

## ADMINISTRATION OF URBAN WASTE AFTER USING CONTINUOUSLY RECYCLING SYSTEMS

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**Abstract:** *The advantages of recycling are to maintain the natural resources and to reduce the storage space. But collecting, transport, using and finally processing the materials needs more energy and most of recycling programmers are economically subsidized. The basic problems in recycling materials are connected with:-identification of recycled materials;-identification of opportunities of reusing and recycling. The administration of municipal greatest quantity of urban waste is a difficult task and is made by specialized services of city halls public health'. Proportion of urban populations' serve by public health was 76% in 2010, to approximately 87% in 2012. In rural area, don't existing the organized services for administration of waste, the transport to the places of storage is doing individually of the generators. This are serve in charge organized for administration of waste merely a little part from rural localities and in especial except needle rural localities finder out contiguously urban centers.*

**Key-words:** *waste, administrations, public health services, reusing and recycling, storage*

### 1. INTRODUCTION

When we talk about the amount of waste we take in account the industrial waste, urban waste and agricultural waste. In the last years are created private companies which offer services of take on the garbage and waste depot. These companies made the transport of waste to the landfill or into the specialized plant, where the waste are processed and transformed in row materials.

The amount of municipal waste generate varies from year to year, registering in last 6 years a general tendency of growth, determined so breed the consumptions populations, quotient and of growth proportions populations served in charge of house-keeping commune.

**Table 1**

Types of waste	Generated waste	Capitalized waste	Eliminated waste
	(thousand tones)	(thousand tones)	(thousand tones)
garbage housekeeper and collected	5.043,845	13,242	5.030,603
Residues from services municipal (including mud from defecation city worn-out waters)	1.573,715	76,784	1.496,931
Residues from building and demolitions	247,286	2,253	245,033
Not collected residues(estimate in depending on the average index of generation)	1.570,471	0	1.570,471
Total municipal waste	8.435,317	92,279	8.343,038

From all quantity of municipal waste, most biggest part represent it organic and waste, generate from the house-keeping populations, respectively from economic units, commercially, desks, institutions, sanitary units like in figure no.1.

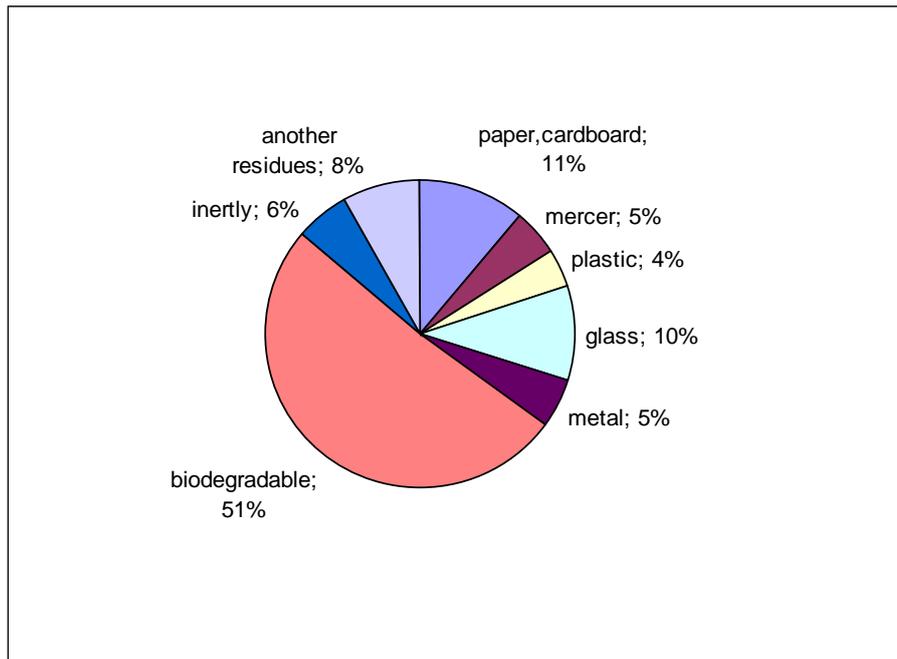


Fig. 1 Distribution of waste quantity [1]

Composition varied in last years, eldest weight having the biodegradable waste.

In the year 2008, the biodegradable waste (with exception papers and cardboard) represented approximately 51% from the amount total of the housekeeper collecting.

Forecast of generates of municipal residues it achieved on the strength of forecasts evolutions populations on type of average lived, envisaging the growth consumptions of things to people, so the national plan of administration of waste estimate a growth average of 0,8% on year amount of municipal waste generated.

The types waste which constitute the municipal waste are administrate in different way, depending on their characteristic and of the amounts in which by-path generate.

## 2. RESEARCH ABOUT THE ORGANIC WASTE

On the total of municipal waste, about 40% from component of municipal waste represent recycle material, from which approximately 20% can be recuperate, contaminated.

After collection selective through projects pilot, just 20% from material recyclable total generate are capitalized.

The remainder is eliminated through storage, loosed thus big quantities of prime matter secondary and power resources.

In last years, economically deprives agents have it started actions of collection high the Cardboard and PET.

In some localities it was return the action of locates of a " point of deposit collection" whereat people takes maybe deposits (with or charm remuneration), cardboard, glass, plastic. In Romania, the institutions from industry glasses, papers and cardboard and plastic by-path are authorized and have it beginning to takes over this waste from point of collection in sight recycle and/or turn to capitalization [2].

The storage represent main form of eliminate municipal waste. Deposits For municipal waste which subdued the precautions Lines 1999/31.CE concerning the storage of waste was renew to the beginning years 2008. In Romania exist 283 of deposits of municipal waste in urban zone (who receive collected waste of firm of public health in urban zone), from which:

- 19 deposits are according or his will become according to European regulations to 31. 12. 2008;

- 238 deposits is nonconformity with European requirement, who will cease the activity of storage staged, at in the year 2017;

The costs of necessary invests for assurance conformity municipal deposits existence was estimate to 1775 millions Euro.

Beside deposits of municipal residues from urban zone, in Romania exist 2686 the spaces of storage in rural zone with at area the very most 1 ha. The close and ecological rural deposits are achieved to 16. 07. 2009, with extension services of collection of waste to rural level, the realization transport systems, dump and open it zonal deposits.

### 2.1 Municipal waste administration

Currently, most big part mud generate at the defecation worn-out waters municipal is treated through different method and stored it on grounds belonging to stations of defecation; just a little part from the amount produced yearly is recovery in agriculture.

Intended the encouragement agricultural capitalization hereof type of mud, like the creation conditions necessary for assured the elimination through most good method, as much from angle of costs, quotient of protection at the environment.

### 2.2 Administration of waste from building and demolitions

The quantitative of waste from building and demolitions generated in Romania is relative low, but foreknowing an aggrandizement, determinate of the economic development country.

The waste production is doing from industrial waste and agricultural, inclusively one result at production energies.

Now there are very little companies which are the line of generation of production waste, and the services that offer them these are narrow as much as for to the types of waste, quotient and capacities of work.

During the year 2010, the quantitative of generated waste of mining and industry, were 370 millions tones, from which eldest part (90%) are waste results from extraction of activities (mining) - 331millions tones, and 30, 5 millions tones, are the production of waste from industry and agriculture.

The economically activities in the frame whom they produced most big quantitative of waste, in the year 2012, with excepting the extractive industries, were the petrochemical chemical industry, Rubber and plastics

(27%), metallurgy and metal construct (17%), energy(13%), food industry, drinks, tobacco (10%), another activities economically (33%).

The industrial big branches generating of waste are the power industry, chemical industry and petrochemical, metallurgical industry, food industry. From the amount of production of waste generated, appreciative 30 % is recuperated, the remainder be eliminating through his storage cremation.

About the medical waste we can say that from amount total of waste produced in hospital 75-90% is non-dangerous, assailable with one organic waste a percent of 10-25% is dangerous waste.

The medically dangerous waste by-path eliminated through: crematories, directly incarnation, installations of thermal treatment. The ultimate elimination Of dangerous waste resulted from medically activities, in the year 2012 achieved thus: 76% from used-up hospital attendant for the ultimate elimination the own crematory; 13% they used the crematory an another firms; 7, 5% they have burnt dangerous waste in installations off-hand or in the open air; 6% they eliminated the finish waste in incinerators, opposite at the 3, 54% in the year 2011.

The dangerous residues result from medical activities represents about 30% from the amount total of 19,000 t/year.

The increasing time of working for dumps and reducing the quality of storage waste materials represent the main objective in managing waste materials.

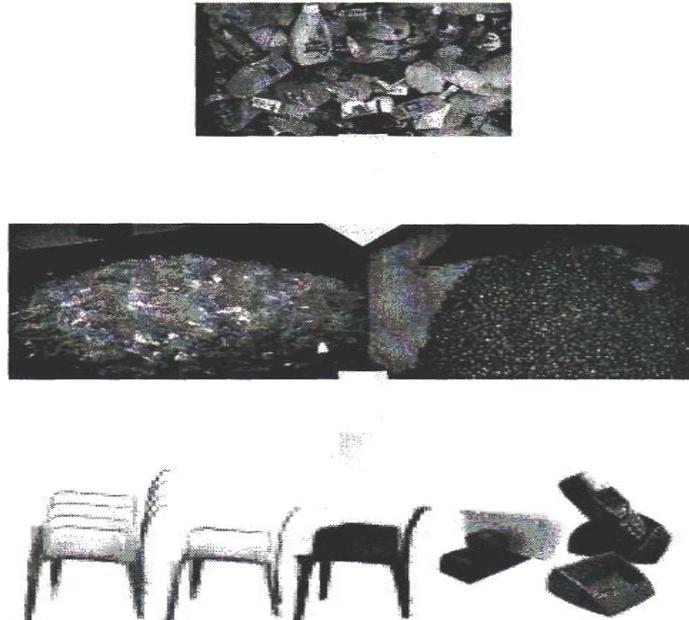
The programmers for recycling and developing must take into account the markets for this material, the substructure of collecting and general costs. Many times the material used has a lower quality than initial materials so the price used on market place must be attractive for the future customers.

Under structure for collecting and processing plastics shouldn't be decided at a national level. Generally, this is the limit for local areas. Many consumers who wish to recycle plastic wastes realize that they don't find a specialized place for processing these wastes. Many areas had done pilot projects to collect separately plastic products, especially PET bootless and other. Some samples of plastics waste are shown in figure no.1.

The main characteristics for plastics waste is low weight. The ratio volume / weight for plastic wastes are huge, especially for polystyrene products and for that reason isolated communities don't afford to collect and supply plastics separately.

The plastic wastes brought at the processing are contaminated with unknown materials. Using the equipment (machine) from figure no. 2, we can divide them according to their texture, color, shape and type of material before placing them on the running belt in different containers [3]. Foreign materials may cause the usage of granulation machines and other equipments used in sorting and recycling (materials).The development of recycling substructure must follow the demand do market place and the value of processing materials to cover the costs for collecting, processing and transport. The collecting centers should provide sorting, compaction and packing for plastic wastes to reduce the price of transport. Such processing can be developed in accordance with evolution of market place.

The units of processing the wastes are established in crowded areas where they can find the necessary materials. Recyclers must pay the costs for transport to the main units. The finite products using recycled plastic are cheaper.



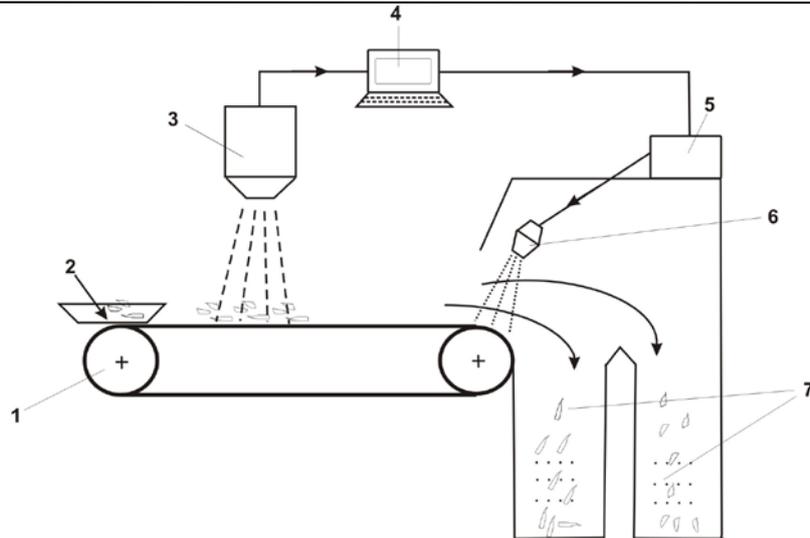
**Fig. 2 Samples from plastics waste [4]**

One advanced method for sorting domestic wastes is the utilization of infrared ray. (figure no.2). These ray scan the texture of waste, the position and color of objects (waste) on the running belt. The signal received from infrared system is captured by a specialized captors and is analyzed by a computer. The computer commands a robotic arm that support the air system. This pneumatic system sent a air jet under pressure by the 6 spot. Depending on jet pressure the wastes has to be separate in distinct containers. This separation is made on shape, texture, types of material and color characteristics of waste.

### **2.3 Opportunities for reusing and recycling**

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**Fig. 3 Installation (continuous transporter) for sorting the recyclable materials from waste. 1-transporter; 2-the input for waste materials; 3-the equipment for identification of the texture, color, position of waste using x-ray; 4- process computer; 5-pneumatic jet equipment; 6nozzle jet; spearing container**

### 3. RESEARCH AND EXPERIMENTS

The metallic ferrous and nonferrous waste and other types of wastes are collected in a mixture with domestic wastes. The structure for collecting and processing metallic cans could be developed at a local level only.

#### 3.1 Paper and carton

Sanitary service has already collected separately paper and carton from economic agents and use from population. This collection should spread to population because a big amount of paper and carton can be gathered from them.

Now, sanitary service placed bigger and smaller waste bins in different areas. In many areas this action has a great success because these bins have had only papers but in other areas this action has failed and the bins have been taken off.

Ratio volume/weight for paper and carton wastes is low. This is the most appeared component of wastes. It should be the opportunity for avoiding its storage, reducing the impact on forest and environment.

The recycling paper depends on the quality of collecting paper wastes. Paper and carton can be easily polluted with different kind of domestic wastes, especially

liquids. For that reason is advisable to collect paper and carton in special containers having a narrow opening which can make difficult the storage of different domestic wastes. The main types of recycling paper, carton, newspapers, high quality paper, mix paper.

When we talk about the opportunities for reusing and recycling, we can say that paper factories accept paper and carton wastes for recycling depending on their capacity. For more detailed it must to use The National plan for managing wastes. The main usage for the recycling paper: substitution of paper paste, making products for constructions: walls or fuel.

#### 3.2 Glass waste

The commercial centers have already collected glass wastes. They make a discount for your shopping if you return at these centers glass wastes. This collection must be spread to all commercial centers and even adopted by sanitation service. Almost all recycling glass wastes are used for doing new glass containers. A small amount of glass is used to make glass wool, glass fiber for isolation, paved materials and constructive materials as brick, tiles, ceramics and low weight concrete like in figure no.3. After collecting and sorting is made a calculus about ratio volume/weight for glass waste.



**Fig. 4 Types of glass waste [5]**

Glass wastes are spread. The recycling of glass can be an opportunity for avoiding the storage end utilization is an ecological way.

Glass wastes can be easily polluted with different kind of domestic wastes but can be easily changed and sorted using a new stage in the recycling process. But for reducing the recycling price, glass wastes should be collected in special bins with a special opening which cannot permit to throw other types of domestic wastes.

#### **4. CONCLUSIONS**

The producers of glass containers prefer to include shards in the rough material because the oven temperature is reduced. Even if the demands for clear glass shards are increased, recycling varies from one regime to another and depends on collecting, processing and transport.

The market for colored glass varies according to manufacture installation for colored glass containers. The unsorted glass according to their color as accepted for making constructive materials even if they are polluted with ferrous metals and aluminum and must be eliminated magnetically.

The glass dust which cannot be used to make other containers could be used for making glass wool, a useful material for phonic and thermal isolation. The glass used for making new containers must be sorted according to its color and must not be contaminated like: dirt, rocks, ceramics, high temperature resistant plates and other glass products.

The materials known as refractory materials have a high melted temperature. Auto laminated glass is forbidden because it contains plastic prints. Glass plateau are not refractory materials but can affect the melted temperature lids and paper table are permitted if they are oven. When shards are used for new containers, they are brought to manufacture where the glass is separated by polluted materials. The presence of forbidden materials is a big amount can be a reason for refusing the load.

Anywhere, the first stage in the recycling process, is the eliminate the dangerous materials. Then they are disassembled in different types of recycling materials: plastic, ferrous and non ferrous metals, glass, etc. these types of recycling materials can be used as secondary is any kind of industrial process.

On the back of that opposite at the deposits in working for industrial waste, exist a number of which deposits don't are used-up is in order for have the depleted capacity, is in order for the generator of waste in whom possession out ceased it the activity.

Roughly majority cases, close this deposits don't be achieved in accordance with European and national rules in operation, thus as the respective areas became „contaminated zones behind depositary of waste”.

It is current of scroll a which study who has as objective as much stock-taking „contaminated zones behind depositary of waste”, quotient and the clarification situation juridical of this.

After the realization on this inventory is evaluations of risk for several of inventoried situation in sight settlement situation specific of this and taking one of appropriately provision for shut or rehabilitation.

The aim of this priority is to assure an efficient whole implementation POS medium and to contributory to the grow capacity of absorption European backgrounds through committal identifies projects, enforcement capacity administrative at Authority of Management and Intermediary Organism, financing activities looking monitoring, the evaluation and the check projects, as at the acts of publicity for POS Medium.

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#### **3.3 Electric and electronic equipment**

There are few companies that take (collect) electric and electronic equipments. Many companies should collect such equipments. The responsibility for these wastes is of the produces and/or importers of these products and this system must be financed by them.

If this equipment is collected with other waste materials the possibility for contamination is high. It is necessary all this electric and electronic equipment should be collected separately.