

Municipal waste management in Turkey



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Context

The Topic Centre has prepared this working paper for the European Environment Agency (EEA) under its 2012 work programme as a contribution to the EEA's work on waste implementation.

Disclaimer

<p>This ETC/SCP working paper has been subjected to European Environment Agency (EEA) member country review. Please note that the contents of the working paper do not necessarily reflect the views of the EEA.</p>

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Highlights

Most important factors and initiatives in Turkey:

- The By-Law on Solid Waste Control is the first step of the solid waste management in Turkey. Although it has some shortcomings in its implementation, the MSW management system has been improved based on new regulations and supported by studies, according to the Turkish Ministry of Environment and Urbanisation;
- The amount of collected MSW in 2010 was 25 million tonnes, equivalent to 84 % of the total generated MSW. The share of MSW going to landfill was increased by 5 % in the years between 2001 and 2010. The number of sanitary landfill sites increased from 15 in 2003 to 68 in the 3rd quarter of 2012;
- According to 2010 TurkStat data, 54 % of the municipal waste is sent to sanitary landfills and 44 % is dumped into municipality dumpsites. 2 % of the MSW was reported as composted or disposed of by other methods;
- Municipal waste management is improving. The number of licensed recycling and recovery facilities has skyrocketed in the last decade. In 2003, there were 46 recycling and recovery facilities for different recyclable waste types, whereas by 2012 the number of licensed facilities increased to 956. However, these improvements in the waste management capacity have not yet been reflected in the reported data.

1 Introduction

1.1 Objective

Based on historical MSW data for Turkey and EU targets linked to MSW in the Waste Framework Directive, the Landfill Directive and the Packaging and packaging waste Directive, the analysis undertaken is going to include:

- The historical performance on MSW management based on a set of indicators;
- Uncertainties that might explain differences between the countries' performance which are more linked to differences in what the reporting includes than differences in management performance;
- Relation of the indicators to the most important initiatives taken to improve MSW management in the country; and
- Assessment of the future possible trends and achieving of the future EU targets on MSW by 2020.

2 Turkey's MSW management performance

Waste generation and management have been recognized as a priority for Turkey and policies are being developed to overcome existing obstacles. Furthermore, MSW management has been a pressure point for Turkey while being a candidate country for EU accession (TCA, 2007).

The By-Law on Solid Waste Control (14.3.1991 - 20814) is the first important step towards successful waste management in Turkey. Although it is shown to have some shortcomings in its implementation, the MSW management system has been improved by new studies and new regulations. The main reasons of shortcomings can be identified as:

- Waste management systems development was not a priority policy area;
- Duties and powers are distributed among many institutions and organizations, with inadequate coordination and cooperation among them;
- The fees and taxes collected in return for services were inadequate;
- The infrastructure (facilities and the existing technical capacity) was limited and the majority of facilities were in need of modernisation.

According to the Metropolitan Municipality Law (10.7.2004- 5216) and the Municipality Law (3.7.2005 - 5393), sole responsibility for the management of municipal waste falls on the municipalities. They are responsible for providing all services regarding collection, transportation, separation, recycling, disposal and storage of solid wastes, or to appoint others to provide these services (ETC/SCP, 2009). Nevertheless, while fulfilling their duties in collecting and transporting the solid waste to a great extent, they do not show the required level of activity and attention in solid municipal waste management. The great majority of solid waste in the country is still not being disposed in accordance with the legislation (UN, 2010). This situation has been improving by newly adopted management perspectives (MoEU, 2012).

- It has been reported that 54 % of household waste is disposed in sanitary landfill sites, while the remaining 44 % is dumped into dumpsites, according to the Turkish Statistical Institute (TurkStat, 2010). 2 % was reported as either undergoing biological treatment or disposed of by other methods.

The number of sanitary landfills is increasing rapidly in Turkey, as in 2003 there were 15 sanitary landfills, whereas in the 3rd quarter of 2012 this number has increased to 68 (MoEU, 2012).

There are references in the literature to an informal recycling sector which could be responsible for up to 30 % of MSW material recycling (Metin et al., 2003). But there is no information on the current situation concerning this informal recycling practice. Regarding the situation around packaging waste, an important part of MSW, the Turkish Ministry of Environment and Urbanisation has provided the following information:

The first particular regulation on packaging waste control came into force in 2004 with the “By-Law on Control of Packaging Waste” and was revised in August 2011. The aim of the by-law is to minimise the generation of packaging waste and to also increase the rate of recycled packaging waste which cannot be avoided within the method of production. The regulation also includes principles and standards for packaging waste to be collected separately at its source, then sorted and transported within a certain system.

Institutions and suppliers who are not members of authorized organisations are obliged to recover packaging waste. Recycling targets are given to authorized institutions and suppliers with this by-law.

The number of economic operators registered to the system is increasing rapidly in Turkey, from 350 in 2003 to 15 192 in 2012 (MoEU, 2012).

The Turkish Ministry of Environment and Urbanization (MoEU) gives licenses to collection, separation and recycling facilities. Whereas there were only 28 licensed facilities in 2003, this number increased to 562 in 2012.

Development plans are the main tools for the coordination of public policy in Turkey and they form the basis of policy documents on solid waste (UN, 2010). There have been a number of National Waste Management Plans covering the period 2009-2013. The main aim of the Plan is to determine national policies and the decision-making structure for the preparation of detailed waste management plans for separate waste streams. The latest Plan was made with the aim of fulfilling criteria according to the EU harmonization process (ETC/SCP, 2009).

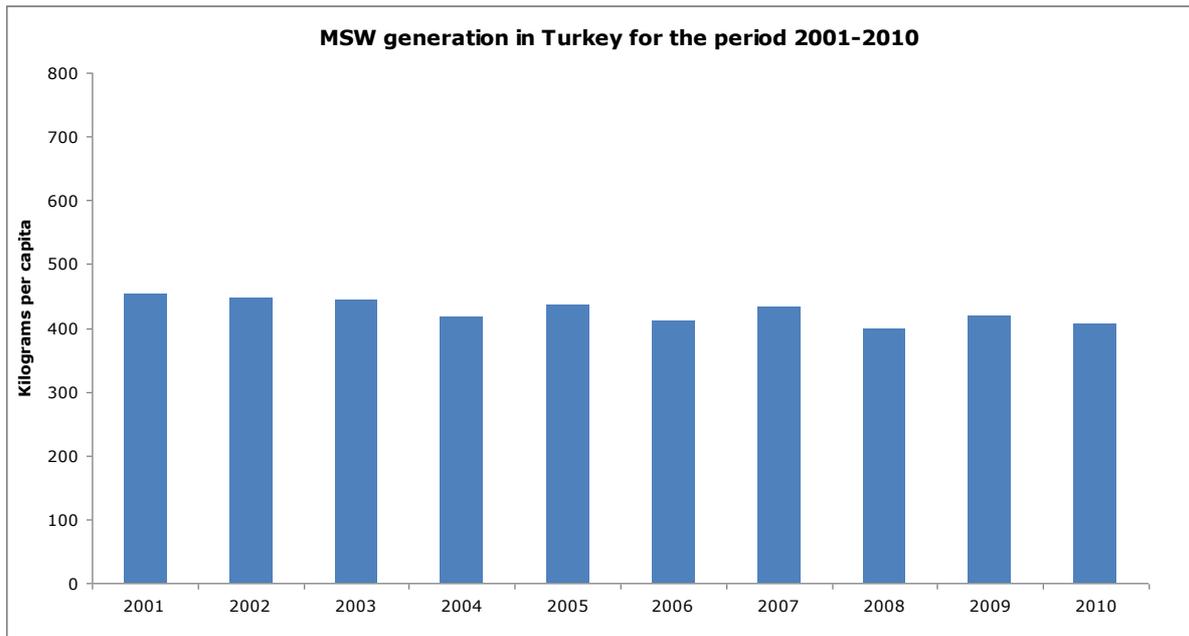
Finally in 2008, the ‘By-law on General Principles of Waste Management (05.07.2008 - 2697) set the framework of waste management in Turkey, from waste generation to disposal so that the procedures are followed in an environmentally sound way (ETC/SCP, 2009).

2.1 MSW Indicators

Out of the approximate 30 million tonnes of MW generated in 2010, 25 million tonnes or 84% were collected and about 98 % of this collected waste was landfilled either in sanitary landfills (54 %) or dumpsites (44 %), while around 0.2 million tonnes were biologically treated (TurkStat, 2010). There is no available information regarding the fate of the uncollected amount of MSW.

Figure 2.0 shows the development of MSW generation per capita in Turkey from 2001 to 2010. The data shows a relatively stable waste generation which is slightly declining, starting from 454 kg/cap in 2001 and falling to 407 kg/cap in 2010.

Figure 2.0 MSW generation per capita in Turkey



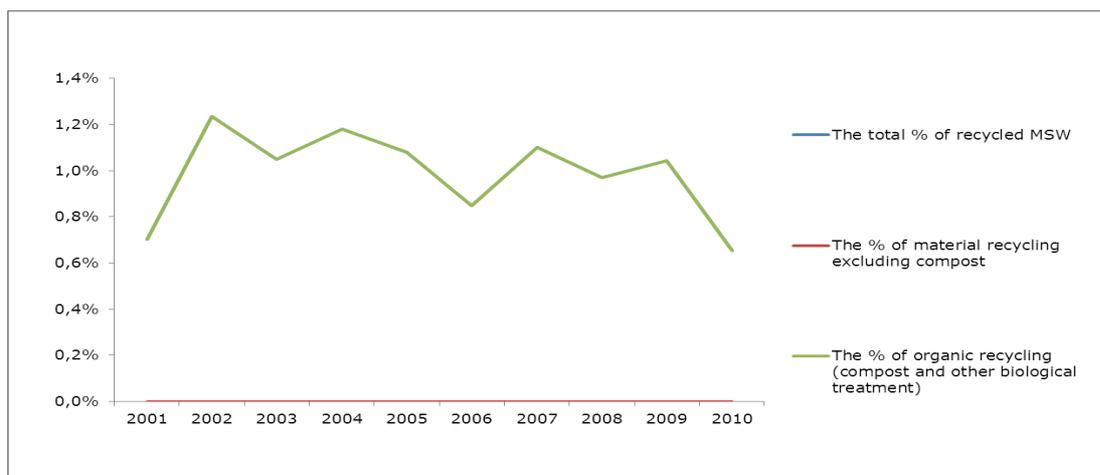
Source: Eurostat, 2012

2.1.1 The recycling of MSW from 2001 to 2010

Figure 2.1 shows the development of recycling of MSW in Turkey related to total recycling, material recycling and organic recycling (compost and other biological treatment).

According to Eurostat data, no MSW is material recycled in Turkey. However, The Turkish Ministry of Environment and Urbanization reports the total amount of recycled packaging waste in 2009 to be 2.5 million tonnes, and certainly part of this recycled packaging waste is from MSW sources, but the share is unknown.. The data shown below therefore underestimates the amount of MSW recycled.

Figure 2.1 Recycling of MSW in Turkey



Source: Eurostat, 2012. Note: The percentages are calculated as % of generated MSW

The absence of data is due to poor reporting which does not necessarily equate to a poor performance of the waste management system. For example, there are a number of sorting plants operating in Turkey, but the waste treated there is probably not reflected in the figures reported to Eurostat.

2.1.2 Landfilling of biodegradable municipal waste

The By-law on Landfill of waste (No:27533 2012/03) aimed to decrease the amount of landfilled biodegradable municipal waste in a scheduled period. The preparation of a strategy to decrease the amount of biodegradable waste is on-going according to the Turkish Ministry of Environment and Urbanisation.

In order to decrease the amount of biodegradable waste sent to landfill sites, new MBTs are under construction. 8 composting facilities and 6 facilities for electricity production from methane gas are operating (MoEU 2012).

2.1.3 Regional differences of MSW recycling from 2001 to 2010

There is no regional data for recycling for Turkey reported to Eurostat.

According to the Turkish Ministry of Environment and Urbanisation, the management of municipal waste is under the responsibility of municipalities as a regional management approach by the Ministry of Environment and Urbanization. Since 2003, municipalities are implementing municipal waste management projects by cooperating with other municipalities in the region (through the municipalities union).

2.1.4 The relation between landfill tax level and recycling level of MSW

As mentioned before, the metropolitan municipality and other municipalities are responsible for providing collection, transportation, separation, recycling, disposal and storage of waste services.

Legislation came into force in October 2010 to provide and state principles to bring sustainability to environmental infrastructure services and waste services. These principles involve regulation of fees to be paid to the relevant municipality by subscribers who benefit from these services. Municipalities should be able to cover the expenditure of infrastructure services though the fees collected from households.

At the moment there is no landfill tax in Turkey.

2.1.5 Environmental benefits of better MSW management

For other EEA member countries the environmental benefits of better MSW management have been calculated based on a model on GHG emissions. Unfortunately, this model does not cover Turkey at the moment.

2.1.6 Uncertainties in the reporting

Data on packaging waste has been collected by the MoEU, but this has not yet been reported. Legislative targets for recycling of packaging waste according to Turkish law responding to the EU Packaging Waste Directive is shown in Figure 2.2 (TCA, 2007).

Figure 2.2 Targets for recycling of packaging waste in Turkey (as % of generated) per material

Targets for recycling of packaging waste in Turkey (as % of generated) per material					
Years	Glass	Plastic	Metal	Paper/Cardboard	Wood
2005	32	32	30	20	-
2006	33	35	33	30	-
2007	35	35	35	35	-
2008	35	35	35	35	-
2009	36	36	36	36	-
2010	37	37	37	37	-
2011	38	38	38	38	-
2012	40	40	40	40	-
2013	42	42	42	42	5
2014	44	44	44	44	5
2015	48	48	48	48	5
2016	52	52	52	52	7
2017	54	54	54	54	9
2018	56	56	56	56	11
2019	58	58	58	58	13
2020	60	60	60	60	15

Source : By-law on Control of Packaging Waste (MoEU)

2.2 Important initiatives taken to improve MSW management

No private initiatives that would promote better MSW management in Turkey have yet been found. ÇEVKO, a non-profit organisation dedicated to packaging waste recycling, has been established since 1991, and was declared as the authorised institution for all packaging in Turkey in 2005. TUKCEV is the second authorised institution in Turkey which was authorised by the Ministry of Environment and Urbanization in 2010.

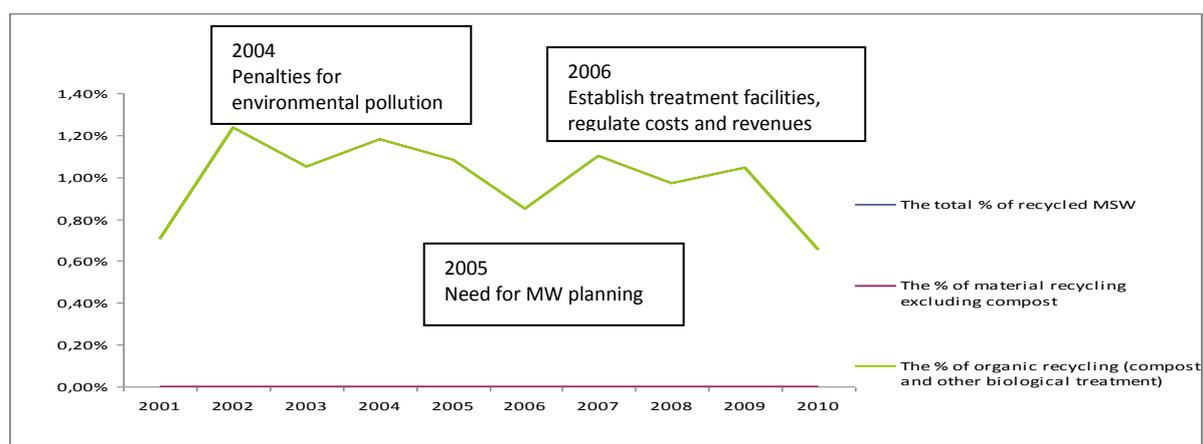
Ongoing initiatives towards improving the MSW management system in Turkey are listed below.

It is aimed to set up a waste management system in Turkey acting in accordance with the related national legislation and EU legislation, covering the establishment of necessary waste treatment facilities (pretreatment facilities and landfills) and transfer stations, reduction of the amount of waste, ensuring recycling and reuse, and reducing the waste transportation costs (MoEU, 2012). As a first step to achieve these objectives, studies are being carried out across Turkey.

Waste management plans involving details on the collection process have been prepared by municipalities (MoEU, 2012) since 2008. By the end of 2011, 283 packaging waste management plans are approved by the MoEU.

Most of the EU waste management directives have also been transposed into Turkey's national legislation.

Figure 2.3 Recycling of MSW in Turkey and important policy initiatives



2.3 Future possible trends

There is insufficient reliable data to produce a sound projection for the future of the MSW of Turkey. However, there are important pieces of legislation in place that give an indication of the future trends in MSW practices.

Currently, most of the EU waste management directives concerning MSW have been transposed into Turkey's national legislation in (MoEU, 2012):

- By- Law on General Principles of Waste Management (05.07.2008);
- By- Law on Control of Packaging Waste (24.08.2011);
- By- Law on Landfilling of Waste (26.03.2010).

The By-law on the landfilling of waste makes provisions for the monitoring, control, closure and after-care procedures of landfill facilities. It has also created a reporting mechanism and database to support this.

The National strategy on the reduction of biodegradable waste to be disposed of in landfill facilities has also been developed at a draft stage. This strategy shall include the measures to be taken with the methods such as recycling, composting, biogas production or energy/material recovery.

According to the strategy for the reduction of biodegradable waste amounts, the implementation of the EU Landfill Directive (99/31/EC) will be carried out by 2025 (MoEU, 2012).

An extraordinary effort and an improvement in communication and cooperation between the government, local authorities and the public and private sectors are required if the proper implementation of the regulations mentioned above is to be achieved.

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