ANALYSIS OF THE ENVIRONMENTAL SITUATION AND ITS INFLUENCE ON ECONOMIC DEVELOPMENT

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Abstract

Romania's natural environment is heavily influenced by geographic positioning. Under these circumstances, on the background of a temperate-continental climate, different relief forms, the proportionality of the relief, the existence of special resources, highlight the need for environmental protection. The environment is an important element in ensuring working and living conditions. That is why, over time, the development of industries, especially of those branches that are polluting, has led to the deterioration of the quality of the environment. The environment must be protected not only in terms of the requirements of the European directives but also by an appropriate national program to eliminate pollution. Romania is one of the first countries that have adopted the national strategy for sustainable development since 1999, this being in line with the European and world regulations in the field, primarily aimed at improving social and economic conditions. Policies on environmental protection must be at the center of the concerns and the measures contained in the documents for accession to the European Union.

Keywords: *environment, ecological balance, strategy, sustainable development, environmental protection*

JEL Classification: Q51, Q57

Introduction

In this article, the authors focused on the presentation of environmental conditions in our country, the evolution of environmental quality and the policies to be considered in order to ensure the protection of the environment. Ecological balance is an essential element, and efforts are therefore made to ensure that environmental protection is at the heart of any „governing" team. Ecological balance must be brought to the standards existing at European level. The environment protection policies as well as the transitional measures imposed in the field of environment upon the accession of Romania to the

European Union are analyzed. Reference is made to European Union directives and a brief interpretation of how some derogations have been used and overcome in order to ensure the country a steady evolution in an environment that is unaffected, giving consistency and quality of life. There are enough areas where Romania still lags behind European standards to which it has to align. The environment is a determining factor for economic growth but also for quality of life.

Literature review

Angelsen (2010) listed policies to reduce deforestation and their impact on agricultural production. Anghel, Lilea and Dumbravă (2017) considered the quality of the environment as a component of sustainable growth. Anghelache, Avram and Burea (2017) addressed issues related to environmental protection and water quality conservation in the context of sustainable growth. Anghelache and Anghel (2017) analyzed the impact of waste on the environment in European Union member states and Kahn, and Mansur (2013) attempted to determine the influence of energy prices and local regulations on the geographical concentration of employment. Quamrul and Michalopoulos (2015) took into account the influence of climate change on the spread of agriculture. De Groot, Brander, Van Der Ploeg, Costanza, Bernard, Braat and Van Beukering (2012) have estimated and quantified the value of the ecosystems and the services provided by them.

Research methodology, data, results and discussions

Romania's natural environment is also heavily influenced by the positioning of our country on the globe and the continent, which determines: belonging to the temperate transitional continental climate of a central European type; complementarity as a trait resulting from the diversity of relief forms and, implicitly, from the natural resources that people have exploited and put into circulation; the degree of habitation, humanization is the maximum, permanent settlements extending from the Danube Delta to altitudes of 1,000-1,200 m in the mountains, and the seasonal ones up to 1,800 m.

The arrangement of Romania's relief is almost concentric. In the center there is a plateau unit with an average height of 500 m (the hillside of Transylvania), around which rows of medium-sized mountains, which only locally rise, exceed 2,000 m.

Extremely, but also to the Transylvanian Plateau, there are the Subcarpathian Hills, and westwards the Western Hills, followed by the great plateaus (Plateau of Moldavia, Getic Plateau and Dobrogea Plateau).

The lowest level is made up of the Romanian Plain and the Western Plain of the country, to which are added the Danube and Siret meadows and the Danube Delta.

The relief of Romania has a varied but symmetrical appearance: mountains, hills, plateaus, plains and meadows, all arranged from the middle to the edges, in almost concentric steps, ever lower. They all communicate with each other by means of a radar river network, with springs in the Carpathians and spilling into the Danube or Tisza.

Romania's concerns for the protection of the environment, for the protection of natural beauties and for the prevention of abusive exploitation of nature, are not recent. Thus, the first decades of the twentieth century marked the attraction of scientists, especially biologists and geographers, and at the first Congress of naturalists in Romania (Cluj, 1928) it was recommended to adopt a law special for the protection of Romania's natural treasures. As a result, on July 7, 1930, the „Law for the Protection of Natural Monuments" was promulgated, and a year later, the „Commission for the Protection of Natural Monuments" was established, which functioned in 1954 next to the Romanian Academy.

In the years leading up to the Revolution of 1989, some laws adopted in various fields (Water Law, Road Law, Land Fund Law, Law on the Protection of National Cultural Heritage, etc.) included regulations on the protection of the environment.

Within the framework of the reform, during the transitional period, the regulations on this issue were found in the new environmental protection law from 1995 and in the national strategy in the field since 1996.

Environmental issues are addressed by inter-national institutions that monitor the work of countries in this area. It is worth noting that, through the actions undertaken, especially in the last eight or ten years, Romania has some positive results, standing ahead of some countries in Europe and other continents. For Romania, as a member of the European Union, it is important that it has transposed into national legislation most of the EU environmental *acquis* that it is implementing.

• Global quality of the environment in Romania

Environmental impacts have some industrial branches, especially air pollution: the thermo-energy industry, due to the emission of pollutants into the air, such as sulfur dioxide, dust and carbon dioxide, nitrogen oxide; the steel industry, the large number of gases removed and the high quantities of dust containing dangerous substances; the building materials industry, where key pollutants are nitrogen oxides, sulfur dioxide and dust (cement plants

that generate 500 tons of cement dust per year); mining, branch affecting the environment through extraction operations, mineral and mineral processing, waste disposal and transport infrastructure; chemical and petrochemical industries, emissions to the atmosphere that also have a negative impact on the environment, etc.

The concentration of polluting substances in the air has frequently exceeded the maximum permissible concentration in localities such as Zlatna, mining center and non-ferrous metallurgy (both suspended and sedimentable powders and sulfur dioxide), Rovinari and Motru, lignite extraction centers (mainly for sedimentable powders), Turceni, Rogojelu, Doiceşti, localities where coal-fired power plants (also for sedimentary powders) operate, Baia Mare, the main non-ferrous metallurgical center in the country (mainly cadmium and on the lead), Copşa Mică (cadmium, lead and compounds), Galaţi, the largest center of the iron and steel industry (mainly sedimentary powders), Bicaz, Tăşca-Bicaz and Comarnic, townships with cement factories and sedimentable powders) and the like.

The total length of rivers (excluding temporary leaching courses) is about 66 000 km, with the average density of the river network being about 0.25 km / km^2. The density of the hydrographic network has a vertical range, ranging from 0 km / km2 in the area, up to 1.4 km / km^2 in the mountain range.

On the surface of 237 500 km^2 of the territory of Romania, more than 4 000 rivers have been identified, with the surface of the receiving basin more than 10 km2.

The Black Sea is a large atypical one, especially due to the lower salinity ($17‰_0$) than that of the ocean (over $34‰_0$) and the large amount of hydrogen sulfide that is below the level of 180-200 m. The main agent pollutant of the marine environment in the area of the western continental shelf of the Black Sea is the liquid and solid flow of the Danube which brings into the sea basin an abnormally large amount of microelements and nutrients after the drainage of large continental areas (about 817 000 km^2) highly polluted.

As far as the surface water quality is concerned, it is worth mentioning that of the total length of rivers monitored in 2013, about 93.5% were in the quality conditions stipulated by the norms, the rest being considered degraded waters. Developments have highlighted the decline in river courses with degraded water sectors, along with the increase in water category I ratios. This dynamics reflects the reduction in point-based emissions, mainly from industry and agriculture, as a direct result of the economic downturn , but also the implementation of more extensive measures for the protection of water quality compared to the period before 1989.

The waters of category I, potable, accounted for 64.1%, the second category, needed for fishing and urban planning, represented 21.8%, and those of the third category, for irrigation and industrial purposes, 7.5%. There are, however, certain sectors of watercourses, including Tisa, Someş, Crişuri, Mureş, Olt, Argeş, Ialomiţa, Siret, Prut, especially downstream of some industrial centers, which are polluted mainly due to wastewater , untreated, discharged by businesses.

Soil quality is affected by various natural and anthropogenic processes and phenomena that exert influence on about 11 million hectares of agricultural land (of which about seven million hectares of arable land) and about four million hectares of forest land.

Most agricultural soils have been affected periodically by one or more harmful phenomena such as excessive drought (which has affected almost the entire agricultural area); soil erosion through water (6,300 thousand ha are subject to this process), reduced and very low content of phosphorus and nitrogen (about 6,400 thousand ha), strong and moderate acidity (3500 ha), soil compaction due to inadequate work 6 300 thousand ha), chemical pollution of soil with pesticides, oil and other industrial waste (about 900 thousand ha), etc.

On the quality of forests, „the country's green lung" (which, with a share of about 26.3% of the total area, falls within the category of medium-sized countries), besides some biological causes (one of which is also the degree defoliation, ie the degree of drying of forests, which in 1991 was below 10%) 1, a bad impact also had some inappropriate policies from previous periods.

Combating unauthorized deforestation, starting a national reforestation program are basic conditions for protecting the only ecosystem that ensures the natural balance of the whole country.

Waste management. One of the most acute environmental problems is waste management. As a result of the increase in consumption, but also of old technologies and installations in industry, millions of tons of waste are produced annually in Romania.

Annually, the total amount of solid waste generated is 382.7 million tonnes, industrial and agricultural waste accounting for 28.8 million tonnes, urban waste 7.5 million tonnes, and mining tailings, 346.4 million tonnes tons, mostly from the lignite extraction activities.

Regarding the degree of recovery of waste, whether metal, glass, wood, paper, textiles, plastics, it exceeds 81.2%; instead, a low degree of recovery is known for petroleum waste, for mining and residual sludge.

There are frequent cases where household waste is stored uncontrolled in the vicinity of human settlements and surface water without adequate environmental protection measures..

• **The need to protect the environment**

Within the framework of the policy for sustainable human development after 1989, Romania had to consider the priorities for action and the necessary legislative acts for the protection and preservation of the environment were initiated.

The environmental protection strategy developed in Romania is based on the examination of the relations between the economic development and the quality of the environment, and a series of laws, measures and programs are adopted regarding aspects such as: river basin planning in order to prevent the related negative events floods, landslides, rocks, etc., the proper use of land and even the reproduction of the natural vocation of some who have acquired improper use; the rational exploitation of soil and subsoil resources, in line with maintaining a balance between natural processes and the needs of human life; preventing and combating all pollution phenomena by removing or reducing generating causes, introducing clean technologies, using equipment and facilities to eliminate or reduce harm, etc.

In fact, Romania is one of the first countries to adopt a National Strategy for Sustainable Development in 1999, which is in line with the European and world regulations in the field, and covers all areas of social and economic life.

In order to achieve these objectives, a series of environmental protection expenditures are made annually in the form of investments and current expenses, which are carried out by both non-specialized producers as well as by specialized producers or by the local public administration.

On the whole, the total environmental protection expenditures, broken down by protection activities, highlight their predominant orientation towards waste management activities (43.4%).

The result of these expenditures is mainly the equipping of enterprises with equipment, equipment and installations for environmental protection: dust collecting installations (cement industry), installations for capping, neutralization and gas recovery (thermoenergetics industry, petrochemical industry etc.), water protection and treatment facilities, collection and treatment facilities, etc.

Waste landfill storage is the most important way to remove industrial waste. Thus, 939 landfills were recorded, out of which 253 municipal warehouses and 684 industrial deposits, most of them mining tailings dumps, batches, simple industrial deposits, slag / ashes, tailings ponds.

In the years to come, efforts to improve environmental protection will be a primary concern for all the actors involved in this field. Estimates made by the Department for Environmental Protection, along with European specialists, show that over the next 20 years, Romania will have to invest

over 20 billion euros to keep ecological balances as close to environmental standards as acceptable in European Union.

• **Policies for the protection of the environment**

Taking into account that a healthy environment is essential to ensure prosperity and quality of life, and given the reality that the damage and costs of pollution and climate change are considerable, Romania is promoting the concept of decoupling the impact of environmental degradation on economic growth by promoting eco-efficiency and by interpreting high standards of environmental protection as a challenge to innovation, the creation of new markets and business opportunities.

With the main objectives of strengthening administrative structures as a basic element for building a sound environmental management system and contributing to sustainable development, work in this area will focus on the following priorities: integration of environmental policy in the formulation and implementation of sectoral policies; regional assessing the current state of the environmental factors and substantiating a long-term development strategy for the environment, renewable and non-renewable resources; enhancing institutional capacity in the environmental field; Improving the quality of environmental factors in urban and rural areas; the extension of the national network of protected areas and nature reserves, the rehabilitation of the coastal infrastructure of the Romanian littoral, the ecological and economic redevelopment of the Danube Delta; Strengthening cross-border and international partnership with similar institutions in other countries to monitor the state of implementation of international agreements; developing strategies to protect citizens against natural hazards, environmental accidents and exposure to environmentally hazardous areas.

• **Some transitional measures imposed on the environment when Romania joined the European Union**

In the field of the environment, EU directives are very complex and compel member countries to make sustained efforts to align with European standards.

The emphasis is on environmental issues in terms of air quality, waste policy, water quality, industrial pollution and risk management.

Air quality aspects are regulated by Directive no. 94/63 / EC of the European Parliament and of the Council of 20 December 1994 on the control of volatile organic compound emissions from the storage of fuels and their distribution from terminals to service stations, as amended by Regulation No 1882/2003 of the European Parliament and of the Council of 29.09.2003.

The quality of water in general and of drinking, in particular, is treated with great care by the European Union. When the condition of the environment is studied, the air and water quality is located at a critical location.

From the study of directives regulating the quality of water at European level (Directive 83/13 on limit values and quality objectives for cadmium discharges, as amended by Directive 91/692/1991 and Directive 84 / 156/1984 on limit values and quality objectives for discharges of hexachlorocyclohexane, as amended by Directive 91/692/1991), it follows that Romania must take enormous steps to align these requirements.

The European Union therefore approved a number of derogations for Romania, namely: the limit values for discharges of cadmium and mercury into waters were not applied in the territory of Romania until 31 December 2009 to 23 industrial plants.

By way of derogation from the Directive no. Council Directive 84/491 / EEC of 9 October 1984 on limit values and quality objectives for discharges of lindane in waters referred to in Directive. Council Directive 76/464 / EEC of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community has not been applied in Romania until 31 December 2009 to three industrial installations.

Also, by way of derogation, the provisions of the Directive no. Council Directive 86/280 / EEC of 12 June 1986 on limit values and quality objectives for discharges of certain dangerous substances, as amended by Directive. 91/692 / EEC of 23 December 1991 did not apply to 21 industrial plants in the territory of Romania until 31 December 2009.

Another derogation from the provisions of the Directive no. Council Directive 91/271 / EEC of 21 May 1991 concerning urban waste water treatment, as amended by Regulation (EC) No 1882/2003 of the European Parliament and of the Council of 29 September 2003, the requirements for urban waste water collection and treatment systems were not fully applicable in Romania until 31 December 2018, with two stages: 31 December 2013, compliance with Article 3 of the Directive should be achieved in urban agglomerations with a population equivalent of more than 10,000; on 31 December 2015, compliance with Article 5 (2) of the Directive should be achieved in urban agglomerations with a population equivalent of more than 10,000.

Romania assured the gradual expansion of collection systems according to the following general minimum levels of equivalent residents: 61% as at 31 December 2010; 69% on 31 December 2013 and 80% on 31 December 2015.

Romania has progressively expanded the treatment of living waters according to the following general minimum equivalents: 51% at 31 December

2010; 61% on 31 December 2013; 77% at 31 December 2015. Directive no. Council Directive 98/83 / EC of 3 November 1998 on the quality of water intended for human consumption, as amended by Regulation (EC) No 1882/2003 provides for specific measures for which derogations have been made taking into account Romania's difficulties in complying rapidly with the requirements of the directives.

Romania will have to pay particular attention to the alignment with the provisions of Regulation (EEC) No. Council Regulation (EEC) No 259/93 of 1 February 1993 on the supervision and control of shipments of waste within, into and out of the European Community, as subsequently amended by Regulation (EC) Commission Regulation (EC) No 2557/2001 of 28.12.2001.

To this end, until 31 December 2015, all shipments to Romania of waste destined for recovery, listed in Regulation (EEC) 259/93 must be notified to the competent authorities and the corresponding documents must be processed in accordance with European standards.

It leaves Romania for a further ten years to comply with European norms, which means a long enough respite, but the measures that need to be adopted are of great complexity.

By way of derogation from the Regulation, until 31 December 2011, the competent Romanian authorities may raise objections to shipments to Romania, including waste destined for recovery.

By 31 December 2011, Romania could object to shipments to Romania of waste for recovery listed in Annex IV of the Regulation and shipments of waste destined for recovery not provided for in the Annexes to the Regulation. That deadline could be extended until 31 December 2015 at the latest, in accordance with the procedure laid down in Directive 2001 / Council Directive 91/156 / EEC.

The measures to be taken in the field of liquid waste management with a high degree of environmental impact are those laid down in Directives 75/442 / EEC, 1999/31 / EC and 75/442 / EEC.

By way of derogation from the provisions of the Directive no. 1999/31 / EC and without prejudice to Directive. Council Directive 75/442 / EEC of 15 July 1975 on waste and Directive Council Directive 91/689 / EEC of 12 December 1991 on hazardous waste, conditions for water control and infiltration management, soil and water protection, control and gas stability are not applicable in Romania to 101 municipal waste landfills until 16 July 2017. As of 30 June 2007, Romania shall provide the Commission with a report on the progressive implementation of the Directive and its compliance with these interim targets on 30 June each year.

Romania has implemented the provisions of the Directive no. Directive 2002/96 / EC of the European Parliament and of the Council of 27 January 2003 on waste electrical and electronic equipment, as amended by Directive. 2003/108 / EC of the European Parliament and of the Council of 8 December 2003, allowing only one derogation, namely the extension until 31 December 2008 of the period up to which the average level of separate collection is at least four kilograms per head per inhabitant per year of waste from households.

By Directive no. Council Directive 96/61 / EC of 24 September 1996 concerning integrated pollution prevention and control as amended by Regulation (EC) No ... of the European Parliament and of the Council Regulation 1882/2003 regulates the measures that Member States of the European Union have to put into practice to limit, control and eliminate industrial pollution.

In this direction, our country negotiated and accepted a timetable, provided that, by way of derogation from the provisions of Article 5 (1) 96/61 / EC, the conditions for the authorization of existing installations shall not apply in Romania to a number of installations subject to compliance with the obligation to operate these installations in accordance with emission limit values, equivalent parameters or available technical measures in accordance with the provisions of Article 9 (3) and (4) of this document.

Authorized fully coordinated authorizations should be issued for these installations before 30 October 2007 and must contain mandatory mandatory timetables for the purpose of achieving full compliance with the general principles governing the basic obligations of operators set out in the Directive.

The European Union pays great attention to the conditions under which waste is incinerated and how emissions of pollutants are controlled in the atmosphere. It is appreciated that Romania has difficulties in complying with the program of European Parliament and Council Directives 2000/76 / EC and 2001/80 / EC.

Under these circumstances, a number of derogatory measures were agreed to allow Romania to align within a reasonable time with the requirements of the European Union in the matter. As of 30 March 2007, Romania shall report to the Commission by the end of each quarter of each calendar year on the situation of the closure of non-compliant installations for the thermal treatment of hazardous waste and the quantities of medical waste treated during the previous year. Where the Commission, taking into account in particular the environmental effects and the need to reduce distortions of competition in the internal market caused by the transitional measures, considers that these plans are not sufficient to achieve the objectives, it

informs Romania. Within the next three months after this date, Romania shall communicate the measures taken to achieve these objectives.

Subsequently, if the Commission, in consultation with the Member States, considers that these measures are not sufficient to achieve the objectives, it shall initiate the procedure for penalizing non-compliance with the obligations arising from the status of Member State in accordance with Article 111-360 of the European Constitution.

Conclusion

The authors' analysis concludes that the environment is a „living factor". The natural conditions in Romania are of high quality. The development of industry and other economic activities has not always been of the highest quality. Therefore, it is necessary to ensure a much better organized and protected evolution in the next period so that the quality of the environment is protected. In the period to be followed, emphasis should be placed on environmental protection measures, and developments in the polluting sectors are on the one hand sufficiently protected, and on the other hand, to ensure the mitigation of the effects of pollutants. One conclusion is that additional financial efforts must be made to ensure a real protection of the economic evolution in Romania.

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