

## SHORT REVIEW OF MUNICIPAL SOLID WASTE RECYCLING IN ROMANIA AND IN THE EU

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### Abstract

*Waste management includes all activities of collection, transport, treatment, recovery and disposal of waste, including supervising of such operations. The framework law that regulates waste management activities in Romania is Law no. 27/2007, approving Government Emergency Ordinance no. 61/2006, amending and supplementing Government Emergency Ordinance no. 78/2000 on waste regime. This paper presents the importance of waste recycling, a comparison between Romania and other EU countries. With waste recycling we save a lot of energy, we can reduce the amount of waste to save our nature.*

**Key words:** municipal waste, recycling, Romania's situation, selective collection.

### INTRODUCTION

Waste recycling saves energy, reduces pollution, reduces the waste quantity and conserves our planet. Any individual or resident can call the local authorities to install waste collection containers.

The problem is that in Romania selective waste collection is not so popular. According to the Council Directive (1975) of the European Union (art. 1 Directive 442/75), waste is defined as any substance of various nature (organic/ inorganic solids/ liquids /gases, or combinations thereof), resulting from industrial processes, agricultural activities, road or water flows, household activities/municipal or domestic activities or objects which the holder discards or intends to throw/make a collection space for storage transport.

The technological progress in the field allowed, according to the concept of sustainable development, to make a fundamental change in considering waste as garbage (things/objects to be thrown away). During time, this definition has changed in terms of consistency, so that the Waste Framework Directive (EC Directive, 2008) sets the fundamental concepts and definitions associated to waste management, such as definitions of waste, recycling, recovery.

This framework generates the opportunity to consider waste as a source of raw materials and renewable energy.

### MATERIALS AND METHODS

Of all European countries, Romania recycled only 14% of its municipal waste for the last 8 years; the rest was thrown in landfills.

Regarding the management of waste in Romania we can distinguish three main categories of waste and this can be divided into three categories:

Municipal and similar waste: the totality of waste generated in the urban and rural areas, which comes from households, institutional and commercial sources, service providers (household waste), street waste collected from public spaces, streets, parks, green spaces, construction and demolition waste, sludge from the treatment of urban waste waters;

Production waste: the totality of waste generated by industrial activities; it falls into two categories: non-hazardous production waste and hazardous production waste;

Waste generated by medical activities: this is waste generated in hospitals, clinics, medical offices and it falls into two categories: - hazardous medical waste which includes infectious waste, medical sharps, pathological

wastes, including organs, waste coming from infectious disease departments, etc. and - similar wastes, including other categories of waste outside the categories mentioned above, falling into the category of similar wastes.

During the last years, the ratio between the first two categories varied from one year to another, the average values being 29% municipal waste and 71% production waste.

## RESULTS AND DISCUSSIONS

Waste sorting and recycling is increasing annually; by 2013 the aim was to reach European standards. The goal was to reach a 38% by 2009, 42% by 2010, 46% by 2011. In 2010 paper recycling was 60%, 14% plastic, 44% glass and 50 % metal recycling. If Romania would have missed its targets, risked to be fined with a daily 200.000 Euros. Since 2005, Romania is required by European law to recycle a certain percentage of waste. Being a member of the EU has to collect and recycle 80.000 tons of waste annually coming from electric and electronic waste-WEEE (4kg of WEEE/capital). Since 2007, the Ministry of Environment of Romania initiated a movement, the National Campaign of Collecting WEEE waste under the name of 'The Great Disposal'. The largest IT and electronic recycling factory in Romania is owned by GreenWEEE, in Fasinu, near Buzau. The recycling capacity is 50.000 tons of waste. According to the National Agency of Romania for Environmental Protection, in 2007, the total amount of packages placed on the market was over 1.25 million tons, out of which nearly 400.000 tons were recycled (about 30%- the objective was 28%).

The amount of municipal waste coming from the Romanian people is 8 million tons yearly:

- 210.500 tons of glass;
- 235.200 tons of paper and cardboard;
- 236.500 tons of plastic;
- 104.700 tons of metal;

In 2007, 60% of waste packaging came from the population. In 2005 the amount of packaging on the market was 1.14 million tones, 305.000 tones out of it, 26,6% was recovered, and 265.000 tones were recycled, 23% recycling rate. The amount of recovered packaging in 2006 increased to 525.00 tones.

In 2009, EU legislation obligates merchants to take back and salvage 45% of all packaging placed on the market, this led to a 60% of all packaging in 2013.

The first National Waste Management Strategy was elaborated in 2003, and published in early 2004, as a result of the transposition of European legislation in the area of waste management and according to the provisions of the Emergency Government Ordinance no.78/2000 on the regime of waste, approved in 2001. The strategy is based on the principle of protection of primary resources, the prevention principle, 'the polluter pays' principle correlated with the principles of producer and user responsibility, the substitution principle, and the principle of proximity correlated with the principle of autonomy.

In 2004, the National Waste Management Plan was elaborated accompanied, in 2006, by the Regional Waste Management Plans for the eight Romanian regions, so as to ensure all the required measures to achieve the objectives of the strategy. The waste situation in Romania is under the supervision of the Ministry of Environment and Climate Change and the National Environmental Agency.

The responsibility for the collection and management of municipal solid waste belongs to the municipalities (Almasi, 2013; Schiopu et al., 2012). In a report prepared for the European Environment Agency, Almasi (2013), showed that, "by 2009, 63% of the population in Romania benefited from collection services; this consisted of 4 % in the urban areas and only 38% in rural areas. A total of 6 296 000 tonnes of waste was collected and treated in 2009".

By 2015, Romania should have closed 150 old municipal landfills and 1,500 illegal dumpsites, and should have established 30 national integrated solid waste management (SWM) systems.

The EU legislation and standards for waste management were transposed into national legislation, with some transition periods for full compliance: 2017 for municipal landfills; 2009 for temporary storage of hazardous industrial waste; and 2013 for non-hazardous industrial waste.

Around 90 percent of urban residents, but only 6.5 percent of the rural population have access to organized solid waste management services. Government cost estimates for meeting EU

norms are EUR1.8 billion—or investments of about EUR25-30 million per county, creating a funding gap of at least EUR870 million. ERDF grants will provide only up to EUR930 million to execute the municipal waste axis of OP Environment.

There are 13 organizations in the country responsible with put into action the extended manufacturer liability policy for packaging placed on the Romanian market, known as OIREPs. Among them are names like Clean Recycle, Eco Synergy, Fepra International, Greenpoint Management, and Enviro Pack Consult.

OIREPs work with Intercommunity Development Associations (ADIs); there are currently 39 ADI organizations founded in Romania for integrated waste management at county level. In most counties, ADIs are organized by the county councils and town halls, the institutions dealing with waste management in their areas.

County councils are the beneficiaries of Integrated Waste Management System (SMID) projects, while ADI manage project implementation. At the country level, 32 integrated waste management projects have been approved to finance prevention, separate collection, waste treatment, recycling, recovery and disposal, simultaneously with the closure of non-compliant landfills.

Through the SMID projects carried out in most of Romania's counties, investments were made in sanitation infrastructure, specifically in waste collection equipment, individual composting units, composting plants, treatment plants, TMB installations, sorting plants, transfer stations and compliant warehouses.

The tasks of ADIs regarding SMID projects are to implement proposals by establishing or extending, organizing, managing, and operating services for the common interest, including delegating management based on the conditions of delegation contracts or public procurement procedures, in accordance with the law.

While defining the roles and responsibilities of ADIs and OIREPs within the extended manufacturer liability schemes, OIREPs must assure the recycling/recovery of municipal packaging waste, which gets collected, transported, and sorted by the Administrative Territorial Unit (UAT) based on an official

collaboration agreement. OIREPs must pay the UAT/ADI the full amount of the net costs related to the separate collection, transport, and sorting of municipal packaging waste as well as to the financing of awareness campaigns to promote waste recycling/recovery.

In the case of UATs, for some types of sorted packaging waste, which represent materials with a negative market value, the responsibility lies entirely with the OIREPs, which must provide recycling/recovery of materials, including transport logistics, at their own expense.

The collaboration between ADIs and OIREPs is deficient, mainly as a result of the misinterpretation or non-application of legislative requirements and a misunderstanding of each party's responsibilities.

The main issues identified in the collaboration between UAT/ADIs and OIREPs are: the separate tariffs for recyclable waste management, used to calculate the net costs paid by OIREPs, are not correctly substantiated; OIREPs only pay for the amount of packaging waste that actually gets recovered and not for the full amount that gets collected and sorted, which leads to lower revenues for UAT/ADIs, given the very low recycling/recovery rates; UAT/ADIs do not calculate users' separate revenues, ultimately paying more for the management of recyclable waste than for the management of other types of waste. In this context, only 7 ADIs – Arges, Calarasi, Iasi, Mures, Olt, Salaj, and Sibiu – have contracts in place with OIREPs.

## CONCLUSIONS

Therefore, now, the recycling rate of municipal waste reached 13.89 percent, totalling 739,384 tonnes, according to the Annual Report on the State of the Environment for 2018 issued by the National Environmental Protection Agency (ANPM). According to the information available in the National Waste Management Plan (PNGD) during the analysis period, the degree of separate collection of municipal waste varied between 3.2 percent and 5.3 percent. Both the ANRSC (National Regulatory Authority for Community Public Utility Services) and the GNM (National Environmental Guard) performed checks among UATs regarding the application of waste management legislation.

The SMID master plan has been developed and approved in the following counties: Alba, Arad, Arges, Bacau, Bihor, Bistrita Nasaud, Botosani, Braila, Calarasi, Caras-Severin, Cluj, Constanta, Covasna, Dambovita, Dolj, Giurgiu, Gorj, Harghita, Hunedoara, Iasi, Maramures, Mehedinti, Mures, Neamt, Olt, Prahova, Satu Mare, Salaj, Sibiu, Suceava, Teleorman, Timis, Tulcea, Vaslui, Valcea, and Vrancea.

In conclusion, according to the Environment Ministry, there are 12 municipal landfills that still need to be closed. Ten administrative-territorial units (UATs) have requested funding to shut down their landfills through the designated programme, which is managed by the Environmental Fund Administration (AFM), and all these applications have already been approved in 2019, the GNM carried out 39,429 inspections related to pollution control and biodiversity, biosecurity, and protected natural areas, reaching a 110 percent completion rate for its initial inspection plan for the year.

As a result of the checks, 1,575 warnings and 3,288 fines were handed out, to the total of RON 55.6 million. Furthermore, 219 shutdown orders

and 44 criminal complaints resulted from the inspection operations.

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