Original Contribution

DETERMINING THE QUANTITIES OF WASTE STREAMS

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ABSTRACT: *In this research, we examine and distinguish the waste that is landfilled at the local level, this is the process by which unwanted and unnecessary waste is disposed of. We can distinguish them by defining and evaluating them properly. There is a law that states that municipal programs for waste management are sectoral programs and are an integral part of municipal programs for environmental protection. We will also consider the objectives guaranteeing the achievement of the general objective of the Plan. We will consider the equations by which the amount of household waste generated is determined.*

KEY WORDS: *Mixed household waste, recyclable waste, morphological analysis*

Introduction

In this study, we will consider the determination of the quantities and composition of the waste that is deposited in the regional landfills for non-hazardous waste and aimed at protecting and assisting the municipal authorities in assessing the country's commitments regarding waste management. They are divided and determined by being covered by flows, which are also [1,2]:

1. Mixed household waste - collected through containers for household waste and waste from street bins and street cleaning.

2. Separate collection of waste - separately collected recyclable waste through containers or sacks, separately collected at the point of generation from commercial, industrial or administrative sites, recyclable waste delivered to sites for the purchase of secondary raw materials, separate collection of bio or green waste, others separately collected waste.

A prerequisite for determining the composition of waste is its correct definition and assessment of the various waste streams. Existing municipal waste management programs are one of the most important tools for implementing waste legislation at the local level. According to Art. 52 para. 2 of the Waste Management Act (WMA), municipal programs for waste management are sectoral programs and are an integral part of municipal

programs for environmental protection. Article 52, paragraph 6 of the Law on Waste Management defines the possibility for the mayors of two or more municipalities included in a regional waste management system to develop a common waste management program, in case the obligations, responsibilities and measures affecting the individual municipalities are clear distinguished in the program.

(WMA) requires the Minister of Environment and Water to issue instructions on the development of waste management programs, taking into account the provisions of the same law that the programs: 1. are developed and adopted for a period that should coincide with the period of operation of the current National Waste Management Plan; 2. are developed in accordance with the structure, goals and predictions of the current National Waste Management Plan [4].

The general strategic goal of the country in the field of waste management is: Society and business that improve the implementation of the hierarchy of waste management in all processes and levels; – Three strategic objectives guaranteeing the achievement of the general objective of the Plan:

Goal 1: Reduce the harmful impact of waste by preventing its generation and promoting its reuse.

Goal 2: Increase the amount of recycled and recovered waste.

Goal 3: Reducing the quantities and the risk of landfilled household waste and others.

For this, in addition to household waste covered by the garbage collection system, all waste streams for recycling must be distinguished, as well as other grouped separately collected waste - bio and green waste.

The amount of household waste generated is determined by the following equation:

$$\mathbf{O}total = \mathbf{O}seperate + \mathbf{O}mixed$$

where the,

$$\mathbf{O}total - \text{total generated household waste, (ton);}$$

$\mathbf{O}separate$– household waste collected by the system for the separate collection of packaging waste or delivered to sites for the purchase or free delivery of separately collected waste;

$\mathbf{O}mixed$ – quantity from the mixed household waste collection system.

Separately collected waste is formed by the following flow [3]:

$$\mathbf{O}seperate = \mathbf{O}contr + \mathbf{O}stat + \mathbf{O}manifact + \mathbf{O}green$$

where,

Ocontr – separately collected waste at transfer points and sites;

Ostat – separately collected waste at transfer points and sites;

Omanifact – the separately collected waste from enterprises handed over to a regional recycling system. It does not include waste that businesses hand over to points because it is reported as collected by the points themselves and double counting would result [3];

Ogreen – separately collected green waste.

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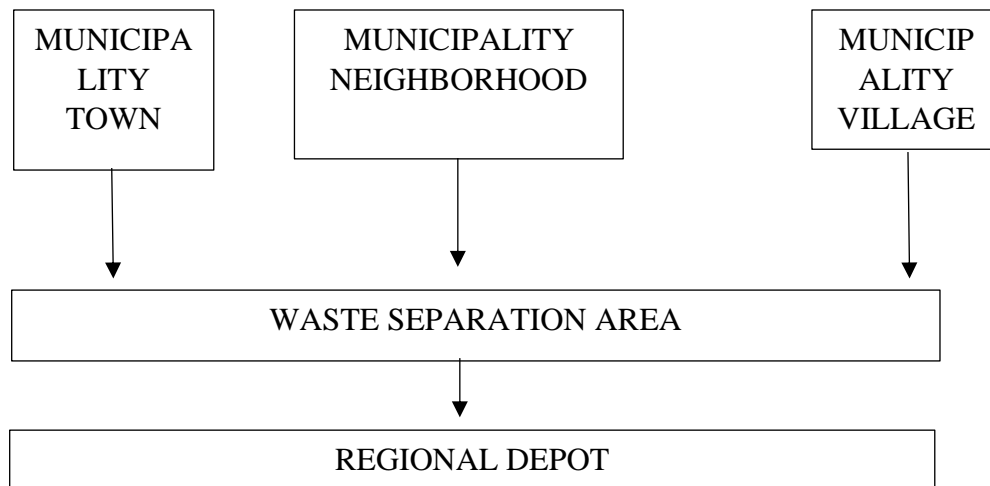
Fig. 1. Example of a waste stream

The study aims to determine the quantities of waste relevant to the achievement of national recycling and landfill targets. This applies only to household waste, it does not apply to the determination of other (construction, production, etc.)

Their morphological composition is a characteristic expressing the quantities of individual parts, which are measured as a percentage of the total amount of waste.

In order to distinguish and determine exactly what waste streams and groups are, attention should be paid to the organization of garbage collection. Filling the capacity of landfills is most often due to mixed household waste.

Inference

The purpose of this scientific work is to distinguish waste at the local level, because this topic is current, and environmental protection is one of the main strategies of the European Union in the coming years. It is important to pay attention to the separation of the different groups of waste, through figure 1, we look at the "path" of waste at the local and municipal level.

References:

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