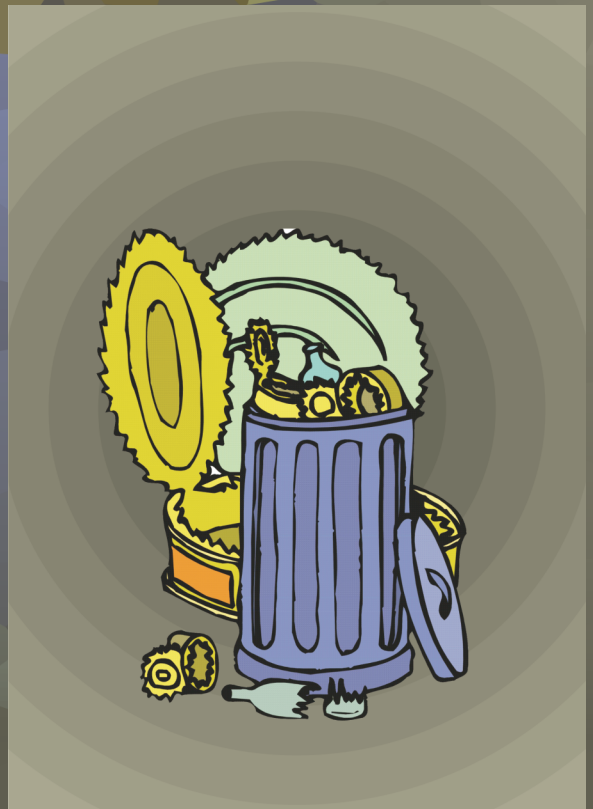
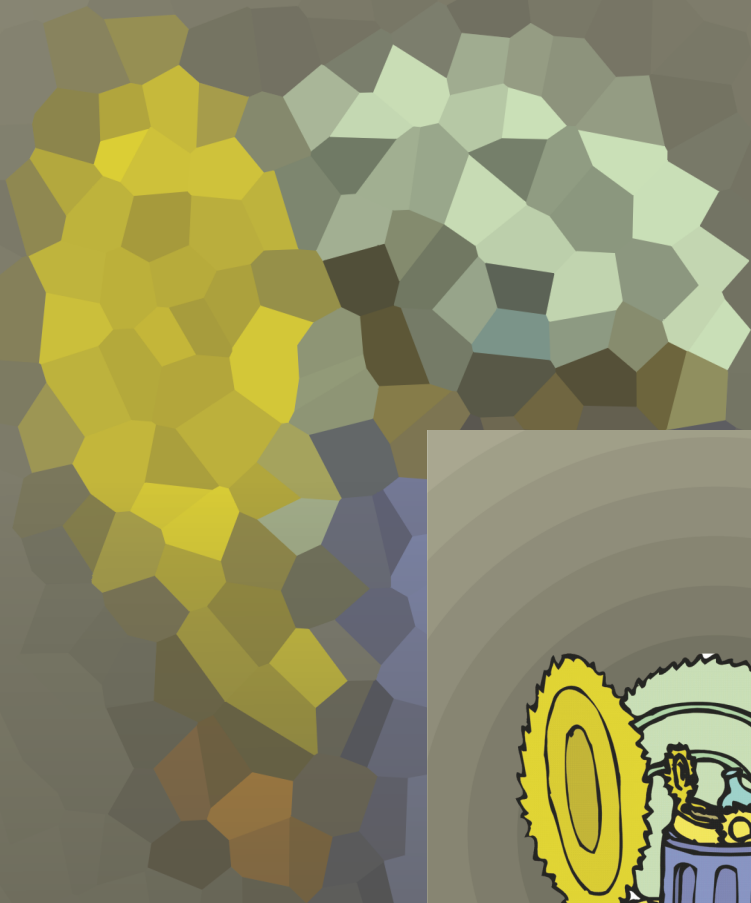
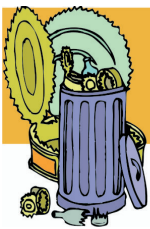


WASTE





MK - NI 016

MUNICIPAL WASTE GENERATION

Period of indicator assessment

- September 2007 – April 2008

Explanation

- Justification for indicator selection

Waste represents an enormous loss of resources in the form of both materials and energy. The amount of waste produced can be seen as an indicator of how efficient we are as a society, particularly in relation to our use of natural resources and waste treatment operations.

Municipal waste is currently the best indicator available for describing the general development of waste generation and treatment in European countries. This is because all countries collect data on municipal waste; data coverage for other wastes, for example total waste or household waste, is more limited.

Municipal waste constitutes only around 15 % of total waste generated, but because of its complex character and its distribution among many waste generators, environmentally sound management of this waste is complicated. Municipal waste contains many materials for which recycling is environmentally beneficial.

Despite its limited share of total waste generation, the political focus on municipal waste is very high.

Definition

The indicator presents municipal waste generation, expressed in kg per person, and the method of treatment (recycling, composting, landfill and incineration), expressed as a percentage of total municipal waste treatment. Municipal waste refers to waste collected by or on behalf of municipalities; the main part originates from households, but waste from commerce and trade, office buildings, institutions and small businesses is also included.

Units

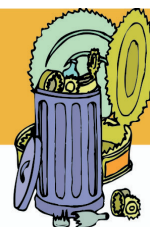
- kilogramme per person per year, percentage.

Policy relevance of the indicator

List of relevant policy documents:

The Second National Environmental Action Plan (NEAP 2) defines the approach to waste management through incorporation of the basic objectives into the legislation harmonized with the relevant EU law. It establishes monitoring mechanisms, as well as economic instruments





for the waste management implementation. In addition, it identifies the relevant stakeholders in the area of waste management (especially in the context of overlapping competences among sectors). The process of decentralization and the need to build institutional capacity have been taken into account, as well as establishment of conditions for adequate financing of waste management in the Republic of Macedonia.

The National Waste Management Plan includes the following activities:

- Analysis of waste at national level: municipal waste, hazardous waste, medical waste and agricultural waste;
- Construction of pilot waste composting plant: analysis of alternatives for composting, designing and implementation of alternatives and recommendations for waste composting;
- Analysis of the market with regard to most demanded recyclable materials: current status, potential opportunities for recovery and recycling, extension of the recycling system coverage and waste treatment system coverage; proposals of legal, economic and financial instruments coordinated by the project NEAP 2; analysis of EU Directives of relevance for waste recovery and recycling;
- Assessment of alternative economic and financial instruments through financial support from municipalities or from other financing sources.

Legal grounds

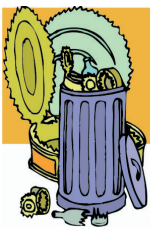
The basic legal framework for the waste management has been established by the Law on Waste Management. The main characteristics of the waste related legislation include:

- Full approximation with the relevant EU Directives transposed in the Law on Waste Management, taking into account the local conditions;
- The Law on Waste Management incorporates the main principles in waste management (principle of environmental protection in waste management, principle of waste minimization, precaution principle, proximity, universality of service, polluter pays principle, deposit system, etc.);
- The waste management, as public service, is based on the principle of universality of service (non-discrimination, sustainability, quality and efficiency, transparency, affordability and full coverage of the territory).

Key message

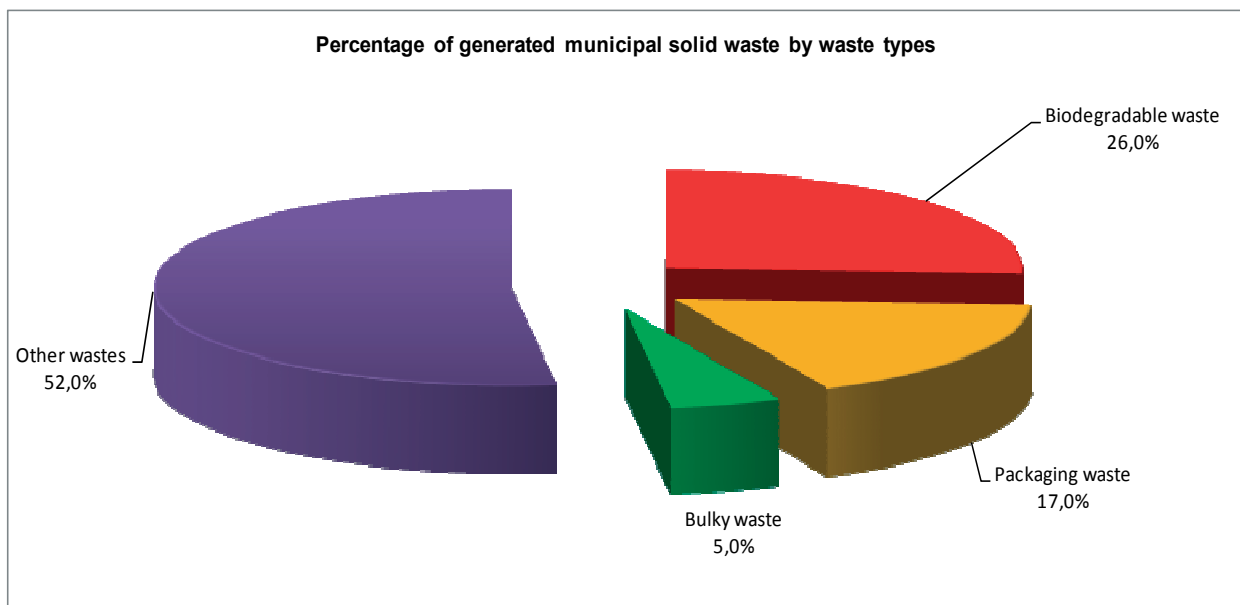
Data resulting from the Project on waste management show that 73% of collected waste is households waste. Taking into account that 73% of the waste originates from households, the total amount of waste generated has been estimated at 0.86 kg/capita/day or 313 kg/ capita/ year. The analysis of waste composition reflects that dominant fractions in the waste are organic matters with 26.2% and small size wastes with 30.9% or more than 50% of the generated waste in total. Paper and cardboard contribute 11.6%, followed by plastics with 9.6%. All other waste fractions, i.e. wood, glass, textile, metals, hazardous wastes from households and other categories contribute all together less than 25% to the waste generated.





Primary market investigation has shown that there is certain recycling chain established on the Macedonian market.

There is a need to improve regular reporting and statistics of waste generation, disposal and treatment.



Assessment

The amounts of generated waste are assessed on the basis of data provided by the State Statistical Office and on the basis of the analysis performed in the frameworks of the Study on Waste Management in Southeastern Part of Macedonia, prepared by ERM Lahmaeyer International GmbH (2002-2004).

The Study on Waste Management in Southeastern Part of Macedonia presents indicators of municipal waste generation in the subject region. According to the analysis made by the Ministry of Environment and Physical Planning (MEPP) on the amounts of generated municipal waste in other parts of the country, it may be concluded that such amounts are comparable to the results contained in the said Study and are thus fully applicable for the whole national territory.

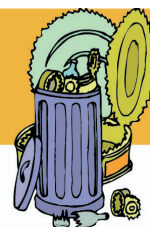
Data from the survey carried out in the framework of the mentioned Study show that 73% of the collected waste is household waste. Taking this into account, it has been estimated that the total amount of generated waste is 0.86 kg/capita/day or 313 kg/capita/year.

The analysis of waste composition shows that the main fractions in the waste are organic matters with 26.2%, packaging waste with 17 %, bulky waste with 5% and other waste types with 52%.

Disposal

There is only one legal landfill in the Republic of Macedonia – “Drisla” in the vicinity of Skopje,





where no ground protection has been provided. This landfill is not fully compliant with modern technical standards. The capacity of the landfill is 16.000.000 tonnes, and by 2002, only 4 % of the designed capacity was utilized.

There are 32 municipal landfills, most of which are not fenced and secured, and their construction and operational performance is inadequate. There are also around 1.000 small illegal waste dumping sites in rural municipalities and settlements.

Methodology

- Methodology for the indicator calculation

Estimates and annual reports by municipalities.

Data specification

Title of the indicator	Source	Reporting obligation
Municipal waste generation	– National Waste Management Plan, MEPP	– EUROSTAT

Data coverage:

Table 1: Generated municipal solid waste by types

Waste stream	Amounts (ton/year)	(%)
Household waste	417,838	73
Commercial waste	154,543	27
Type of wastes		
Biodegradable waste	148,819	26
Packaging waste	97,305	17
Bulky waste	28,619	5
Other wastes	297,638	52
Total MSW	572,381	100

General metadata

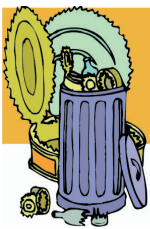
Code	Title of the indicator	Compliance with CSI/ EEA or other indicators		Classification by DPSIR	Type	Linkage with area	Frequency of publication
MK NI 016	Municipal waste generation	CSI 016 WMF8	Municipal waste generation	P	A	households population urbanization waste	2 - annually

Geographical coverage: Republic of Macedonia

Temporal coverage: 2004 – 2005

Frequency of data collection: annually





Future activities

- **Short-term activities**
 - Definition of the national set of waste indicators.
 - a. Description of the activity**
 - Establishment of Work Group for the national set of waste indicators.
 - b. Required resources**
 - Involvement of national experts from governmental institutions in the area of waste.
 - c. Status**
 - Early initiative
 - Deadline: 2008**
 - Long-term activities are to be defined by the Work Group.

