BRIEFING
EU Legislation in Progress

European Parliament

Soil monitoring and resilience directive

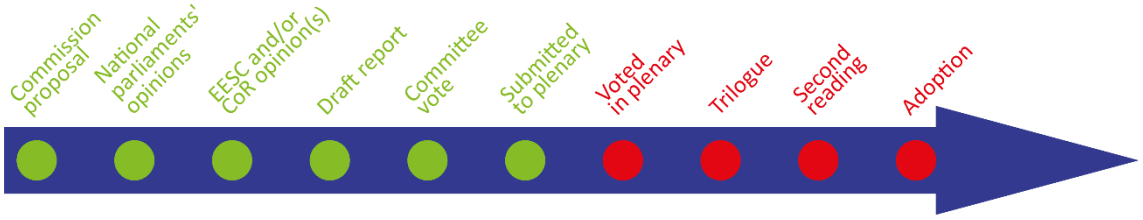
OVERVIEW

Currently, there is no EU-wide legislation specifically on soil, although many policy instruments relevant to soil protection are in place. Under the EU biodiversity strategy for 2030, part of the European Green Deal, the European Commission presented a new EU soil strategy for 2030, with the aim of having all EU soil ecosystems in a healthy condition by 2050. To achieve this objective, on 5 July 2023 it tabled a proposal for a soil monitoring and resilience directive, laying down measures for monitoring and assessing soil health, based on a common definition of what constitutes healthy soil, for managing soils sustainably, and for tackling contaminated sites.

While stakeholders agree on the need for a soil monitoring framework, concerns have been raised about the indicators chosen to describe and assess soil health, provisions on land take, the lack of a roadmap, plans and intermediate targets to achieve the overarching 2050 objective, application of the polluter pays principle, and funding available to support land owners and managers.

Parliament's Committee on the Environment, Public Health and Food Safety (ENVI), responsible for the file, adopted its legislative report on 11 March 2024. The text awaits a vote during the first April 2024 plenary session, with a view to setting Parliament's position at first reading.

Proposal for a directive of the European Parliament and of the Council on Soil Monitoring and Resilience (Soil Monitoring Law)		
Committee responsible:	Environment, Public Health and Food Safety (ENVI)	COM(2023) 416 5.7.2023
Rapporteur:	Martin Hojsík (Renew, Slovakia)	2023/0232(COD)
Shadow rapporteurs:	Ljudmila Novak (EPP, Slovenia) Beatrice Covassi (S&D, Italy) Manuela Ripa (Greens/EFA, Germany) Anna Zalewska (ECR, Poland) Anders Vistisen (ID, Denmark) Silvia Modig (The Left, Finland)	Ordinary legislative procedure (COD) (Parliament and Council on equal footing – formerly 'co-decision')
Next steps expected:	Plenary vote on committee report	



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Introduction

Conditioned by climate, altitude, parent material (i.e. the substance from which the soil has been derived, in most cases of geological origin), land[1] use and the presence of living communities, including humans, soils are highly diverse. They are one of the main global reservoirs of biodiversity, hosting, by one set of estimates, a quarter of all known species. Species numbers, composition and diversity in soil depend on various factors, such as air, temperature, acidity, moisture, nutrient content, and organic matter. Soil organisms include earthworms, nematodes, arthropods, protozoa, fungi and bacteria, the latter two being by far the most abundant. Soil and soil-dwelling organisms deliver services that are essential to life, including food provision and regulation of the water, carbon and nutrient cycles. As soil formation is an extremely slow process, longer than a human lifetime (it can take over 500 years to form 2 cm of topsoil, i.e. the layer closest to the surface, and the most productive and biologically active), soil is considered a non-renewable resource.

European soils are under increasing pressure, as a result of a number of key trends including urban sprawl and low land recycling rates, intensification of agriculture, and climate change. Evidence shows that soil degradation (decline in soil quality, leading to reduced soil functioning) is prevalent and extensive across the EU territory, with about 60-70 % of soils in an unhealthy state. Such degradation can take various forms, including erosion (by water or wind), salinisation, compaction, desertification, contamination, loss of organic matter, loss of soil biodiversity, and sealing. Soil sealing (i.e. covering by buildings, construction and layers of completely or partly impermeable material) is the most intense form of land take. It causes the irreversible loss of soil biological functions. According to Commission data, land take affects 4.2 % of EU territory, with 1-2.5 % of land taken being sealed (but with high local concentrations). Soil degradation is estimated to cost over €50 billion per year in the EU.

While many policy instruments relevant to soils are in place (see below), they lack a dedicated legislative framework at EU level, which would grant them the same level of protection as water, the marine environment and air. The European Parliament, the European Committee of the Regions, the European and Economic Social Committee and the European Court of Auditors have all called on the Commission to develop a legal framework for the sustainable use of soil. Under the European Green Deal, and the EU biodiversity strategy for 2030, the Commission presented a new EU soil strategy for 2030, with the aim of having all EU soil ecosystems in healthy condition by 2050. To achieve this objective, the strategy announced a new 'soil health law'. On 5 July 2023, the Commission tabled a proposal for a soil monitoring and resilience directive ('soil monitoring law'), as part of a legislative package aiming to ensure more sustainable use of the EU's natural resources.

Existing situation

An attempt some years ago to introduce a binding framework at EU level to protect soils was unsuccessful.[2] However, a number of key pieces of environmental legislation contain provisions relevant to soil. The Nature Restoration Regulation recently adopted by the co-legislators aims to restore at least 20 % of the EU's land and 20 % of sea areas by 2030, and all ecosystems in need of restoration by 2050. It contains a number of provisions of direct relevance to soils (e.g. restoration measures for organic soils in agricultural use constituting drained peatlands). The common agricultural policy includes some mandatory environmental and climate conditions (good agricultural and environmental conditions – GAEC) that farmers must meet in order to receive CAP income support. Some of these conditions are linked to soil management practices, such as practices to limit soil erosion (e.g. tillage management), minimum soil cover and crop rotation. The CAP rural development pillar also provides support for investments in forests, agro-environment and climate measures and organic farming.

The Sewage Sludge Directive, which governs the use of sewage sludge in agriculture, sets limit values for heavy metals in sludge and in the soil on which sludge is applied. The Industrial Emissions Directive (recently revised) obliges certain operators to produce a baseline report and periodic

monitoring of the condition of soil and groundwater, and to return them to their initial state upon cessation of the activities. The European Pollutant Release and Transfer Register Regulation, to be replaced by the recently adopted regulation establishing an industrial emissions portal, includes an obligation to report emissions to soil. The Environmental Liability Directive introduces an EU-wide liability regime for damage to land, based on the polluter pays principle. The Waste Framework Directive and the Landfill Directive set rules to prevent risks from waste management and landfilling to soil and the environment. The Land Use, Land Use Change and Forestry (LULUCF) Regulation seeks to ensure that the LULUCF sector does not generate net emissions and contributes to enhancing sinks in forests and soils (no-debit obligation). The legal framework for the protection of EU waters and the management of flood risks brings beneficial impacts for the soil-sediment-water system. The Nitrates Directive, which aims to protect waters against pollution by nitrates from agriculture, sets a maximum for manure that can be applied on land. The National Emissions Directive sets emission reduction commitments for air pollutants, including heavy metals and persistent organic compounds in soil. EU laws regulating specific chemicals – such as the Fertilising Products Regulation, Plant Protection Products Regulation, Mercury Regulation and Persistent Organic Pollutants Regulation – contribute to the prevention of soil pollution and improvement of soil quality. Finally, the Environmental Impact Assessment and Strategic Environmental Assessment Directives require assessments of significant effects of certain projects, plans and programmes on land and soil.

Achieving no net land take by 2050

The objective of achieving no net land take by 2050 was outlined in the 2011 Roadmap to a Resource Efficient Europe, and included in the 7th Environment Action Programme to 2020. The EU soil strategy for 2030 reiterates the EU objective of reaching no net land take by 2050, calls on Member States to set land take targets for 2030, and proposes a four-step hierarchy in land planning (avoid – reuse – minimise – compensate land take).

Financial support for sustainable soil management, soil restoration, soil research and land rehabilitation is available under the LIFE programme, Horizon Europe and cohesion policy, among other EU funds. A Horizon Europe mission is dedicated to soils, the Soil Deal for Europe.

At international level, the EU made commitments to fight land and soil degradation in the context of the United Nations (UN) Convention to Combat Desertification, Framework Convention on Climate Change and Convention on Biological Diversity. Restoring, maintaining and enhancing soil health is a target in the new Kunming-Montreal Global Biodiversity Framework (GBF), adopted during the 15th meeting of the Conference of the Parties (COP 15) to the Convention on Biological Diversity in December 2022. At COP15, parties also adopted a 2020-2030 action plan for the International Initiative for the Conservation and Sustainable Use of Soil Biodiversity to support the integration of soil biodiversity considerations in the context of the new GBF, and within and across productive sectors. Soil health is key to the achievement of several UN Sustainable Development Goals, in particular Goal 15.3 on land degradation neutrality.

Parliament's starting position

In its April 2021 resolution on soil protection, Parliament called on the Commission to design an EU-wide common legal framework, with full respect for the subsidiarity principle, for the protection and sustainable use of soil, addressing all major soil threats. Among other elements, this common framework should include: common definitions of soil and its functions and criteria for its good status and sustainable use; objectives, indicators, including harmonised indicators, and a methodology for the continuous monitoring of and reporting on soil status; measurable intermediate and final targets with harmonised datasets and measures to tackle all identified threats and appropriate timelines; clarification of the responsibilities of different stakeholders; a mechanism for the sharing of best practices and training, as well as adequate control measures; adequate financial resources; and effective integration with relevant policy targets and instruments.

Parliament requested that the Commission proposal be accompanied by an in-depth impact assessment based on scientific data, analysing the costs of both action and non-action in terms of

immediate and long-term impacts on the environment, human health, the internal market and general sustainability. The common framework should also provide for the mapping of risk areas and of contaminated, brownfield and abandoned sites, as well as for the decontamination of contaminated sites. It asked the Commission to consider proposing an open list of activities with significant potential to cause soil contamination, to be compiled from comprehensive lists at national level, publicly accessible and regularly updated. It should include effective measures on prevention and/or minimisation of soil sealing and any other land use affecting soil performance – giving priority to brownfield land and soil recycling and the recycling of abandoned sites over use of unsealed soil – to achieve the objective of no land degradation by 2030 and no net land take by 2050 at the latest, with an interim target for 2030.

Council starting position

In its 2020 conclusions on Biodiversity – the need for urgent action, the Council supported the Commission in stepping up efforts to protect soils and soil biodiversity better, as a non-renewable resource of vital importance, as well as to reduce soil sealing, and reaffirmed the EU's commitment to reaching land degradation neutrality. It underlined the need to promptly address desertification and land degradation in the EU, and reiterated the will to make progress towards the objective of 'zero net land take' by 2050.

Preparation of the proposal

The proposal is based on an impact assessment (IA) analysed in detail by EPRS in an initial appraisal. The IA looked into four policy options, structured around five building blocks (definition of soil health and soil districts, monitoring, sustainable soil management, identification and investigation of contaminated sites, and restoration of soil health). According to the Commission, option 2 provides the highest degree of flexibility for Member States, option 4 brings the highest degree of harmonisation and option 3 an intermediate degree of harmonisation and flexibility. Option 1 (monitoring-only scenario without measures on sustainable soil management, regeneration and remediation) was discarded at an early stage. The preferred option is option 3 for all building blocks, except for remediation, where option 2 is favoured.

The IA is based on an external study, publicly accessible reports and scientific publications, literature review and stakeholder feedback. Feedback was collected through a call for evidence on soil health between 16 February and 16 March 2022 (189 replies), and an online public consultation (from 1 August to 24 October 2022, with 5 782 responses). The Commission drew from the expertise of the EU expert group on soil protection, established in 2015 and extended in October 2022 to include stakeholder groups other than Member States. It also held interviews and sent targeted questionnaires to gather the views of experts on the costs, feasibility and impacts of some measures. It further drew on publicly available data and knowledge from competent organisations such as the Food and Agriculture Organization, EEA, IPBES and European Academies Science Advisory Council.

The changes the proposal would bring

The objective of the proposed directive is to put in place a coherent monitoring framework for all soils across the EU and to improve soil health continuously, with a view to achieving healthy soils by 2050[3] and maintaining them in healthy condition. Accordingly, the proposal lays down measures for monitoring and assessing soil health, based on a common definition of what constitutes a healthy soil; for managing soils sustainably; and for tackling contaminated sites. To manage soils and the requirements of the directive, Member States would be required to establish **soil districts** throughout their territory, and to appoint one competent authority for each of them. In each Member State, there should be a minimum number of soil districts, corresponding to the number of NUTS 1 territorial units. When defining their soil districts, Member States would have to consider specific parameters, including soil type, climatic conditions, environmental zones, and land use or land cover as used in the LUCAS programme.

Soil health monitoring and assessment

Member States would have an obligation to **monitor soil health and land take** in each soil district, putting in place for this purpose all necessary monitoring arrangements and soil measurements. Annex I to the proposal lists the **soil descriptors** and **soil health criteria** to be applied by Member States for monitoring and assessing soil health, as well as land take and soil sealing indicators. Soil descriptors are split into three categories: descriptors with criteria for healthy soil condition established at EU level; descriptors with criteria set by the Member States; and descriptors without criteria (Table 1). Member States would be able to adapt some of the EU-level descriptors and criteria based on specific national or local conditions. They would also have the possibility to set additional soil descriptors and land take indicators. Any adaptation or addition should be communicated to the Commission.

Table 1 – Soil descriptors

Aspect of soil degradation	Soil descriptor
Soil descriptors for which criteria for healthy soil condition are set at EU level	
Salinization	Electrical conductivity (deci-Siemens per meter)
Soil erosion	Soil erosion rate (tonnes per hectare per year)
Loss of soil organic carbon	Soil organic carbon concentration (g per kg)
Subsoil compaction	Bulk density in subsoil (upper part of B or E horizon)
Soil descriptors for which criteria for healthy soil condition are set at Member State level	
Excess nutrient content in soil	Extractable phosphorus (mg per kg)
Soil contamination	Concentration of heavy metals in soil: As, Sb, Cd, Co, Cr (total), Cr (VI), Cu, Hg, Pb, Ni, Tl, V, Zn (µg per kg); Concentration of a selection of organic contaminants (done by Member States)
Reduction of capacity to retain water	Water holding capacity of the soil sample (% of volume of water/saturated soil)
Soil descriptors without criteria	
Excess nutrient content in soil	Nitrogen in soil (mg g-1)
Acidification	Soil acidity (pH)
Topsoil compaction	Bulk density in topsoil (A-horizon 5) (g cm-3)
Loss of biodiversity	Soil basal respiration (mm3 O2 g-1 hr-1) in dry soil

Source: Based on Annex I to the Commission proposal.

The Commission would support Member States' monitoring efforts by carrying out soil surveys, as done under the LUCAS programme, by exploring and developing soil remote sensing products based on satellite data from Copernicus and by establishing a digital soil health data portal (building on the existing EU soil observatory), together with the European Environment Agency.

Member States would be required to carry out soil measurements at least every five years, applying the methodologies outlined in the proposal for identifying the sampling points and for measuring the soil descriptors. First measurements should be done within four years of the directive's entry into force. Member States would also have to make sure that the values of the land take and soil sealing indicators are updated at least every year.

Soil health assessments would need to be performed at least every five years, based on the data collected. Soil would be considered healthy if the values for all soil descriptors meet the associated criteria established at EU level and at Member State level (**'one out, all out'** principle, according to which failure to meet any one of the criteria would result in 'unhealthy' status). Soil descriptors without criteria, and land take and soil sealing indicators would thus not be part of the soil health assessment. However, Member States would have to analyse the values resulting from monitoring and assess impacts on ecosystem service loss.

Furthermore, Member States would be required to set up a mechanism for **voluntary soil health certification** for land owners and managers,[4] who should receive soil health data and assessment upon request. Member States' competent authorities would also have to inform the public about the areas with unhealthy soils identified in each soil district.

Sustainable soil management

Within four years of the directive's entry into force, Member States would have to define **positive and negative practices** of soil management, taking into account the type, use and condition of soil (i.e. practices to be gradually implemented on all managed soils and practices to be avoided). To guide Member States in their approaches, Annex III to the proposal contains a list of common general principles of sustainable soil management to be followed. Based on the outcome of the soil health assessments performed, Member States should also define **regeneration practices** to be gradually implemented on the soils identified as unhealthy.

Member States would have to ensure that the sustainable soil management and regeneration practices are coherent with relevant plans, programmes, targets and measures required by **other EU legislation**, listed in Annex IV. Examples include nature restoration plans under the Nature Restoration Regulation, CAP strategic plans, action programmes under the Nitrates Directive, river basin management plans under the Water Framework Directive, national air pollution control programmes under the NEC Directive, and integrated national energy and climate plans under the Regulation on the Governance of the Energy Union and Climate Action.

Member States should ensure that the public concerned is involved in the development of practices at national level, and that soil managers, landowners and relevant authorities have access to impartial and independent advice on sustainable soil management, training activities and capacity building. They should also provide a regularly updated **mapping of funding** instruments available to support sustainable soil management. Measures taken to manage soils should be regularly evaluated, and revised if necessary, based on soil health monitoring and assessment.

Furthermore, Member States would have an **obligation to mitigate** the **land take** effect on the environment and to minimise and compensate as much as possible the loss of soil's capacity to provide ecosystem services.

Contaminated sites

Following a risk-based approach (which they need to establish within four years of the act's entry into force), Member States would have to identify and investigate potentially contaminated sites and, in cases of confirmed contamination, assess the risks and take measures to address unacceptable risks.

Criteria for identifying potentially contaminated sites would include: the operation of an active or inactive potentially contaminating risk activity (list to be drawn up by Member States), an activity covered by the Industrial Emissions Directive, an establishment covered by the Seveso-III Directive, or an activity listed in Annex III to the Environmental Liability Directive; the occurrence of a potentially contaminating accident, calamity, disaster, incident or spill, or any other event liable to cause soil contamination; and information from the soil health monitoring. All potentially contaminated sites should be identified and duly recorded within seven years of the directive's entry into force, and be subject to **soil investigation** to ascertain the presence of contamination.

It would be up to the Member States to establish the deadline, content, form and prioritisation of the investigations, as well as the specific events that trigger such investigations (for instance, a request for or review of an environmental or building permit, soil excavation activities, land use changes, or land or real estate transactions). For each contaminated site identified, Member States would be required to carry out a **site-specific risk assessment**[5] for the current and planned land uses to determine whether the contaminated site poses unacceptable risks for human health or the

environment, and to take the appropriate risk reduction measures. An indicative list of remediation techniques and other risk reduction measures is provided in Annex V.

Within four years of the directive's entry into force, Member States would have to set up a **register** of contaminated sites and potentially contaminated sites that is publicly accessible and kept up to date. This register should be made available in an online, georeferenced spatial database.

Public information, access to justice, penalties

Every five years, Member States would have to **report** electronically a set of data and information to the Commission and to the European Environment Agency. These include the results of the soil health monitoring and assessment; a trend analysis of soil health for all soil descriptors and for the land take and soil sealing indicators; a summary of progress made in implementing sustainable soil management principles and in registering, identifying, investigating and managing contaminated sites; and data and information contained in the national register. Reported data and information should be made available and accessible to the public.

The proposal contains requirements on **access to justice**, and requires Member States to set the rules on **penalties** applicable to breaches of the national provisions adopted under the directive. The penalties must be effective, proportionate and dissuasive.

Review

Within six years of entry into force, the Commission would assess progress made towards the objectives of the directive, and look into the need to amend it to set **more specific requirements** to ensure that unhealthy soils are regenerated and that all soils will be healthy by 2050.

Advisory committees

The European Economic and Social Committee (EESC) adopted its opinion on 25 October 2023. While supporting the setting up of a robust monitoring framework for all soils in the EU, it insists on the crucial importance of financial resources from environmental funds to achieve the goal of having them in good health by 2050. The EESC is concerned about the methodology and criteria used to assess soil health, particularly those determined at the discretion of Member States, which may lead to distortions of competition, and therefore recommends harmonising them to ensure consistency. It advocates a multi-criteria rating system to assess soil health more accurately.

The European Committee of the Regions (CoR) is expected to adopt its opinion at its June 2024 plenary session (rapporteur: Frida Nilsson, Renew Europe, Sweden).

National parliaments

The deadline for the submission of reasoned opinions on the grounds of subsidiarity was 6 November 2023. The Dutch Senate issued a reasoned opinion on 11 October 2023.

Stakeholder views[6]

The deadline for stakeholders' feedback on the Commission proposal was 3 November 2023. Over 200 contributions were received.

A number of non-governmental organisations jointly regret the lack of a roadmap, milestones, legally binding targets and mandatory plans to achieve the overarching objective. They call for a mandatory and detailed list of different soil biodiversity descriptors and respective criteria for healthy soil condition and for the inclusion of binding provisions on land take. They also stress the need for concrete mechanisms to ensure the application of the polluter pays principle, such as an extended producer responsibility scheme, and for mobilising the necessary financial resources.

The European Environmental Bureau (EEB) thinks that the Soil Law should establish a link to the CAP and future reforms of the CAP, which should reward farmers for good stewardship of land and

natural resources and for the delivery of ecosystem services. The law should establish a set of mandatory sustainable soil management practices for all land and soil users, building on the conditionality rules currently set by the CAP. Next to a legally binding 'no net land take by 2050' target, the law should set binding milestones for 2030 and 2040. The problem of diffuse pollution should also be addressed.

Similarly, the European Federation of Water Services (EurEau) takes the view that the directive must go beyond monitoring alone and include binding rules to preserve healthy soils and restore polluted or degraded soils. It should also incorporate stronger links between soil and surface- and groundwater quality. EurEau criticises the framework proposed for soil remediation at contaminated sites as being too vague. It sees a need to tighten the provisions on sanctions, requiring not only the payment of fines, but also the submission of remediation plans, to be subsequently checked for their feasibility and monitored during implementation.

For the farmers' association Copa-Cogeca, soil health assessments must consider the social, economic, and environmental function of the soil. Soil health cannot be based on a 'one out, all out' principle, but must see soils as a whole. They insist that any sustainable soil management principles proposed do not restrict and ban certain practices, and do not remove land from production. They call for Member States to commit legally to a path towards achieving no net land take by 2050 at the latest, while encouraging a set goal for each Member State to secure a minimum amount of agricultural land. They recommend removing soil health certificates, which in their view lack added value, and setting a much longer deadline (at least 15 years) for the revision of the directive. IFOAM, the European umbrella organisation for organic food and farming, advocates including additional indicators on synthetic pesticides and on water infiltration and adding a concrete quantification target on land take. It calls for strengthening farm advisory services and sharing data from soil monitoring with farmers, so they can make informed decisions.

Scientists and researchers strongly recommend developing a wider flexible indicator framework, and think that the proposed indicator for assessing soil biodiversity (basal respiration of microorganisms) – which is extremely sensitive to temporal, temperature and moisture variations – does not provide a good measure of soil biodiversity. They propose that Member States be required to include at least three more biological indicators (e.g. within two years of entry in force). In their view, soil health indicators should focus on ecosystem services and associated soil functions, rather than on threat mitigation, as is the case in the proposal. They recommend replacing the 'one out, all out' principle, which they consider too stringent, with a 'traffic light' system, or multi-indicator value scoring system – both of which are commonly used for soil assessments – to better acknowledge relative improvements in trends.

Europe's food and drink manufacturers ask for the proposal to 'clarify the financing framework that will allow for monitoring soil health in the EU and incentivise farmers to adopt more sustainable soil management practices'. They say that: 'Adequate funding will help de-risk farmers' and agri-businesses' move to sustainable practices while safeguarding their income and productivity'. They also see a need to strengthen the guidelines on different sustainable and regenerative soil management approaches to facilitate a coordinated approach and ensure a level playing field in Europe, and to clarify the interplay of the proposal with other EU legislation, notably the CAP and the certification of carbon removals.

The European Chemical Industry Council (CEFIC) considers that the definition of healthy soil should incorporate the land use purpose of the soil. CEFIC expresses concern regarding the inclusion of both 'contaminated sites' and 'potentially contaminated sites' in the register. In its view, including a list of sites that may have a potentially contaminative use, but for which there is no evidence of actual contamination, would create public concern and have a financial impact on site owners. Therefore, inclusion on a register should only occur after a site has been confirmed to be contaminated, based on data. CEFIC is also concerned by the idea of introducing trigger events that could initiate a soil investigation if they do not result from a risk-based assessment. On penalties, it warns that turnover as a basis to calculate an administrative fine can lead to unfair results.

The European Construction Industry Federation asks to carefully evaluate all potential impacts on the construction sector of measures such as the 'land take mitigation principles' that could hinder economic activity, make construction projects even costlier and conflict with societal needs (new transport infrastructure, affordable and social housing, etc.), especially in densely populated areas. Expecting that measures to improve soil health – such as the desealing and renaturation of 'artificial' land – would entail considerable costs, they call for a 'reward' approach for citizens, businesses and institutions who are particularly committed to ecosystem service recovery and restoration.

For the European Waste Management Association FEAD, the register should not be published. Access to information may be granted while ensuring the protection of sensitive business data, data protection and public access to information requirements.

Legislative process

Parliament

The Committee on the Environment, Public Health and Food Safety (ENVI), responsible for the file, appointed Martin Hojsík (Renew Europe, Slovakia) as rapporteur on 12 September 2023. The Committee on Agriculture and Rural Development (AGRI), associated under Rule 57 of the Rules of Procedure, delivered its opinion on 15 February 2024 (rapporteur: Maria Noichl, S&D, Germany). On 11 March 2024, ENVI adopted its report with 42 votes in favour, 26 votes against and 14 abstentions.

The report specifies that Member States would be required to put in place, within the framework of the proposed directive, measures that are technically feasible and based on a cost-benefit analysis, with a view to reaching the 2050 overarching objective. Parameters to be considered by Member States when defining their soil districts would also include river basin districts under the Water Framework Directive and water bodies used for abstraction of drinking water as defined in the Drinking Water Directive. Member States would be obliged to ensure **cross-border cooperation** between their neighbouring soil districts with transboundary effects on soil, comparable land use or similar soils, as well as implementation of a coherent approach by soil districts across borders. The Commission would assist them in complying with this obligation. If they deem it necessary, soil district authorities would draw up their own **soil district plans** and set intermediate targets to achieve measurable improvement of soil health. They would need to ensure public participation in the development of those plans, and make them available online. The Commission would have to issue guidelines on soil district plans within one year of the directive's entry into force.

The report proposes another approach for assessing soil health, based on a **five-level classification** of soil ecological status (high, good, moderate ecological status, degraded and critically degraded soils). Soils would be deemed healthy if they achieve either good or high ecological status.

To enable Member States willing to do so to implement more comprehensive monitoring systems, the report introduces **a tiered approach** for soil monitoring. It would allow Member States to select the most appropriate tier for their soil monitoring design and assessment, provided the conditions specified in Annex I for the chosen tier are met. Member States should ensure that they cover at least all soil descriptors in Tier 1 (see Table 2). Building on the Commission's proposal, Tier 1 would include some additional descriptors, for instance for soil contamination (pesticides and biocides, PFAS), ecological functions, biodiversity and habitat. Salinisation and subsoil compaction would be covered in Tier 2. By the end of 2026, the Commission would be required to adopt by delegated act a methodology for determining **threshold values for soil descriptors** for each soil ecological status, based on the latest scientific evidence and with consideration for differences in climatic conditions and soil types. Using this methodology, Member States should identify draft threshold values and submit them to the Commission by mid-2028, together with the scientific justification and evidence on which they based their choices. The Commission would have six months to assess them, ensuring a level playing field within the internal market, and ask for additional information or revision where necessary. If satisfied that its observations had been taken into account, the Commission would approve, by the end of 2029, the threshold values by implementing act.

Table 2 – Soil descriptors in Tier 1 monitoring design

Degradation factors	Soil descriptors
Soil erosion	Soil erosion rate (tonnes of loss soil per hectare per year)
Loss of soil organic carbon	Soil organic carbon concentration (g per kg)
Soil compaction	Bulk density in topsoil (g cm-3)
Excess nutrient content in soil	Available phosphorus (mg kg-1); total nitrogen in soil (mg g-1)
Soil contamination	Concentration of heavy metals in soil: As, Sb, Cd, Co, Cr (total), Cr (VI), Cu, Hg, Pb, Ni, Tl, V, Zn (µg per kg); concentration of a selection of organic contaminants (done by Member States); pesticides' candidates for substitution and substances authorised under emergency regime and biocides residues; per- and polyfluoroalkyl substances (PFAS) total or sum of PFAS total
Reduction of water retention	Water holding capacity of the soil sample (% of volume of water); volume of saturated soil
Acidification	Soil acidity (pH H2O)
Soil ecological functions	
Soil aggregation	Water-stable aggregates (%)
Soil respiration	Soil microbial basal respiration (µl O2 h-1 g-1 soil dry weight)
Soil biomass	Soil microbial biomass carbon (Cmic µg C g-1 soil dry weight)
Soil biodiversity	
Taxonomic diversity	Diversity of soil organisms through (presence counts per taxonomic group) based on metabarcoding
Population abundance	Total abundances of bacteria and archaea; total abundances of fungi; total number and proportion of pathogenic fungi; total nematode abundance per functional group based on morphology
Soil habitat	
Soil structure	Size class proportions (sand, silt, clay); proportion of coarse materials (>2mm)

Source: Based on Annex I as amended in the ENVI report.

Member States would be required to carry out **soil measurements** at least every six years or earlier, whenever soil status modification is suspected. First measurements should be done within three years of the directive's entry into force. The values of the land take and soil sealing indicators should be updated at least every two years (rather than annually). The Commission would be required to contribute to the monitoring carried out by Member States by providing for sampling and analysing of at least 20 % of the size of national samples. Upon request by a Member State, it should provide further assistance with up to 50 % of the sampling during the first national monitoring round. The report introduces new provisions on the efficient use and **preservation of soil samples**, ensuring they remain available for further research and innovation.

Soil health assessments would need to be performed at least every six years, based on the data collected and taking into account the historical and natural circumstances of the soil. Member States would have 10 years to upgrade the status of critically degraded soils to degraded soils, and six years to improve the classification of degraded soils to moderate ecological status and of soils with moderate ecological status to good ecological status. For sites registered as contaminated that are covered by management and mitigation plans with predefined timelines and targets, Member States could apply different periods. The proposed voluntary soil health certification is not retained.

The report specifies that the principles of sustainable soil management listed in Annex III would be non-binding. It would require the Commission to compile a **sustainable soil management toolbox** for soil managers, freely available, with best practices and information about the impact of the practices on various ecosystem services and soil threats and context-specific information. The toolbox should be included in the digital soil health data portal. Member States would be required to consider a number of specific actions for **land take** mitigation and compensation (no obligation).

Under the report, potentially contaminated sites located in areas used for the abstraction of drinking water should be prioritised for soil investigation. Member States should always aim at prevention and soil decontamination. The report reinforces provisions on the involvement of the public in the

risk-based approach, the identification of potentially contaminated sites and their investigation, and the assessment and management of contaminated sites, specifically as regards submission of information and evidence. As part of its first evaluation of the directive, the Commission would have to assess information collected on soil contamination in Member States, with a view to establishing **a list of priority substances** of concern at EU level (as is currently required under EU water legislation), followed by a watch list on soil contaminants. As regards **financing**, the Commission would be required, within one year of the directive's entry into force, to assess any gap between available EU funding and financial needs for supporting Member States in implementation.

The report awaits a vote in plenary on 10 April 2024, with a view to setting Parliament's first reading position. The file will then be followed up by the new Parliament after the European elections.

Council

The Council has yet to agree on a general approach. Work is ongoing at working party level. Ministers held a policy debate on the proposal in the Environment Council on 18 December 2023.

EUROPEAN PARLIAMENT SUPPORTING ANALYSIS

Frizberg D., Soil monitoring and resilience in the EU, EPRS, European Parliament, October 2023.

OTHER SOURCES

Soil monitoring and resilience (soil monitoring law), Legislative Observatory (OEIL), European Parliament.

ENDNOTES

1 Soil is an essential component of land. Land can be covered by different types of vegetation and artificial surfaces, and used for various purposes. According to the EEA, Europe is one of the most intensively used landmasses on the globe, with the highest share of land used for farming, forests and, to a lesser extent, urban areas and infrastructure.

2 A proposal for a Soil Framework Directive was withdrawn in 2014 after being blocked for eight years by a few Member States in the Council.

3 This goal is an aspirational target, to set the direction. The proposal does not impose an obligation, or legally binding target, to achieve healthy soils by 2050, or intermediate targets.

4 Complementary to the EU regulatory framework for carbon removals.

5 The methodology for determining the site-specific risks, and the definition of unacceptable risks, would be entrusted to Member States. However, Annex VI lists common requirements on which the methodology should be based. The definition of unacceptable risks should take into account existing scientific knowledge, the precautionary principle, local specificities, and current and future land use.

6 This section aims to provide a flavour of the debate and is not intended to be an exhaustive account of all different views on the proposal. Additional information can be found in related publications listed under 'European Parliament supporting analysis'.

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