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Concrete solutions for our greatest challenges

A Soil Deal for Europe: 100 living labs and lighthouses to lead the transition towards healthy soils by 2030

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#EUmissions #HorizonEU

The EU Mission A Soil Deal for Europe and framework for soil protection and restoration, Brussels, 21 Nov. '22



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SOIL DEAL FOR EUROPE



Horizon Europe R&I Missions

New instrument to link EU's research and innovation to major societal needs; with strong visibility and impact

A mission is a portfolio of actions across disciplines intended to achieve a **bold and inspirational and measurable goal** within a set timeframe, with **impact** for society and policy making.

Launch of five (interconnected) Horizon Europe missions in September 2021

Adaptation to
Climate Change



Cancer



Climate-neutral
and Smart Cities



Restore our
Ocean and Waters



Soil Deal
for Europe





Preliminary conclusions on state of soils in the EU*

- **Soil degradation is prevalent and extensive in the context of the EU territory.**
- It seems that **25-30% of agricultural soils in the EU** are currently either losing organic carbon, receiving more nutrients than they need, are eroding or are compacted or suffer secondary salinization, or have some combination.
- An additional **30% of non-agricultural soils are eroding at an unsustainable level.**
- **Contamination and waste management are probably the biggest unknowns.** They include local hotspots (e.g. ex-industrial land, landfills, etc.), widespread air pollution legacy, agricultural land (pesticides, metals, sewage sludge, plastics) as well as unquantified emerging pollutants.
- About **2.8 million potentially contaminated sites** are reported in EEA-39 but the area of land is not known. The situation is more complex for **diffuse pollution**.
- E.g. 21% of agricultural soils have with cadmium concentrations above the limit for drinking water; and 6% show heavy metal content potentially unsafe for food production.

A radical change in current land management practices is both feasible and necessary.

* Analysis undertaken by Mission Board (Bridget Emmett) and JRC



The mission's starting point

- Healthy soils are the **basis for nutritious and safe food and other vital, interconnected ecosystem services** (e.g. carbon storage, nutrient cycling, water retention and purification, hosting biodiversity).
- Yet, **soil degradation is prevalent in the EU territory: 60-70% of soils are considered to be unhealthy.**
- Soil related knowledge, monitoring and policies focus to a large extent on **agricultural soils** and is hardly available with regard to other land uses.
- Knowledge regarding sustainable soil management is not sufficiently applied: Need to focus on innovation pathways to address the **knowledge – practice divide**.
- Political attention increasingly turning to soil health and its contribution to meeting many important policy objectives.



Final communique of agriculture ministers of 68 nations:
*“We stress that **healthy soils are key in order to combat the global challenges of our times**, in particular the production of sufficient nutritious and safe food, adaptation to and mitigation of climate change, and the halting and reversal of biodiversity loss”*



A supportive framework for soil protection in the EU





The Soil Deal mission supports EU's Green Deal policy targets

By 2030

- 25% of land under organic farming
- Reduce the overall use and risk of chemical pesticides by 50% and the use of more hazardous pesticides by 50%
- Reduce fertilizer use by at least 20%
- Reduce nutrient losses by at least 50%
- Reduce by 30% microplastics released into the environment
- Reduce net greenhouse gas (GHG) emissions by at least 55% compared to 1990 levels.

By 2035

- the EU should aim to reach climate neutrality in the land use, forestry & agriculture sectors

By 2050

- all EU soil ecosystems are in healthy condition
- **Europe is the first climate neutral continent**

Action on
soils is key to
meet these
targets





Mission goal: 100 living labs and lighthouses to lead the transition towards healthy soils by 2030

Specific objectives



- Objectives apply to **all types of land use** (e.g. agriculture, forestry, urban areas)
- Each objective is backed by a baseline, a target and measurable indicators



Proposed set of soil health indicators

The following indicators are a first proposal by the Mission board.

Final agreement on indicators will be reached through the upcoming EU soil health law and its implementation:

1. **Presence of soil pollutants, excess nutrients and salt**
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, including farmland, forestry and urban green infrastructures
8. Area of forest and other wooded lands



Example: Mission specific objective 4 “Reduce soil pollution and enhance restoration”

- **EU baseline:** - 27 – 31% of land with excess nutrient pollution.
 - Soil contamination on 2.5% of non-agricultural, 21% conventional and arable agriculture
 - 40 – 80% of land affected by atmospheric deposition (depending on pollutant)
 - 8,5% farmland under organic agriculture
 - Area of degraded peatland = 4.8%
- **Target:**
 - T 4.1: reduce the overall use and risk of chemical pesticides by 50% and the use of more hazardous pesticides by 50%
 - T 4.2 reducing fertilizer use by at least 20%
 - T 4.3: reduce nutrient losses by at least 50%
 - T 4.4: 25% of land under organic farming
 - T 4.5: Reduce 30% microplastics released to soils (see zero pollution action plan)
 - T.4.6 Halt and reduce secondary salinization
- **Indicators:** Presence of soil pollutants, excess nutrients and salts



The mission's building blocks for implementation

Wide outreach and increase in soil literacy

4. Soil literacy, communication citizen engagement

Knowledge, data, technologies and infrastructures

1. R&I programme

Improving and harmonizing **soil health monitoring across Europe**

3. Soil monitoring

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

2. Living labs and lighthouses

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



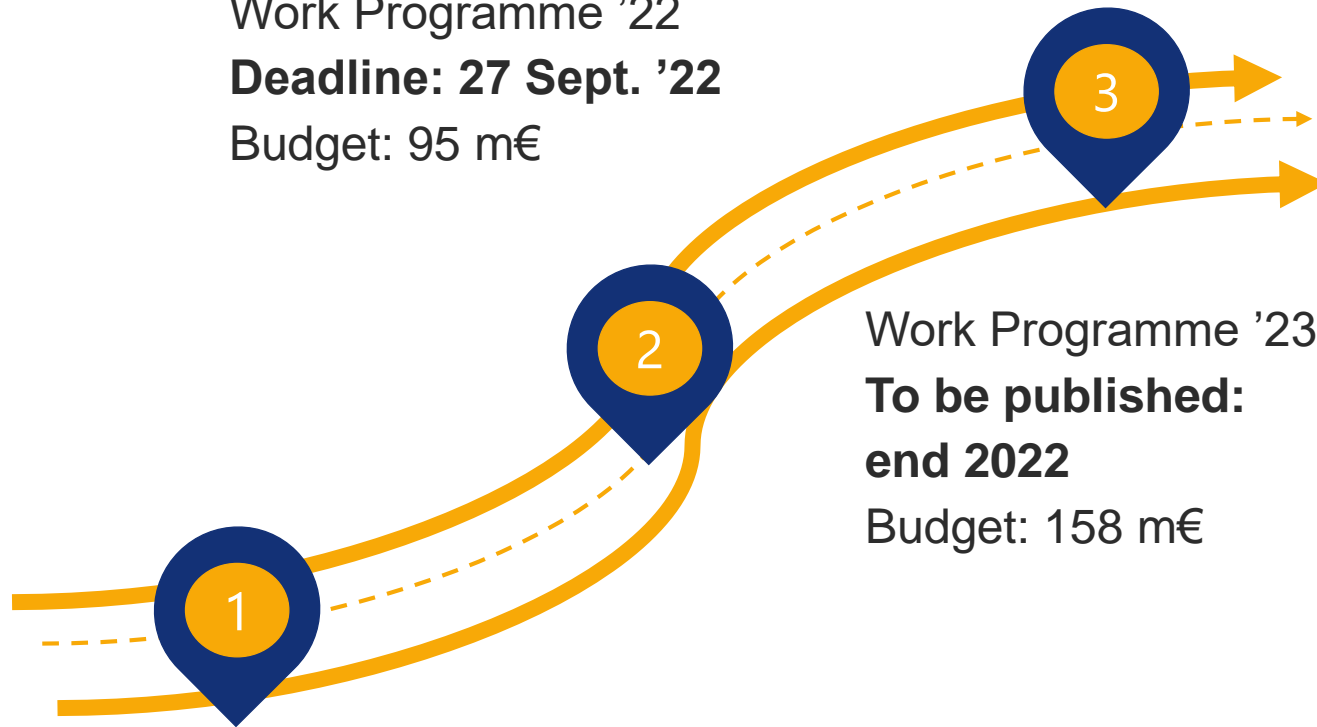


Mission roll-out



Start: Sept.
2021

Work Programme '22
Deadline: 27 Sept. '22
Budget: 95 m€



Work Programme '21
Deadline: 24 March '22
Budget: 67 m€

Work Programme '23
**To be published:
end 2022**
Budget: 158 m€



- + Outreach and engagement (e.g. presentation at **COP 27**; upcoming: **World Soil Day 5 Dec**; **Soil Charter/Deal**)
- + Synergies with other policies and programmes



Work Programmes 2021 – 2022: examples of R&I topics

Topic examples

Linking **soil health** to nutritional and safe food

Improving **food systems sustainability and soil health** with food processing residues

Soil **biodiversity** and its contribution to ecosystem services

Remediation strategies, methods and financial models for **decontamination and reuse of land** in urban and rural areas

Monitoring, reporting and verification of **soil carbon** and GHG balance

Innovations for **soil improvement** from bio-waste

Network on **carbon farming** for agricultural and forest soils

Foster **soil education** across society

Citizen science for soil health



The international dimension

- Soil health including its links with food and nutrition security, climate and biodiversity is a global concern.
- Participation to calls under Horizon Europe and the missions is open to international partners.
- First call for international collaboration on soils launched under Horizon Work Programme 2021.

Selected project ORCASA: Operationalising the international cooperation on soil carbon sequestration

- Significant interest of international partners (e.g. Japan, US, New Zealand, Canada, Australia, African partners) to link up with the mission.





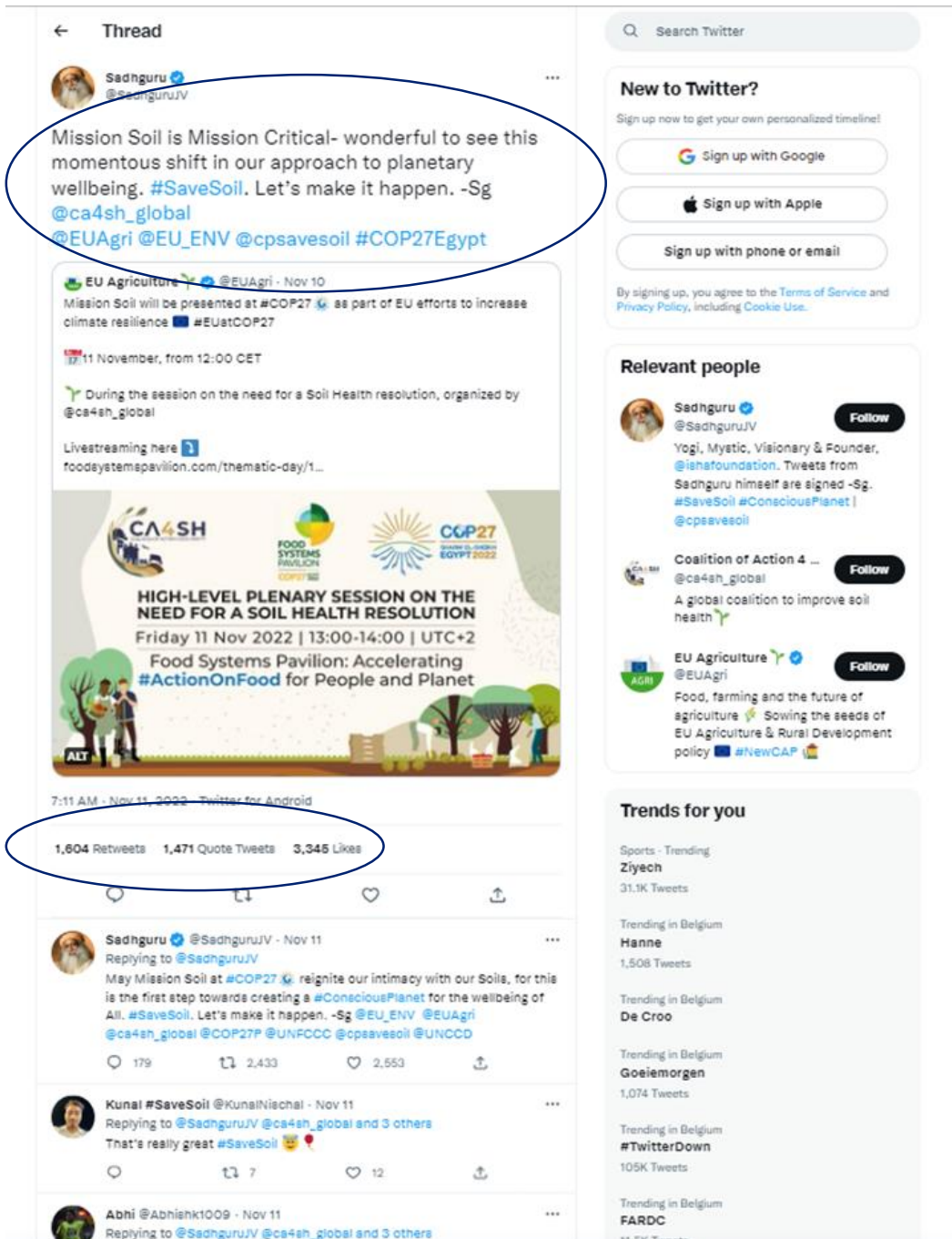
Useful links

- Mission *A Soil Deal for Europe* webpage - <http://ec.europa.eu/mission-soil>
- Mission *A Soil Deal for Europe* Implementation Plan https://ec.europa.eu/info/files/eu-mission-soil-deal-europe-implementation-plan_en
- Mission *A Soil Deal for Europe* factsheet <https://op.europa.eu/en/publication-detail/-/publication/90779d7a-227c-11ec-bd8e-01aa75ed71a1/language-en/format-PDF/source-232536601>
- EU Missions https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/missions-horizon-europe_en
- Video EU Mission “A Soil Deal for Europe” <https://youtu.be/3hPIZqwwhhM>
- *Behind the Scenes* podcast episode *A blossoming career as a soil keeper* <https://play.acast.com/s/behind-the-scenes-conversations-with-researchers-and-innovat/s02e05-a-blossoming-career-as-a-soil-keeper>
- On a mission to save our soils - the EU's plan to rebuild the land (Futuris episode, euronews) <https://www.euronews.com/2020/09/21/on-a-mission-to-save-our-soils-the-eu-s-plan-to-rebuild-the-land>
- Cordis results pack on soil health: <https://op.europa.eu/en/publication-detail/-/publication/5e8c13a6-9817-11eb-b85c-01aa75ed71a1>
- Funding and tenders portal: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-12-missions_horizon-2021-2022_en.pdf





Tweet of major “soil influencer” Sadghuru at the occasion of the presentation of the **Soil Deal mission at COP 27**.





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**Join the Mission's soil health community.
Contribute to World Soil Day 5 December!**

Thank you!

For further information and questions please contact the mission secretariat:

AGRI-SOIL-MISSION-BOARD@ec.europa.eu

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