

## MUNICIPAL SOLID WASTE RECYCLING IN ROMANIA AND IN THE EU

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***Abstract:** the study presents the importance of waste recycling, a comparison between Romania and other EU countries. Romania analyzes what other countries adopted in this field, and shows the consequences and the proposals of the EU to help accomplish its goals. With waste recycling we save a lot of energy, we can reduce the amount of waste to save our nature. From 2016 Romania will be required to waste separate collection system, but in many cases this still represents a problem. Germany stands out when it comes to recycling waste, 95% of the waste is recycled, the population selects and transfers its own waste, meanwhile in Italy the population selects its own waste separately, but the transportation it's made by an authorized firm. At the moment Romania doesn't stand out when it comes to waste recycling, to make a change the attitude of the people must be changed in this field. By 2020 Romania wants to achieve a 50% of waste recycling.*

***Keywords:** conserve natural resources, municipal waste, recycling, Romania's situation, selective collection*

### **Introduction**

Waste recycling saves energy, reduces pollution, reduces the waste quantity and conserves our nature. Any individual or resident can call the local authorities to install waste collection containers. The probationary is coming to an end, and by 2016 this might become obligatory. The problem is that in Romania selective waste collection is not so popular.

### **THE IMPORTANCE OF RECYCLING AND THE SITUATION IN EU STATES**

The importance of waste collecting has its effect on the environment and urban environment (NEGULESCU N. SICOLAB. 1995).

In 2008, every citizen of the EU living in large cities, produced 524 kg of waste, 40% of them where in landfills, 20% was burned, 23% recycled and 17% decomposed. In 2007 the amount was 525 kg.

The Czechs produced the least amount 306 kg, the Danes produced the most, with 802kg, Poland 320 kg/ capital, Slovakia 328 kg, Latvia 331 kg, Romania 382kg, Ireland 733kg, Cyprus 770 kg/capital.

The biggest recyclers are Germany 48%, Belgium 35%, Sweden 35%, the Netherlands 32% and Austria 29%. Agricultural waste becomes more interesting to collect and recycle. (GAL J. 2005)

Der GrunePunkt (The Green Dot) is an European program, that aims to recycle consumer goods, placed on the market by traders. The system was first introduced in Germany in 1991 and since then created a network in many countries in Europe, in Romania also.

### **GERMANY IS THE LEADER AMONG THE EU STATES, RECYCLING 95% OF ITS WASTE**

Have you ever wondered where does our trash go after it's picked up? We asked many times, therefore we decided to find out (BULARDA GH D., CATRINESCU T., 1992), and this is what happened:

Firstly the term 'garbage' is only biodegradable household waste. Rectum, if I had to illustrate my trash it would be banana peels, tomato. The rest (milk and jar) are recyclable items, which are easily convertible into raw materials, which is called 'waste'. Only biodegradable waste should go to landfills, the rest should be recycled, after they go through the 'waste sorting' process. It increases number of workers in environmental industry and labor market (Gal J. 2006)

In Italy for example, the method mentioned in the first paragraph above, doesn't exist, waste sorting is a law there. People sort their own waste (paper, plastic and metal, glass), they pack it in transparent bags, after that they put them out so that a specialized company can take it away for recycling. A month ago I was at my friends in Milano, in their home, and I always asked them where to through my apple or my napkin.

In Germany only 5% of the waste ends up in landfills from households, 95% is recycled.

## RECYCLING SITUATION IN URBAN AREAS IN ROMANIA

Of all European countries, Romania in 2000 recycled only 1% of its entire waste; the rest was thrown in landfills.

Waste sorting and recycling is increasing annually; by 2013 the aim is to reach European standards. The goal is 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 misses its targets, risks to be fined with a daily 200.000 Euros.

Since 2005, the country is required by European law, to recycle a certain percentage of cardboard. Being a member of the EU has to collect and recycle 80.000 tones of waste annually coming from electric and electronic waste-WEEE (4kg of WEEE/capital).

Since 2007, the Ministry of Environment 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.

According to the National Agency 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. In 2003 there were used:

- 210.500 tons of glass
- 235.200 tons of paper and cardboard
- 236.500 tones of plastic
- 104.700 tones 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 will lead to a 60% in 2013.

Chart nr.1. Statistics of municipal waste in EU countries in 2011

	Cantități generate (kg/persoană)	Cantități tratate (kg/persoană)	Deșuri municipale tratate, %				
			Reciclate și compostate	Reciclate	Compostate	Depozitate	Incinerate
UE 28	492	480	42	27	15	34	24
Belgia	456	458	57	36	21	1	42
Bulgaria	460	433	27	24	3	73	0
Rep. Cehă	308	308	24	21	3	57	20
Danemarca	668	668	45	32	13	3	52
Germania	611	610	65	47	18	0	35
Estonia	279	220	40	34	6	44	16
Irlanda	570	570	45	37	8	39	16
Grecia	503	493	18	16	2	82	0
Spania	464	464	27	17	10	63	10
Franța	534	534	39	23	16	28	33
Croația	391	381	16	14	2	85	0
Italia	529	523	38	24	14	41	20
Cipru	663	663	21	12	9	79	0
Letonia	301	301	16	14	2	84	0
Lituania	469	458	21	19	2	79	1
Luxemburg	662	662	47	28	19	18	36
Ungaria	402	402	26	21	5	65	9
Malta	589	559	13	9	4	87	0
Olanda	551	551	50	24	26	2	49
Austria	552	528	62	28	34	3	35
Polonia	314	249	25	13	12	75	1
Portugalia	453	453	27	12	15	54	20
România	389	313	1	1	0	99	0
Slovenia	362	301	47	42	5	51	2
Slovacia	324	313	13	6	7	77	10
Finlanda	506	506	34	22	12	33	34
Suedia	462	462	47	32	15	1	52
Regatul Unit	472	465	46	28	18	37	17
Islanda	338	338	42	36	6	50	7
Norvegia	477	467	40	26	14	2	57
Elveția	694	694	50	35	15	0	50
FYROM	381	381	-	-	-	100	-
Serbia	364	254	0	0	0	100	0
Turcia	390	329	1	0	1	99	0
Bosnia-Herțegovina	346	284	-	-	-	100	-

Source: Capitanu V., 1982, Internet (7)

Ecko-Rom Packaging Company was founded in the late 2003, by a group of companies working in Romania. Founding members include Argus, Ball Packaging Europe, Chipita Romania, Coca-Cola HBC Romania, Heineken, Mars Romania, MUNPLAST, Pepsi Americas,

Romaqua Group Citrus, Tetrapark, Unilever, Titan. Eco-Rom is the market leader in recovery, recycling packaging waste. The model is inspired by the EU, where packaging products is printed a green dot – the symbol of the recycling company. In Romani, Eco-Rom make sure that the companies which they represent meet the recycling and collecting obligations.

## POSSIBILITIES TO ACHIEVE SELECTIVE COLLECTION

### Plans to accelerate the recycling and the reuse of waste in Romania

Three known colors: green, yellow, blue

In many cities, including Oradea, special containers were placed for selective collections of garbage, different colors and inscriptions were placed on the containers (photo nr.1):

**Photo nr. 1.** Containers located on streets for collection of municipal solid waste



Source: redactare proprie (după <http://www.ecologic.rec.ro>)

- Yellow for plastic and metal
- Green for glass
- Blue for paper

Until 2020, we must reduce by 50% household waste, which go to landfills. Therefore in 6 years from now, we will reuse half what we throw away. For now, from 2010 we are struggling to recycle at least 15% of our municipal waste, collected by specialized companies.

It is very hard for us because we are not used to this system, and we are still at the beginning. In 2009 the City Hall and Romprest, a sanitation company, began a project, they have given away 3500 transparent bags and instructed the people to collect their garbage after categories, and then the sanitation company was sent to collect all of it. On Monday plastic and metal, on Wednesday glass, on Friday paper and cardboard was collected. By the end of 2020 we will reach from 3500 to 50.000 bags which are collected. I was very surprised when I've seen that the majority of the people were the elderly, not the young. Interesting? Isn't it? What could be the explanation for this?

In other cities, like Oradea, in areas where there are many houses yellow bags were given, in which recyclable waste were gathered. In every two weeks RER Ecological Service transported the garbage in special processing facility. Where does all the paper being gathered from the collection points? Here is the problem. If everybody would respect what is written on those containers ('glass', 'plastic & metal', 'paper') they could transport it straight to the recycler. But thing don't go that way. Each container contains other scraps due to improper and careless selection, which lead to re selection (photo nr.2).

**Photo nr. 2.** Containers used inappropriately, without selection



Source: redactare proprie (după <http://www.romaniatv.net/totul-despre-reciclare>)

There are two types of sorting stations: automatic and manual. In Romania there isn't any automatic sorting, only manual, one of them is 20 kilometers from Bucharest. There is also one sorting place in Oradea and in Arad also.

Imagine a large courtyard with the following (PIETRARU J., 1992):

- Huge piles of plastic bottles and papers

- Plastic waste, beautifully colored and lined up next to each other (photo nr. 3)
- A huge hangar with sorting line, the remains are sorted manually by people in overalls and masks

**Photo nr. 3.** Packaging, waiting for recycling



Source: redactare proprie (după <http://www.romaniatv.net/totul-despre-reciclare>)

When you throw away a plastic wrapped item, make sure that it doesn't have inside left over chocolate, if you throw away a jar, make it sure it's empty. The mixture of 'recyclable' and 'biodegradable' (photo nr.2) can compromise the idea of recycling (IONESCU A., JINGA I., STEFANIC GHE., 1985).

## CONCLUSSIONS AND ACHIEVING THE EU OBJECTIVES

Romania is in a bad situation concerning recycling, the main problem is that the citizens not cooperate with the authorities. The Romanian people can behave and keep everything clean when they are in Germany, whether they live there or just pass by, but when they come home, they don't care about it anymore, like if Romania wasn't member of the EU.

We joined the EU, we have our obligations concerning recycling, we must understand that with this we can save a lot of raw material, which are already limited if not gone.

A weird thing is that many homeless or financially broken people are collecting plastics from containers to provide themselves or their

family a minimum income. Following the information of the public and with the help of the authorities, many actions were initiated and with time the objectives will be 100% fulfilled. It is essential to protect our nonrenewable resources, recycling and reusing those that can be used as raw materials for manufacturing (paper, plastic, glass) and organic and biodegradable materials can be used as fertilizers in agriculture.

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23.03.2015

### **NOTES ON THE AUTHORS**

**Cadar Enikő** and **Belényi Kinga**, Engineering in the food industry, we attended the Faculty of Environmental Protection, University of Oradea, now follow master classes and using the Erasmus scholarship, now acquire new knowledge and experiences at the University of Szeged Hungary.