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# Soil threats and soil ecosystem services indicators for policy implementation: a proposed review

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Protecting, restoring, and using soils in a sustainable way are goals of European policies. The vision and targets of the EU Soil Strategy 2030 foresee the achievement of healthy soils by 2050. Key EU actions to protect, restore and sustainably use soils include the European Soil Strategy 2030 and the Soil Health Law 2023. It is therefore necessary to define soil health/quality and corresponding indicators to qualify soil degradation and assess its improvement. The aim of this review is to provide a framework based on existing policies to identify soil threats and soil ecosystem services indicators that meet the needs of current soil policies. The specific objective of this report is to analyse selected soil-related policies documents to assess the relevance of the indicators selected in the SERENA project in current policies. The analysis was carried out to identify which TS, SESs or indicators have already been addressed by policy measures and what gaps, if any, have emerged. This study was conducted in two phases: a first part of a desk study of the current soil-related agricultural policy and a second phase of stakeholder consultation on a list of proposed indicators for future policy implementation. It describes the results of the first phase, which mainly focused on the analysis of documents at European and international level. The analysis was based on the methodology developed by Jacob et al. (2021) and was carried out in three stages: I) identification/selection of soil related policy documents; II) selection of a set of indicators for documents screening; and III) analysis of collected documents in the terms of indicators proposed by SERENA project. It emerged from the detailed document analysis carried out in this report that in most documents, ST/SES indicators are mentioned in very general terms. The indicators mentioned in more than 30% of the documents were: SOC stock, SOC concentration, soil loss by wind/water erosion, earthworms occurrence, biodiversity indices, microbial biomass (characterizing soil ST); concentration of pollutants, GHG emissions, potential C sequestration, diversity/richness and soil erosion rates (characterizing SESs). In conclusion, the proper implementation of soil policy objectives requires the above-mentioned ST/SES indicators. In the policy analysis process, the next pre-determined step will be stakeholder consultation to agree on a list of suggested indicators for policy implementation.

## References

Jacob, M. et al., 2021. Report on identified regional, national and European aspirations on soil services and soil functions. EJP SOIL Deliverable 2.5. <https://ejpsoil.eu/knowledge-sharing-platform/deliverables>.

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