

WASTE MANAGEMENT IN THE CONTEXT OF CIRCULAR ECONOMY IN ROMANIA

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Abstract

The efficiency of material resources and waste management are very closely related issues. This indicates an opportunity to address both themes together, for example through the circular economy, the recovery of secondary materials or industrial symbiosis.

The paper presents the research on the waste management system as one of the strategic objectives of Romania's sustainable development. Waste can be both a resource and an environmental problem. Depending on how companies, governments and economies address issues related to the circular economy and, more specifically, the transformation of waste into wealth at the level of companies and entrepreneurs, they will make a difference. This means that well-managed waste can be considered as a resource and lead to "green" and "growth", a growth that is not resource-based but performance-driven.

Keywords: sustainable development, waste management, circular economy

JEL Classification: Q53, Q56, Q58

Introduction

The circular economy is based on a set of principles, outputs (waste) for an enterprise are considered inputs (raw materials) for another enterprise. As a result, all products on the market are designed in such a way that they can be disassembled and reused for other products. This diversity, the high degree of adaptation of products, the energy obtained from renewable sources must stem from the systemic thinking of producers who need to understand how raw materials influence one another.

Description of the Problem

Waste management in a more efficient way is the first condition for the transition of an enterprise to a circular economy where as many products and materials are recycled or reused.

Directive 2018/851 / EU introduces a new definition of "packaging waste", which includes any packaging that has been designed, designed and placed on the market to achieve several cycles in its life cycle, being reused for the same purpose which was conceived.

This directive establishes long-term goals for U.E. waste management policy and gives economic operators and Member States a clear orientation on the investments needed to achieve the objectives (Table 1).

Table 1. Long-term objectives for U.E. waste management policy

Minimum recycling target per type of specific material contained in packaging waste	Until 31.12. 2025	Until 31.12.2030
Glass	70%	75%
Plastic	50%	55%
Paper and cardboard	75%	85%
Ferrous material	70%	80%
Aluminum	50%	60%
Wood	25%	30%
Total	65%	70%

Source: Eurostat data, 2017

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Packaging recycling targets for 2030 should be examined to maintain or increase, as appropriate, taking into account the specific flows of packaging waste such as household waste, commercial and industrial packaging waste and packaging waste Composites.

The countries producing the least waste are all in Central and Eastern Europe, where the standard of living of the citizens is the lowest. While reporting the smallest amount of waste generated in the EU, Romania ranks 27th in the recycling ranking. (Table 2).

Table 2. Amount of waste generated from the U.E.

Countries	Municipal waste (Kg / capita / year)	Food waste (Kg / capita / year)
Austria	564	209
Belgia	420	345
Bulgaria	404	105
Cehia	339	81
Cipru	640	327
Croația	403	91
Danemarca	777	146
Estonia	376	265
Finlanda	504	189
Franța	511	136
Germania	627	149
Grecia	498	80
Irlanda	563	216
Italia	497	179
Letonia	410	110
Lituania	444	119
Luxemburg	614	175
Malta	621	76
Polonia	307	247
Portugalia	461	132
Marea Britanie	483	236
România	261	76
Slovacia	348	111
Slovenia	366	72
Spania	443	135
Suedia	443	212
Lower Countries	520	41
Ungaria	379	175

Source: Authorized data based on Eurostat statistics, 2017

Trade in recyclable raw materials includes both imports and exports, both inside and outside the EU.

Methodology and Data Sources

As a member state of the European Union, Romania has the following objectives to be achieved by 2020: minimum 50% reuse and recycling rate of the total mass of the waste, at least 70% preparedness for re-use, recycling and other operations of material recovery of at least 70% of the mass of non-hazardous waste from construction and demolition activities, 60% recovery of the packaging waste from the total packaging placed on the national market.

Also, the collected annual amount of electronic waste will have to be 4 kg / inhabitant and bio-waste will be collected separately for composting and fermenting.

Regarding waste management, the situation is worrying, and Romania's chances of achieving the objectives of the legislative package are minimal.

According to the U.E. report, Romania has very low recycling and composting levels, ie 16%, compared to the European average of 44%, as well as high rates of waste disposal.

The recycling rate for municipal waste is only 3%, with no other EU country recycling less than 10%. Under these circumstances, reaching the 65% target is unfeasible, even when there are still 14 years by the deadline.

Along with Malta and Estonia, Romania is among the three countries of the United States. where economic growth has not been decoupled from pressure on the environment and natural resources, and the chances of this occurring are minimal.

So, the Romanian economy has a significant gap with the overwhelming majority of the European Union's economies.

An enterprise that has implemented a waste management system and which has increased flexibility in market dynamics and innovation can benefit from the following benefits:

- there is an obvious link between environmental performance and the increase in product sales for enterprises that have implemented a waste management system,
- better positioning on the market as a direct result of improving environmental performance;
- substantial savings in the use of resources, water and energy consumption, in direct correlation with the adoption of voluntary environmental management initiatives;
- a better image in relation to clients and public opinion;
- attracting new customers or finding new business opportunities;
- direct financial savings as a result of the appropriate setting of relevant environmental performance targets and indicators;
- improving compliance with environmental legislation;
- substantially improving the capacity to prevent and combat emergencies with an impact on the environment;
- Substantial reduction of the greenhouse gas emissions footprint.

Performance in business management is closely related to environmental performance, and the environmental management tool is the Green Business Index (GBI) indicator.

The GBI indicator helps identify opportunities to improve environmental management performance and reduce the risks associated with it.

It basically relies on the requirements of the international standard ISO 14031, but environmental performance indicators have been adjusted to reflect certain environmental issues that are particular or more relevant to the Romanian business environment.

Thus, even if the overall waste disposal rate is around 52%, there are still significant municipal waste and agricultural and biomass wastes that are not quantified with acceptable accuracy so that the data presented does not really reflect reality (Figure 1).

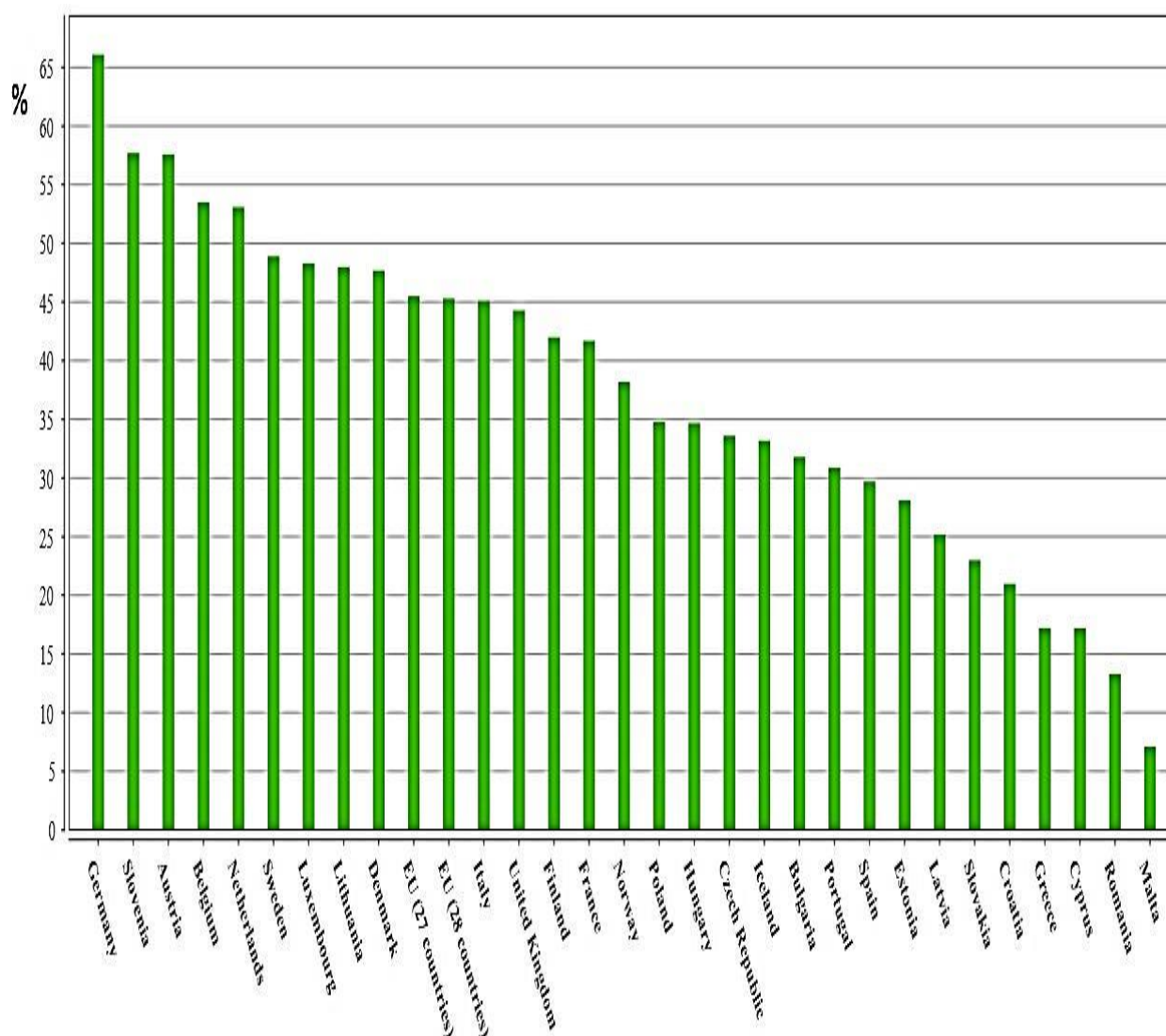
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Annually, approximately 1.3 million tons of packaging are placed on the market in Romania, leading to an obligation to recycle 750000 tons of waste.

This activity is currently funded only by packaged goods producers and importers whose interest in the collection of packaging waste has grown significantly and there is a realistic chance that this year the recycling targets imposed on producers will be achieved.

On the other hand, Romania recycles only 5% of the municipal waste annually, occupying, at a great distance from the next ranked, the last place in the European Union

Figure 1. EU Municipal Waste Recycling Rate 2017



Source: Eurostat data, 2017

Thus, with regard to the general recycling rate of municipal waste, Romania recorded the largest increase over the period 2008 - 2014, which was over 14.5 times. With all this spectacular growth, in 2014, Romania places a 13.1% recycling rate on the forefront of the European Union, outpacing only Malta and Slovakia. Also noteworthy is the average 43.9% recycling rate of municipal waste, registered at the level of the European Union. At the opposite pole of Romania, over 50% are: Germany, the Netherlands, Austria and Switzerland (non-U.E.).

Taking the last place in the EU Member States' classification on packaging waste involves the possibility of applying the infringement procedure. In Europe, especially in countries with a functioning system, recycling is supported by various economic measures and instruments.

By 2020, Romania will have to recycle 50% of the total mass of municipal waste. According to estimates, the targets for packaging waste will be achieved this year by producers, accounting for only about 13% of the 50% demand.

Throughout the waste management chain, each actor must bear the responsibility of costing: producer, citizen and local authorities. At present, those who fulfill all their obligations in this chain are only producers, those who place packaging waste on the market.

Thus, if public authorities would ensure the financing and infrastructure of the value and recycling system, the recycling rate will increase. Moreover, the authorities are responsible for implementing

economic instruments to boost the value-added business environment, one of the controversial measures being the so-called "pitfall" (postponed to take effect in 2014).

Legislative changes introduced from 2015 to the present day have regulated the system and have had a positive impact, and as a immediate effect has been the significant increase in the collection and recycling of packaging every year. Thus, the packaging recycling rate increased 1.64 times, at the level of Romania, over the same period of time, from 33.5% to 54.8%. The registered growth places Romania on the second place at the level of the European Union (which recorded a general increase of 5% from 60.5% to 65.5%), being surpassed only by Cyprus.

The 54.8% rate places Romania in the second part of the European ranking, surpassing only Liechtenstein, Malta, Croatia and Greece. It is important to mention that Romania places at the level of 2014 about 29.84% of the EU average rate of municipal waste recycling and at 83.66% of the EU average in terms of the recycling rate of the packaging. At the level of the national economy, the evolution of the sector of the NACE 38 companies had a downward trend over the analyzed period. At the level of 2014, the number of active companies is 2904, which represents only 65.41% of the number of active companies in 2008. The registered decrease caused the sector to decrease its share in the total economy (total number of active companies) from 0.67% to 0.48%.

Benefits improve waste management in Romania

In Romania, 82% of the waste is stored instead of being recycled. It is the highest percentage in the European Union.

The development of waste recycling will create over 20,000 jobs in Romania and over € 3 billion in revenues to the Romanian budget through the full implementation of current legislation on waste.

Just the very small, the smallest percentage of waste recycling in the EU, namely 5%, shows that Romania has huge potential for growth, said Kestutis Sadauskas, director of the European Commission's circular economy.

One way to improve waste management in Romania is to charge garbage dumps, and the amounts to be used to develop recycling infrastructure. Awareness of the population, increased controls by the authorities, the use of European funds can contribute to the development of the circular economy. The transformation of waste into raw materials has a major impact on environmental protection and industrial development in Romania.

In Romania, SMEs have invested in 2015 about 5% of the turnover for efficient use of resources, compared to the 50% average in the EU. and about 35% of them take measures to save energy and materials, compared to the EU average of nearly 60%.

The results of the Ecoinnovation Scoreboard in Romania have been depreciating since 2016 as eco-innovation activities have declined. Romania continues to demonstrate increased use of material, water and energy resources, but low resource productivity.

There are continuous challenges in municipal and industrial waste management, with very low recycling rates of 5% and a very high storage rate of 85%. Illegal waste disposal is frequent. Managers who are willing to make the transition to circular economy is the private sector because companies invest more in resource efficiency than in the past (especially measures to save energy - 30% of companies and measures to minimize waste - 31% of enterprises) (Flash Eurobarometer 456, 2017). In addition, many SMEs in Romania intends to offer green products and services in the next two years (19%), which is a sign that they are beginning to understand the value of these investments (Flash Eurobarometer 456, 2017).

Entrepreneurs have also identified opportunities in the waste or materials used with a number of increasingly large circular activities and developing new business models around reuse and repair. However, most production companies do not adopt life cycle thinking and actions continue to consider environmental costs as a burden in taking measures to resource efficiency.

While initiatives on the circular economy have begun to develop, more governmental support is needed to reduce them. With the adoption of the General Waste Management Plan in Romania in 2017, a major milestone was achieved, thus meeting one of the conditions for receiving EU funds.

Conclusion

The transition to the circular economy should be a priority for the Government of Romania, as it is a means of sustainable economic development. Appropriate policies and investments are needed to support the transition of economic agents to the green economy. These policies should take into account national, regional and local particularities and be implemented from bottom to top.

To this end, the Romanian government should engage in the following actions: to formulate and implement concrete action plans and policies to increase the competitiveness of economic agents so that they can achieve green growth; encourage companies to produce green goods and products, services for the green market in rapid growth; to develop and implement policies and strategies for eco-innovation; to provide important help in the transition to the green economy; to ensure that efforts remain for the transition to the green economy; to identify the most appropriate measures to promote and accelerate organic growth in Romania.

Government ministries should recognize the need to continue investing in green skills and workforce education towards sustainable development, adopt policy measures to promote environmental education; the existence of an action plan that prioritises the greening of production and consumption; to strengthen cooperation between the public and private sectors; to create tax incentives to invest in the greening efforts of economic agents. An important role will also be the implementation of simplified accounting procedures for economic agents; developing and organizing training programs for home entrepreneurs - and improving the quality of entrepreneurship; to increase opportunity-based entrepreneurship through state funding, educational programs, creating green innovation opportunities and green economic growth initiatives; the development and implementation of legislation on environmental entrepreneurship.

The Green Action Plan (GAP), proposed by the EC in 2014, aims to help economic operators transform environmental challenges into opportunities, focusing on resources, efficiency, entrepreneurship and environmental skills. Making and facilitating SMEs' access to The market also offers tools to internationalize them.

Within the EU, Romania ranks last in terms of economic indicators of innovation and competitiveness. Barriers to the ecological development of Romanian businesses include lack of investment; lack of specialized knowledge; lack of efficient management of available resources, leading to economic growth; poor access to finance; Excessive regulatory burdens.

Positive trends in the eco-innovation initiatives undertaken by the Romanian organic industry include: increasing jobs and turnover; the implementation of energy-improvement measures, efficiency in residential and public transport, and the promotion of the exploitation of renewable energy (biomass, wind, geothermal, solar and hydroelectric power) over the last decade; collaborative platforms and joint funding for eco-innovation initiatives in local companies; the promotion of green public procurement, - strategies and policy programs specifically addressing green innovations, infrastructure development and the improvement of the entrepreneurial environment; the adoption of EU environmental regulations.

Ensuring energy efficiency and renewable energy has received the greatest incentive in terms of fiscal incentives and funding available in 2013, using a generous government sponsorship to support renewable energy investments.

Romanian economic agents need to introduce environmental improvements for their operations in order to reduce costs and comply with regulatory requirements. Many of them are interested in sustainable development actions such as the use of ecological resources, clean production processes and biodegradable materials.

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