

## Review

# Monitoring Selective Waste Collection – Desiderate or Reality in Cluj-Napoca?

**ODAGIU Antonia<sup>\*</sup>, I. OROIAN, Laura PAULETTE, I. BRAȘOVEAN, C. IEDERAN, P. BURDUHOS**

*University of Agricultural Sciences and Veterinary Medicine Cluj - Napoca, Mănăștur St., No. 3 - 5,  
400372 Cluj-Napoca, Romania*

Received 19 June 2010; received and revised form 20 October 2010; accepted 29 October 2010  
Available online 1 December 2010

### Abstract

After brief overview of features related to the concepts of waste and selective waste collection, the study presents the features related to the implementation of selective waste collection in Cluj - Napoca in 2009. Cluj Environmental Protection Agency has the duty of monitoring waste management in Cluj - Napoca, generally speaking, and of the household, in particular. In the end of 2009, the selective waste collection was implemented only partially, the quantities of municipal waste recycled and recovered were still low. For greater efficiency of selective waste collection system in Cluj - Napoca is recommended: better public information campaign, launching programs to educate for a clean environment and increased awareness efforts of all stakeholders (public and competent bodies in the field) on the importance of practicing a system of selective waste collection.

*Keywords:* monitoring, municipality, selective collection, implementation, programmes

### 1. Backgrounds

The effective collection and waste separation systems determine their use in various ways to exploit and/or disposal.

The waste optics involves the perception that waste:

- a series of well-defined categories of material
- valuable raw material used in recycling strategies

The use and correct perception of the concept that defines waste has beneficial consequences on the environment and economy to maintain a desired effect in healthy surroundings, especially in urban areas [1].

In urban areas, are often used three main systems of waste collection (fig. 1):

- classic collection system through the practice of family residences. In the year 2009, most domestic waste from population households have been collected through this system. Practicing this type of collection and functionality requires the existence of specialized centers, equipped with necessary infrastructure and eventually collected their long-term storage.
- separate collection of paper and packaging products. The practical option because these materials are suitable for recycling;
- strengths well because specific features, especially due to the size, shape, weight and bulky waste, electronic and hazardous waste (demolition debris, furniture, garden waste, computers, etc.) that are also collected separately.

<sup>\*</sup> Corresponding author.  
Tel.: 0040 264 596384; Fax: 0040 264 593792  
e-mail: aodagiu@gmail.com

Studies have shown that a proportion of about 20% of these wastes are sorted incorrectly, which causes serious environmental implications. An important issue with potentially irreversible consequences on both the environment and human health is represented by hazardous waste issues, which sometimes, due to negligence, are mixed with hazardous wastes [1, 2].

The direct consequences of such practices are:

- increased emissions without implementation of recycling techniques
- increase environmental contamination

The incorrect sorting of waste due to the involvement of various factors:

- the appearance and structure
- deficiencies in the system for collecting information
- lack of information
- staffing levels
- terminology
- knowledge and attitudes

Thus, appropriate monitoring measures should be taken absolutely necessary:

- different recycling centers
- well defined types of waste
- comments recorded for 10 observations

The monitoring actions are particularly useful, because right after their practice is possible to set priorities for preliminary stages of waste management, namely:

- measures to improve the collection process
- hierarchy of wrong sort categories, depending on the intensity and occurrence.

Thus, proper monitoring [2]:

- is a tool that helps to eliminate the inaccuracies related to time;
- makes available to the competent authorities of all relevant information for proper operation of recycling centers. It is necessary to continue efforts in developing and evaluating efforts to sort waste measures to improve the processes involved in this operation.

## 2. The municipality of Cluj - Napoca

Environmental Protection Agency Cluj - Napoca [7] plays a key role in monitoring and waste management in general and of the household, in particular, in whose jurisdiction enter a range of essential tasks for environmental protection against possible pollution effects (fig. 2).

The structure of the 130,000 tonnes of waste collected in Cluj - Napoca in 2009 is represented by the followings [7]:

- 50% biodegradable waste,;
- 21% paper and paperboard;
- 9% plastic,
- 6% glass;
- 4% metal.

In the end of 2009, selective collection system was implemented only partially, the quantities of municipal waste recycled and recovered is still low.



Figure 1. Containers used for the selective waste collection

The selective collection in 2009 has [7]:

- 50 container collection points
- destination within the household items is not always respected
- real need to inform and educate the population on the waste selection and valuation.

The novelty in the field of waste recovery is the requirement of a pre-collection when throwing the waste container in the house.

The storage will be made in sacks/plastic bags of different colors for each type of waste or waste mixture.

They are made freely available by the sanitation operator or by a modest amount included in the rate of sanitation.

The integrated waste management system includes:

- paper, plastic, metal, textiles, and glass
- garbage remaining

They are separated in organic store and recovered.

The storage is performed in [7]:

- standardized closed containers
- bins with a capacity of 60 L, 120 L, 240 L
- containers with a capacity of 1.1 m<sup>3</sup> - 4 m<sup>3</sup>
- indicators concerning the type of material to be temporarily stored.

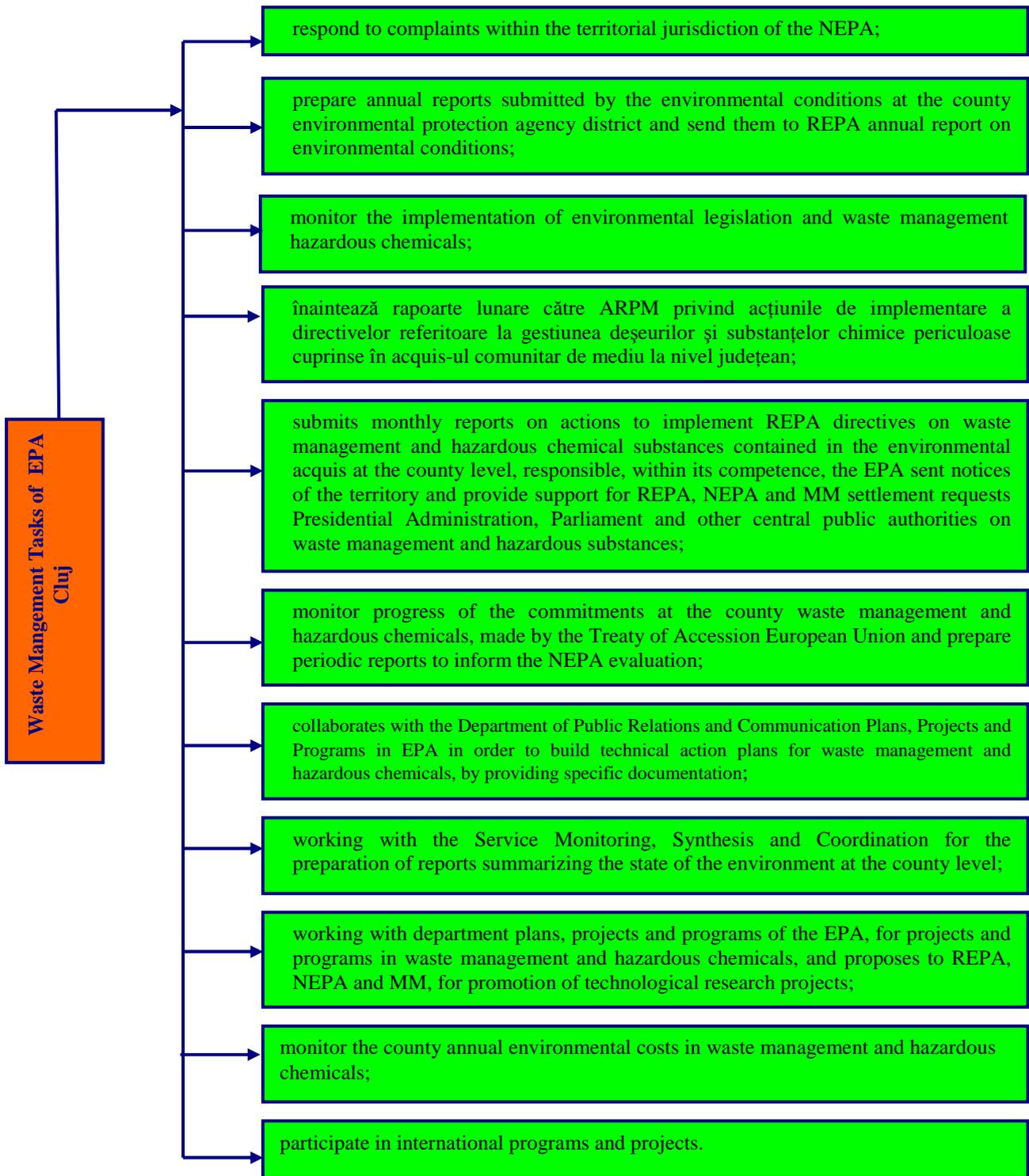


Figure 2. The main attributions of the Environmental Protection Agency Cluj in waste management

### 3. Instead of final opinions

Concerning the individual households, in Cluj - Napoca pre-collection system should be implemented. For this, these of containers, bags/sacks or other means which provide a degree

of safety in terms of health and environmental protection.

The biodegradable fraction must be collected separately in special containers or containers for this purpose. Subsequently, it is necessary to be transported and delivered to the station at its own composting or for which a contract for storage

and/or composting which belong to Cluj-Napoca municipality. The problem of urban waste is becoming increasingly necessary, as exacerbated by the substantial increase in labor consumption.

Although legislation in force in Romania [3, 4, 5, 6] stipulates the compulsory selective collection of municipal waste, in Cluj - Napoca this was not done as desired in 2009. Increase in collection efficiency requires a range of measures including: better public information campaign, launching programs to educate for a clean environment and increased awareness efforts of all stakeholders (public and competent bodies field) on the importance of practicing a system of selective waste collection.

## References

- [1] Oroian I., Antonia Odagiu, I. Brasovean, P. Burduhos, 2009, The Waste Management in Romania. A Case Study: WMS Implementation, Environment/ProMediu, Vol. 2, No. 4, 145 - 151
- [2] Proorocu M., 2005, Gestionarea deșeurilor, Ed. Napoca Star, Cluj-Napoca
- [3] \*\*\*, 2004, Ministerul Mediului și Gospodăririi Apelor, Strategia Națională de Gestionare a Deșeurilor
- [4] \*\*\*, 2008, Ministerul Mediului și Gospodăririi Apelor, Planurile Regionale de Gestionare a Deșeurilor
- [5] \*\*\*, 1996, Directiva 96/61/CE a Consiliului din 24 septembrie 1996 privind prevenirea și controlul integrat al poluării („Directiva IPPC”) JO L 257, 10.10.1996
- [6] \*\*\*, 2008, Directiva 2008/1/CE a parlamentului European și a Consiliului din 15 ianuarie 2008 Privind Prevenirea și Controlul Integrat al Poluării, Jurnalul Oficial al Uniunii Europene, L 24/29
- [7] \*\*\*, 2001, Ordonanța de Urgență a Guvernului 78/2000 privind regimul deșeurilor, modificată și aprobată prin Legea 426/2001 (MO 283/22.06.2000), Monitorul Oficial nr. 411/25.07.2001
- [7] \*\*\*, [www.apmcluj.ro](http://www.apmcluj.ro)