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JOINT RESEARCH CENTRE

Directorate D - Sustainable Resources (Ispra)
The Director

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JRC.D/GDS

CONCEPT NOTE FOR THE EU SOIL OBSERVATORY

1. INTRODUCTION

Vision

The EU Soil Observatory (EUSO) should become the principal provider of reference data and knowledge at EU-level for all matters relating to soil.

Mission

The EUSO aims to be a dynamic and inclusive platform that supports EU soil-related policymaking. EUSO will provide the relevant Commission Services, together with the broader soil user community, with the knowledge and data flows needed to safeguard and restore soils.

The EUSO will both support, and benefit from, EU Research & Innovation on soils while raising societal awareness of the value and importance of soils to the lives of citizens.

The EUSO will closely collaborate with relevant EU Agencies (e.g. EEA, EFSA, ECA) and Horizon Europe's Soil Mission.

Ultimately, the EUSO will support EU policies by ensuring that the Commission is able to fully capitalise on the information made available through integrated data flows by transitioning from simply monitoring to understanding. In this manner, the EUSO will support the implementation of all soil related objectives of the European Green Deal.

To realize this vision and mission, five main functions are proposed (see section 4 for fuller details):

1. Support the development of an operational EU-Wide Soil Monitoring System.
2. Establish an EU Soil Dashboard that reflects the state of soil health and trends in pressures affecting soil health.
3. Further consolidate and enhance the capacity and functionality of the European Soil Data Centre (ESDAC) to support evolving knowledge needs and innovative data flows.
4. Support research and innovation through the implementation of Horizon Europe's Mission on Soil Health and Food.
5. Provide an open and inclusive forum that supports the drive towards a societal change in the perception of soil.

2. BASIC OPERATIONAL PRINCIPLES OF THE EUSO

The following elements define the basic principles for the establishment of the EUSO:

- the Observatory is established by the JRC within its regular institutional work programme in support of the European Green Deal (in particular the EU Soil Strategy) and Horizon Europe's Mission on Soil Health and Food
- the Observatory will serve all EU policies relevant to soils in partnership with the relevant Commission Services (e.g. DG ENV, DG AGRI, DG CLIMA, DG SANTE, DG RTD, ESTAT, INTPA and others)
- the Observatory will closely network with relevant EU Agencies, such as the ECHA, EEA, EFSA and ESA, and developments related to the Land Information System
- the Observatory will build on the existing European Soil Data Centre (ESDAC), operated by the JRC for over a decade
- building on existing soil data collection projects and initiatives of the Commission (e.g. LUCAS, in house modelling), the Observatory will closely network with experts in soil monitoring (e.g. INRAE, Alpine Convention, MS, Regions), soil research (e.g. EJP-SOIL) and soil-related reporting across Europe (e.g. EIONET-Soil) to design and propose a fully streamlined and harmonized system of soil data and information collection and diffusion for evaluation at EU scale
- the Observatory will work closely with REA and EU R&I Framework Programme (HORIZON Europe & HORIZON2020) projects on soils with the goal to become, after the end of the project, the beneficiary of the knowledge generated by these programmes
- the Observatory will support citizen engagement and awareness raising actions by promoting the European Green Deal aspirations on soil to society, through collaboration with NGOs, focus groups and institutions that are aiming to achieve a change in the public perception of soil
- the Observatory will interact and collaborate with international organisations such as the FAO, OECD, ESA, UNEP, IPCC, IPBES and UNCCD SPI, to ensure synergies are exploited and data at EU and global levels are consistent.

3. ORGANIZATION OF THE EUSO

The EUSO will be established and operated by the JRC within Directorate D "Sustainable Resources" as a long-term commitment to enhance soil knowledge across the EU. It will start as deliverable of the JRC work programme 2021-2022 within the JRC Project Portfolio 20158 "Sustainable Soil Management for the European Green Deal" and will be an intrinsic part of JRC Work Programme during 2021-22 and beyond. Resources for the operation of the EUSO will be provided by the JRC institutional projects within the

portfolio. Additional resources may be added to the JRC core funding through contractual financing via ad hoc AAs with other DGs in the Commission.

Near and long-term objectives, together with key milestone, will be provided in annual Work Plans.

The following organisational elements are foreseen:

Steering Committee

- The Governance of the EUSO will be ensured through a Steering Committee, supported by a Secretariat. The Steering Committee will be composed of representatives of the main Commission Services with relevant to soil policy.
- The Steering Committee will be chaired by the Director of JRC.D.
- The Steering Committee will be expected to meet at least once per year.
- The Steering Committee will supervise and steer the activities of the Observatory in line with the priorities of the European Commission.
- The Steering Committee will discuss and endorse the annual work programme of the Observatory as proposed by the JRC.

Secretariat

The JRC provides the Secretariat of the Observatory. The Secretariat will:

- assure the daily operation of the EUSO and European Soil Data Centre (ESDAC),
- organise the regular meetings of the Steering Committee (including updating the Terms of Reference), the Stakeholder Forum and relevant Working Groups,
- prepare and update an Implementation Plan, as required,
- prepare an annual work programme,
- develop Communication material (newsletters, bulletin, etc.).

Technical Working Groups

To support the implementation and operation of the EUSO, a series of Technical Working Groups are foreseen. Each working group will be chaired by the JRC together with (up to) two co-chairs, representing the respective policy driver from the Steering Committee and a recognised expert in the field. Technical Working Groups will be composed of Stakeholders with a recognised background in the specific domain. The duration and scope of Technical Working Groups should mirror the specific needs of the EUSO. Working Groups will be launched via the EUSO Stakeholder Forum (ad hoc Working Groups can be established at the request of the Steering Committee for urgent requests).

EUSO Forum and Stakeholder Forum

The Forum provides a mechanism for the EUSO to engage with the broad user community, to report developments and to collect feedback on the operation of the Observatory. In its broadest sense, the Forum will bring together all the stakeholders of EUSO (see below).

Stakeholders include relevant European Commission services and agencies, together with international organisations, Member State representatives (ranging from policymakers to the research community), farming associations, industry representatives, NGOs and interested citizens.

Members of the Forum can contribute to Technical Working Groups and provide feedback to public consultation requests.

The Stakeholder Forum will be a workshop/conference style event that will meet once every year, preferably in a hybrid format. The structure of the Stakeholder Forum will reflect the Implementation Plan and Annual Work Programme of the EUSO and the challenges facing the various strategies of the Green Deal (e.g. the Soil, Biodiversity and Farm2Fork strategies, Zero Pollution Action Plan) and Horizon Europe’s Mission on Soil Health and Food. Participants will be encouraged to engage in discussions and invited to contribute to the Working Groups (as described above).

In line with their cycles, a dedicated session of the Stakeholder Forum will be held in conjunction with the World Congress of Soil Science and the European Conference of Soil Science (EUROSOIL).

The Stakeholder Forum will also be the main public interface to the Technical Working Groups, who will report on progress. The Stakeholder Forum will be the principle launch platform for Technical Working Groups.

4. MAIN FUNCTIONS AND ACTIVITIES OF THE EUSO

The EUSO will carry out a range of functions, which in turn, will support the implementation of the various strategies and various action plans of the European Green Deal and the Soil Health and Food Mission. Each function will be underpinned by relevant services and tools.



The above figure highlights the five main functions of the EU Soil Observatory

- i. **EU-Wide Soil Monitoring System** – the EUSO will support the development of a harmonised soil monitoring system for the EU by integrating the current LUCAS Soil programme with national or regional soil monitoring activities. An important element will

be the close networking with the EU Member States, relevant Commission services and agencies. The eventual monitoring system should contribute to indicators that reflect policy targets (e.g. SOC MVR, Soil Pollution Watch List, biodiversity, erosion, etc.). In addition to the practical considerations of sampling design for the monitoring network (geographical location, the parameters that are measured, both qualitatively and quantitatively), a shared data infrastructure (to collect, transmit, share, disseminate) will be developed, based on INSPIRE principles, that integrates pan-European national reporting obligations¹ (also CAP Strategic Plans, Sustainable Use of Pesticides, Nitrates Directive, LULUCF²) and regional initiatives (e.g. Alpine Convention, devolved responsibility for soil protection). Through the implementation of the EU Soil Strategy and the Work Programme of the Soil Mission, the EUSO will support MS in establishing and operating national or regional monitoring systems to support the exchange of harmonized information about the state of soils (indicators), to be integrated at EU level. Outcomes of soil monitoring will flow to ESDAC.

- ii. **European Soil Data Centre (ESDAC)** – as the core of the EUSO in terms of managing data flows (both inputs and outputs), ESDAC will be consolidated and enhanced in terms of the capacity and functionality to support evolving knowledge needs. Consideration will be given to innovative data streams.
- iii. **EU Soil Dashboard** – the EUSO will develop a novel dashboard that reflects both the state of soil health and trends in pressures affecting soil health. Key policy messages will be developed through indicators that are populated by a range of data flows (e.g. monitoring, modelling, Copernicus, citizen science, big data, etc.). Some indicators will be provided by key stakeholders. The EUSO will assess and indicate the scientific robustness of indicators. Indicator development, together with policy thresholds, will evolve according to scientific developments (e.g. Horizon Europe projects). Additional elements will be developed to reflect the implementation of specific policy targets (e.g. Soil Strategy Action List, Clean Soil Monitoring and Outlook, biodiversity, Soil Mission, SDGs, etc.). The EU Soil Dashboard will be closely linked to data flows to ESDAC.
- iv. **Research and Innovation (R&I)** – an integral part of the Horizon Europe framework programme for 2021-27 is the concept of Missions. These are targeted and integrated commitments to solve some of the greatest societal challenges. The EUSO aims to be a key component in the implementation of the Soil Health and Food Mission as well as the beneficiary of several outcomes. Specifically, the Mission will fund a series of R&I Actions to support the EU's path to sustainable and regenerative soil management as part of the wider green transition in both urban and rural areas. The EUSO will support, as much as possible, research calls developed under the evolving Work Programme of the Mission and act as a beneficiary of the knowledge produced by EU-funded research actions. A dedicated 'EUSO Portal' will be established to host R&I outcomes.

¹ NEC Directive (2016/2284): reporting under Article 9 (Monitoring air pollution impacts), further specified in Article 10 (reporting by MS)

<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32016L2284&from=EN>

² Regulation on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry (LULUCF) into the 2030 climate and energy framework. For Monitoring, reporting and verification (MRV) see Raúl Abad Viñas et al. 2014, and Smith et al 2019.

v. **EUSO FORUM –**

The Forum will be the principal focus for the EU Soil Observatory with regards to stakeholder engagement. Conceptually, the EUSO Forum will be a multi-channel entity that uses a mix of participation methods to ensure a two-way dialogue between the Observatory and its user base. The Forum will provide a) mechanisms to inform the EUSO Stakeholder community of developments, b) support enhanced soil literacy and c) collect feedback on the operation of the Observatory. The Forum will build on the current operational solutions developed under ESDAC, which include access to a wide range of online resources, widely read newsletters and data helpdesk. New tools will provide clear messaging on how the Green Deal will change the state of soil health across the EU (Dashboard, annual bulletins, etc.). Face-to-face dialogue on key issues will be established through Technical Working Groups and via a dedicated annual hybrid workshop (Stakeholder Forum, including a Young Researchers Forum). Close links will be maintained with the European Soil Partnership (ESP), key research networks (e.g. EJP SOIL, SoilBON, ENSA, ELSA). With the support of the Soil Health and Food Mission, the EUSO will look to develop an 'EU4Soils portal' as an outlet for a coalition on Soil Literacy that aims to connect diverse organisations, projects and people that contribute to soil literacy and the sustainable use and management of soils.