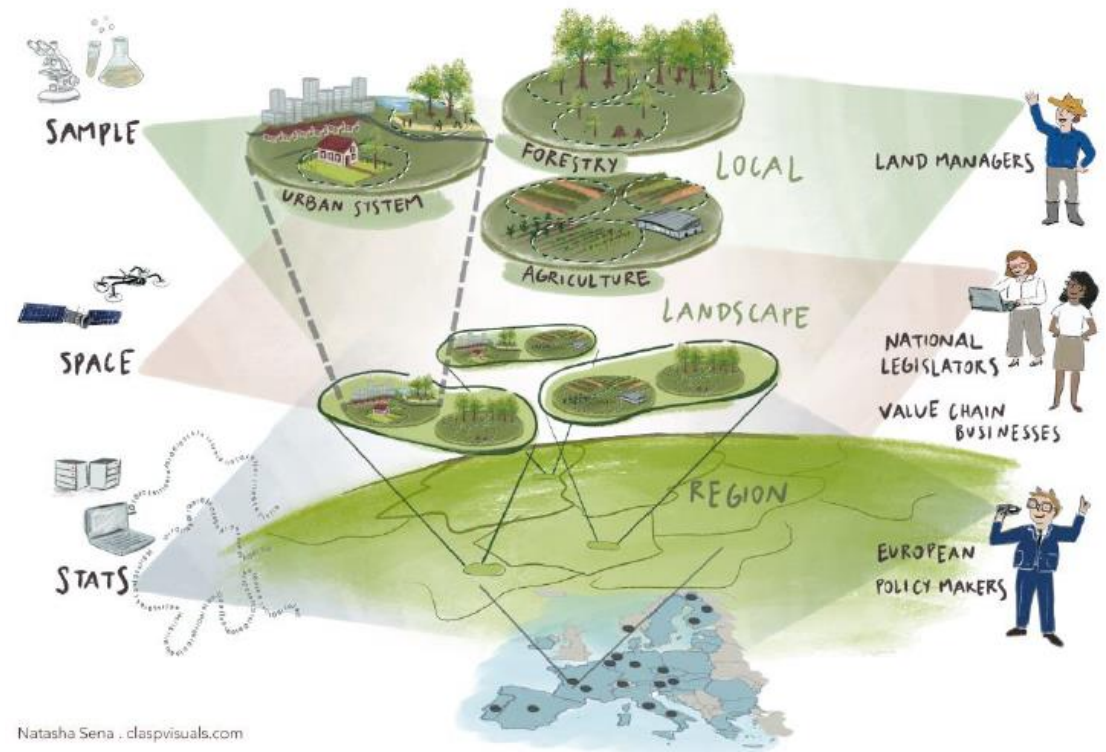




# Project BENCHMARKS

- BENCHMARKS (European Network for the Characterisation and Harmonisation of Monitoring Approaches for Research and Knowledge on Soils)
  - Engaging stakeholders for **testing and validating indicators** framework and ensuring future application in 24 Living Labs across **17 regions in Europe**.

## Soil Health BENCHMARKS





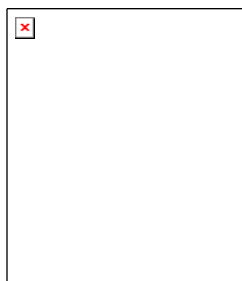
# New topic 'Soils in Spatial Planning'

- **Inadequate practices** in land management and in **land use planning** are main **drivers of land degradation**, both in urban and rural areas.
- **Increased consideration of soil functions** by the spatial planning community is needed.
- Activities (project to start in 2024)
  - Systematic review and **analysis of how soil functions are considered** in the various levels of spatial planning in the EU.
  - **Trade-offs** between the provision of **ecosystem services** and the further **expansion of urban, peri-urban and rural areas**.
  - **Identify good planning practices**.
  - **Work with authorities to develop strategies** to progress towards zero net land take by 2050.
  - Provide opportunities for **training and skill development of planners** as well as for the exchange of experiences.
  - Improve **tools and information (such as maps)**.

# Do you want to know more about the Mission?

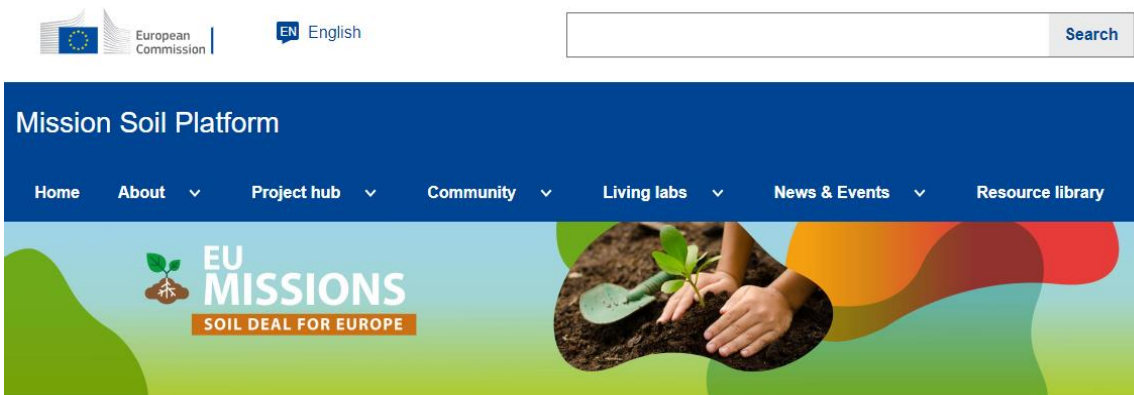
## › Visit the Mission Soil Platform

- › About
- › Project hub
  - › Funded project and funding opportunities
- › Community
  - › Soil Mission Manifesto
- › Living labs
- › News & Events
  - › Newsletter



And much more!

<https://mission-soil-platform.ec.europa.eu/>



### Why are soils important?

Soils are essential for all life-sustaining processes on our planet. If soils are healthy and managed sustainably, they provide essential environmental, economic, and social benefits for society.

[Learn more about soils](#)



# Thank you



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## 2021 WP projects

1. [SOLO](#) identifies knowledge gaps, drivers, bottlenecks, and novel R&I approaches to be considered in the European Soil Mission research and innovation **roadmap**.
2. [SOIL O-LIVE](#) develops a holistic analysis of the **influence of land management** on olive oil quality and safety.
3. Projects [InBestSoil](#), [Novasoil](#) and [SoilValues](#) are developing new **business models** for soil health
4. Project [NBSoil](#) provides technical support for the training of **specialised soil advisors**





## 2022 WP projects

### Soil literacy and citizen engagement

- Foster soil education across society



CURIOSOIL

### Carbon farming

- Network on carbon farming -



### Soil pollution and restoration

- Decontamination and reuse of land – [ARAGORN](#) / [EDAPHOS](#) / [ISLANDR](#)

### Soil biodiversity

- Soil biodiversity and ecosystem services – [BIOSERVICES](#) / 

### Circular economy solutions

- Food processing residues for soil health innovations for soil improvement –

DeliSoil



FENIX

soilutions

Improving soil health by transforming food industry byproducts

Turning food waste into sustainable soil improvers for better soil health and improved food systems

From biowaste to soil regeneration

New Life for Biowaste as a sustainable Soil Improver

Transforming biowaste into safe and effective soil improvers



# The Mission contribution to a new monitoring framework

Validating and further developing **indicators for soil health** and functions



Building a European Network for the Characterisation and Harmonisation of Monitoring Approaches for Research and Knowledge on Soils



Accelerating collection and use of soil health information using AI technology to support the Soil Deal for Europe and EU Soil Observatory

Building the mission's knowledge repository and **advancing the European Soil Observatory**



An open access knowledge and data repository to safeguard soils

**Monitoring**, reporting and verification of **soil carbon** and greenhouse gases balance



Monitoring, Reporting and Verification of Soil Organic Carbon and Greenhouse Gas Balance



Developing and testing a framework for the design of harmonized, context-specific Monitoring, Reporting and Verification systems for soil Carbon and greenhouse gas balances by Agricultural activities

**Citizen science** for soil health



Engaging Citizens in soil science: the road to Healthier sOils