



NATIONAL INFORMATION DAY

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Horizon Europe

MISSION BOARD FOR SOIL HEALTH AND FOOD



The Mission: Caring for soil is caring for life

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*Research and
Innovation*

Why do we need the mission

Carrying for soil is carrying about life.

The proposed mission:

Ensure 75% of soils are healthy by 2030 for food, people, nature and climate





In the context of this mission, **Soil Health** is defined as

“the continued capacity of soils to support essential ecosystem services”, in line with the Sustainable Development Goals and the Green Deal

Why do we need this mission?



- Healthy soils are **the basis for nutritious and safe food**
- Soils deliver **vital, interconnected ecosystem functions**: water regulation, hosting biodiversity, nutrient cycling, climate mitigation and adaptation, carrying landscapes and cultural services
- Soil is a **scarce, non-renewable resource**: it takes hundreds of years to generate 1 cm of topsoil, but a fragment of that to destroy it
- **Soils are threatened: 60-70% of all soils in Europe are unhealthy due to current management practices, pollution, urbanization and the increasing effects of climate change**
- **Soil health is key in the implementation of Green Deal** and its strategies (Farm to Fork, Biodiversity, Forestry, Zero Pollution and Climate)

Why to act now?



Soils need our attention! EU Examples:

- 2.8 million potentially contaminated sites, posing major health risk
- 65-75% of agricultural soils have nutrient inputs at levels risking eutrophication of soils and water and affecting biodiversity
- Cropland soils losing carbon at a rate 0.5%/year; 50% peatlands drained & losing carbon
- 24% of land with unsustainable water erosion rates
- 23% of land with high density subsoil indicating compaction
- 25% of land at high risk to desertification
- The costs associated with soil degradation exceed 50 billion € per year



What do we want to achieve?



By 2030, at least **75% of all soils** in each EU Member State **are healthy or show a significant measurable improvement** towards meeting accepted thresholds of indicators, to support ecosystem services

This goal corresponds to a 100% increase in healthy soils in Europe in relation to now...

Specific objectives and targets



1. Reduce land degradation

- Restore 50% of degraded land moving beyond land degradation neutrality

2. Conserve and increase soil organic carbon stocks

- Increase carbon concentration on cultivated land by 0.1-0.4%/year;
- Area of managed peatlands losing carbon is reduced by 30-50%.



3. No net soil sealing and increased re-use of urban soils

- Urban land recycling is increased from current 13% to 50%
- No net soil sealing

Specific objectives and targets



4. Reduce soil pollution and enhance restoration

- 25% land under organic farming
- Double restoration rate of polluted sites

5. Prevent erosion

- ..on 30-50% of affected land

6. Improve soil structure

- ..on 30-50% of affected soil

7. Reduce EU global footprint on soils

- Impact of food, timber and biomass import reduced by 20-40%

8. Increase soil literacy in European society



How? A novel approach to soil health



- ❖ **Focus on all communities to work together**
- ❖ **Soil issues to be addressed by a system's approach**
- ❖ **Soils are dynamic, living systems delivering ecosystem services**
- ❖ **Diversity of soils and their services needs to be valued, calling for locally adapted tools and solutions**
- ❖ **Soil health monitored by a harmonized way –
- proposed a set of indicators**



1. Co-creation of knowledge and innovation in **living labs** and **lighthouses**

Researchers, land managers, businesses, policy decision makers and citizens working together in

- **Living laboratories** →
 - create knowledge
 - test novel approaches
- **Lighthouses** →
 - show good practice
 - demonstrate solutions

Ambition: in the first years of the Mission establish **at least five, preferably 10 living labs and/or lighthouses in each EU region.**

This results in 1000–2000 living labs and lighthouses as seeds of replication and demonstrators of change.

2. Consistent soil health monitoring

Eight indicators applied at different spatial scales over time



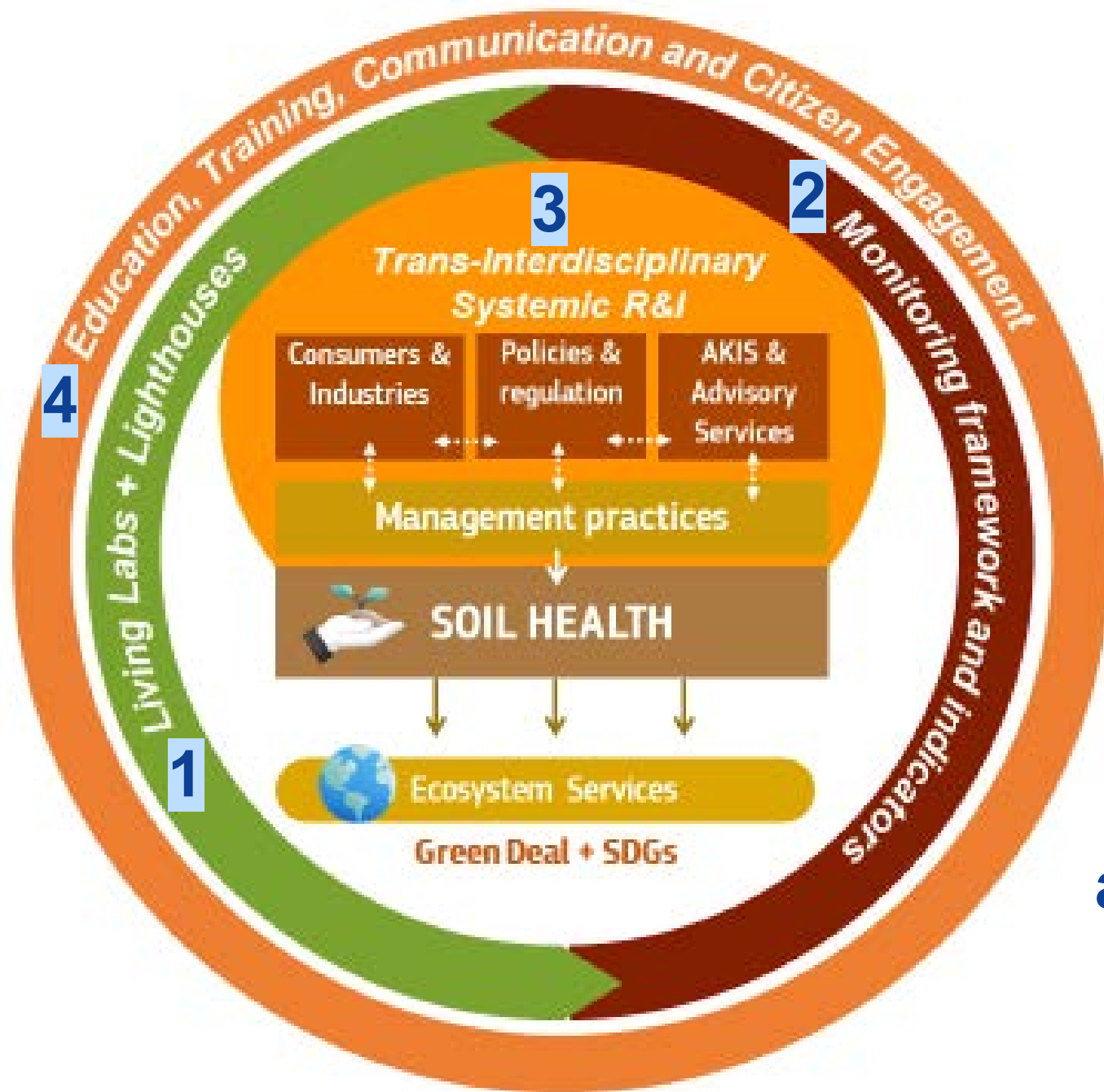
1. Presence of soil pollutants, excess nutrients and salts
2. Soil organic carbon stock
3. Soil structure including soil bulk density and absence of soil sealing and erosion
4. Soil biodiversity
5. Soil nutrients and acidity (pH)
6. Vegetation cover
7. Landscape heterogeneity
8. Forest cover (area and composition)

**Unhealthy soil –
any indicator below
agreed threshold
(TBD)**

3. Research and Innovation



- Knowledge exists within individual disciplines, but there is inadequate **integrated knowledge** on soil health
- Research **tailored to local/regional circumstances & linked to living labs and lighthouses (identifying R&I gaps)**
- **Interdisciplinary teams** with a **systemic approach** working in a **transdisciplinary mode**
- **Integration of natural and social sciences** at an equal level is crucial
- Two research dimensions:
 - A) **Soil health** (incl. natural sciences, indicators, monitoring)
 - B) **Drivers of soil health** (management, its drivers, social sciences, incl. behaviour analysis, consumption patterns etc.)
 - + integrative (A+B) projects



**Building
blocks,
soil health
drivers
and impacts**



European
Commission

Supportive environment - creating enabling conditions



Public policies, incentives, investments, information, advice and society at large, need to be mobilized to create an enabling environment for the sustainable management of soils.

Main priorities for action to act on soil health drivers are listed in Annex of the Mission Report
(incl. overview of suitable funding programs and instruments)

Expected impact



- **Soil health - starting point for systemic transformations across value chains and territories**
 - **Practices in agriculture, forestry and in urban areas supporting healthy soils and their ecosystems services**
 - Healthy soils as the **basis for nutritious and safe food**
 - **Food and bio-based value chains** rewarding soil friendly practices and minimising their impact on soils
- Soils helping us **mitigating and adapting to climate change**
- **Consumers and society** are aware of the importance of healthy soils and **on the role of citizen's in preserving this resource**
- The impact of production and consumption patterns in Europe on soils at global level is reduced – **a lower global footprint**

Expected impact



The mission
“Caring for Soils is Caring for Life” will
raise society’s awareness of soils and
put Europe on a path towards sustainable
land and soil management.

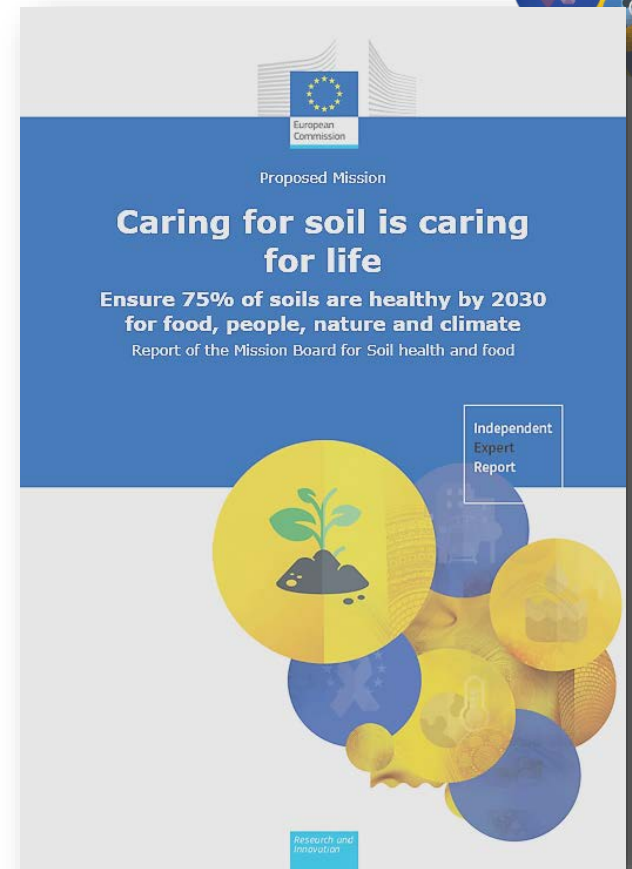
Seven areas of necessary innovation



- New soil paradigm - **living soils contributing to essential ecosystem services** that contribute to SDGs and Green Deal, **defining Soil Health accordingly**
- Advocating for **interactive, joint-learning approach** of stakeholders and researchers using “**Living Labs**” and “**Lighthouses**” as seeds for replication
- Presenting operational **targets and indicators for soil health**
- Defining **new research to fill knowledge gaps** perceived when applying existing expertise
- Advising to **link better food quality and safety to chemical and biological soil condition and processes**
- **System analysis on extent of healthy soils by 2050**
- **Ensure the EU global soil footprint is reduced**

More information

- **Report of the Mission Board for Soil Health and Food**
 - Citizen Summary
 - Main text
 - Annexes
 1. Evidence base review
 2. Indicators of soil health
 3. Synergy with EU policies and strategy
 4. Soil-relevant indicators for SDG goals
 5. Response to corona pandemic
 6. Communication and citizen engagement
 7. Potential support from EU & national initiatives
 8. Manifesto for Citizens



Do you want to know more?



**Join the mission activities, have your say
and spread the message**

- Mission soil health and food webpage

https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme/missions-horizon-europe/soil-health-and-food_en

- EIP-AGRI news

<https://ec.europa.eu/eip/agriculture/en/news/caring-our-soils-eu-agriculture-mission-healthy>

- DG AGRI – Soil Health and Food – mission report

https://ec.europa.eu/info/publications/caring-soil-caring-life_en



Thank you!

HorizonEU #EUmissions #MissionSoil

<http://ec.europa.eu/horizon-europe>

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