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I. ARTYKUŁY

Monika Jakubus

Poznan University of Life Sciences, Poland
monika.jakubus@up.poznan.pl
ORCID: 0000-0001-8485-5425

Katarzyna Leśkiewicz

Adam Mickiewicz University in Poznań, Poland
e-mail: katarzyna.leskiewicz@amu.edu.pl
ORCID: 0000-0001-5261-2752

Izabela Lipińska

Poznan University of Life Sciences, Poland
e-mail: izabela.lipinska@up.poznan.pl
ORCID: 0000-0003-2884-0733

Selected issues of legal soil protection*

Tutela giuridica del suolo – questioni scelte

This article aims to answer the question of whether the solutions adopted in EU and national legislation serve to protect soil health. Although the issues discussed have been addressed by the EU legislator, a uniform legal framework for soil protection has yet to be developed. The "soil monitoring law" directive currently under con-sideration is of fundamental importance. In national legislation, the local spatial development plan has remained the primary legal instrument for the prevention of soil degradation for many years. Soils that are properly classified are subject to qualitative (bonitation) classification and are thus formally designated as agricultural land. This is the reference point for determining pollution and remediation measures. Ultimately, the authors conclude that a holistic approach to soil protection is still lacking. While the current regulations contain provisions for soil protection, but they imperfect and operate selectively, often disregarding public interest and environmental considerations.

Keywords: soils, degradation, devastation, good agricultural practices, soil protection, rehabilitation, remediation

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L'obiettivo dell'articolo è verificare se le soluzioni adottate nella legislazione dell'Unione Europea e a livello nazionale siano sufficienti a tutelare adeguatamente la salute del suolo. Nonostante tali temi siano stati oggetto di normative europee, manca un quadro giuridico uniforme per la protezione del suolo. In questo contesto, di fondamentale importanza si rivela la direttiva in fase di elaborazione sul "diritto al monitoraggio del suolo". Alla luce della legislazione nazionale, il piano regolatore locale rimane da anni lo strumento principale per la tutela preventiva del suolo. I suoli correttamente classificati ricevono una valutazione qualitativa (agronomica), che ne riconosce formalmente lo status di suolo agricolo e costituisce la base per misure correttive contro l'inquinamento e per la riabilitazione. Gli autori concludono che manca un approccio olistico alla protezione del suolo. Le normative vigenti prevedono soluzioni utili, ma imperfette e selettive, che in casi specifici trascurano l'interesse pubblico e le questioni ambientali in un'ottica complessiva.

Parole chiave: suoli, degrado, devastazione, buone pratiche agricole, salvaguardia del suolo, recupero del suolo, bonifica

Introduction

The subject of this article is the legal protection of soils against threats to their health. The issue in question is extensive. Soils are an essential, limited, non-renewable, and irreplaceable environmental resource. Pursuant to Article 1(21) of Directive 2010/75/EU[1] Soil should be understood as the top layer of the Earth's crust located between the bedrock and the surface. It consists of mineral particles, organic matter, water, air, and living organisms.[2] As a public good, it serves many functions. Among other things, it is essential for food production and thus contributes to food security. It also has the capacity to store carbon, which helps to achieve the Union's climate change objectives.[3] It also provides a favorable environment for the development of organisms and is important for increasing biodiversity and the stability of

[1] Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010, on industrial emissions (integrated pollution prevention and control) (OJ L 334, 17.12.2010; hereinafter: Directive 2010/75/EU), pp. 17–119.

[2] Ibidem.

[3] M. Wigier, *European Union climate and environmental policy and agriculture*, in: W. Wrzaszcz, M. Wigier (eds.), *Environmental and climate conditions for the development of agriculture and rural areas in Poland in 2004–2030*, Warszawa 2024, p. 74; Z. Jarosz, A. Faber, *Carbon farming in climate change mitigation. A review*, "Agronomy Science" 2024, vol. 79, no. 3, pp. 5–15.

related ecosystems.[4] It is worth emphasizing that organic matter plays a key role in the provision of soil ecosystem services and functions.[5]

Soils fulfill their functions as long as they are healthy. In the literature on the subject, the concept of health is defined in many ways. For example, soil health may be treated as a synonym for its quality. Namely, "the ability of living soil to function within natural or managed ecosystems to maintain plant and animal productivity, maintain or improve water and air quality, and promote plant and animal health."[6] This definition highlights the soil's multifunctionality and its contribution to ecosystem services ("soil-based ecosystem services").[7]

Currently, over 60% of European agricultural soils are degraded to varying degrees, and the situation is continuing to deteriorate.[8] It is estimated that soil degradation costs over €50 billion annually due to the loss of its basic functions.

Despite the importance of soil protection, in light of the ongoing negative changes caused by degradation, EU legislators have not adopted a normative act that would comprehensively address soil protection at the EU level. There is also a lack of a targeted policy framework in this area. Regulatory issues of protection have been left to national legislators.[9] As a result, the legal instruments adopted at the Member State level and the methods of protection differ from one another. To remedy this, a draft directive on "soil monitoring law" was developed and adopted by the European Council on 29 September 2025. It heralds changes in the introduction of uniform protection in all Member States.

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[4] G. Siebielec, S. Siebielec, *Bioróżnorodność gleb*, "Studia i Raporty IUNG-PIB" 2020, no. 64(18), pp. 91–108.

[5] See point 22 of Commission proposal for a directive on soil monitoring and resilience, 9474/1/25 REV 1, Brussels, 29 September 2025.

[6] J.W. Doran, *Soil health and global sustainability: translating science into practice*, "Agriculture, Ecosystems & Environment" 2002, no. 88, pp. 119–127.

[7] European Environment Agency, *Soil monitoring in Europe – Indicators and thresholds for soil health assessments*, EEA Report 2022, no. 8, p. 12.

[8] Questions and Answers on a Directive on Soil Monitoring and Resilience, 5 July 2023 Brussels, https://ec.europa.eu/commission/presscorner/detail/en/qanda_23_3637 [accessed on 30.10.2025].

[9] In 2015, the European Commission's Directorate-General for the Environment commissioned an updated inventory of soil-related instruments at EU and national level, which was published in February 2017. A total of 35 EU-level policies and 671 local instruments were identified; See: A. Payá Pérez, N. Rodríguez Eugenio, *Status of local soil contamination in Europe: Revision of the indicator 'Progress in the management Contaminated Sites in Europe'*, Luxembourg 2018, p. 24.

The subject of legal soil protection is of interest to many authors. Researchers in environmental law,[10] agricultural law[11] and as well as other sciences are particularly interested in it.[12] The aim of this article is to answer the question of whether the solutions adopted in EU and national legislation serve to protect soil health. According to the purpose of the discussion, it focuses on the characteristics of soil functionality and threats to its health. The point of reference is EU and national legislation.

1. The characteristics of soil functionality and threats to its health

Soils, which form a layer of the Earth's crust, are an integral, heterogeneous element of the ecosystem that sustains life on Earth. The importance of soil in the environment has a multidimensional aspect. However, traditionally, the functions of soil are seen from only one perspective: the production of biomass for food, feed, or industrial purposes. This is, however, a gross simplification that distorts its multifunctionality.[13] Soils play an important role in industries related to construction, natural resource extraction, and infrastructure development. It is also important to emphasize their key role in water retention and filtration, as well as carbon sequestration in the form of CO_2, especially in the context of adverse climate change. In addition, soils are a gene bank and historical archive of the development of civilization on Earth. With their rich biodiversity, they shape landscapes, influence local traditions and practices, and inspire artistic and spiritual endeavors, strengthening a sense of place and cultural identity. As many authors argue, while healthy

[10] J. Goździewicz-Biechońska, *Przeciwdziałanie degradacji ziemi i gleby jako globalne wyzwanie dla prawa*, "Przegląd Prawa Rolnego" 2018, no. 1, pp. 41–57; M. Górski, *Prawna ochrona powierzchni ziemi i odpowiedzialność za szkody wyrządzone w powierzchni ziemi*, "Geologia" 2009, vol. 35, no. 1, pp. 5–28.

[11] K. Leśkiewicz, *Legal Protection of the Productive Capacity of Soils-Selected Issues*, "Studia Iuridica Lublinensia" 2025, vol. 34, no. 2, pp. 193–211; A. Nowak, *Ochrona gleb w prawie wspólnotowym – w kontekście projektu "Dyrektywy Parlamentu Europejskiego i Rady ustanawiającej ramy dla ochrony gleb oraz zmieniającej dyrektywę 2004/35/WE"*, "Studia Iuridica" 2015, no. 61, pp. 283–298.

[12] M. Jakubus, *Zmiany wybranych właściwości gleb jako konsekwencja przemian urbanizacyjnych przestrzeni miejskiej Poznania*, "Problemy Rozwoju Miast" 2015, no. 4, pp. 19–25; P. Wiśniewski, M. Wojtasik, *Zróżnicowanie właściwości gleb uprawnych oraz leśnych na erodowanych stokach*, "Inżynieria Ekologiczna" 2014, no. 39, pp. 198–208.

[13] J. Telo da Gama, *The Role of Soils in sustainability, climate change and ekosystem services: challenges and opportunities*, "Ecologies" 2023, no. 4, pp. 552–567.

soils are the foundation of sustainable and proper biomass production, they ensure the proper circulation of organic matter and energy, as well as the transformation of those elements, especially that are an essential source of nutrients for plants.[14] In general, soil health ensures the proper functioning of the entire ecosystem and guarantees the health of plants, animals, and humans. This is a holistic approach to maintaining soil health, but it is fully justified given the need to maintain the food and feed supply chain.

Soil health, often associated with soil quality, can be shaped by appropriate agricultural practices. However, it is important to be aware of a number of adverse impacts that lead to changes and deterioration in the properties of soil responsible for its functionality. Sectors that have the strongest negative impact on soil quality are:

– agriculture (unsustainable soil management expressed in monoculture farming, the use of agrotechnical treatments or agrochemicals),
– industrial activity, especially that related to raw material extraction, the chemical industry, and metallurgy,
– transport and the expansion of industrial and residential infrastructure;
– improper waste management (uncontrolled landfills),
– energy production (power plants, especially those based on fossil fuels),
– tourism and recreation.

All of the above-mentioned anthropogenic activities lead to degradation expressed in soil contamination with various xenobiotics, water retention disorders, disruption of the regularity of biogeochemical cycles of elements, and a reduction in biodiversity.

In practice, apart from those mentioned above, there are also other factors that have an equally negative impact on the soil. However, regardless of their strength, direction, or number, each of these factors leads to a deterioration of soil conditions and a weakening of its properties, which has a direct impact on the condition and production of soils, as well as the functioning of other components of the environment (hydrosphere, atmosphere, biosphere, and lithosphere). Ultimately, all of this contributes significantly to reducing the future survival potential of living organisms.

According to Nada Dragovic and Tijana Vulević, soil degradation may be divided into the following main types: water and wind erosion, chemical degradation (including a decrease in organic matter content, salinization,

[14] M. Jakubus, K. Panasiewicz, *Quantitative Changes in Selected Soil Health Indices as a Result of Long-Term (23-Year) Cultivation of Winter Wheat in Various Crop Rotations: Case Study for Sandy Soil*, "Agriculture" 2025, no. 15, p. 1456.

acidification, and pollution), and physical degradation (compaction, sealing, flooding, landslides, and urbanization).[15] It should be strongly emphasized that these changes may be caused by both natural and anthropogenic factors, with the latter having the greatest scope and impact. Human activity currently contributes to the vast majority of degradation changes which are not only the result of these activities, but are also a direct consequence of negative climate change.

The problem of soil degradation was recognized in the last century, and since then a number of legal regulations have been introduced at the European level to protect soils and remediate environmental damage. In the case of agricultural soils, a number of proposals in line with the concept of sustainable agriculture may be applicable to repair and/or minimize and/or prevent negative changes, including a package of good practices such as: the use of organic additives, the introduction of simplified cultivation methods, and the need for crop rotation with mandatory cultivation of legumes. The use of such sustainable soil resource management is in line with the objectives of a number of legal acts in the area of the Common Agricultural Policy (CAP),[16] Good Agricultural and Environmental Conditions (GAECs),[17] Farm to fork Strategy[18] as well as Soil Biodiversity Strategy 2030.[19] Particular emphasis should be placed on the importance of the GAEC system which aims to motivate farmers to take measures that contribute to the accumulation of organic matter in the soil, reduce soil erosion, and increase soil biodiversity. In this regard, practices such as proper plowing management to reduce the risk of soil degradation and erosion, including consideration of slope, maintaining soil cover from 1 November to 15 February on at least 80% of the farm's arable land, or introducing crop rotation and diversification on arable land (where the area exceeds 10 ha, cultivation should be carried out in such a way that at least 40% of the area is used for a different main crop than the one culti-

[15] N. Dragovic, T. Vulević, *Soil Degradation Processes, Causes and Assessment Approach*, in: W. Leal Filho et al. (eds.), *Life on Land*, Cham 2020, pp. 1–12..

[16] The common agricultural policy at a glance, https://agriculture.ec.europa.eu/common-agricultural-policy/cap-overview/cap-glance_en [accessed on 16.11.2025].

[17] Good Agricultural and Environmental Conditions, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Good_agricultural_and_environmental_conditions_(GAEC) [accessed on 16.11.2025].

[18] Farm to Fork strategy, https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en [accessed on 16.11.2025].

[19] Soil Strategy for 2030, https://environment.ec.europa.eu/topics/soil-health/soil-strategy-2030_en [accessed on 13.11.2025].

vated in the previous year).[20] Good agricultural practices aimed at broadly understood soil protection are included in eco-schemes related to the use of winter catch crops and mid-field intercrops, compliance with fertilization plans, the introduction of a diversified crop structure, conservation tillage, and the obligation to mix straw and manure with the soil.

Two basic approaches are used for degraded soils, including remediation and/or reclamation. These terms are often used synonymously, but they refer to different processes related to restoring the usability or natural value of degraded areas, e.g., by industry, mining, or agriculture. The choice of method depends on the degree and extent of soil degradation. Remediation is the process of removing or reducing contaminants in soil, earth, or groundwater to levels that are safe for humans and the environment. It involves restoring the environment to an appropriate level of quality, not necessarily to its original natural functions. In practice, various techniques can be distinguished, such as:

– bioremediation – the use of microorganisms to break down organic contaminants,
– phytoremediation – the use of plants to absorb heavy metals,
– soil washing – removing pollutants using aqueous solutions,
– stabilization – binding pollutants in mineral or organic compounds to reduce their mobility,
– thermal desorption or incineration – in the case of heavily contaminated soils.[21]

The methods used in reclamation vary, as reclamation is the process of restoring the utility or natural value of degraded or devastated areas, such as those left behind by mines, landfills, or industrial plants. In practice, different reclamation approaches are used, depending on the potential of the area and the financial outlay. We distinguish the following types of reclamation:

– forestry – afforestation of land,
– agricultural – preparation for cultivation,
– recreational – creation of parks, cultural centers, and sports fields,
– industrial or construction – preparation for development (photovoltaic farms),
– natural – restoration of natural habitats.

[20] G. Czapiewska, *Rolnictwo węglowe i ochrona gleb w reformowanej polityce rolnej Unii Europejskiej (WPR 2023–2027)*, "Rozwój Regionalny i Polityka Regionalna" 2024, no. 69, pp. 73–91.

[21] M. Trojanowska, *Reclamation of polluted land in urban renewal projects. Literature review of suitable plants for phytoremediation*, "Environmental Challenges" 2023, vol. 13, 100749.

2. The soil protection in the light of EU perspective

As noted above, despite ongoing work, there is still no targeted and uniform policy framework for soil protection in the EU. Nevertheless, existing policies pursuing other environmental objectives address it to some extent and contain many provisions relevant to soil. For example, there are directives that directly shape (or have shaped) the discharge of harmful substances into water and soil, which are undoubtedly closely linked. Several pieces of legislation can be cited as examples, such as Council Directive 80/68/EEC of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances[22] and Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration,[23] both concerning groundwater, and Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (the Nitrates Directive).[24] These Directives are aimed at protecting water quality, while another directive, Council Directive 86/278/EEC of 12 June 1986 on the protection of the environment, in particular the soil, when sewage sludge is used in agriculture (the Sewage Sludge Directive)[25] primarily concerns soil. Commission Directive 2008/41/EC of 31 March 2008, amending Council Directive 91/414/EEC to include chloridazon as an active substance in plant protection products[26] took into account the impact on both soil and water.[27]

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[22] Council Directive 80/68/EEC of 17 December 1979 on the protection of groundwater against pollution caused by certain dangerous substances (OJ L 20, 26.01.1980), pp. 43–48.

[23] Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration (OJ L 372, 27.12.2006), pp. 19–31.

[24] Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (the Nitrates Directive) (OJ L 375, 31.12.1991), pp. 1–8.

[25] Council Directive 86/278/EEC of 12 June 1986 on the protection of the environment, in particular the soil, when sewage sludge is used in agriculture (the Sewage Sludge Directive), (OJ L 181, 4.07.1986), pp. 6–12.

[26] Commission Directive 2008/41/EC of 31 March 2008, amending Council Directive 91/414/EEC to include chloridazon as an active substance in plant protection products (OJ L 230, 19.08.1991), pp. 1–32.

[27] G. Louwagie, S. Hubertus Gay, *Evolution of European Union policies relevant to soil conservation in agriculture, 19th World Congress of Soil Science, Soil Solutions for a Changing World, 1–6 August 2010, Brisbane, Australia*, www.old.iuss.org/19th%20WCSS/Symposium/pdf/1545.pdf [accessed on 29.10.2025].

An attempt to create a comprehensive strategy for soil protection was made at EU level in 2002, when the Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions of 24 January 2001 on the Sixth Community Environment Action Program "Environment 2010: Our Future, Our Choice" (The Sixth Community Environment Action Program (6EAP)[28] was adopted. This was followed by the adoption of Decision No. 1600/2002/EC of the European Parliament and of the Council of 22 July 2002, laying down the Sixth Community Environment Action Program. It set out the priorities and objectives of European environmental policy, although the legal solutions it contained were of a general nature. The soil strategy was one of seven proposed strategies and referred to promoting the sustainable use of soil, with particular emphasis on preventing its erosion, deterioration, contamination, and desertification (Article 6(1) of the Decision).[29]

Four years later, further work began at EU level on developing a framework approach to soil protection, culminating in the publication on 22 September 2006 of the The overall objective of the EU legislator was to achieve soil protection and sustainable use based on "guiding principles," i.e., preventing further soil degradation and promoting soil conservation and sustainable use. The overall objective of the EU legislator was to achieve the protection and sustainable use of soil based on "guiding principles," i.e., preventing further soil degradation and preserving soil functions by influencing land use and management patterns and taking action at source where soil acts as a sink/ receptor of the effects of human activities and natural phenomena, and restoring degraded soils to a level of functionality consistent with their current and intended use.[30]

The documents referred to above required Member States to identify areas where soil degradation had occurred or was likely to occur and to draw up an appropriate action program, including risk reduction targets, a timetable for implementation, and a financial plan. However, the legislator did not include any specific quantitative targets for soil protection, but set out a list of

[28] Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions on the Sixth Environment Action Programme of the European Community, "Environment 2010: Our future, Our choice" [COM (2001) 31 final – not published in the Official Journal].

[29] Decision No. 1600/2002/EC of the European Parliament and of the Council of 22 July 2002, laying down the Sixth Community Environment Action Program (OJ L 242, 10.09.2002), pp. 1–15.

[30] G. Louwagie, S. Hubertus Gay, *Evolution of European Union policies...*

qualitative targets and actions.[31] At the same time, the European Commission called on Member States to include soil protection measures in their national policies in order to limit the deterioration of soil conditions.[32] However, the measures taken have failed to achieve a common model for protection.[33]

In 2007, the European Parliament adopted a legislative resolution of 14 November 2007 on the proposal for a directive of the European Parliament and of the Council establishing a framework for the protection of soil and amending Directive 2004/35/EC.[34] It expressed the Parliament's willingness to support the draft framework directive, but negotiations in the Council soon reached an impasse. The Commission kept the proposal in limbo for several years until it decided to withdraw it in 2014.[35]

The impasse in adopting a single framework legislative act meant that, in the following years, the EU took action to protect soil, but through another, indirectly affecting legislation. These standards related to water, pesticides, and waste. In addition, it influenced soil quality by promoting sustainable land management under the common agricultural policy. Measures included financing rural development programs, introducing good agricultural and environmental practices as a condition for direct payments, and providing voluntary payments for additional environmental protection measures. For example, the 2014–2022 CAP introduced measures to encourage farmers to improve soil and manure management, and the Nitrates Directive set maximum nitrogen levels for livestock manure.[36]

Despite the development of a uniform normative act affecting soil condition, in 2021 the EU Soil Strategy 2030 was developed.[37] It contains two

[31] S. Withana et al., *Strategic Orientations of EU Environmental Policy under the Sixth Environment Action Programme and Implications for the Future. Report for the IBGE-BIM, IEEP*, London 2010, p. 41 ff.

[32] G. Louwagie, S. Hubertus Gay, *Evolution of European Union policies...*

[33] A. Prescher-Spiridon, *European Union: Soil protection? Wanted!*, 12.11.2024, https://eu.boell.org/en/SoilAtlas-European-Union [accessed on 1.11.2025].

[34] Legislative resolution of 14 November 2007 on the proposal for a directive of the European Parliament and of the Council establishing a framework for the protection of soil and amending Directive 2004/35/EC (COM(2006)0232 – C6-0307/2006 – 2006/0086(COD)), http://www.europarl.europa.eu/sides/getDoc.do?type=TA&language=EN&reference=P6-TA-2007-0509 [accessed on 1.11.2025].

[35] S. Montaldo, *The Green Deal and the Case for a Soil Health Framework Directive*, "European Papers" 2022, vol. 7, no. 2, pp. 527–532.

[36] K. Leśkiewicz, *Legal Protection...*, p. 199.

[37] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, and the Committee of the Regions: EU Soil Strategy 2030: Healthy soil for people, food, nature, and climate, COM/2021/699 final.

main objectives. The first, a medium-term objective, to be achieved by 2030, provides for measures to contribute to the achievement of long-term objectives (including reducing the use of pesticides and pollutants and improving soil quality). The second, a long-term objective, to be achieved by 2050, is to contribute to the achievement of good soil status in the EU, increasing its resilience, protection, and restoration. The strategy, supporting the objectives of the European Green Deal, takes into account sustainable soil management and protection, the fight against pollution, soil restoration, and specific aid for farmers. Accordingly, under the current CAP, farmers who commit to specific practices or invest in environmental and climate protection are eligible for financial support.[38] These are ecological programs that support agrotechnical practices (e.g., precision farming, agroecology, organic farming, agroforestry). They are designed to restore soil health by reducing plowing or other interference with soil structure (regenerative agriculture – no-till farming). The aim of these examples of practices is to increase the capacity to absorb and accumulate carbon dioxide. Income support related to these practices is available if farmers meet certain environmental and climate conditions.[39]

Legislative work is currently underway on the "soil monitoring law."[40] In September 2025, the Council of the EU adopted a directive on soil monitoring. It is the first normative act developed at the EU level whose primary purpose is to assess and monitor soils. It is intended to implement the objectives of the above-mentioned Strategy to achieve healthy soils by 2050.[41]

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[38] Ibidem. See Regulation (EU) 2021/2115 of the European Parliament and of the Council of 2 December 2021, laying down rules on support for strategic plans drawn up by Member States under the common agricultural policy (CAP Strategic Plans) and financed by the European Agricultural Guarantee Fund (EAGF) and the European Agricultural Fund for Rural Development (EAFRD), and repealing Regulations (EU) No 1305/2013 and (EU) No 1307/2013, PE/64/2021/REV/1 (OJ L 435, 6.12.2021), pp. 1–186.

[39] This refers to the standards of good agricultural and environmental condition (GAEC). See J. Rutkowski, *Wpływ wdrażanych norm i wymogów warunkowości na wysokość płatności bezpośrednich Materiał informacyjny*, Olsztyn 2024, pp. 1–15.

[40] European Parliament legislative resolution of 23 October 2025, on the Council's position at first reading on the adoption of a directive of the European Parliament and of the Council on soil monitoring and resilience (soil monitoring law) (09474/1/2025 – C10-0229/2025 – 2023/0232(COD)).

[41] Points 10 and 12 of the Proposal for a Directive of the European Parliament and of the Council on soil monitoring and resilience (soil monitoring law), Brussels, 5.07.2023, COM(2023) 416 final.

The legal standards adopted in the Directive are intended to lead to improved soil resilience, ensure better management of contaminated sites, and introduce rules to mitigate the effects of land take (Article 6 of the directive), with particular emphasis on soil sealing (Article 7 of the Directive). In accordance with Articles 6–9, Member States will establish monitoring systems to assess the physical, chemical, and biological condition of soils on their territory, based on a common methodology adopted at EU level. In addition, the Directive defines common soil indicators (Article 6 et seq.). The legislator also provides for the obligation to report to the Commission and the European Environment Agency on the state of soil health, land use and contaminated sites, ensuring the comparability of data across the EU and the possibility of coordinated action to combat soil degradation (Article 18 of the Directive).[42] The legislative act in question is still being processed.

3. National framework for soil protection

In national legislation, soil protection issues are scattered across various legislative acts. Some of them implement EU legislation, while others are national laws. It should be noted right away that the term "soil" does not have a universal legal definition.

In particular, national legislators focus on describing soil characteristics in relation to agricultural and forest land, which is covered by soil classification based on an official soil class table.[43] In this way, soils are divided into quality classes based on their productive quality, determined on the basis of the genetic characteristics of the soils and intended to ensure the correct substantive level of soil classification. However, the main concern is the proper functioning of the land and building register. The data from these registers form the basis for economic planning, spatial planning, taxation and benefits, the designation of real estate in land registers, public statistics, real estate management, and the registration of agricultural holdings. It should be emphasized that descriptive soil data should be based on objective reasons and not on human action or omission.[44] In this sense, soil classification should reflect the actual condition of soils on agricultural

[42] More details: K. Leśkiewicz, *Legal Protection...*, pp. 200–203.

[43] Geodetic and Cartographic Law of May 17, 1989, i.e. Journal of Laws of 2024, item 1151, as amended; Regulation of the Council of Ministers on soil classification of 12 September 2012 (Journal of Laws of 2012, item 1246).

[44] Judgment of the Supreme Administrative Court of 19 October 2022, I OSK 2010/21, Legalis.

and forest land. Subsequently, the Act on the Protection of Agricultural and Forest Land distinguishes between soils of organic origin (i.e., soils formed with the participation of organic matter, in conditions of excessive moisture, peat soils, and muck soils) and soils of mineral origin (i.e., soils other than those of organic origin).

Soil protection is regulated by the Environmental Protection Law[45] in Section IV "Protection of the Earth's Surface." According to Article 3(25) of the aforementioned act, "the Earth's surface" refers to the terrain, soil, land, and groundwater, with the following definitions: soil means the upper layer of the lithosphere, composed of mineral parts, organic matter, soil water, soil air, and organisms, including the topsoil and subsoil; earth means the upper layer of the lithosphere, located below the soil, to the depth of human impact, and groundwater – means underground water within the meaning of Article 16(68) of the Water Law, which is located in the saturation zone and remains in direct contact with the soil or subsoil. It has been established that the earth's surface covers the entire earth's crust within the borders of the Republic of Poland.[46]

Therefore, the legislator recognizes that the earth's surface consists of the natural formation of soil and land, as well as groundwater. With regard to the protection of the earth's surface ("soil, land, groundwater"), the starting point is Article 101 of the Environmental Protection Law. In principle, each aspect of land surface protection covered by Article 101 of the Environmental Protection Law could be addressed separately, but due to the scope of this discussion, it is only possible to highlight certain issues, specifically those related to soil.

The vagueness of the term "land surface" has been rightly pointed out. If we take into account the different ways in which land is used, it is clear that the impact of human activity on the soil will be different in the case of waste storage and different in the case of aggregate extraction.[47] The literature indicates that the basic way of grouping legal instruments for land surface protection is to divide them into preventive and repressive instruments.[48] Marek Górski includes among preventive instruments, among others, planning instruments, including local spatial development plans and plans for

[45] Act of 27 April 2001 – Environmental Protection Law (i.e. Journal of Laws of 2025, item 647, as amended; hereinafter: the Environmental Protection Law).

[46] M. Górski, *Prawna ochrona...*

[47] A. Kaźmierska-Patryczna, M.A. Król, point 14.1, in: M. Górski (ed.), *Prawo ochrony środowiska*, Warszawa 2021, pp. 583–590.

[48] M. Górski, *Prawna ochrona...*, p. 8.

the management of degraded land, as well as regulatory measures limiting the use of land surface, such as (formerly) soil quality standards, reclamation decisions, consent to change the intended use of land, and permission to exclude land from production.[49] Repressive measures, on the other hand, include various types of sanctions for violations of the law.

Considering the possible methods of protecting the earth's surface listed in Article 101 of the Environmental Protection Law, it is easy to see that a certain gradation of protection methods has been applied. The legislator starts from rational land use, which is understandable, as the possible directions of land use always depend on the decision on the method of land use. In this regard, the protection instruments regulated in the Act on Spatial Planning and Development[50] and the Act on the Protection of Agricultural and Forest Land[51] will be important. The former have for years been the basic tools for protecting agricultural and forest land from changes in use and are quantitative in nature. Konrad Marciniuk recognizes the essence of agricultural land use regulations and their necessity for maintaining the productivity of agricultural land.[52] Some of the legal protection measures create additional formalities required of investors for a complete change in the use of agricultural or forest land to other purposes. This concerns, in particular, the requirements for government administration approvals for changes in the designated use of agricultural and forest land.

Therefore, in addition to the fact that it is only possible to change the legal purpose of agricultural and forest land by means of a local law, the consent of the competent government authorities is also required. In essence, the protection of agricultural and forest land is expressed in a system of formal obstacles to changes in its purpose. This is because there is no substantive legal requirement in the legislation to use agricultural and forest land exclusively in accordance with the properties of the soil on which it is located, nor is there a requirement for planning authorities to treat such soil in this way. It should be remembered that spatial planning and development takes into account, in particular, the needs of agricultural and forest land protection,

[49] Ibidem.

[50] Act on Spatial Planning and Development of 27 March 2003 (Journal of Laws of 2024, item 1130, as amended).

[51] Act of 3 February 1995 on the protection of agricultural and forest land (Journal of Laws of 2024, item 82, as amended; hereinafter: the Act on the protection of agricultural and forest land).

[52] K. Marciniuk, *Ochrona gruntów rolnych w świetle reformy systemu planowania przestrzennego z 7 lipca 2023 r.*, "Przegląd Prawa Rolnego" 2025, no. 1, pp. 11–27.

as well as those related to the shaping of agricultural production space and the development of agricultural production.[53] There is no doubt that among these needs, it is necessary to point out the need to preserve their function in agricultural production zones or multifunctional zones with farm buildings in the general plan of the municipality.[54]

When it comes to preserving environmental, economic, social, and cultural functions, including, among other things, the ability to produce food and biomass and to store, filter, and transform nutrients, substances and water or the basis for the development of life and biodiversity, sources of raw materials, carbon sinks, geological, geomorphological and archaeological heritage, environmental protection regulations as well as regulations on agricultural use, the above mentioned legal solutions adopted for the purposes of spending funds under the common agricultural policy become of fundamental importance.[55] For example, organic farming rules can help preserve future production capacity through organic methods.[56] On the other hand, if the farm's arable land covers an area of more than 10 ha, it is good agricultural practice to set aside at least 4% of that land for non-productive areas or features. Non-productive areas or objects include, for example, landscape elements such as agricultural land owned by a farmer, e.g., trees that are natural monuments, protected under nature conservation regulations, ditches less than 2 m wide, or ponds within the meaning of Article 4(10)

[53] Article 1(2)(3a) and (15) of the Act on Spatial Planning and Development.

[54] Article 13c of the Act on Spatial Planning and Development.

[55] Regulation (EU) 2021/2115 of the European Parliament and of the Council of 2 December 2021, laying down rules on support for strategic plans drawn up by Member States under the common agricultural policy (CAP Strategic Plans) and financed by the European Agricultural Guarantee Fund (EAGF) and the European Agricultural Fund for Rural Development (EAFRD) and repealing Regulations (EU) No 1305/2013 and (EU) No 1307/2013 (OJ EU L 435 of 6.12.2021, as amended), p. 1; Commission Delegated Regulation (EU) 2022/126 of 7 December 2021 supplementing Regulation (EU) 2021/2115 of the European Parliament and of the Council (EU) 2021/2115 with additional requirements for certain types of interventions defined by Member States in their CAP Strategic Plans for 2023–2027 on the basis of that Regulation, as well as provisions on the coefficient for good agricultural and environmental condition (GAEC) standard No. 1 (OJ EU L 20 of 31 January 2022, as amended), p. 52; Regulation of the Minister of Agriculture and Rural Development of 10 March 2023 on good agricultural and environmental condition standards (Journal of Laws, item 478, as amended); Act of 10 July 2007 on fertilizers and fertilization (Journal of Laws of 2021, item 76, and of 2022, items 1370 and 2364); Act of 8 March 2013 on plant protection products (Journal of Laws of 2023, items 340 and 412).

[56] Act of 23 June 2022 on organic farming and organic production (Journal of Laws, item 1370, and of 2023, item 412).

of the Act on the Protection of Agricultural and Forest Land with an area of less than 100 m^2.[57] The example cited shows the possible impact of agricultural use on landscape formation. Undoubtedly, the regulations on the expenditure of funds under the common agricultural policy, including the National Strategic Plan, are protective measures of an incentive nature, as it is financial incentives that are intended to encourage the use of solutions that promote soil functionality.

Prevention of contamination with hazardous substances and remediation is another method of protecting land surfaces listed in Article 101 of the Environmental Protection Law. According to Article 3(31)(b) of the aforementioned Act, remediation means "subjecting soil, land, and groundwater to measures aimed at removing or reducing the amount of hazardous substances, controlling them, and limiting their spread, so that the contaminated site no longer poses a threat to human health or the environment, taking into account the current and, if possible, planned future use of the site; remediation may consist of self-cleaning if it brings the greatest benefits to the environment," and therefore covers the entire environment of water and soil conditions. Remediation methods include, in particular, the removal of contamination, at least to the permissible level of substances causing risk in soil and earth, as well as other methods leading to the removal of significant risks to human health and the environment, taking into account the current and, where possible, planned use of the land, such as:

– reducing the amount of contamination, or

– limiting the spread of contamination and controlling contamination by periodically testing soil and ground contamination at specified intervals, or

– self-cleaning of the earth's surface, possible measures to support self-cleaning, controlling pollution by periodically testing soil and earth pollution within a specified period of time, possible restriction of human access to the contaminated area, and the possible need to change the use of the contaminated area.

Contamination of the earth's surface is assessed on the basis of exceeding the permissible levels of substances causing risk in soils or earth. Contamination is measured according to the criterion of violation of the "functions performed by the earth's surface," taking into account the impact of the substance on human health and the environment. The function performed by the land surface is assessed on the basis of its actual development and

[57] Regulation of the Minister of Agriculture and Rural Development of 10 March 2023 on standards of good agricultural practice compatible with environmental protection (Journal of Laws, item 478, as amended).

use, unless another function results from the land use designation in the local spatial development plan, the decision on the location of a public purpose investment, or the decision on the location of a railway line.[58] However, soil, land, or groundwater shall not be considered contaminated if the substances found therein are of natural origin.

Substances posing a particularly significant risk to the protection of land surfaces, their permissible content in soil and permissible content in earth, differentiated for individual soil properties and land groups and separated based on their use as disclosed in the land and building register, are specified in Annex 1 to the Regulation of the Minister of the Environment on the method of assessing land surface pollution, unless a local spatial development plan has been adopted or amended for a given area, in which case the description of the group of areas takes into account the use of the land in accordance with its planning designation.[59] In turn, the permissible content in soil and the permissible content in land of a substance causing a risk, other than that indicated above, is determined on the basis of an analysis of the impact of the presence of that substance in soil or land on human health and the environment, prepared in writing in the manner specified in § 4 of the Regulation.

In accordance with the Regulation, the following are considered to be sources of information relevant to the assessment of the risk of soil or earth contamination: 1) local spatial development plan; 2) environmental impact assessment and report on the impact of the project on the environment; 3) eco-physiographic study; 4) air protection program; 5) an ecological review; 6) a river basin management plan, together with studies prepared for the purposes of that plan; 7) geological databases; 8) decisions specifying the conditions for the use of the environment; 9) other sources of information allowing the assessment of the risk of soil or land contamination in a given area.

Historical pollution obliges the entity referred to as the "land owner" to carry out remediation, unless another entity is responsible for the pollution. Therefore, in this case, the "polluter pays" principle remains unchanged.[60]

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[58] Article 101a of the Environmental Protection Law; Regulation of the Minister of the Environment on the method of assessing soil contamination of 1 September 2016 (Journal of Laws of 2016, item 1395, hereinafter: the Regulation); Act on the prevention and repair of environmental damage of 13 April 2007 (i.e. Journal of Laws of 2020, item 2187, as amended, hereinafter: the Environmental Damage Act).

[59] See § 3(4) and (4a) of the Regulation.

[60] Articles 101h–101l of the Environmental Protection Law.

Pollution prevention is the responsibility of every entity controlling the land surface – the owner.

It should be added that when it comes to preventing agricultural land pollution, the regulations require the prevention of degradation and devastation of agricultural land as well as damage to agricultural production resulting from non-agricultural activities and mass earth movements. The preventive measures include the reclamation and development of land for agricultural purposes, the preservation of peat bogs and ponds as natural water reservoirs or the limitation of changes to the natural shape of the land.[61]

The legislator does not use the term "soil" but "land" in relation to reclamation obligations, and only part of reclamation is "soil restoration." According to the Act on the Protection of Agricultural and Forest Land, land reclamation "is understood as giving or restoring degraded or devastated land its utility or natural value by properly shaping the terrain, improving its physical and chemical properties, regulating water relations, restoring soil, strengthening slopes, and rebuilding or constructing necessary roads." However, since it is the type of soil that determines the type of land use, i.e., agricultural land within the meaning of the aforementioned act, land protection also includes soil protection in light of the aforementioned regulation.

Remediation under the Environmental Protection Law does not preclude reclamation. A person causing the loss or reduction of the usable value of land is obliged to reclaim it at their own expense.[62] Land reclamation and development is planned, designed, and implemented at all stages of industrial activity. The Act mentions "reclamation for agricultural purposes of agricultural land that has been devastated or degraded." Since the concept of reclamation refers to giving or restoring the utility or natural value of the degraded or devastated land, it should be assumed that the goal is to restore the same properties as those lost.

In principle, agricultural or forestry use is consistent with the objectives of the Act, even if this is not always clearly stated in the provisions of the Act on the protection of agricultural and forest land. Ultimately, it is the decision-making authority that decides on the direction of reclamation, and this solution does not seem to be consistent with the objectives of the Act. The reclamation process should be focused on restoring devastated land by restoring its utility or natural value. The decisive criterion for choosing the method of reclamation of devastated land should therefore be the restoration

[61] Article 3 of the Act on the Protection of Agricultural and Forest Land.

[62] Chapter 5 of the Act on the Protection of Agricultural and Forest Land.

of the land to its previous condition.[63] The latter view seems to be the most reasonable. The rule is that "land reclamation is carried out as the land becomes completely, partially, or temporarily unnecessary for industrial activity and is completed within 5 years of the cessation of such activity."

In areas where land subsidence is expected as a result of mining activities, an industrial plant, at the request of the owner, begins reclamation before land degradation occurs. It should be added that the issues of reclamation of mining areas are regulated separately in the provisions of the Geological and Mining Law.[64] However, in accordance with this legal act, damage to agricultural or forest land degraded or devastated as a result of mining operations shall be repaired in the manner specified in the provisions on the protection of such land.

Devastation and degradation of agricultural and forest land that is subject to reclamation under the provisions of the Act on the Protection of Agricultural and Forest Land must be differentiated from the contamination with substances, preparations, organisms, or microorganisms. Since 30 April 2007 the latter has been governed by the provisions of the Act on Environmental Damage and before this Act came into force the provisions of the Environmental Protection Law were applicable such contamination.

In addition, with regard to areas where there is a concentration of pollution in the areas of industrial plants, it is possible to establish a restricted use area. In particular, the management plan for such an area specifies, among other things, how to counteract the reduction in the usable value of the soil.[65]

When it comes to other methods of protecting the earth's surface listed in Article 101, points 4–7 of the Environmental Protection Law including among other things maintaining the best possible condition of the soil; minimizing the degree and mitigating the effects of soil sealing [...]; preventing mass earth movements and their effects or counteracting adverse changes in the natural shape of the earth's surface[66] as specified in this regulation, both the above-mentioned legal solutions and the provisions of the Construction

[63] Judgment of the Provincial Administrative Court in Łódź of May 21, 2021, II SA/Łd 271/21, Legalis.

[64] Articles 146 and 147, Section VIII "Liability for damage" of the Geological and Mining Law of June 9, 2011 (Journal of Laws of 2024, item 1290, hereinafter: the Geological and Mining Law).

[65] Article 16 of the Act on the Protection of Agricultural and Forest Land.

[66] More information on the legal protection of landforms: K. Świderski, *Prawna ochrona ukształtowania terenu w procesie jego zagospodarowania – zagadnienia wybrane*, "Przegląd Prawa Rolnego" 2021, no. 2, pp. 477–793.

Law[67] and the provisions relating to the use of agricultural land, including those concerning fertilization,[68] and cultivation will apply.

In particular, in terms of "minimizing the extent and mitigating the effects of soil sealing," it will be important to design and construct buildings based on ensuring "sustainable use of natural resources." As pointed out, "The construction of a building always has an impact on the environment, changing the natural terrain by creating excavations for foundations and embankments from these excavations. It is the architectural and construction authority that, when approving a construction project, determines the permissible transformation of natural elements, including changes to the natural terrain, in connection with the implementation of a specific investment."[69] In addition, the designation of the necessary biologically active area within the investment site during the construction process will affect the amount of soil covered.

While, for example, the use of fertilizers intended to provide plants with nutrients or increase soil fertility or increase the fertility of fish ponds being mineral fertilizers, natural fertilizers, organic fertilizers, and organic-mineral fertilizers, will affect the condition of the soil and the content of specific components in it. Therefore, both the process of plants or soil fertilization and soil reclamation using fertilizers approved for marketing in good agricultural practice, provided that it has a positive effect, will fall within the scope of soil protection guidelines set out in Article 101(4) of the Environmental Protection Law.

With regard to counteracting mass earth movements (Article 101(6)), it is worth bearing in mind that the legislator imposes such an obligation only in relation to agricultural land to counteract soil degradation, including in particular erosion and mass earth movements. In some cases the owner may even be required to afforest, tree or shrub the land, or to establish permanent grassland on it.[70] Of course, the direction of land protection results from the provisions of the Environmental Protection Law, including Article 101.

[67] Construction Law Act of July 7, 1994 (i.e. Journal of Laws of 2025, item 418, as amended; hereinafter: the Construction Law).

[68] Act of 10 July 2007 on fertilizers and fertilization (i.e. Journal of Laws of 2024, item 105, as amended).

[69] Judgment of the Provincial Administrative Court in Łódź of 7 April 7, 2017, II SA/Łd 1034/16, Legalis.

[70] Article 15 of the Act on the Protection of Agricultural and Forest Land.

Conclusions

The numerous threats to soil health are a fact and must be considered. Their intensity and direction depend on a number of factors of which anthropogenic are dominant and lead to a disruption of the natural balance in the ecosystem. The negative impact is a result of agricultural, industrial, and transport activities, as well as infrastructure development, as they have a significant impact on the surrounding environment, including the soil. This results in adverse, degradative changes leading to a reduction in soil functionality and, consequently, its production, retention, and sequestration capacities. Bearing in mind that soil is a natural and non-renewable resource, it is necessary to take care of its condition and protect it in all ways possible. Today, there are a number of different tools that enable this, and focus is put on proper, sustainable agricultural practices, good agricultural practices, as well as the need to minimize and reduce damage to the environment through the use of reclamation measures.

Despite the importance of soil protection, it has not been possible to adopt a uniform legal framework at the EU level, which shows clearly the different approaches and policies of individual Member States regarding its essence as a public good. The complexity of the issues discussed above does not help the problem either. However, there are big expectations placed in the Soil Monitoring Directive adopted in September 2025, which is a certain compromise reached by Member States on the management of EU soils, intended to serve the fundamental objective of achieving soil health by 2050. This process, however, can only really begin three years after the enforcement of the Directive. The new Directive turns into a decisive systemic change in the approach to agriculture and agricultural production, which cannot however be achieved without the appropriate legal instruments that must be adopted at the level of individual Member States and with the full participation of agricultural producers.

National legislation on soil protection issues has been fragmented and chaotic for years. Various legislative acts cover separate areas of soil protection regulation. As a result, the legal instruments for soil protection are also diverse. In principle, under national legislation, soil protection is covered by acts on the protection of the Earth's surface or the protection of agricultural land. The legislator does not devote separate attention to soil protection. Soil protection has been linked to the classification of its quality and its use as specified in the land and building register and the legal designation of land. Through the classification of soils in terms of their quality, they are

formally designated as agricultural or forest land. Planning instruments which determine the method of development, use, scope of investment and its admissibility are of paramount importance in soil protection. They also serve as a reference point and categorization of pollution levels when assessing soil pollution. Nevertheless, there is still a lack of a holistic approach and the establishment of a general requirement to use agricultural land in accordance with its agricultural purpose.

In pursuit of the objective of the considerations, it should be noted that the regulations in force contain solutions that allow for the protection of soil health, but they are not perfect and refer to local and specific situations, ignoring the general aspect of the problem.

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