



PREP SOIL

PREPSOIL

CSA to support the EU Soil Mission

PREPARIAMO IL SUOLO PER IL FUTURO

Il progetto PREPSOIL e la regione dimostrativa del Po

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Funded by
the European Union

[Find out more on
www.prepsoil.eu](http://www.prepsoil.eu)

Need to act now



At the EU level the Mission supports a number of **Green Deal** strategies as well as the **SDGs**

- Farm to Fork strategy
- EU Biodiversity Strategy for 2030
- Climate Adaptation Strategy
- Zero Pollution Action Plan
- Sustainable Carbon Cycles
- Forest Strategy
- Long-term Vision for Rural Areas
- Organic Action Plan
- Soil strategy



100 Living Labs and LightHouses to lead the transition towards healthy soils by 2030

Specific objectives

1. Reduce **desertification**

2. Conserve **soil organic carbon stocks**

3. Stop **soil sealing** and increase re-use of **urban soils**

4. Reduce **soil pollution** and enhance **restoration**



5. Prevent **erosion**

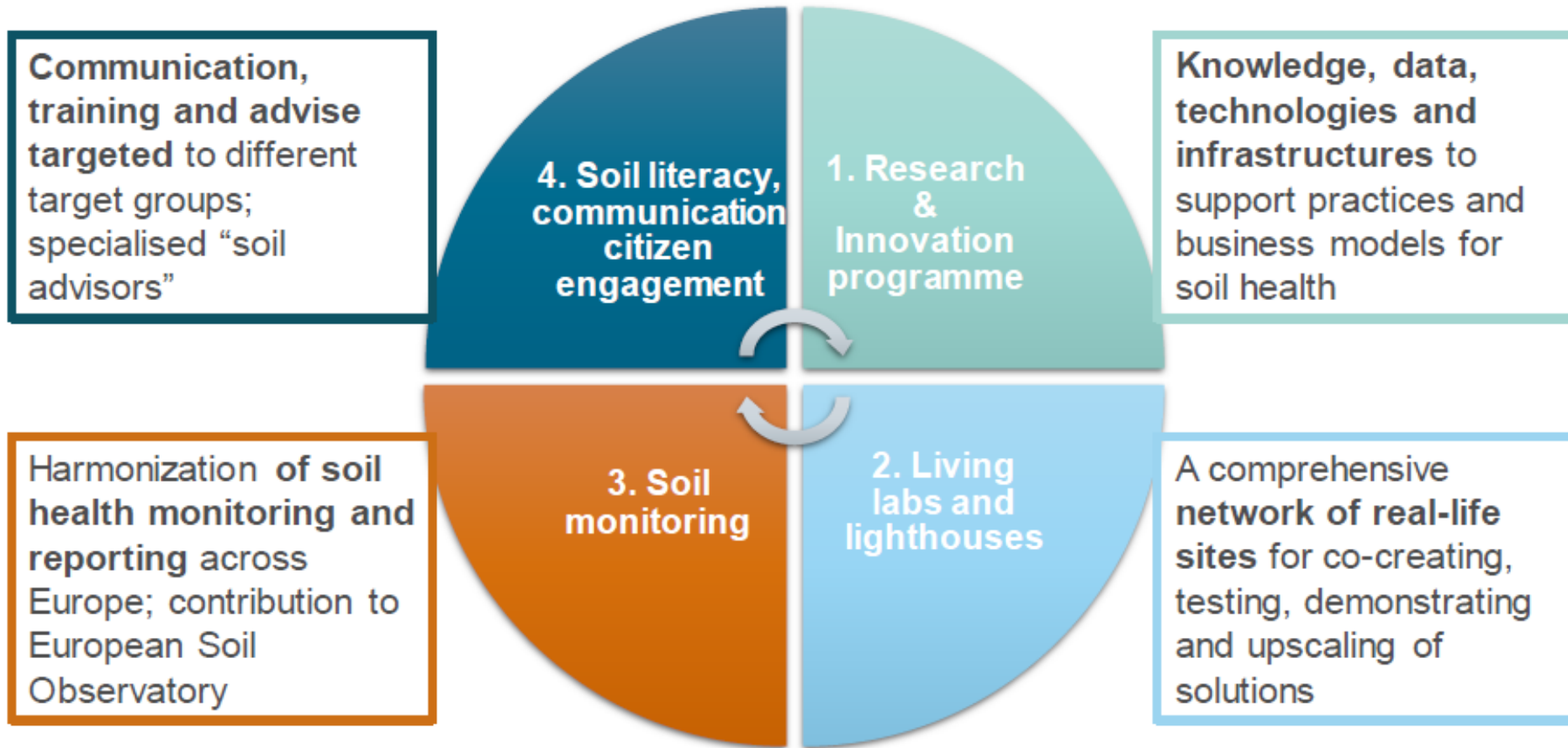
6. Improve soil structure to enhance **soil biodiversity**

7. Reduce the EU **global footprint on soils**

8. Improve **soil literacy** in society



Activities under the four building blocks to address soil health and the drivers of soil health



Co-implementation of mission by:
 researchers, land managers, regions, businesses, policy makers, citizens and international partners





PREPSOIL Project info and Actions

HORIZON-MISS-2021-SOIL-01

Preparing the ground for healthy soils: building capacities for engagement, outreach and knowledge

- Coordination and Support Action (CSA)
- 19 Partners (12 countries) + JRC
- Coordinator: Danish Centre for Food and Agriculture - Aarhus University (*Dr. Niels Halberg*)
- 36 months, starting July 1st, 2022

Actions linked to WPs

- ✔ **SOIL NEEDS** (WP2): Identification, mapping and evaluation of EU regional soil needs
- ✔ **WEB PORTAL** (WP3): Website, online community engagement and training
- ✔ **LIVING LABS** (WP4): Knowledge transfer and co-creation in regional Living Labs
- ✔ **MONITORING AND INDICATORS** (WP5): Monitoring frameworks and soil indicators
- ✔ **SOIL LITERACY** (WP6): Promoting soil education, awareness and engagement of communities of practice



Consortium and coverage



Academic partners

- AU
- WUR
- SLU
- INRAE
- NIBIO
- ZALF
- IUNG
- CSIC
- ÖMKi
- DELTARES
- JRC

Consulting experts

- LESPROJEKT
- TRUST-IT
- COMMPLA

EU & national associations *

- ENOLL
- RE-SOIL
- COPA-COGECA
- ACR+
- F-PCTEX (ERIAFF)
- ACTA

Today:



Main activities

KEY PRINCIPLES

STOCKTAKING

From previous initiatives, especially on agricultural soils.

OPEN SCIENCE

By default, multiplying the impact.

FLEXIBLE

Smooth communication and adaptation to the Mission's needs.

CAPABLE

Consortium composed of the top EU researchers, agencies and stakeholder associations.

STAKEHOLDER MANAGEMENT

Expansion of National Soil Hub concept, coordination and organisation of stakeholder identification, engagement and co-creation. At EU, national and regional levels. Multi-actor approach.



SOIL NEEDS

Evaluation of soil needs, at least in 19 regions, focusing in the landscape level.



MONITORING

Assessment of indicators for different land uses, exploring EO and citizen science, improvement of monitoring knowledge



LIVING LABS

Elaboration of model business plans, incl. governance and sustainability.



WEB PORTAL

Knowledge aggregator, spaces for inter-connection, LL atlas, promotion of best practices and advocates, etc.



Specific events and activities, including science-policy interface, planned to build awareness, and improve the knowledge base among citizens, land managers and urban planners, as well as facilitating connections among different communities of practice; dialogues with Soil Advocates.



Building on the EJP SOIL program, SMS project, SOILS4EU, ALL-Ready,...
Expanding to different soil use types and broader scope of Soil Mission



PREPSOIL WEB Portal

<https://prepsoil.eu>

Main Objectives:

- ✔ To equip stakeholders with tailored digital networking tools to connect and exchange, including LL atlas and virtual CoP forums
- ✔ To connect and improve access to existing quality resources including to science-based info through a multi-lingual knowledge hub
- ✔ To offer 'best-of' online materials to inspire citizens, educators, etc.
- ✔ To promote and support virtual interaction on best practices on social innovation and soil education, including Soil Ambassadors

**Online community
Engagement and Training
ONE-STOP SHOP Platform**



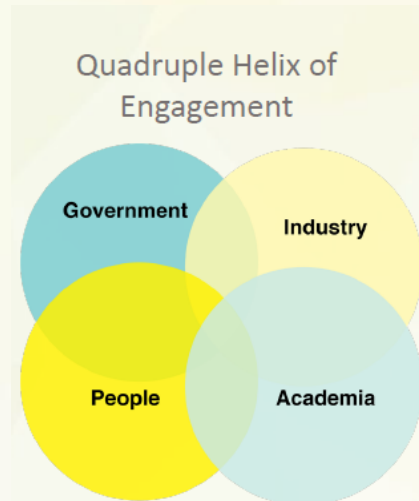
Knowledge transfer & co-creation in regional LLs

Main Objectives:

- ✔ To improve the understanding of how LLs/LHs can lead to a significant improvement of soil health
- ✔ To map current and emerging LLs and LHs using a new taxonomy and to engage LLs in development
- ✔ To co-design a spectrum of model business plans considering the high variability among LL and the taxonomy
- ✔ To create a service package for knowledge transfer and co-creation for LLs/LHs, prioritizing specific soil needs

“Living Labs are open innovation ecosystems in real-life environments based on a systematic user co-creation approach that integrates research and innovation activities in communities, placing citizens at the centre of innovation.”

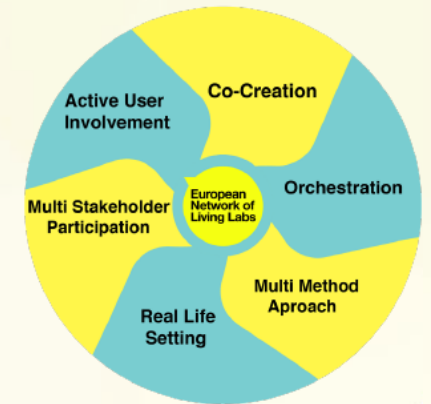
Source: ENOLL



Living Labs operate as **intermediaries among citizens, research organisations, companies, and government agencies** or levels for joint-value co-creation, rapid prototyping or to scale up innovation and businesses.

They are open innovation ecosystems in **real-life environments** using **iterative feedback processes** throughout the **lifecycle approach** of an innovation.

Within the **wide variety of types of living labs** and their implementations they all have **common elements**



Monitoring frameworks and soil indicators

Main objectives:

- ✔ To consolidate the Mission's soil monitoring framework: How to extend current and new results obtained on agricultural soils to natural, forest, urban and industrial soils?
- ✔ To assess the possibility of using satellite-based EO at different scales and citizen contribution to soil observations
- ✔ To define training needs on soil health monitoring and indicator use and give first input to capacity building
- ✔ To assess the feasibility of citizen science engagement for soil monitoring according to soil needs and LLs

8 indicators proposed by the Mission board Soil Health and Food

1. Presence of soil pollutants, excess nutrients and salts
2. Soil organic carbon
3. Soil structure including bulk density and the absence of soil sealing and erosion
4. Soil biodiversity
5. Soil nutrients and pH
6. Vegetation cover
7. Landscape heterogeneity
8. Area of forest and other wooded lands

Important interactions to have with other European or national projects

EJP Soil: SIREN, SERENA, STEROPES ...
HORIZON: BENCHMARK ...



Soil Needs Assessment

Identification, mapping and evaluation of EU regional soil needs in 21 study regions

Goal: Soil needs to kick off a wider appraisal effort across the EU regions

Main objectives:

- ✔ To identify the existing 'soil needs' in contrasting representative regions in Europe (pedo-climate zones and land uses)
- ✔ To provide a starting point for recommendations on priority actions to be implemented in LLs/LHs

Regions representative of other similar EU regions:

- ✔ Soil (threat)/soil needs
- ✔ Drivers: e.g Climate (change)
- ✔ Land use/management type
- ✔ Socio-economic conditions

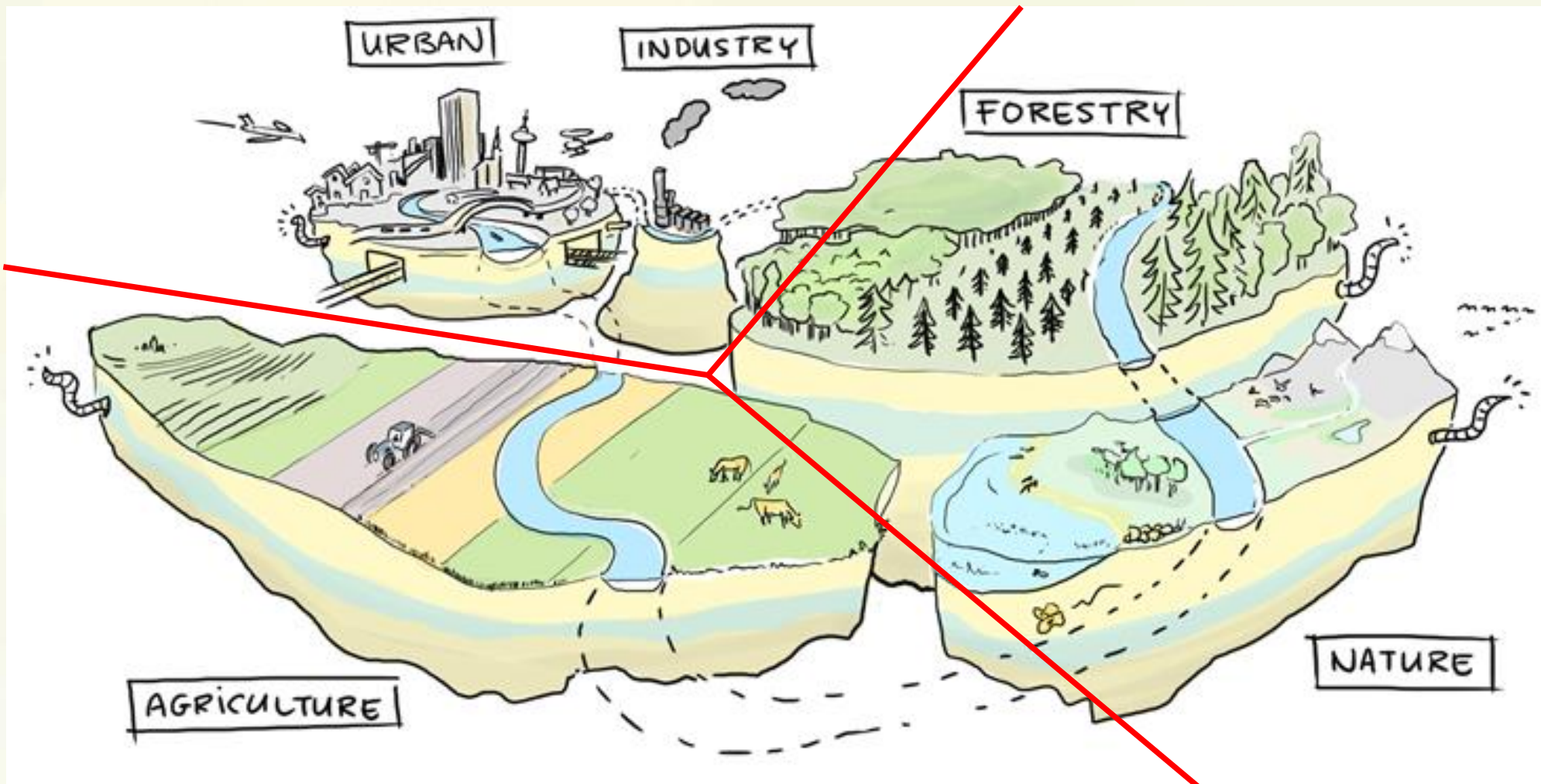
DEFINITIONS:

Soils Health: *the continued capacity of soils to support ecosystem services*

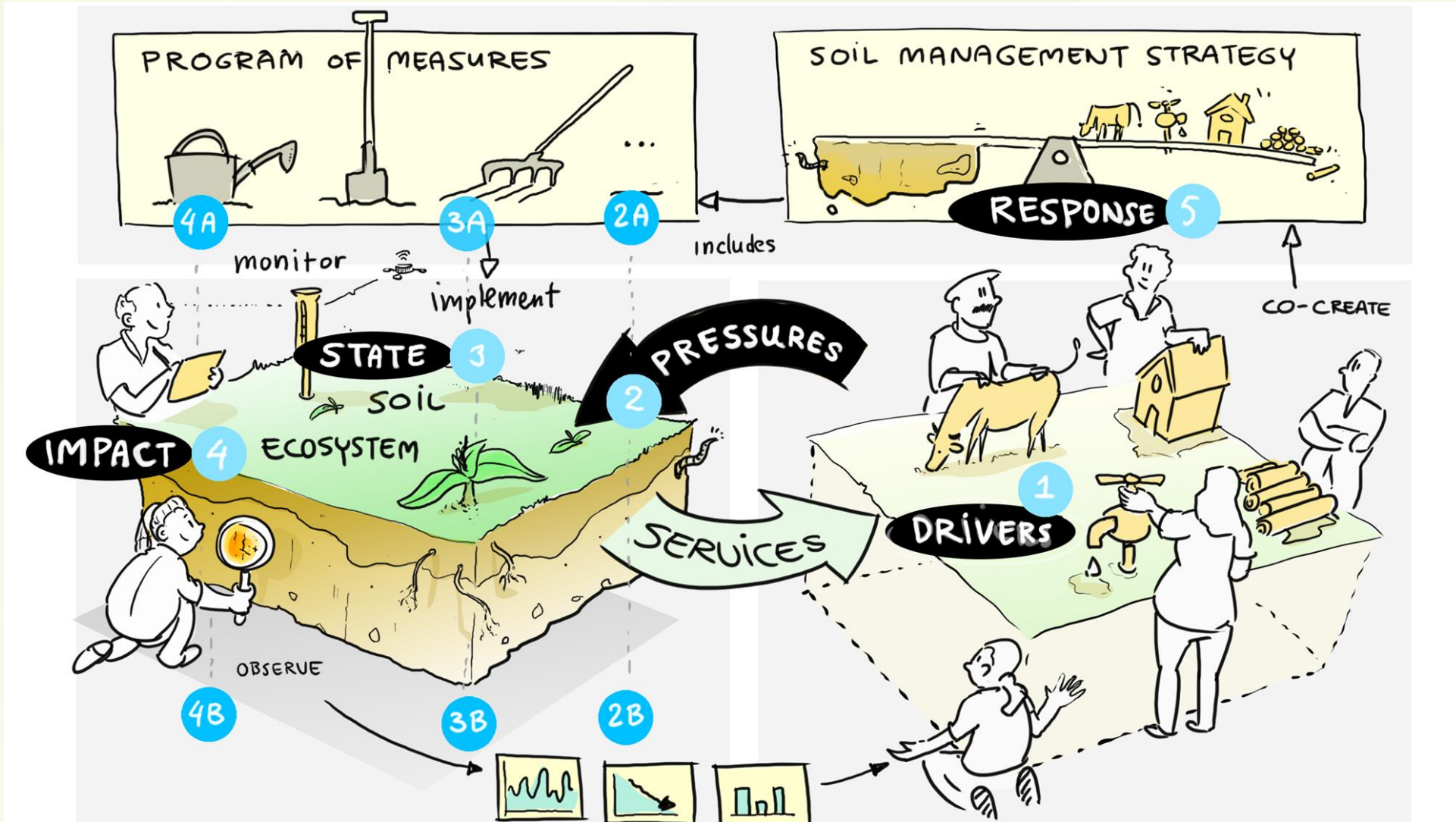
Soil Needs: *the requirements from existing and emerging socio-economic and geo-biophysical perspectives that determine soil health and related services to human society*



Soil Needs: 3 Land Uses



Soil Needs: DPSIR Approach I



Soil Needs: DPSIR Approach II

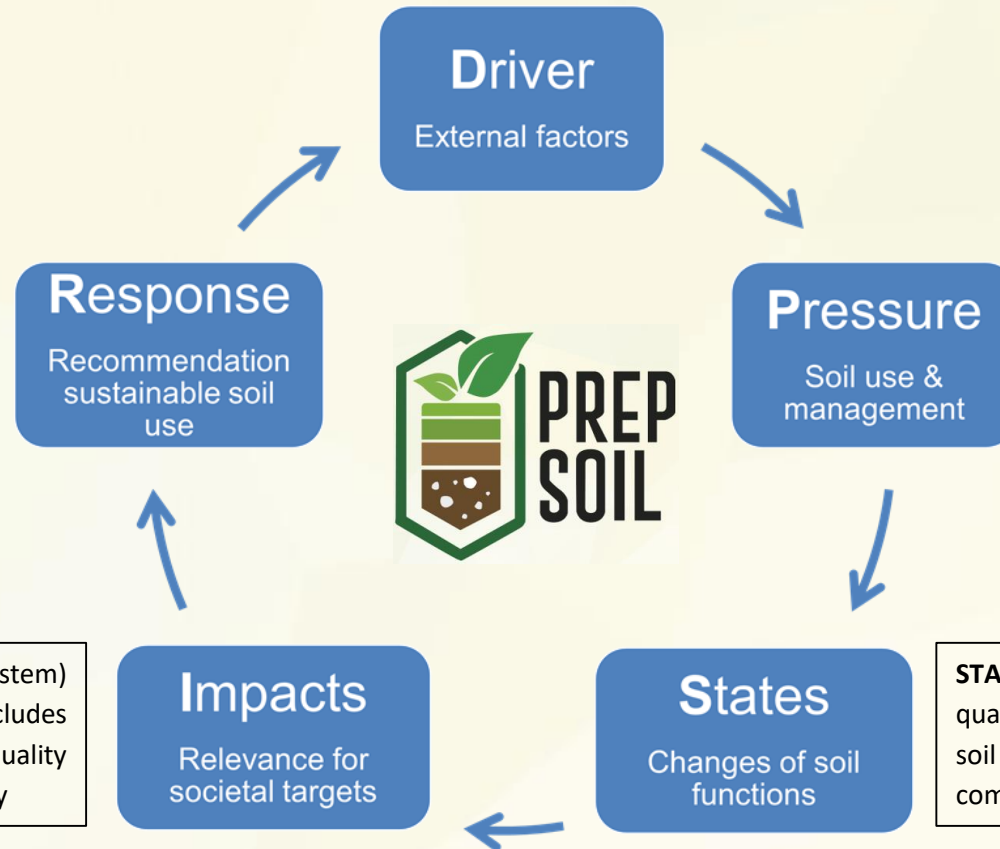
DRIVERS (Driving forces) may be considered as human activities (economic, societal, consumption) such as technology development for industrial and agricultural production, tourism or demographic changes and related demand and consumption changes, and policy changes. Next to human induced drivers, environmental changes such as climatic change and its effects (droughts, floods, etc.), are considered drivers as well

RESPONSE measures (such as policy, or societal action in living labs) may be implemented in order to steer the soil system into an improved provision of (ecosystem) services. A systemic approach to soil health requires a decent consideration of each of the DPSIR levels

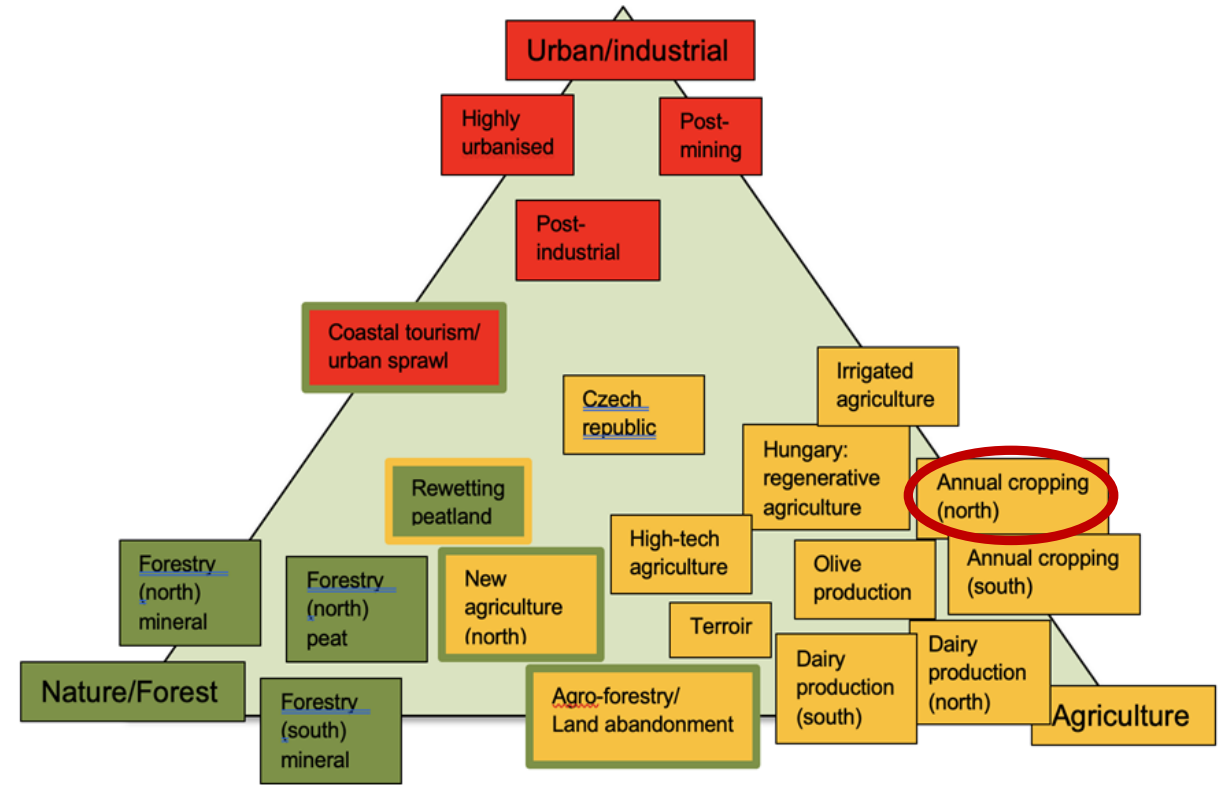
PRESSURES (+ or -) on the natural environment as these activities result in land-use changes, new management practices within the same land use, or changed intensity of land use. Are actually the physical perturbations being exerted to the ecosystem

IMPACT of such soil state changes refers to the (ecosystem) services, which soil supports to humans. This includes biodiversity, vulnerability to floods and landslides, water quality and availability, biomass provision for food, feed and energy

STATE (state variables, current condition) of these ecosystems in quantity and quality. Since we deal with soils, such states refer to soil variables and quality characteristics, including e.g. erosion, compaction, contamination, water holding capacity etc.



Soil Needs: *Our* 21 Representative Regions



Phase 4: Interviews and workshops

WORKSHOPS (face-to-face)

with representatives of the different stakeholder groups

1. Summarize the info previously gathered and workshop presentation
2. Explain the DPSIR framework (ppt will be provided)
3. Invite local stakeholders to present their current work
4. Round the table (e.g. in the form of world cafe setting) to
 - a. Take the participants along the DPSIR framework
 - i. Identify the Drivers
 - ii. Identify the Pressures
 - iii. Identify the State
 - iv. Identify the Impact
 - b. For the Response: make different future visions for the region
 - c. Discuss barriers
 - d. Identify opportunities for transition
 - e. Identify options for Living Labs and Lighthouses in the region

INTERVIEWS

to representatives of the different stakeholder groups

Which category each interviewed stakeholders belongs to; in order to make an overview of which type of stakeholder was interviewed for each task.

1. How do the results of the prioritization of the soil needs relate to:
 - a. Environmental zone
 - b. Soil threat/challenge/management
 - c. Impact and role of policies
 - d. Role of different stakeholders



RECAP...

- ✔ Project to support the soil mission *roadmap*
- ✔ Coordination and Support, but not (directly) performing research
- ✔ 4 Main activities:
 - Centralize info and results of EU soil Mission initiatives , education and citizen engagement, interaction and dissemination to different actors
 - Support the development of Living Labs (LLs) and LightHouses (LHs): transfer and co-creation
 - Evaluate monitoring and indicators (soil health): identify gaps and training needs
 - Identify and evaluate soil needs
- ✔ Special dedication to **identifying and evaluating soil health needs**
- ✔ Addressing 21 study regions, representative at EU level

PO REGION among the representative study regions





*Grazie Mille per la
vostra attenzione!*

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