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PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA

soils4med

SOIL health monitoring and information systems FOR sustainable soil management in the MEDiterranean region

Thematic Area
Farming Systems

Topic
Developing integrated soil data for the Mediterranean Region: a gateway for sustainable soil management

Budget
4.100.000

Duration
42 months (start date, May 2023)

Scientific coordinator
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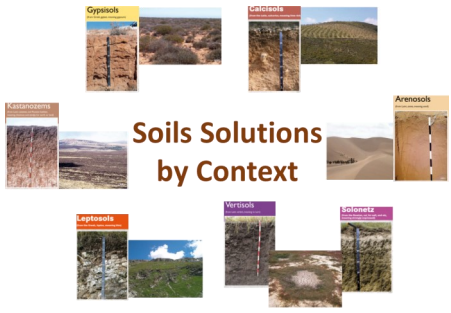
Participant countries
10

Research units
16



In line with the principles of the EU Mission 'A Soil Deal for Europe', the goal of SOILS4MED is to engage a large platform of scientists, stakeholders, and final users in the co-design of scientifically sound, sustainable, and policy-relevant integrated soil health monitoring systems adapted to the specificities of the Mediterranean soils and environments and to demonstrate the multiple societal benefits deriving from increased investment in soil data and information.

The Context

The health level of soil and land resources in the Mediterranean Region is low and already inadequate to support economic development and food security targets, particularly in Near East and North Africa (NENA) countries.

The limited availability and quality of soil data and information and the low use made of them in the region are major barriers to the sustainable management of the land, to the design and implementation of policies aimed at protecting, restoring, and improving soil health, and to the achievement of the Sustainable Development Goals targets for 2030.

To date, many efforts are made by international initiatives such as FAO -GSP and by the EC through the Land Use and Coverage Area frame Survey (LUCAS) to develop methodologies, tools, and indicators to collect soil information over Europe and the Mediterranean Region. There is an urgent need for harmonized methodologies and indicators, adapted to the specificities of the soils and of the environments of the region, to develop an easily accessible and standardized database of soil information enabling the assessment of the soil ecosystems in the region.

The Objectives

SOILS4MED has the following objectives:

1) engage with stakeholders in line with the Living Lab approach and raise awareness on the benefits deriving from increased investment in soil data and information (SDI);

2) develop policy relevant integrated indicator sets and monitoring protocols adapted to the environmental specificities and stakeholder needs of the Mediterranean Region;

3) validate the protocols in study areas representing major agro-ecological regions and soil types, generating the first region-wide harmonized soil health datasets for the Mediterranean Region;

4) demonstrate the capacity of the SDI produced by the protocols, integrated by legacy soil data, to feed state-of-the-art tools to support sustainable soil and water management, land degradation neutrality, and to enhance regional soil health mapping including carbon stock mapping; and

5) design and implement standardized country-based soil information systems (SIS) for the effective management and use of SDI.

Partners

Mediterranean Agronomic Institute of Bari (CIHEAM-B), Italy

International Centre for Agricultural Research in the Dry Areas (ICARDA), Lebanon

Institut National Recherche Agriculture (INRA), Morocco

Universidad de Sevilla (US), Spain

Université de Poitiers (UNIPOI), France

Direction des Sols (DGACTA), Tunisia

Centro Ricerca Sviluppo e Studi Superiori in Sardegna (CRS4), Italy

Hellenic Agricultural Organization (DIMITRA), Greece

Università di Palermo (UNIPA), Italy

University of El Zagazig (UZAG), Egypt

Lebanese Agricultural Research Institute (LARI), Lebanon

University of Jordan (UOJ), Jordan

Università di Milano (UNIMI), Italy

University of Cukurova (UCUK), Turkey

Università Federico II di Napoli (UNINA), Italy

Advice and Outreach Committee

JRC (Joint Research Center) of the European Commission

FAO-GSP – NENA Global Soil Partnership

ISRIC – World Soil Information

Save the Soil – Conscious Planet

Contacts

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The expected results

Project objectives will be achieved by developing and adapting innovative methods and by investing in SH engagement and scientific integration, capacity development, and dissemination and awareness raising. Collaborations and synergies with relevant international projects and initiatives on SDI availability and use in the region, particularly ongoing harmonization, and mapping initiatives by FAO's Global Soil Partnership, JRC, and ISRIC are major enablers.

Major project outputs can be summarized as follows:

1) Stakeholder awareness, science-policy integration, and long-term sustainability of soil information and monitoring systems enhanced through the establishment of Living Labs in study areas.

2) Legacy soil data inventoried, digitized, and harmonized across the region (legacy soil map legends converted to WRB 2022), to support data interpretation and the elaboration of the future Soil Atlas of the Mediterranean soils.

3) Methods to design optimized grids of soil health monitoring sites across the region developed.

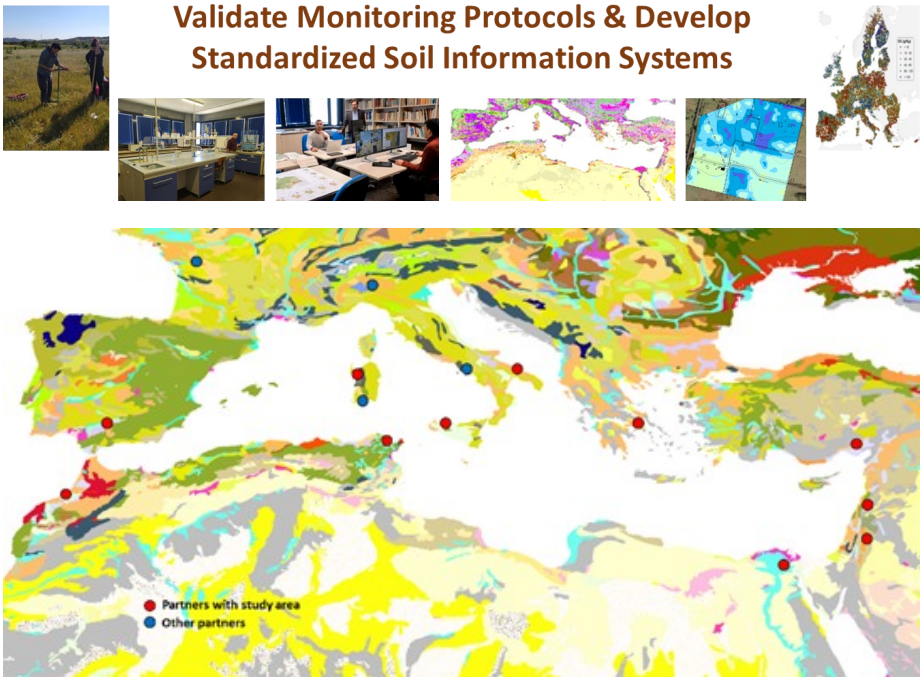
4) Integrated harmonized soil health indicators and monitoring protocols designed and validated in the field.

5) Harmonized open access soil health datasets published.

6) Harmonized soil information system (SIS) software tool deployed and used by stakeholders.

7) Laboratory methods, pedo-transfer functions, normative values, and land evaluation schemes reviewed and harmonized.

8) Capacity of harmonized SDI to feed major decision support platforms and generate enhanced soil condition maps including C-Stock maps demonstrated.



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Contributes to

The Mission ‘A Soil Deal for Europe’: 100 living labs and lighthouses to lead the transition towards healthy soils

About Living Labs & Lighthouses

Living labs are collaborative initiatives to co-create knowledge and innovations while lighthouses are places for demonstration of solutions and of exemplary achievements.

Soil living labs are places where to experiment on the ground.

They are understood as collaborative initiatives between multiple partners to co-create, test, monitor and evaluate solutions to a common problem. Living Labs will be established at territorial, landscape, or regional scale, with several experimental sites covered underneath.

Lighthouses are single sites, like a farm or a park, where to showcase good practices.

Places for demonstration of solutions, training and communication that are exemplary in their performance in terms of soil health improvement. They are individual, local sites (one farm, one forest exploitation, one industrial site, one urban city green area, etc.) that can be included in a living lab area or be located outside a living lab area.

The ‘Mission’ Explained

Missions are a novelty of the EU research and innovation programme, Horizon Europe. They are a new way of bringing concrete solutions to some of our greatest challenges. Restoring and maintaining soil health is one of these major societal challenges.

Life on Earth depends on healthy soils. Soils are not only the foundation of our food systems. They also provide clean water and habitats for biodiversity while contributing to climate resilience. Soils are a scarce, threatened resource. Indeed, one centimeter of soil can take hundreds of years to form, but can be lost in just a single rainstorm or industrial incident.

The Mission '**A Soil Deal for Europe**' will support the transition towards healthy soils by 2030 by putting in place an effective **network of 100 living labs and lighthouses** in rural and urban areas. In addition to **creating knowledge and solutions for soil health**, the Mission will advance the development of a harmonised framework for **soil monitoring** in Europe and **increase people’s awareness** on the vital importance of soils.

The Mission is **embedded in the wider EU policy frameworks:** it will contribute to Europe’s ambition to become the first climate-neutral continent by 2050 and is an integral part of several Green Deal strategies: the Farm to Fork strategy, the EU Biodiversity Strategy, the Climate Adaptation Strategy, the Zero Pollution Action Plan for air, water and soil, the new EU Forest Strategy, the Long-term Vision for Rural Areas, the Organic Action Plan, the Circular Economy Action Plan, the EU Nature Restoration targets. The Mission will be implemented in synergy with the Common Agricultural Policy (CAP) to increase the uptake and the effectiveness of soil related measures funded under the CAP.

Together with the EU Soil Strategy and the recently launched European Soil Observatory (EUSO), the Mission will carry out **comprehensive actions for sustainable soil management and soil restoration** across a range of land uses (e.g. agriculture, forestry, urban areas, natural/semi-natural areas).

1 Introduction and pilot (2021-2024)

Preparatory actions (engagement activities in each Member State; support structure for living labs).

First waves of living labs.

Good quality living lab projects require prior preparation and engagement activities with future applicants to explain, share, build capacities and gain ownership of the initiative, concepts and selection criteria. During the pilot-phase a first wave of living labs will be launched (2023-2024). In parallel, a coordination and support structure will be established to support stakeholders in the implementation of living labs.

2 Gradual expansion (2025-2026)

Additional waves of living labs

After the creation of the first living labs and gathering of the initial results, the network will gradually expand through additional calls for living labs in regions all over Europe.

3 Scaling-up and mainstreaming (2027 onward)

Last wave of living labs.

Activities that ensure the long-term sustainability of the network of living labs.

This phase includes further waves of living labs, along with accompanying measures to facilitate the mainstreaming, continuation and sustainability of the living labs beyond the Mission, addressing potential gaps in the coverage of countries, regions and land-use types throghout Europe.

Link Between Living Labs and Operational Groups of EIP-AGRI

Living labs created under the EU Mission 'A Soil Deal for Europe' will be **multi-actor:** they will involve a diversity of actors (e.g. farmers, foresters, advisors, scientists, food processors, businesses, consumer associations, local communities, citizens, civil society, NGOs, government representatives) to ensure co-creation across sectors and disciplines and to speed up the take-up of new ideas, approaches and solutions. Likewise, Operational Groups (OGs) funded under the CAP through the **European Innovation Partnership for agricultural productivity and sustainability (EIP-AGRI)** are bottom-up initiatives bringing together multiple actors with common interests to advance innovation in the agricultural and forestry sectors and help building bridges between research and practice.

The OG's under the EIP-AGRI can benefit from the activities of the living labs and will be able to replicate solutions generated by the Mission in regions where no living labs and lighthouses are operating.

A Gradual Development of Living Labs Across Europe

The Mission 'A Soil Deal for Europe' has the objective of setting **up to 100 soil health living labs by 2030**.

Altogether, living labs, lighthouses, and innovations from OGs will contribute to increase the share of currently healthy soils to levels that are in line with Green Deal commitments and targets.

Soil Literacy as enabling condition

One of the eight objectives of the Mission is to "**increase soil literacy in society**". The lack of soil literacy, intended both as popular awareness about the importance of soil and of specialized, practice-oriented knowledge related to achieving soil health, is a barrier to achieving soil health improvements.

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