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Katarzyna Leśkiewicz
Adam Mickiewicz University (Poznań), Poland
ORCID: 0000-0001-5261-2752
katarzyna.leskiewicz@amu.edu.pl

Legal Protection of the Productive Capacity of Soils – Selected Issues

Prawna ochrona zdolności produkcyjnej gleb – zagadnienia wybrane

ABSTRACT

The subject of the article is the legal aspects of protecting the productive capacity of soils. The study is of a scientific and research nature. The author starts from the statement that soils perform, in particular, environmental, economic, social and cultural functions, while for the protection of the characteristics that determine the possibility of using soils in food production, production functions, combined with the production function of agriculture, are important. Thus, the purpose of the analysis is to determine whether current Polish legislation sufficiently takes into account the need to protect the productive capacity of soils, understood as the possibility of sustainable use of these resources for food production. Consideration of this issue leads to the conclusion that the current legislation does not sufficiently take into account the need to protect the productive functions of soils, while a certain degree of protection is assumed by draft EU legislation on, among other things, soil monitoring granting Member States a significant role in tracking, assessing and managing the condition of soils.

Keywords: soil conservation; soil management; sustainable development; circular economy

CORRESPONDENCE ADDRESS: Katarzyna Leśkiewicz, PhD, Dr. Habil., University Professor, Adam Mickiewicz University (Poznań), Faculty of Law and Administration, Department of Agricultural, Food and Environmental Protection Law, Niepodległości 53, 61-714 Poznań, Poland.

INTRODUCTION

In particular, soils have environmental, economic, social and cultural functions. Therefore, the issue of protecting their productive capacity can be considered from a variety of perspectives, including the point of view of protecting the characteristics that determine the possibility of using soils in food production.[1] In this sense, the production function of soils can be equated with the production function of agriculture.

For years, there has been a decline in the amount of land resources, the problem of land degradation, the endangerment of biodiversity and many other adverse phenomena. The need to protect soils is also driven by ongoing climate change, the projected loss of land suitable for human habitation, population migration and human population growth. Therefore, the challenge for specialists is to find the right cultivation methods (combining use with protection) and for the legislator to find solutions that will preserve the properties of soils for future generations in accordance with the principle of sustainable development.

Polish legislator rarely uses the phrase "productive capacity of soils".[2] In turn, the term "soil" sometimes appears in legal acts alongside the term "land". In both EU and Polish legislation, there are different terms in this regard. In particular, in the regulation of land management, the Polish legislator uses the term "land".[3] On the other hand, in regulations related to environmental protection, it is more common to encounter the term "soil", which is essentially an element of the "land surface".[4]

"Soil" means the upper layer of the lithosphere, consisting of mineral parts, organic matter, soil water, soil air and organisms, including the topsoil and subsoil, and "ground" is the upper layer of the lithosphere below the soil to the depth of

[1] European Commission, Directorate-General for Research and Innovation, *Caring for Soil Is Caring for Life – Ensure 75% of Soils Are Healthy by 2030 for Healthy Food, People, Nature and Climate – Interim Report of the Mission Board for Soil Health and Food*, Brussels 2020, https://data.europa.eu/doi/10.2777/918775 (access: 30.4.2024); European Commission, *Mission Soil Platform*, https://mission-soil-platform.ec.europa.eu (access: 15.8.2025). The eight mission objectives the initiative titled "A Soil Deal for Europe" are: reduce desertification; conserve soil organic carbon stocks; stop soil sealing and increase re-use of urban soils; reduce soil pollution and enhance restoration; prevent erosion; improve soil structure to enhance soil biodiversity; reduce the EU global footprint on soils; improve soil literacy in society.

[2] The production function is not the only function of agriculture. See more closely R. Budzinowski, *Problemy ogólne prawa rolnego. Przemiany podstaw legislacyjnych i koncepcji doktrynalnych*, Poznań 2008, p. 192.

Article 195 and Chapter 4 of the Act of 20 July 2017 – Water Law (consolidated text, Journal of Laws 2023, item 1478, as amended).

[3] Act of 3 February 1995 on the protection of agricultural and forestry land (consolidated text, Journal of Laws 2024, item 82, as amended), hereinafter: APAFL.

[4] Article 3 (25) (a) of the Act of 27 April 2001 – Environmental Protection Law (consolidated text, Journal of Laws 2024, item 54, as amended), hereinafter: EPL.

human interaction.[5] According to Article 3 (1) of the Draft Soil Monitoring Law,[6] "soil" means the top layer of the Earth's crust situated between the bedrock and the land surface, which is composed of mineral particles, organic matter, water, air and living organisms.

The terminology of the legal language concerning soils is therefore diverse and strictly subordinated to the goals of regulation. For these reasons, among the legal acts that mark the area of study, their two groups should be identified. Firstly, these are regulations of agricultural law, and secondly, environmental law. They are the ones that address the issue of restrictions on the use of soils, techniques for their cultivation, prevention of their transformation, degradation of soils.[7] In doing so, it is necessary to take into account the proposed legislation.[8]

Legal protection of the productive capacity of soils has not yet been the subject of a legal monograph, but representatives of legal sciences have been interested in it. The issue has also been addressed in publications related to the rational management of soils,[9] whether in other respects,[10] which, due to changes in legal regulations, have become obsolete.[11]

The study of the issue specified in the title is justified for several reasons, especially socio-economic, theoretical and legal, or cognitive.

In particular, it is pointed out that about 60–70% of EU soils are currently in poor condition, while about 50% are agricultural land. It is estimated that between 61% and 73% of EU agricultural soils are affected by erosion, loss of organic carbon, nutrient (nitrogen) overshoot, compaction or secondary salinization (or a combination of these threats). Soil compaction, e.g., can reduce yields by 2.5–15%. Without sustainable management and soil regeneration efforts, deterioration of soil health will be a major factor in future food security crises. The need to protect the value of soils warrants action by farmers and lawmakers.

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[5] *Ibidem*.

[6] Proposal for a Directive of the European Parliament and of the Council on Soil Monitoring and Resilience (Soil Monitoring Law), Brussels, 5.7.2023, COM/2023/416 final.

[7] Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage (OJ L 143/56, 30.4.2004); Act of 16 June 2023 on large-scale degraded areas (Journal of Laws 2023, item 1719).

[8] See Draft Soil Monitoring Law.

[9] See, for example. K. Leśkiewicz, *Carbon Farming as an Instrument for Increasing the Resilience of EU Food Systems and Agriculture*, [in:] *Legal and Economic Conditions of Planning and Implementation of EU Policies in the Agri-Food Sector*, ed. G. Spoto, Napoli 2024, pp. 31–53.

[10] M. Niklińska, *Wpływ zanieczyszczeń na funkcje gleby w środowisku i życiu człowieka*, "Wszechświat" 2010, vol. 111(1–3), pp. 44–50.

[11] J. Kostecki, R. Fruzińska, *Ochrona gleb w świetle prawa krajowego i europejskiego*, "Inżynieria Środowiska" 2012, no. 26, pp. 5–14.

Soil health is one of the elements for achieving the Sustainable Development Goals.[12] In particular, it is about combating desertification, rehabilitating degraded land and soils, including areas affected by desertification, droughts and floods, striving to build a world without soil degradation in 2030.[13] The Commission identified eight main phenomena that pose a threat to soil in the EU: erosion, organic matter decline, contamination, salinization, compaction, loss of soil biodiversity, sealing, landslides and flooding.[14]

When it comes to theoretical considerations, one must bear in mind that among the objectives of the Treaty on the Functioning of the European Union,[15] the goal of ensuring security of supply is still valid. Taking into account the TFEU concept of agricultural products, it should be emphasized that they are, among other things, "crops of the earth", which means that they are produced as a result of the use of land (soils). Thus, in TFEU terms, land is a means of production, and since its resources are limited and non-renewable, it is subject to the environmental policy provisions of Article 191 TFEU. The impact of environmental and climate policies is increasingly visible (though not necessarily impressive) in the impact area of the Common Agricultural Policy (CAP).

It is worth mentioning that the condition for receiving direct payments is to meet Good Agricultural and Environmental Condition of Land (GAEC) standards and Statutory Management Requirements (SMRs). Failure to comply with the conditionality requirement does not result in the loss of support, but in a 3% reduction in support for various instruments.

Agriculture should have a production function; this is quite obvious.[16] How the legislature approaches the determinants of soil use in agriculture and their protection may determine their productivity.

The purpose of the considerations is to determine whether existing legislation sufficiently takes into account the need to protect the productive capacity of soils, understood as the possibility of sustainable use of these resources for food production. The article uses the method of dogmatic analysis of legal texts. The considerations are not intended to be exhaustive, but only to signal some problem threads.

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[12] United Nations, *The 17 Goals*, https://sdgs.un.org/goals (access: 30.4.2024).

[13] Draft Soil Monitoring Law, pp. 1–2.

[14] Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions: Towards a Thematic Strategy for Soil Protection, COM(2002)179 final.

[15] Treaty on the Functioning of the European Union of 25 March 1957 (Journal of Laws 2004, no. 90, item 864/2), hereinafter: TFEU.

[16] Draft Soil Monitoring Law, pp. 1–2. See L. Costato, *Multifunzionalità dell'impresa agricola ed equivoci sull'agroalimentare: la PAC snaturata*, "I Georgofili: Atti dell'Academia dei Georgofili" 2014, vol. 11(2), pp. 556–570.

RESEARCH AND RESULTS

1. Materials and methods

As indicated in the literature, soil is the most important component of the biosphere, crucial in the process of energy flow, regulating the circulation of elements necessary for life and maintaining the balance between oxygen and carbon dioxide in the atmosphere, and it is also a source of minerals and, together with water, air and solar energy, ensures the existence and development of life in terrestrial ecosystems. Finally, soil is "the basic link in the soil-plant-animal-human trophic chain".[17] Soil formation is a long-term process: "One centimeter of natural soil is formed over a period of 200 to 400 years, and the formation of a full soil profile (…) requires several thousand years".[18] Therefore, it is recognized that soil is a non-renewable, hardly replaceable resource[19] and moreover limited.

The functions of soils are many and varied. The primary function is a place for roots, plants and soil organisms to live, which participate in the decomposition of organic matter and provide food, biomass and raw materials. In particular, the diversity of soil organisms – bacteria, fungi, and micro- and macrofauna – affect soil properties and their variability. It is also a platform for landscape and human activities, as well as a natural habitat and a place for the accumulation of genetic resources. In particular, soils act as a storehouse for water, nutrients or huge amounts of carbon, as well as a protective buffer for ecosystems against excessive flow of trace elements to other elements of the biosphere. Soil structure depends on natural climatic and geological factors and human activity.[20] As we can see, many factors determine the state and condition of soils. It is also clear how difficult it is to put them into a single category that would be easy to define and regulate. Probably for these reasons, the regulation of the protection of the productive capacity of soils is scattered in various legal acts.

2. Regulatory overview

EU legislation relating to soil protection has evolved. Going back to the statements of some authors, e.g. from 2012, according to which soil was a subject of reference in the regulation of non-soil resources, as well as there was no soil direc-

[17] M. Niklińska, *op. cit.*, p. 44.
[18] *Ibidem*.
[19] See Draft Soil Monitoring Law.
[20] *Ibidem*, p. 45.

tive,[21] it is easy to conclude that soil has not always been given due consideration in regulation.

Soil is protected as an environmental resource, including its use under Article 191 TFEU. Indeed, the objectives of the EU's environmental policy include, among others, the preservation, protection and improvement of the quality of the environment, the prudent and rational use of natural resources, and the promotion at the international level of measures aimed at solving regional or global environmental problems, in particular combating climate change. Soil is therefore a resource that falls among the legislative activities related to the indicated treaty basis.

In addition, soil (or more precisely, land) is the means of production from which agricultural crops are derived within the meaning of the second sentence of Article 38 (1) TFEU. It is therefore a key agricultural resource necessary for the production of agricultural products.

A number of EU activities related to land use have only accelerated in recent years and gained a strategic dimension.[22] Regulations related to land use in the EU are diverse.[23] In particular, in the field of soil protection, legal solutions have for years been included in regulations from the area of various policies – environmental protection[24]

[21] J. Kostecki, R. Fruzińska, *op. cit.*, p. 14.

[22] For example, see 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 – The benefits of healthy soils for people, food, nature and climate, COM/2021/699 final; Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions: European Green Deal, COM/2019/640 final; Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Toward a Healthy Planet for All – An EU Action Plan to Eliminate Water, Air and Soil Pollution, COM/2021/400 final; Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A farm-to-table strategy for a fair, healthy and environmentally friendly food system, COM/2020/381 final; Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions: Ensuring food security and increasing the resilience of food systems, COM/2022/133 final.

[23] Regulation (EU) 2018/841 of the European Parliament and of the Council of 30 May 2018 on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry activities in the 2030 climate and energy policy framework and amending Regulation (EU) No. 525/2013 and Decision No. 529/2013/EU (OJ L 156/1, 19.6.2018); Regulation (EU) 2023/839 of the European Parliament and of the Council of 19 April 2023 amending Regulation (EU) 2018/841 as regards scope, simplification of reporting and compliance provisions, and setting 2030 targets for Member States, as well as amending Regulation (EU) 2018/1999 with regard to improving monitoring, reporting, progress tracking and review (OJ L 107/1, 21.4.2023).

[24] See Directive 2004/35/EC; Act of 16 June 2023 on large-scale degraded areas (Journal of Laws 2023, item 1719); Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC (OJ L 197/1, 24.7.2012).

or the common agricultural policy,[25] and moreover, the effect of their application is proving to be meager. However, it is pointed out that it is the improvement of soil health that will determine in the future whether the EU's resilience and adaptation to climate change can be increased.[26] This will depend on the level of organic matter in the soil and its fertility, ability to retain and filter water, and resistance to erosion.

Under the 2014–2022 CAP, there were measures to encourage farmers to better manage their soils and manure, and the Nitrates Directive set a maximum amount of nitrogen from livestock manure.[27] Nonetheless, the European Court of Auditors assessed that not all of them had been used properly, for a variety of reasons. The Court expressed concern that, despite the improvements proposed for the 2023–2027 period, the auditors' assessment shows that, due to insufficient changes made so far in the implementation measures at the level of some Member States, there is a risk that the overall impact of the improvements on sustainable soil and manure management will be limited.[28]

EU regulation has been paying attention to sustainable land management for years. In particular, it is about switching to crops that promote soil carbon sequestration, including the use of natural practices that help increase carbon sequestration[29] (LULUCF regulation,[30] as well as the EU Emission Trading System).[31]

Common Agricultural Policy support applies to farmers who commit to certain practices or make environmental and climate investments.[32] Ecoschemes support

[25] Regulation (EU) 2021/2115 of the European Parliament and of the Council of 2 December 2021 establishing rules on support for strategic plans to be drawn up by Member States under the common agricultural policy (CAP Strategic Plans) and financed by the European Agricultural Guarantee Fund (EAGF) and by the European Agricultural Fund for Rural Development (EAFRD) and repealing Regulations (EU) No. 1305/2013 and (EU) No. 1307/2013 (OJ L 435/1, 6.12.2021).

[26] Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 on establishing a framework for achieving climate neutrality and amending Regulations (EC) No. 401/2009 and (EU) 2018/1999 (OJ L 243/1, 9.7.2021).

[27] Council Directive 91/676/EEC of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (OJ L 375/1, 31.12.1991). See also European Parliament resolution of 5 April 2022 on measures against water pollution caused by nitrates, including improvements in the different nitrate measuring systems in Member States (OJ C 434/19, 15.11.2022).

[28] European Court of Auditors, *Special Report: EU Efforts for Sustainable Soil Management. Unambitious Standards and Limited Targeting*, https://www.eca.europa.eu/ECAPublications/SR-2023-19/SR-2023-19_EN.pdf (access: 15.8.2025).

[29] Communication from the Commission to the European Parliament and the Council: Sustainable Carbon Cycles, COM/2021/800 final.

[30] See Regulation (EU) 2018/841.

[31] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Union and amending Council Directive 96/61/EC (OJ L 275/32, 25.10.2003); Council Decision (EU) 2016/1841 of 5 October 2016 on the conclusion, on behalf of the European Union, of the Paris Agreement under the United Nations Framework Convention on Climate Change (OJ L 282/1, 19.10.2016).

[32] See Regulation (EU) 2021/2115.

agrotechnical practices such as precision agriculture, agroecology, including carbon farming, organic farming, agroforestry (agro-forestry), aimed at restoring soil health by reducing plowing or other interventions in soil structure (regenerative farming – no till farming). These practices are concerned with increasing the capacity to absorb/accumulate carbon dioxide.[33] Therefore, environmental and climate conditions (Good Agricultural Environmental Condition – GAEC – standards) have been established that farmers receiving income support must comply with. These conditions go beyond basic legal requirements and require additional effort from farmers.

3. Draft legislation on soils

At the EU level, new legislative initiatives are being undertaken by the European Union in the area of agriculture, environment and climate, and in particular in the field of soil protection, expressed in drafts of new legislation,[34] among which it is worth to point out in particular the draft directive on soil monitoring and resilience,[35] as well as the draft regulation on certification of carbon dioxide removal[36] corresponding to the needs arising from the implementation of the closed-cycle economy.[37]

The Draft Soil Monitoring Law proposes the establishment of national management systems, the introduction of a soil monitoring system, the assessment of soil health and the initiation of measures related to sustainable soil management. Once the proposed directive enters into force, Member States are to have a maximum of two years to adopt the measures necessary to transpose the directive. The draft of the aforementioned act is combined with CAP instruments aimed at increasing the environmental performance of the agricultural sector. Indeed, the policy includes mandatory environmental and climate conditions (conditions for good agricultural practices compatible with environmental protection) that farmers must meet in order to receive income support under the CAP. Some of these conditions are related to soil management practices, such as practices to reduce soil erosion (e.g. plowing management, minimum soil cover, crop rotation). The Draft Soil Monitoring Law

[33] M. Drygas, I. Nurzyńska, *Pożądana struktura wsparcia w ramach wspólnej polityki rolnej Unii Europejskiej po 2020 roku oraz cele polityki krajowej w świetle globalnych wyzwań modernizacyjnych wobec polskiego rolnictwa*, Warszawa 2021, p. 39.

[34] 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, Brussels, 22.9.2006, COM/2006/232 final.

[35] See Draft Soil Monitoring Law.

[36] Proposal for a Regulation of the European Parliament and of the Council establishing an EU Framework for Carbon Dioxide Removal Certification, Brussels, 30.11.2022, COM/2022/672 final.

[37] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A new EU Action Plan on a Closed Economy for a Cleaner and More Competitive Europe, COM/2020/98 final.

proposes the establishment of national management systems, the introduction of a soil monitoring system, the assessment of soil health and the initiation of measures related to sustainable soil management. The draft defines basic legal concepts and institutions, such as "soil health and the formation of soil districts", "soil health monitoring", "sustainable soil management", "identification, registration, investigation and assessment of contaminated sites", "remediation (reclamation) of soils to restore their health, and remediation of contaminated sites". In the Draft Soil Monitoring Law "sustainable soil management" means "soil management practices that maintain or improve the ecosystem services provided by the soil without compromising the functions that make these services possible or without harming other environmental properties".

In light of the Draft Soil Monitoring Law, it is possible to identify several future legal instruments for soil protection in EU Member States, which will have to be established after the transposition of the directive. In particular, these are "area-based" instruments, such as: establishment of soil districts; monitoring and adoption of sampling points and adoption of methodologies; common soil indicators, soil health criteria, and soil takeover and soil sealing indicators; a mechanism for voluntary certification of soil health; register of contaminated sites.

As for the former, Member States must establish soil districts throughout their territory. The number of soil districts for each Member State should correspond at least to the number of NUTS 1 territorial units established under Regulation (EC) 1059/2003.[38] The geographical coverage of the soil districts should relate to the soil type as defined in the World Reference Soil Resource Database, climatic conditions, or environmental zones as described in the Alterra 228175 report, and land use or land cover according to the Land Use and Land Cover Survey Program (LUCAS).

According to Article 6 of the Draft Soil Monitoring Law, the monitoring framework must take into account the soil indicators and soil health criteria referred to in Article 7; the soil sampling points determined in accordance with Article 8 (2); any soil measurement carried out by the Commission in accordance with para. 4 of this Article, if any; the remote sensing data and products referred to in para. 5 of this Article, if any; the land take and soil sealing indicators referred to in Article 7 (1). The aforementioned scope indicates a desire to unify the soil health databases in the EU, using uniform criteria and tools. The Draft Soil Monitoring Law states that the Commission and the European Environment Agency (EEA) are already using existing data and satellite products provided under the Copernicus component of the EU space program established by Regulation (EU) 2021/696[39] to study

[38] Regulation (EC) No. 1059/2003 of the European Parliament and of the Council of 26 May 2003 on the establishment of a common classification of territorial units for statistics (NUTS) (OJ L 154/1, 21.6.2003).

[39] Regulation (EU) 2021/696 of the European Parliament and of the Council of 28 April 2021 establishing the Union Space Programme and the European Union Agency for the Space Programme

and develop soil remote sensing products to support member states in monitoring relevant soil indicators.

The periodic assessment performed once every five years as to whether the soil is healthy is to be based on the assumption that when the soil meets the criteria in the directive, it is healthy. The issue of scientific assessment should be the criteria for evaluating soils.

In turn, it is up to the Member States to identify sustainable soil management practices consistent with the principles of sustainable soil management listed in Annex III, to be gradually implemented on all managed soils, and, based on the results of soil assessments carried out in accordance with Article 9, regeneration practices to be gradually implemented on unhealthy soils in the Member States, as well as to identify soil management practices and other practices that negatively affect soil health, which soil managers should avoid (Article 10 of the Draft Soil Monitoring Law). It is worth mentioning that in the *Voluntary Guidelines for Sustainable Soil Management*, the Food and Agriculture Organization of the United Nations has identified agricultural practices that minimize negative impacts on soils, such as the use of cover crops, reduced tillage, crop rotation, optimal use of nutrients and protection of carbon-rich soils, but also outlined practices to be avoided, such as crop burning and over-fertilization.[40]

The second of the draft acts mentioned, relevant to soil conservation, is the draft regulation on a common framework for certification of carbon dioxide removal, related to carbon farming. According to the act, "carbon farming" means a carbon removal activity as part of land management that results in greater carbon storage in biomass, dead organic matter and soils through increased carbon capture or reduced release of carbon dioxide into the atmosphere.[41] For the purposes of certification, however, "carbon dioxide removal" has been assumed to be "either the storage of atmospheric or biogenic carbon dioxide in geological carbon reservoirs, biogenic carbon reservoirs, sustainable products or materials, and the marine environment, or the reduction of the release of carbon dioxide from a biogenic carbon reservoir into the atmosphere".[42] In addition, for the efficiency of carbon farming systems,

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and repealing Regulations (EU) No. 912/2010, (EU) No. 1285/2013 and (EU) No. 377/2014 and Decision No. 541/2014/EU (OJ L 170/69, 12.5.2021).

[40] Food and Agriculture Organization of the United Nations, *Voluntary Guidelines for Sustainable Soil Management*, Rome 2017. See also Proposal for a Regulation of the European Parliament and of the Council establishing an EU Framework for Carbon Dioxide Removal Certification, Brussels, 30.11.2022, COM/2022/672 final; Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A new EU Action Plan on a Closed Economy for a Cleaner and More Competitive Europe, COM/2020/98 final.

[41] Proposal for a Regulation of the European Parliament and of the Council establishing an EU Framework for Carbon Dioxide Removal Certification, Brussels, 30.11.2022, COM/2022/672 final.

[42] *Ibidem*.

sustainable effects of agro-ecosystems are necessary, which are at risk of being lost, e.g., in natural disasters or fires. Some mechanisms are subject to regulation, e.g. responsibilities with regard to geological storage and CO_2 leakage and corresponding remediation measures have already been established by Directive 2003/87/EC and Directive 2009/31/EC of the European Parliament and of the Council,[43] technical qualification criteria,[44] sustainability criteria for forest biomass,[45] whether the issues of monitoring and reporting of greenhouse gas emissions under Directive 2003/87/EC.[46]

4. Scattering of soil regulations

Soil protection is alluded to in a wide variety of other legislation. Basically, these are legal requirements related to the use of the environment, including specific (not universal) ones. Legal regulations mainly relate to the protection of soils in economic activities.

In particular, the obligation to protect soils has been taken into account in the conditions for carrying out construction works and natural compensation (during construction works, the investor implementing the project is obliged to take into account the protection of the environment in the area of carrying out the works, in particular, the protection of soil, greenery, natural landforms and water relations).[47]

Protection of soils, including from emissions, is dealt with by the provisions of the EPL when defining the scope of the integrated permit (the integrated permit also specifies, with respect to the installation requiring an integrated permit, the requirements to ensure the protection of soil, land and groundwater, including measures to prevent emissions to soil, land and groundwater, and the manner of their systematic monitoring, if necessary).[48]

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[43] Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No. 1013/2006 (OJ L 140/114, 5.6.2009).

[44] Commission Delegated Regulation (EU) 2021/2139 of 4 June 2021 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by establishing the technical screening criteria for determining the conditions under which an economic activity qualifies as contributing substantially to climate change mitigation or climate change adaptation and for determining whether that economic activity causes no significant harm to any of the other environmental objectives (OJ L 442/1, 9.12.2021).

[45] Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (OJ L 328/82, 21.12.2018).

[46] Commission Implementing Regulation (EU) 2018/2066 of 19 December 2018 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council and amending Commission Regulation (EU) No. 601/201 (OJ L 334/1, 31.12.2018).

[47] Article 75 (1) EPL.

[48] Article 211 (6) (3) EPL.

Also, in the protection of animals and plants, the "needs of soil conservation" are taken into account (it is implemented, among other things, through afforestation or the creation of vegetation clusters, especially when the needs of soil conservation, animals, climate formation and other needs related to ensuring biodiversity, natural balance and meeting the needs of recreation and leisure of people speak for themselves).[49]

In particular, in Article 101 EPL, among others, the legislator indicates in detail the protective measures relating to the land surface. Among them, the most noteworthy is preservation of environmental, economic, social and cultural functions, including, among others, food and biomass production. It is these qualities of soils – captured as the aforementioned functions – that determine the productive capacity of soils in agriculture, but interestingly enough, these functions are explicitly mentioned in most environmental regulations, rather than the strictly agricultural legislation under which soils are used.

Protection of soils and areas particularly vulnerable to contamination or damage and of special social importance is, among other things, the goal of forest management.[50] In order to ensure the general protection of forests, forest owners are obliged to shape the balance of forest ecosystems, increase the natural resilience of forest stands, and in particular to protect forest soil and water.[51]

In turn, in the regulations on the protection of agricultural and forest land, attention should be paid to the entire Chapter 4 APAFL devoted to "preventing land degradation", which prescribes that the owner of land constituting agricultural land and land reclaimed for agricultural purposes is obliged to prevent soil degradation, including, in particular, erosion and earth mass movements.[52] But already with reclamation, the legislator uses the term "land" and not "soils" – person causing the loss or reduction of the use value of the land is obliged to reclaim it at its own expense.[53] Decisions on matters of reclamation and development also specify, among other things, the degree of diminution or diminution of the land's value in use.[54]

The terms "soil" and "land" are clearly distinguished in the regulations on the prevention and remediation of environmental damage, especially when studying soil and land contamination under Article 3 (2a) EPL.[55]

[49] Article 127 (2) (7) EPL.

[50] Article 7 (1) (3) of the Act of 28 September 1991 – Forest Law (consolidated text, Journal of Laws 2024, item 530, as amended).

[51] Article 9 (1) (3) of the Forest Law.

[52] Article 15 (1) APAFL.

[53] Article 20 (1) APAFL.

[54] Article 22 (1) APAFL.

[55] Article 6 (1a) of the Act of 13 April 2007 on environmental damage prevention and remediation (consolidated text, Journal of Laws 2020, item 2187, as amended).

It should be mentioned that soil protection is among the elements that are relevant in assessing whether an economic activity qualifies as "making a significant contribution to the protection and restoration of biodiversity and ecosystems" through, among others, sustainable land use and management, including adequate protection of soil biodiversity, neutrality of land degradation and remediation of contaminated sites, as well as sustainable agricultural practices, including practices that contribute to enhancing biodiversity or to halting or preventing land and other ecosystem degradation, deforestation and habitat loss.[56] The regulations were based on the premise that an economic activity should not qualify as environmentally sustainable if it causes more harm than benefit to the environment.[57] A given economic activity should qualify as making a significant contribution to one or more environmental goals for climate change mitigation (climate change adaptation, sustainable use and protection of water and marine resources, transition to a closed loop economy, pollution prevention and control, protection and restoration of biodiversity and ecosystems). "Soil" for the purposes of Regulation 2020/852 is understood as "the top layer of the earth's crust located between the bedrock and the surface, consisting of mineral particles, organic matter, water, air and living organisms".[58]

A significant contribution to climate change mitigation can be understood as, among other things, activities to strengthen terrestrial carbon sinks, including through combating deforestation and forest degradation, forest restoration, sustainable management and restoration of cropland, grasslands and wetlands, afforestation, and regenerative agriculture.[59] On the other hand, when it comes to "making a significant contribution to the prevention and control of pollution", activities serving these purposes are considered to be the prevention or, when this is not feasible, the reduction of emissions of pollutants – other than greenhouse gas emissions – into the air, water or land, as well as improving the quality of air, water or soil in the areas where the economic activity is carried out, while minimizing any adverse effects or risks to human health and the environment.[60]

The aforementioned legal acts do not directly refer to the functions of soils, however, to those aspects that affect their characteristics, enabling food production. On the other hand, the functions of soils are treated directly by the provisions of

[56] Article 15 (1) of Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 (OJ L 198/13, 22.6.2020).

[57] Para. 40 of the Preamble of Regulation 2020/852.

[58] Article 2 (11) of Regulation 2020/852.

[59] Article 10 (1) (f) of Regulation 2020/852.

[60] Article 14 (1) (a) and (b) of Regulation 2020/852. See also Annex I to Commission Delegated Regulation 2021/2139.

the Water Law and the provisions of the defunct Water Law of 2001.[61] According to Article 195 of the Water Law, water melioration consists of regulating water relations to improve the productive capacity of the soil and facilitate soil cultivation. Water reclamation has been an important instrument for soil protection for years. Among the legal solutions that can promote the protection of the productive function of soils are requirements for the use and protection of water in agricultural activities, including fertilizer management.[62]

In addition, it is interesting to note that soil functions were mentioned explicitly, e.g., in the provisions of the Agreement between the EU and the Socialist Republic of Vietnam when regulating cooperation on environmental issues.[63]

DISCUSSION AND CONCLUSIONS

The newest opportunities for the protection of the productive functions of soils are provided by proposed EU legislation, including the Draft Soil Monitoring Directive, or fertilizer regulations, which cannot be discussed within the framework of this discussion. It is safe to say that the protection of the productive functions of soils can be affected by all those regulations that deal with the protection of terrestrial ecosystems, including those dependent on water.

In summary, in light of the TFUE, soil in agricultural production is part of the land with a dual character – a means of production on the one hand and an environmental resource on the other. Related to the former statement is the need to protect its productive qualities, that is all those qualities that make it possible to use it in manufacturing activities. This involves protection from negative human agrotechnical impacts, including fertilization, the use of pesticides, the use of improper cultivation practices, etc.

The soil, in turn, being an environmental resource, implies the need to protect those characteristics that will preserve it for future generations as a component of the biosphere and living environment. The treaty solution thus reflects the production function of agriculture, based on the primary means of production – the land.

In the current state of the law, there is no general prohibition on the use of soils with good physical and chemical properties for purposes other than exclusively for food production. For example, in the field of protection of soils both qualitative

[61] Article 70 of the repealed Act of 18 July 2001 – Water Law (consolidated text, Journal of Laws 2017, item 1121).

[62] Article 195 and Chapter 4 of the Act of 20 July 2017 – Water Law (consolidated text, Journal of Laws 2023, item 1478, as amended).

[63] Article 30 (4) (i) of the Framework Agreement on Comprehensive Partnership and Cooperation between the European Union and its Member States, of the one part, and the Socialist Republic of Vietnam, of the other part, done at Brussels on 27 June 2012 (Journal of Laws 2017, item 618).

and quantitative protection is formal. In particular, it comes down only to the obligation to obtain the relevant acts for change of use, as well as for exclusion from agricultural production and soil classification. In any case, however, the legislation does not establish a general order to use soils with physical and chemical properties exclusively for food production.

Thus, current legislation does not sufficiently protect the productive functions of soils, and the entire burden of preventing soil degradation, preserving soil values, accumulating carbon and taking other measures to protect the climate and biodiversity rests with the cultivators. After all, it is on the agrotechnologies used that the condition of soils and the preservation of their productive capacity depend.

The new directions of future legal regulation signaled in the considerations can prove that the legislator is increasingly concerned with the issue of soil protection in the considered context – the protection of their productive capacity. The fact that the unification of monitoring standards and criteria for assessing the health of soils at the EU level has been undertaken should be viewed positively. The introduction of soil management tools in a way that allows the collection of comparable data brings an opportunity to measure the effects and the possibility of comparing data and results of implemented practices.

A very desirable legislative effort is to clarify how the object of protection – soil – is to be understood, as well as to define uniform indicators of protection for the evaluation of activities so that the same standard of protection can be applied in all similar cases.

As *de lege ferenda* proposal, it would be advisable to consider the selection of sites in each country, the soils of which would have an exclusively productive function, without the possibility of their transformation, and in addition, the standards of agrotechnics desirable for the preservation of productive functions. Such a role could be played by the "sustainable soil management practices in accordance with the Annex III principles of sustainable soil management" proposed in the Draft Soil Monitoring Law.

Finally, the following reflection comes to mind. The reasons for the increase in the importance of the environmental functions of agriculture, expressed in regulations on climate protection, biodiversity and environmental resources, entail an increase in the importance of the production function of agriculture. With the crises caused by climate change, decline in biodiversity, population migration and growing human population, there are new challenges and difficulties in ensuring food security, of which the protection of productive capacity is an important element.

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ABSTRAKT

Przedmiotem badania w artykule są prawne aspekty ochrony zdolności produkcyjnej gleb. Opracowanie ma charakter naukowo-badawczy. Autorka wychodzi od stwierdzenia, że gleby pełnią zwłaszcza funkcje środowiskowe, gospodarcze, społeczne i kulturowe, a z punktu widzenia ochrony cech warunkujących możliwość wykorzystania gleb w produkcji żywności ważna są funkcje produkcyjne, łączące się z funkcją produkcyjną rolnictwa. Celem analizy jest ustalenie, czy obowiązujące polskie prawodawstwo dostatecznie uwzględnia potrzebę ochrony zdolności produkcyjnej gleb, rozumianej jako możliwość zrównoważonego wykorzystywania tych zasobów do produkcji żywności. Rozważania nad tym zagadnieniem prowadzą do wniosku, że tak nie jest, natomiast pewien zakres ochrony zakładają projekty unijnych aktów prawnych, m.in. w sprawie monitorowania gleb, przyznający państwom członkowskim znaczącą rolę w śledzeniu i ocenie stanu gleb oraz zarządzaniu nimi.

Słowa kluczowe: ochrona gleb; zarządzanie glebami; zrównoważony rozwój; gospodarka o zamkniętym obiegu