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Ensuring sustainable agriculture by analyzing the European Union and Romanian legislation on soil resources protection

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***Abstract* – Soil is considered to be one of the most complex natural systems on the planet, a key component of the geographical environment, and a biological complex that is constantly changing. Also, the soil is a multifunctional system on which the essential functions of life on Earth are based. As such, soil protection must be a primary concern for the community, as the conservation of soil resources itself requires more than transposition in legislative terms. Thus, on the protection of soils from the point of view of the legislation of the EU and Romania, we set out to make an analysis noting in this paper the main provisions of the acquis communautaire (directives, strategies, decisions, etc.), which come to ensure an interface between the use of soils and their protection for future generations. As a result of the research undertaken we can conclude that both EU and Romanian legislation are still deficient in soil protection, it is not as protected as the other elements of the environment, water, air, and/or biodiversity.**

Keywords: acquis communautaire, soil protection, legislation, monitoring.

I. Introduction

Soil - one of the essential components of the land - is "a very complex and often underestimated element, full of life"; in fact, "protecting Europe's land and soil resources is key to a sustainable future" [1]. So here is the latest response from the European Community to the soil. Naturally, this vision is embraced by all the Member States of the European Union, implicitly harmonized at the acquis communautaire level.

Increasing the demands on the fertile soil that provides food must not lead to its depletion because the future is the earth that supports us. The role of soils in the nutrient cycle in nature [2], with climate change [3], or with the sustainable development community goals must be perceived as such and supported by specific policies and actions [4].

The soil resource - "the most important natural resource of a nation that ensures its independence and food security" - is included in the category of non-renewable natural resources [5, 26]. Intensive agriculture, pollution, and the impact of climate change can lead to a loss of soil quality, as soil functions are progressively diminished through competition with building construction, roads, or landfills. Without the management of this resource, there is no future, no progress, and developed countries are less dependent on states.

II. European Soil Protection Legislation

According to the provisions of art. 174 of the Amsterdam Treaty, Member States must take into account a high level of environmental protection [6], pursuing certain key objectives, such as preserving, protecting, and improving the quality of the environment, protecting human health, prudent and rational use of natural resources and last but not least, the international promotion of measures designed to deal with regional or global environmental problems. The legislative document regulates a unitary framework in the field of environmental protection. This is also in line with the fundamental principles of the Community law and does not contravene their provisions.

To protect soil quality in the European Union, the European Commission prepared on 22.06.2006 in Brussels the Communication entitled "Thematic Strategy for Soil Protection" (COM/2006/0231) [7] and the "Impact Assessment of the Thematic Strategy for Soil Protection" (SEC/2006/0620) [8] that a framework directive on soil protection should be adopted. And that is because soil plays an important role in addressing international challenges, such as climate change, biodiversity loss, desertification, erosion, floods, and landslides, ensuring safe and sufficient food production [1, 3].

Although a thematic strategy for soil protection was developed at the EU level in 2006, there is still no binding general framework to strategically define soil protection policy priorities or parameters. The results of soil protection associated with other legislative provisions are largely derived as a consequence of achieving environmental goals that are not

explicitly focused on the soil. This category includes the legislative provisions that refer to pollution, offsetting GHG emissions, and preventing other threats to the environment.

Among the legislative regulations that touch on tangential issues of soil protection, below are presented the most relevant for the development of economic activities in Romania:

- Directive 2004/35/EC on environmental liability for the prevention and remedying of environmental damage [9] establishes a framework based on the polluter pays principle to prevent and remedy environmental damage. In addition to a common framework for remedying damage to water or natural habitats, it sets out the most appropriate measures to remedy the damage to the land.
- The Directive 2010/75/EU on industrial emissions is the main instrument governing emissions from industrial installations [10]. It aims to achieve a high level of protection of human health and the environment as a whole by reducing harmful industrial emissions across the EU. It provides an integrated approach to the prevention and control of emissions to air, water, and soil, waste management, energy efficiency, and accident prevention and ensures that the operation of a plant does not lead to the deterioration of soil and groundwater quality.
- The EIA Directive (85/337/EEC) has been in force since 1985 and was amended three times in 1997, 2003, and 2009 [11]. This Directive applies to the environmental impact assessment of those public and private projects which are likely to have an impact. significant effects on the environment. The environmental impact assessment will identify, describe and assess appropriately the direct and indirect effects of a project on the following factors: human beings, fauna, flora, soil, water, air, climate, landscape, material goods, etc.
- Regulation 2017/852/EU covers the entire life cycle of mercury. It lays down measures and conditions relating to the use, storage, and trade in mercury, its compounds and mixtures, the manufacture and use and trade in mercury-containing products, and the management of mercury waste [12]. The Directive aims to ensure a high level of protection of human health and the environment against anthropogenic emissions and emissions of mercury and its compounds.
- Regulation 2018/841/EU sets out a binding commitment for each Member State to ensure that emissions recorded from land use are fully offset by an equivalent removal of CO_2 from the atmosphere [13].
- Regulation 2019/1009/EU sets out the definition of "EU fertilizer products" and lays down rules on their making available on the market [14]. Among other things, it defines thresholds for the presence of contaminants in fertilizers, especially cadmium, to minimize soil pollution.
- The sewage sludge directive (86/278/EEC) [15] aims to encourage the use of sewage sludge in agriculture and to regulate its use in such a way as to prevent harmful effects on soil, vegetation, animals, and humans. The use of sewage sludge must not affect the quality of soil and agricultural products. For this purpose, the use of untreated sludge on agricultural land shall be prohibited unless it is injected or incorporated into the soil. Treated sludge is defined as being subjected to "biological, chemical or thermal treatment, long-term storage or any other appropriate process to significantly reduce fermentability and the health hazards arising from its use" [15].
- The Common Agricultural Policy and four associated regulations set out how the various elements work (rules for direct payments to farmers - Regulation 1307/2013/EU [16], financing, management, and monitoring of the common agricultural policy - Regulation 1306/2013/EU [17]). It is also an important economic driver for EU-wide agricultural decisions and has the potential to promote soil protection in agriculture and forestry through the implementation of associated measures and obligations by the Member States and land managers.

Soil resources aim at the sustainable management of natural resources and climate action, and the pursuit of climate change mitigation and adaptation, which are relevant for the protection and improvement of soil quality [27].

Recently, a soil strategy has been introduced at the EU level in addition to these directives and regulations [18]. The EU's new soil strategy for 2030 sets out a framework and concrete measures to protect and restore soils and to ensure that they are used sustainably. It sets out a vision and goals for achieving healthy soils by 2050, with concrete actions by 2030.

The EU Soil Strategy for 2030 replaces the former 2006 Thematic Soil Protection Strategy. The strategy identifies the main soil threats in the EU, such as erosion, floods, landslides, loss of soil organic matter, salinization, contamination, compaction, sealing, and loss of soil biodiversity.

In 2012, the European Commission published a policy report on the implementation of the strategy and ongoing activities. The report provides an overview of the actions taken by the European Commission to implement the four pillars of the Strategy, namely awareness-raising, research, integration, and legislation. It also shows trends in soil degradation both in Europe and globally, as well as challenges to ensure protection.

Following the withdrawal of the legislative proposal due to opposition from a minority of Council countries, in 2015 the Commission set up a panel of experts mandated by the Member States to reflect on how soil quality issues could be addressed using a targeted risk-based legal framework.

Given the cross-sectoral nature of soil issues and the diversity of environmental and socio-economic pressures and governance conditions across Europe, there are many different

policy instruments at the EU and Member State levels that either explicitly address threats, soil or soil functions, or by default provide some form of soil protection.

III. Romanian Legislation regarding Soil Protection

For Romania, soil protection is a matter of national interest, and it is necessary to adopt an adequate legislative framework, meant to ensure unitary coordination of activities in these fields based on the most precise norms and provisions. The purpose of this legislative recommendation is to show the norms, measures, and mandatory unitary actions associated with knowledge, protection, improvement, and sustainable use of Romanian soils.

In Romania, a full member state of the European Union, since 2007, the issue of soil has faithfully overlapped with that existing at the central level, under the auspices of the European Environment Agency. Thus, the soil as a "dynamic natural body, composed of solid mineral and organic compounds, water, air and living organisms" [19], is also the "heart of terrestrial ecosystems", being considered "the fundamental support for the existence of life" [20].

Given that the soil is a "basic natural resource, the correct use, conservation, and protection of which is a crucial condition for providing food and protection of natural systems" [5], we have compiled below a list of the main legislative provisions which enshrine soil protection activities, namely:

- Ministerial Order No. 184/1997 for the approval of the Environmental Assessment Procedure details the implementation procedure, the types, areas, and content of the environmental assessments required in the authorization process, as well as the change of owner, destination, or cessation of economic and social activities with environmental impact [21];
- Ministerial Order No. 756/1997 for the approval of the Regulation on the assessment of environmental pollution also affects the issue of soil pollution [22];
- Minister's Decision No. 1403/2007 on the restoration of areas where the soil, subsoil, and terrestrial ecosystems have been affected establishes the legal framework for carrying out the activities of cleaning, remediation, and/or ecological reconstruction of the affected areas [23];
- Minister's Decision No. 1408/2007 on the modalities of investigation and assessment of soil and subsoil pollution regulates the modalities of investigation and assessment of soil and subsoil pollution, to identify the damage caused and to establish the responsibilities for environmental restoration [24];
- Law No. 74/2019 on the management of potentially contaminated sites aims to protect human health and the environment from the effects of soil contamination by regulating measures to improve the quality of environmental factors affected by the presence of pollutants at levels that pose a significant risk to human health and the environment [25];
- Law No. 246/2020 on land use, conservation, and protection regulates activities on the use, conservation, assessment of productive capacity, economic recovery, soil protection, and integrated soil quality monitoring, in the context of sectoral policies to ensure the sustainable use of this non-renewable resource [19].

IV. Conclusion

Following the legislative literature, but especially the various regulations that are either directly or only tangentially related to the protection of soil resources, we found that EU legislation is still deficient in the soil. Soil resources are not as protected as the other elements of the environment, water, air, and/or biodiversity. The directives to which we have referred are harmonized at the level of national legislation but are only partially effective in policies and strategies aimed at soil protection. From our point of view, we consider that it is imperative and even right for them to be supplemented by other normative acts.

Equally, we found that in Romania, only a few institutions deal with soil research and protection: the profile universities, the Research Institute for Pedology-Agrochemistry, and the county offices of pedology and agrochemistry.

The first two have primary research responsibilities for the development of concepts, theories, and operational methods, and the county offices apply this scientific and operational knowledge in the territory. Soil protection legislation is visibly and inevitably subject to EU and Romanian regulations, where soil protection is often related to biodiversity and natural resources protection policies and strategies.

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