

Quality of resources in landfills - What can we learn from material flow analysis?





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In Serbia, 92% of generated waste is landfilled and a minor fraction of the recyclables are transported to a separation plant after which they are reused, recycled or recovered.

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- There are more than 3,600 waste disposal sites (open dumping, controlled dumping, engineered landfills and sanitary landfills) presented in figure 1.
- Most disposal sites (up to 3300) are characterized by small volumes, where the total waste volume is less than 10,000 m³. Only about 50 disposal sites contain more than 100,000 m³ of waste.
- Currently, open dumping and landfilling have represented the main method of waste management in Serbia.



Nevertheless, information on quality aspect of these available options are lacking and thus methods for qualitative WM evaluation are of substantial importance for all transition and developing economies. High circular economy goals for recovery and recycling materials highlight the necessity of knowledge which is directed towards quality of produced materials from waste management systems.

The objective of this research is to:

identify and evaluate the quantities of materials that can be diverted from landfills and reused for recycling or for material recovery;



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Figure 1. Locations of identified landfill and dumping sites in the Republic of Serbia

- II. identify and evaluate quantity and quality of materials directed to landfills after fulfilling the EU directive requirements;
- III. assess long term landfill mining potential after fulfilling waste management quantitative goals.

Alternative scenario is developed for the year 2030, when the goals should be met (figure 2).

• For the year 2030 it is estimated that 3.1 million metric tonnes of waste a year will be generated in Serbia.





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diversion of materials from landfills and will result in use them for recycle and recovery.

It will be able to separate 300,000 tonnes of paper and cardboard, 150,000 tonnes of glass, 60,000 tonnes of metal and 270,000 tonnes of plastic annually and use them either as for material recovery or as resource potential.

Figure 2. Material flow analysis for Republic of Serbia

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