

WASTE MANAGEMENT IN ROMANIA AFTER THE EUROPEAN UNION ACCESSION

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Abstract: In Romania, the development strategies of the national environmental policy in the pre-accession and post-accession period were shaped by the priorities of Romania's accession to the European Union and the needs and national priorities. The waste management activity refers to the education for collection, transport, treatment, recycling and disposal of waste, the Ministry of Environment and the National Environmental Protection Agency are responsible for it and it is based on Law 211/2011, which implements a number of the European Council Directives. The collection, recycling and treatment of solid, liquid, gaseous and, especially, radioactive waste which requires specific treatment methods, are a priority and are also found in the commitments that Romania has undertaken towards the European Union. In 2007, in Romania were marketed approximately 1,300,000 tons of packaging, of these, half were included in the "Green Point" system, the recorded recycling rate being of around 36%. The National Agency for Environmental Protection has established as targets, a recycling rate of municipal waste of 35% by 2008, 40% by 2011 and, in accordance with the European legislation, Romania had, until 2013, to recycle 55% of the generated in 2013. The stage 2007 - 2017 is the period in which the expansion of selective collection should be done nationally, and, from 2017 until 2022, the implementation of selective collection in more difficult areas such as dispersed rural and mountain areas will be achieved.

Achieving an efficient management of waste at national level helps to ensure environmental protection and conservation of natural resources, in accordance with the requirements of sustainable economic and social development, as well as increasing population education and awareness on achieving these goals.

Keywords: management, waste, strategy, environment, resources.

Introduction

Waste management in the European Union is a very important issue and EU policies in this regard aim to reduce the impact of waste on the environment and health and to improve resource efficiency in the EU. In the long term, the objective of these policies is to reduce the amount of waste generated, and, when waste generation is unavoidable, to promote their use as a resource and achieve high levels of recycling and disposing in safe conditions.

If until recently the waste that people produced did not represent an important problem because the population was predominantly rural and used most of the waste they produced (organic waste was composted and used in agriculture, certain packaging was reused very often, the objects created by man were composed of degradable material such as straw, wood, textile from plants or fibers of animal origine), nowadays this waste is a significant and serious problem, generated mainly by their long life. Thus, some wastes require hundreds or even thousands of years to decompose completely and to reintegrate in nature.

According to statistics, the top "producers" of household waste are the United States with more than 700 kg / inhabitant / year, due to the contribution of packaging and, for the European countries one can not make a correlation between the level of civilization or concern for the environment and quantities produced. If the Czech Republic and Greece have the lowest level and Finland the highest, Romania stands at an average of 400 / kg / person / year. This figure is however questionable, since only two urban landfills (Bucharest and Timisoara) have weighing scales for garbage trucks. The decrease of the amount of waste produced is not the sole solution though, because as important is the percentage in which these are recycled.

At this moment, there is no nation and no citizen who can ignore the fact that, resembling landforms, the mountains of waste increase by several meters each year and transform landscapes, pollute water, air and soils, while significantly reducing the resources of raw material. The waste is now a symbol of a society that unjustifiably wastes the natural resources, is an enormous waste of both material and energy resources, and in addition, the management and disposal of waste can have a serious impact on the environment. For example, garbage disposal pits occupy land and may cause pollution of air, water or soil, while their incineration may generate hazardous air pollutant emissions, if not properly regulated.

In the EU, waste management is based on three principles:

- waste production prevention (use of cleaner technologies, ecological design, more efficient production and consumption patterns);
- recycling and reuse;
- improving final disposal and monitoring.

Waste management

Both in the Accession Treaty of Romania to the European Union signed on 25 April 2005 and in the additional Protocols are provided the commitments that Romania has undertaken for the implementation of the *acquis communautaire* and the deferments on the implementation of certain environmental liabilities:

- until 2015 for industrial plants with high and complex pollution;
- until July 16, 2017 for municipal waste;

- by 2018 , for the expansion of urban systems for potable water and wastewater treatment.

The collection, recycling, and waste treatment constitute a priority for Romania and are also to be found in the commitments to the European Union. Law 27 of 2007 is the normative act which requires Romanians to sort waste, all local authorities having the obligation to establish, as quickly as possible, a sorted waste collection system where people could deposit household waste.

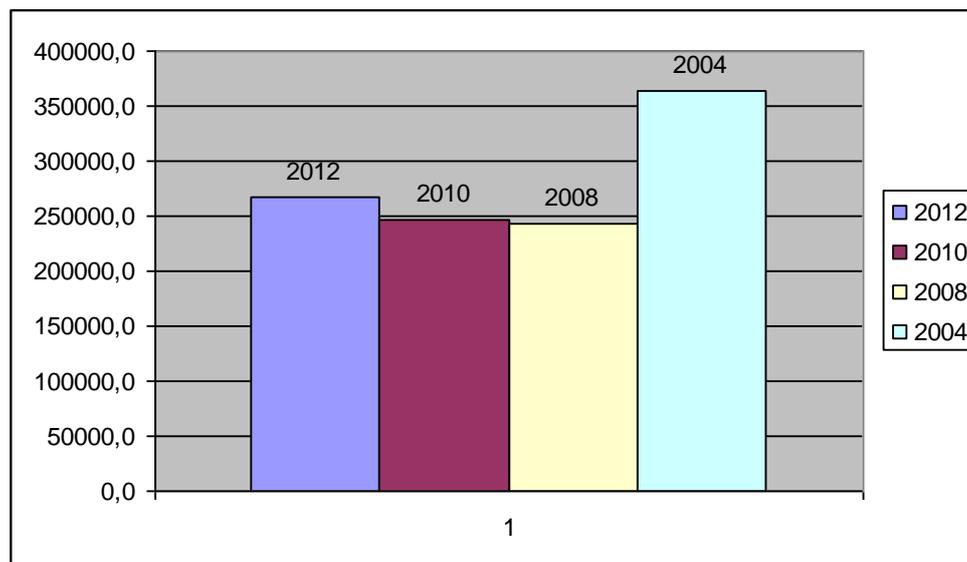
Using data recorded in 2004, official statistics show that in Romania were generated about 363.315 million tons of waste, of which 99.4% represented non-hazardous waste and 0.6% hazardous wastes. Of these, 94.0% resulted from the mining industry, followed by manufacturing and the greatest impact on the population had the municipal waste, which in 2004, accounted for 380 kilograms per capita.

The Eurostat statistics for the 28 Member States displays the following quantities of waste produced in Romania from 2004 until 2012 from economic activities and households:

- in the year 2004 363.315 million tons;
- in the year 2008- 242.700 million tons;
- in the year 2010- 246. 000 million tons;
- in the year 2012 – 266.975 million tons.

By analyzing the amount of waste during this period of 8 years, one may see (graph no.1) that the difference between 2004 and 2012 is quite high, this decreasing by 96 340 million tons.

Graph no.1 The quantities of waste produced in Romania during 2004-2012



Source :Eurostat-Statistics

One of the priorities of the National Development Plan 2007-2013 has been to protect and improve environmental quality and life standards based on ensuring public services and utilities, particularly regarding water and waste management.¹

In Romania, 1.3 million tonnes of packaging were introduced on the market in 2007 and half of them were included in the "Green Point"² system and recorded a recycling rate of around 36%.

In the "Green Point" system are involved all those who have responsibilities in the packaging circuit (producers, importers, bottlers, local authorities and citizens), the companies being able to transfer, by means of contracts, the recovery and recycling responsibility of packaging waste to the Eco- Rom packaging SA organization, which, in turn, creates partnerships with local authorities, private companies or municipal sanitation and companies which, subsequently, recover or recycle the collected and sorted packaging.

At the end of 2007, ECO-ROM PACKAGING SA, the representant of the "Der Grüne Punkt " mark - The Green Point, incorporated 917 companies that have marketed 661,000 tonnes of packaging, with the following structure: 19.4% glass, 30.9% plastic, 25.2% paper, 4.6% metal and 19.8% wood. The amount of recovered packaging by ECO-ROM PACKAGING S.A. for the members of the system was about 240,000 tons. All system development efforts targeted the year 2008, when traders were supposed to face, according to the legislation, the largest increase recycling targets for each type of material recorded until

¹ The National Sustainable Development Strategy of Romania- Horizons 2013.2020, 2030.

² The Green Point appeared in 1995, when the German organization Duales System Deutschland AG decided to transfer its right to use its registered trade mark to an European organization, Packaging Recovery Organisation Europe sprl (PRO Europe).

2013. The year 2008 was marked by a 300% growth of the recycling target in paper and metal, and 50% in glass and wood.

Since April 2007, Romania has had a new tool to reduce environmental pollution, improve public health and to promote sustainable development (PRGD). These plans came into force with the publication in the Official Gazette, Romania having eight regional plans for waste management, every plan being drawn up for a development region of the country, they are updated regularly to a maximum of five years and promote the cooperation between regional and local authorities, as well as citizens and businesses. This cooperation creates the necessary foundation for the developed regions to meet the requirements on obtaining grants from the EU structural funds. In Romania, the implementing organization for Green Point system is EcoRom Ambalaje, member of PRO Europe since 2004. The role of Green Point is of asociation which profit is being reinvested for developing the system.

The National Environmental Protection Agency has set as its objective, 35% of municipal waste recycling rate in 2008 and 40% by 2011.

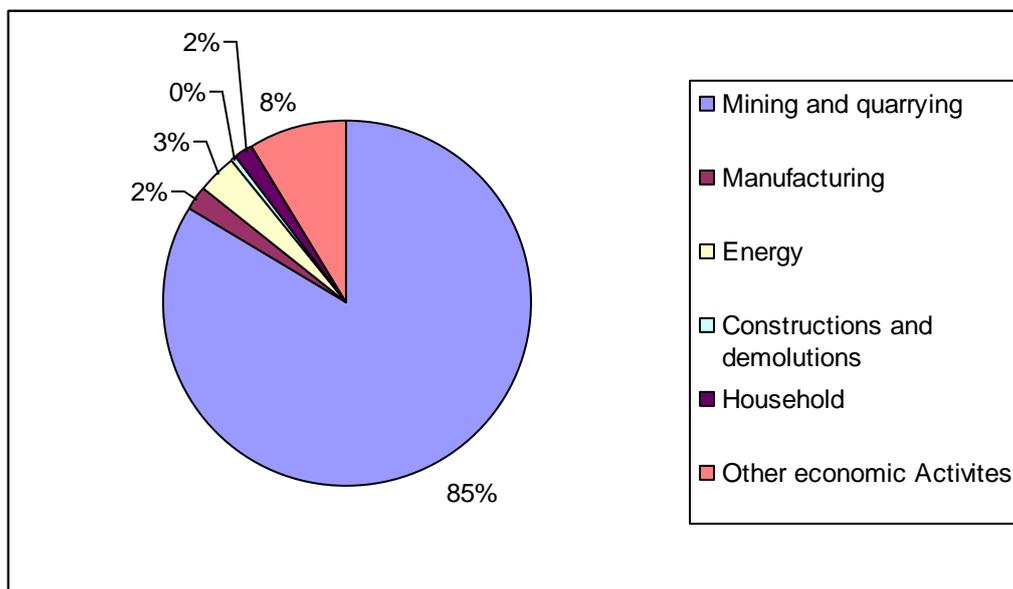
According to EU directives, the new Member States had to reach by 2012 at least 55% recycling, except: Latvia has the highest exemption, ie until 2015, Poland and Bulgaria - 2014 and Romania and Malta - up 2013.

According to the European legislation, Romania had, in 2008, to recycle 33% of the generated packaging waste and 55% of those generated in 2013.

According to Eurostat- Statistics sources (Graph no. 2), in Romania of 2012, the total waste generated by economic activities and households was in amount of 266 976 (thousand tons), consisting of:

1. mining and quarrying-223. 293 (mii tone) ;
2. manufacturing- 6. 029 (mii tone);
3. energy – 9 .043 (mii tone) ;
4. construction and demolition-1 .325(mii tone) ;
5. other economic activites – 22 .638(mii tone)
6. households-4.647(mii tone)

Figure no.1 The quantities of waste generated in Romania in 2012 by types of economic sectors and households



Source :Eurostat-Statistics

According to the market study conducted by Paper Plus :

- 65% of Romanians would be willing to consume less paper or reuse plastic bags;
- however very few people would plant trees or shrubs;
- the proportion of those who would collect paper for recycling is virtually zero.

The 2007 - 2017 period is characterized by nationwide expansion of selective collection and, in the 2017- 2022 interval, the implementation of selective collection in more difficult areas such as dispersed rural and inaccessible mountainous areas will be achieved.

As each Romanian generates about 5 kilograms of waste per week every year, Romania must effectively manage, on average, 36.7 million tons of waste, approximately 100,000 tons of waste per day, this amount placing Romania in a middle position, if one relates to the EU member states.

According to statements of the Environment Minister at the time, László Borbély, 71% of the total waste resulted from production activities, while the remaining 29% was municipal waste and, according to estimates, the figure would grow in the coming years, at least in the case of the municipal waste. According to him, the National Waste Management Plan estimates an average increase of 0.8% per year in the amount of these types of waste, generated by 2013. Of the total municipal waste, around 40% was composed of recyclable materials out of which approximately 20% could be recovered, not being contaminated.

Following the selective collection through pilot projects, only 2% of the total recyclable materials generated are recovered at present in Romania³ from the 5 kilos of waste per week:

³ Statistical study published on the website www.paperplus.ro

- half of them (2.5 kg / week) are biodegradable waste;
- half a kilogram is glass;
- half a kilogram, paper and cartons;
- the remaining almost two kilograms is divided on other types of waste, of which textiles are about 250 grams per week, plastics.

In recent years, private companies have initiated intensive actions of collecting cardboard and PET, and in some localities were placed collection centers where individuals have the possibility to bring (with or without remuneration) wastepaper, cardboard, glass, plastic.

In Romania, the institutions of the glass, paper, cardboard and plastics industry are licensed and have started to take these wastes to collection centers for recycling and / or recovery, in other words, things started to move in this sector, although much more needs to be done.

For example, that growth is expected due to the economic development of the country, we have to find solutions for waste from construction and demolition.

There is still no adequate system of waste recovery from construction and demolition, but an internal reuse in their own household or trade on an undeclared market. Regional waste management strategies should present solutions to target this category of waste, given the fact that they are turning into a pressing problem.

The study released on January 29, 2016 in Brussels by the European Commission with the objective "evaluation of selective collection schemes in 28 capitals of the EU (2015)" should show the current situation of systems implemented in the European capitals, as well as examples of good practices that can constitute the basis for improving the systems in the European states.

The separate collection of municipal waste is a legal obligation on all member states of the European Union and this study launched at the end of January in Brussels was designed to objectively assess and correct the situation in 28 European capitals on separate waste collection in the context of launching a new legislative package on Circular Economy.

The ultimate goal of this study is that, the whole of Europe must know where they stand in terms of collection, recycling and revaluation of waste or if it is prepared to transform waste into valuable secondary raw material, at the quotas imposed by legislation. Partial results showed that two of the top three countries in selective collection (at capital city level) are in Central and Eastern Europe (Slovenia and Estonia, Ljubljana and Tallinn, alongside Helsinki-Finland), lead in the ranking of European capitals, with a selective collection rate of 55.4%, 42.2% and respectively 38.6%, Europe having a selective collection rate averaging 19%.

At the capital and country level, data concerning Romania are but gratifying, Romania still having much work to be done.

Also, as a member country of the European Union, Romania has an obligation to collect and recycle every year 80 000 tonnes of waste electrical and electronic equipment (WEEE). First, the organized collection actions were initiated in 2007 by the Ministry of Environment through the National Campaign for the collection of waste electrical and electronic equipment known as the "Great disposal". This action provided that the citizens take out in front of the house or building inoperable equipment, then sanitation companies picked them up and carried them to the collection centers, for there to be taken over by collective organizations authorized to transport to recyclers. Thus, within this campaign were collected annually 569 tons of waste and, since then, campaigns for the collection of waste electrical and electronic equipment are organized.

One must not forget that human activities result in an enormous amount of waste, of which 40% are just waste paper, all this amount of paper waste can be reused / recycled to produce other paper products. The natural substance that underlies the paper production is pulp, and this is the basic element of all plant cell walls. All plants contain tissues that, properly processed, will produce cellulose. Raw cotton contains approx. 91% natural cellulose in its purest form. Other sources for producing paper are hemp (77%), softwood or hardwood (57% to 65%). In order to produce one tonne of ordinary paper, between 2 and 3.5 tons of wood are used, this meaning that about 20 trees are cut. Paper is obtained from wood cellulose fibers, resulting from a chemical boiling process. By recycling one ton of paper 17 trees are saved..

In terms of environmental pollution and energy consumption, recycled paper is more advantageous than regular paper because, by recycling one ton of waste paper, 30,000 liters of water are saved, it is used between 28% and 80% less electricity and air pollution is reduced by 95%.

These are the reasons why recycling is the method aimed at two important aspects: resource efficiency and environmental impact, waste representing thus an important source for secondary resources. Thus, the replacement of primary resources with the use of waste materials, but recycling itself involves a series of previous activities: collection, transport waste, intermediate processing that involves sorting, shredding and compacting etc.

Conclusions

As a result of general economic growth and progress in all areas of economic and social life, humanity has the technical means available today so improved that it consumes huge amounts of both renewable and non-renewable natural resources. Acting more and more on environmental factors and changing nature in a fast pace and without adequate control and aware of his actions, the man leaves the door open to the harshness of economic imbalances, with very negative impacts on the quality of his life and the evolution of the biosphere.

Therefore, it becomes increasingly clear that in a heavily degraded and polluted environment, a high standard of life loses all meaning, not taking into account the negative impact of this environment on the perspective evolution in natural and biological phenomena. The overall objective of sustainable development is to find an optimal interaction of the four systems: economic, human, environmental and technological.

The EU sustainable development strategy adopted by the EU Council in 2006, aims to find, based on maximum compatibility, the most appropriate criteria for the optimization of the needs - resources ratio, objectives to be achieved and necessary means. Taking into consideration this document designed in a unified and coherent strategic vision, with an overall goal to continuously improve the quality of life for present and future generations, member states must comply with and act accordingly.

In conclusion, it must be remembered that, due to lack of facilities and poor exploitation, landfills may be among the recognized causes of impact and risk to the environment and public health. The main impact forms and risks caused by urban and industrial landfills, in the order they are perceived by the population, are: changes in landscape and visual discomfort; the air pollution; pollution of surface waters; changes in soil fertility.

By analyzing the risks of mismanagement, one can assert that waste management requires specific measures, tailored to each phase of waste disposal into the environment and, the compliance with those measures must be the object of the monitoring activity of the environmental factors affected by the waste presence.

In Romania, local authorities should ensure separate collection of packaging waste by public sanitation services, and by setting up appropriate facilities and location of trash containers for differentiated garbage.

In Romania there are economic operators who recycle waste (paper and cardboard, plastics, glass, wood, ferrous and nonferrous materials) by taking it from the authorized collectors.

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