Issues regarding environmental protection in Romania

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Abstract

The "environmental protection" activity in our country should be approached by taking into consideration its entire complexity, and the most reliable solutions may be provided only by direct and permanent reference to the vast issue of social development in its entirety. The present work aims to draw attention towards pollution, the main cause of environmental deterioration in Romania, as well as towards the management of waste materials, while taking into account the national strategy. In Romania, environmental protection is a distinct domain of the national policy, establishing the priority objectives by "The National Strategy for Environmental Protection", according to the communitarian strategy, as well as to the tendencies and initiatives existing at global level. Our country's efforts over the past years with respect to environmental protection are very important in the framework of contemporary economy and are reflected in the expenses incurred for environmental protection.

Keywords

environment, protection, environmental factors, pollution, expenses incurred for environmental protection, waste materials, recycling, strategy, eco-technologies, The European Union

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Pollution – the main cause of environmental deterioration in Romania

Pollution is a major cause of environmental factors deterioration. **Pollution** is the contamination of the environment with materials interfering with human health, life quality or the natural function of ecosystems (living organisms and their life environment). Humans' social and economic activities are mostly liable for the pollution of the environment.[1]. Thus, the environment in our country is affected by pollution, by climatic changes, by the intensive exploitation of natural resources, by land clearing, by the increasing greenhouse gas emissions, by natural disasters, and, last but not least, by the irresponsible behaviour that all of us have towards the environment.

The environmental deterioration phenomenon in our country is mostly caused by the pollution of environmental factors (water, air, soil).

The waters in our country are mostly polluted overflow of sewage water directly into rivers. The best example in this respect is the Danube which, apart from the fact that it enters our national territory with a high degree of pollution, continues to be polluted by untreated waste waters overflowed directly in the rivers in Romania. Bucharest is one of the major indirect contamination sources of the river and currently remains the only European capital which doesn't have a waste water purification plant. In addition to Bucharest, other over 40 towns have a major contribution to the pollution of surface waters. Consequently, Romania is one of the greatest nitrate pollutants of the Danube basin, being classified as the antepenultimate European country in the field of territorial water protection. Currently, Romania has no tertiary stage water purification plant able to treat waste waters, purifying the nutrients

[1] Bran F, Ioan I, Trică C (2004), The Eco-economy of Ecosystems and Biodiversity, ASE Publishing House, Bucharest, p. 27

content, especially consisting in phosphorus and nitrogen. In the absence of this tertiary stage, the water purification plants do not eliminate nutrients from polluted waters. Out of the 397 water purification plants existing in the country, only 14 are according to European standards, having at least a mechanical and a biologic stage.
This is the reason why we are classified as one of the last European Union member states in the field of water purification, according to "Romanian Waters" National Administration.
In our country, **air pollution** is mostly determined by pollutants (suspension powders, heavy metals) generated by the great industries consuming natural resources and energy, as well as by the development of the transportation field. In 2008, the values of the annual average concentrations of suspension powders exceeded the annual threshold value (40 μg/m^3) for the protection of human health, mostly in urban areas, as well as in the area of the major industrial pollutants (Baia Mare, Rovinari). High values regarding the concentration of heavy metals were registered in two historical pollution areas, namely in Maramureş and Sibiu counties, namely in the localities Baia Mare, Copşa Mică and Mediaş, where, in 2008, the annual average concentration of lead exceeded the annual threshold value for the protection of human health (0,5 μg/m3).
The year 2010 is the first target-term when Romania must report certain progresses regarding the implementation of European Directives in the field of water management, and part of the towns with over 100.000 inhabitants (Bucharest, Cluj, Iaşi, Buzău, Piatra Neamț, Satu Mare, Constanța, Galați, Timişoara etc.) must complete the works related to the tertiary stage water purification plants. The President of the Balkan Environmental Association, environmental expert Fokionas Vosniakos, states that the major environmental problem in Romania is that of waste waters, for which no biologic treatment is provided.
Soil pollution is mostly determined by the random storage of residues and waste materials resulted from the metallurgical industry, by the inadequate use of chemical fertilisers in agriculture, by floods, by natural disasters, acid rains and massive land clearing. The soil is subject to pollution such as the other environmental factors, but its recovery is much more difficult compared to water and air, as the self-purification processes are much slower. It is considered absolutely necessary, upon the identification and assessment of soil pollution intensity, to take into consideration the capital function thereof, namely the support and environment provided to terrestrial plants, the main means of vegetal production and the basic means of existence of humans themselves.
With respect to non-renewable raw materials natural resources in Romania, certain technologies determining the intense pollution of several areas of the country have been and still are exploited and processed; the extraction and use of fossil fuels (coal, mineral oil), mining exploitations, as well as the iron and steel and metallurgical industry, the energetic industry, the chemical industry, the petrochemical industry, the cellulose and paper industry, the building materials industry etc. had a major contribution to the pollution of environmental factors with common pollutants (sulphur dioxide, carbon dioxide, nitric oxides, ammoniac), with heavy metals, depositing powders and suspension powders, as well as other specific pollutants such as formaldehydes, hydrogen sulphide, carbon sulphide, chlorine, chloride etc. The efficient and ecologic conservation and development of energetic resources is extremely important, as the energetic sector, along the entire production chain – transport – distribution – consumption, generates about 90% of the polluting emissions in Romania.

The issue of waste management

Recently, the issues regarding environmental protection and especially the recycling of waste materials have become priority matters both for the Romanian state, for Romanian economy, and for private companies and nongovernmental organisations. Unfortunately, environmental protection is not equally important for citizens, although our health, life quality and even the future of the planet mostly depend on our choices and on our care towards the environment.

A society where consumption is the major activity, without granting the due importance to recycling, shall be governed by chaos. The uncontrolled circuit of waste materials in the nature, as well as the inadequate storage or destruction of the latter, may determine the deterioration of the environment, by the emergence of toxic emissions and highly concentrated and pollutant waste materials.

We initially observe a highly important issue for our country: there are immense quantities of uncollected waste materials in Romania. For example, in Bucharest, in 2001, the quantity of uncollected waste materials amounted to 1.8 million tons, in 2003 it was reduced to 0.82 million tons, while in 2007 it increased to more than double, amounting to 1.75 million tons. According to a municipality plan, 90% of the waste materials in Bucharest should be collected until 2013, 55% of the waste materials resulting from recyclable packaging should be sorted up to the above mentioned term, and 44% of the waste materials resulting from packaging should be recycled until 2012[2]. Despite the considerable efforts of the authorities, the selective collection is not recording the corresponding results, not only as a result of the slight education of the citizens, of the lack of a clear legal definition of the liability of each entity taking part in the collection-recycling-development cycle, but also as a result of the small number of waste materials recyclers, leading to the uselessness of all the efforts to separate the waste materials and of all the investments within the system.

The statistical data of the National Environmental Protection Agency and of the National Institute of Statistics indicate that, in 2008, approximately 99% of the waste materials produces in Romanian towns were classified in class "B", most of them being inadequate. Out of the 225 deposits existing in the urban area, only 20 deposits meet the European regulations regarding environmental protection and health. In case the obligations towards the European Union (E.U.) are not met, Romania risks sanctions amounting to hundreds of thousands of Euro per day[3].

The Ministry of Environment and Water Management elaborated the "National Waste Management Strategy", aimed to create the necessary framework for the development and implementation of an integrated waste management system, efficient both ecologically and economically. Waste management includes all activities related to the collection, transport, treatment, development and elimination of waste materials. The liability for waste management activities lies with the generators thereof according to the principle stating that "the pollutant has to pay" or with the producers, as the case may be, according to the "producer's liability" principle.

The economic instruments encouraging the reflection of the costs related to waste management activities both in the price of products and in the producers' status on the market, are actually financial stimulants, on the one hand, and penalties on the other hand, encouraging the waste management activities by means of prevention, reduction and recovery, determining in the same time the elimination of the management practices affecting the environment or opposing the principle stating that "the pollutant has to pay".

For the fulfilment of national and European objectives related to waste management, it is necessary to involve the entire society, represented by the major factors: central and local public authorities (environment, administration, health, industry, finance); waste generators (natural and legal persons); professional associations and research and development institutes; the civil society (consumers, nongovernmental organisations etc.).

Romania's efforts for environmental protection

In our country, **environmental policy** represents the system of environmental priorities and objectives, of the methods and instruments necessary for the accomplishment thereof, being

[2] www.adevarul.ro, 3 September 2009
[3] www.adevarul.ro, 9 June 2009

directed towards the insurance of the sustainable use of natural resources and the prevention of environmental quality deterioration.

Expenses related to environmental protection represent the economic measure of the efforts the society is making in order to handle the problems generated by the state of the environment, in a certain stage, and they mostly refer to the following activities: air quality protection; water quality protection; waste management; the reduction of noise and vibrations; the protection of natural resources and the conservation of biodiversity; other environmental issues (research-development, education and training, information).

Expenses at national level include: investments for environmental protection, current domestic expenses (current expenses incurred as a result of own environmental protection activities) and other expenses incurred by the public administration (granted subventions, transfers), excluding current external expenses (expenses related to the purchase of environmental protection services from third parties, as well as the taxes paid for environmental issues).

In 2007, environmental protection expenses at national level amounted to approximately Lei 11 billion, representing almost 2.7% of the GDP, while in 2008, they amounted to approximately Lei 14.3 billion, representing about 2.8% of the GDP[4].

In2008, the percentage of investments made by specialised producers[5] for environmental protection represented 35.0 %, of the total investments, followed by that of the public administration[6] (33.4 %) and by that of unspecialised producers[7] (31.6 %). The processing industry recorded 41.5% of the total expenses covered by unspecialised producers, while the extraction industry registered 29.6 %, and the sector related to production and the supply of electric and thermal energy registered 18.1%.

The evolution of expenses related to environmental protection according to environmental domains[8] and producer categories within the period 2007-2008 is presented in table no. 1.

[4] www.insse.ro

[5] these are the units carrying out environmental protection activities as the main scope of activity

[6] it comprises all the units of the local and central public authority providing or financing non-commercial environmental protection services, for individual and collective consumption

[7] these are the units carrying out environmental protection activities as a secondary or auxiliary activity to main scope of activity

[8] it refers to specific environmental protection activities, namely: air protection, water protection, waste management, soil and underwater protection, the protection of natural resources and the conservation of biodiversity, the prevention of noise and vibrations, other domains (research and development in the environmental field, general environmental management, training etc.)

Table no. 1. Expenses related to environmental protection according to environmental domains and producer categories within the period 2007-2008

- thousand Lei current prices -

Environmental domains	Year 2007				Year 2008			
	TOTAL:	out of which:			TOTAL:	out of which:		
		Unspecialised producers	Specialised producers	Public administration		Unspecialised producers	Specialised producers	Public administration
Air protection	1.130.353	803.990	44.614	281.749	1.619.272	1.242.606	55.984	320.682
Water protection	2.697.415	642.085	1.002.417	1.052.913	3.508.767	788.120	1.352.751	1.367.896
Waste management	6.735.353	479.853	5.843.427	412.073	8.927.767	1.072.457	6.778.036	1.077.274
Soil and underwater protection	957.022	179.375	27.468	750.179	760.807	619.360	65.817	75.630
Prevention of noise and vibrations	92.134	19.093	19.728	53.313	32.594	8.900	3.165	20.529
The protection of natural resources and the conservation of biodiversity	259.676	117.202	39.384	103.090	212.147	141.974	21.900	48.273
Other environmental domains	825.343	501.824	62.316	261.203	1.416.737	643.107	50.582	723.048
Total expenses:	12.697.296	2.743.422	7.039.354	2.914.520	16.748.091	4.516.524	8.328.235	3.903.332

Source: Adaptation according to the data provided by the National Institute of Statistics, 2007-2008, www.insse.com

The analysis of data according to environmental domains indicates the fact that in 2007 the "waste management" domain recorded approximately 53.0 % of the total expenses, followed by the "water protection" domain (21,2 %), in 2008 specialised producers incurred the highest expenses related to waste management (approximately 76% of the total expenses in this domain). With respect to water protection, the highest expenses were incurred by the public administration (39.0 %), while the highest expenses related to air protection were incurred by unspecialised producers (76,7 %). The Environmental Regional Operational Program (ROP) is extremely important for our country, as it represents the document for the programming of Structural Funds and for Cohesion, establishing the strategy for the allocation of European funds for the development of the environmental sector in Romania, within the period 2007- 2013. Based on the approval of the above mentioned program by the European Commission, as of 2007 until 2013, Romania benefits of a major financial support aiming the implementation of certain projects for financing investments in the following environmental sectors: drinking water and sewage, waste materials, heat supply, floods and the coast area etc. The E.U. funds granted for the period 2007- 2008 amounted to Euro 709.675.328, and the actual amount contracted until 31.12.2008 was Euro 700.096.995 (out of which Euro 593.997.281 represented the contribution of the E.U.)[9].

Over the past years, Romania, as well as most E.U. member states, has been facing the negative effects of climatic changes. Floods, drought or land clearing, major thefts and increasing forest fires are affecting our economic activity, our alimentary security, our infrastructure, health or our access to natural resources. At the summit regarding global warming held in Copenhagen in 2009, our country proved implication in the fight against global warming by the progresses registered in fulfilling the objectives established by the Kyoto Protocol within the period 1990- 2007 as well as by the current level of greenhouse gas emissions, which are under the provisioned objective by 37%. However, Romania was criticised in Copenhagen for being the only E.U. member state which did not grant a substantial budget for the conservation of protected areas and because we have no national authority for the management of these areas. In Romania, protected areas represent a little over 5% of the national territory. With respect to our country's efforts concerning the reduction of greenhouse gas emissions, the report of "Climate Change Performance Index 2009″ (CCPI) drafted in December 2009 by the greatest NGO's network in Europe (Climate Action Network Europe) and by Germanwatch Organisation, place Romania on the 30th out of 60 positions within a top of the countries recording performances in the fight against global warming. This classification includes industrialised countries or countries with emerging economies, which altogether generate 90% of the annual global carbon dioxide emissions. The CCPI study assessed the way in which the 60 countries implement constructive policies in the fight against climatic changes. Actually, every country listed in the classification is listed with three quotas regarding the emissions level, the emissions raise tendency and the climate related policy. Romania, having been classified on the 42nd position in 2008, is currently on the 30th position, with a score of 52.9. although the 12 positions gained by Romania (within one year) may apparently seem to be a remarkable progress concerning the approach of climatic changes, this id mainly due to the commitments under the Climate and Energy

[9] Annual report regarding the state of the environment in Romania in 2008, The National Environment Agency, page 330, http://www.anpm.ro/

Package adopted by the European Parliament in January 2009, namely a more coherent Romanian policy in the field of environmental protection.[10]. Our country's average and long term objectives in the field of environmental protection imply an increased percentage of the departments structuring eco-industries, regarding both the total added value and the total occupied population, as well as a smaller percentage of energetically intensive departments, concurring with an increased efficiency thereof, related to work productivity and competition. Romania aims to promote "clean" technologies in industry, transportation, agriculture and waste management. Even though Romania presently produces only 11.7 MW based on the exploitation of wind energy, the assessments of the entire wind energy potential represent about 23.000 MW.
Until 2020, 24% of the gross domestic consumption in Romania must be provided by renewable energy sources. With respect to the use of renewable energy sources, Romania was the first Eastern European country which adhered to the Renewable Energy and Energy Efficiency Partnership. Our country's potential regarding the production of "green" energy is estimated to approximately 12% solar energy, the major potential areas being the Danube Delta, Dobrogea and Câmpia de Sud.

Conclusions

Environmental protection in our country must be a priority for all the factors implied in economy and in the contemporary reality: the Romanian state, nongovernmental organisations and the citizens.
In order to prevent environmental deterioration given the pollution generated by the Romanian industry, it is necessary to improve the waste management system, by granting certain incentives for the reduction of the generated waste materials and for the maintenance of industrial spoils. This way, we may limit the pollution of the soil, of the surface and underground waters, and we may prevent the deterioration of ecosystems. The investors must be attracted to the abandoned industrial areas, which generated serious deteriorations of the environment and which require rehabilitation solutions based on new investments, such as the town Copşa Mică. The financial and material efforts shall be considerable, they shall require a long time to enter the economic circuit, but they shall provide a clean environment, as well as jobs for the future generations.
Investments having an impact over environmental protection are extremely important for the Romanian economy. Potential investments requiring substantial financial, material and human efforts form the state and from private companies, from nongovernmental organisations, as well as financing from the E.U., are as follows:

- the production of energy out of agricultural or industrial waste materials or hospital waste materials;
- the increased production of hydro-energy and renewable energies, as we have a high potential for the production of solar and wind energy;
- the development of technologies for the collection and storage of carbon dioxide;
- the implementation of advanced technologies for the collection, processing and recycling of waste materials;
- the maximum use of rural fuel – biomass – by the use of all residues resulted from wood exploitation, sawdust and other wood debris, as well as agricultural waste materials;

[10] Climate Change Performance Index 2010 – Climate Action Network Europe, December 2009, page 6, Copenhagen, http://www.germanwatch.org/ccpi

- the production of biogas by the methanisation of organic waste (manure, crop foodstuffs, biodegradable waste materials), for them to be used in the heat supply system, in the production of electric current and in the generation of high quality fertilisers for agricultural areas;
- the reduction of greenhouse gas emissions by the elaboration of certain strategies and action plans for long-term climatic changes.

A priority objective is the enforcement of the action plan for promoting eco-technologies, mostly focusing on the maximisation of efforts to adjust to E.U. plans and on a greater access to finances granted to the units with innovation capacities regarding eco-efficient products and materials. For this purpose, at the level of the national policy concerning environmental strategies, it is necessary to coordinate the measures related to fiscal policy, to state grants policy, to policies regarding small and medium sized enterprises in the field of innovation and research, in order to accomplish the reorientation of the Romanian economic structure towards the increased percentage of "clean" economic branches.

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