Country fact sheet

Municipal waste management

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Turkey

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European Environment Agency
European Topic Centre on Waste and
Materials in a Green Economy

Context

This country profile was prepared within the EEA's work on municipal waste, resulting in the following outcomes:

- 32 country profiles (this document) – The country profiles were originally produced by the ETC/SCP and were published by the EEA in 2013. The ETC/WMGE updated them for the EEA under its 2015 and 2016 work programme.

- An EEA briefing on Municipal waste management across European countries

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Related country profiles

Country information on waste prevention programmes can be found at: http://www.eea.europa.eu/publications/waste-prevention-in-europe-2015

For country profiles on material resource efficiency policies, please visit: http://www.eea.europa.eu/publications/more-from-less/

Contents

Highlights

- The amount of municipal solid waste (MSW) collected in 2014 was 28 million tonnes, equivalent to 90 % of the total generated MSW.
- The traditional method for disposing of MSW in Turkey has been open dumping, which represented 35.5 % of treated MSW in 2014, whereas 63.6 % of the treated MSW was disposed of at sanitary landfills. The number of sanitary landfill sites increased from 15 in 2003 to 80 in the third quarter of 2015. The reported recycling rates in Turkey are very low.
- The By-Law on Waste Management was adopted in 2015.
- The responsibility for the MSW management lies with municipalities, which typically allocate most of their resources for MSW management to collection and transportation services.
- 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 2015 the number of licensed facilities had increased to 1 226.
- Recent data from the Ministry of the Environment and Urbanization shows a recovery rate of 11 %, calculated as share of the collected MSW. This takes into account an estimate of recycled packaging waste from municipal sources, and some other recovery (MBT, biological processes and energy recovery).

1 Introduction

1.1 Objective

Based on historical municipal solid waste (MSW) data for the Turkey, and EU targets linked to MSW in the Waste Framework Directive (WFD), the Landfill Directive and the Packaging Directive, the analysis undertaken includes:

- the historical MSW management performance based on a set of indicators;
- uncertainties that might explain differences in country performance, which may relate more to variations in reporting methodology than differences in management performance;
- indicators relating to the country's most important initiatives taken to improve the management of MSW; and
- possible future trends.

2 Turkey's municipal solid waste management performance

Waste generation and management have been recognised as priority policy areas for Turkey and policies are being developed to overcome existing obstacles. The By-Law on Solid Waste Control (14.3.1991 – 20814), regulating solid waste collection, storage, transport and disposal, was the first important step towards successful waste management. Since then, the legislation has been continuously updated and extended (Turan *et al.*, 2009). Some shortcomings were identified, including inadequate coordination and cooperation among the many institutions and organisations responsible for waste management; the fees and taxes collected in return for services were inadequate to cover the costs; limited infrastructure, both of facilities and the existing technical capacity; and the need for modernisation of the majority of facilities.

In 2008, the By-law on General Principles of Waste Management (5.7.2008 - 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). In 2015 the By-Law on Waste Management (2.4.2015 – 29314) came into force (MoEUa, 2016).

Development plans are the main tools for the coordination of public policy in Turkey. 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 Plans 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).

According to the Metropolitan Municipality Law (10.7.2004 – 5216) and the Municipality Law (3.7.2005 – 5393), the sole responsibility for the MSW management falls on 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). Since 2003, municipalities have implemented municipal waste management projects by cooperating with other municipalities in the region through the municipalities' union. Nevertheless, while to a great extent fulfilling their duties in collecting and transporting MSW, municipalities do not show the required level of activity and attention in MSW management (UN, 2010). This situation has been improved by newly adopted management perspectives (MoEU, 2012). According to the Turkish Statistical Institute (2016), 99.6 % of municipalities were offering waste services in 2014.

Legislation came into force in October 2010 to state and provide principles to bring sustainability to environmental infrastructure 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 on infrastructure services though fees collected from households.

The collection and transportation of MSW is generally rather well organized as municipalities generally allocate most of their resources for MSW management to these services. The main collection systems in place include kerbside collections, which typically operate in large cities and city centres, and community bin system, typically in smaller settlements and peripheral parts of urban areas. Kerbside collection systems collect waste once twice a day whereas community bins are typically emptied or replaced two or three times a week. (Turan *et al.*, 2009)

The traditional method for disposing of MSW in Turkey has been open dumping, posing various risks on human health and the environment. One issue causing concern for public health has been the co-disposal of MSW with hazardous medical and industrial waste. (Turan et al., 2009)

The Turkish Ministry of Environment and Urbanization (MoEU) gives licenses to collection, sorting and recycling facilities. Whereas there were only 28 licensed facilities in 2003, by 2015 the number had increased to 521 for collection and separation and to 676 for recycling facilities. The number of sanitary landfills increased rapidly in Turkey, from 15 in 2003 to 80 in the third quarter of 2015. (MoEU, 2016a)

The recycling rates of MSW in Turkey are very low due to poorly organised separate collection infrastructure for recyclables and a lack of funding (Turan *et al.*, 2009). There are references in the literature to an informal recycling sector which could be, by carrying out some level of intermediate processing of materials, responsible for up to 10–30 % of MSW material recycling in Turkey (Turan *et al.*, 2009; Metin *et al.*, 2003). There is, however, no information on the current situation concerning informal recycling practices.

The first specific regulation on packaging waste control came into force in 2004 with the By-Law on Control of Packaging Waste and this was revised in 2011. The aim of the By-Law is to minimise the generation of packaging waste and to increase the rate of recycled packaging waste which cannot be avoided within production methods. 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. The By-Law sets recycling targets to be met by authorised institutions and suppliers. The number of operators registered by the system is increasing rapidly, from 350 in 2003 to 17 063 in 2012 (MoEU, 2016a).

According to the reporting to Eurostat, 80–90 % of generated waste was treated[1] in 2001–2014. In 2014, the reported treated amount, 28 million tonnes, accounted for 90 % of the reported generated amount of 31 million tonnes. (Eurostat, 2016)

2.1 Municipal solid waste indicators

The following indicators illustrate the development of the Turkish MSW management in 2001-2014. All percentages have been calculated by relating the waste managed to the generated amount – rather

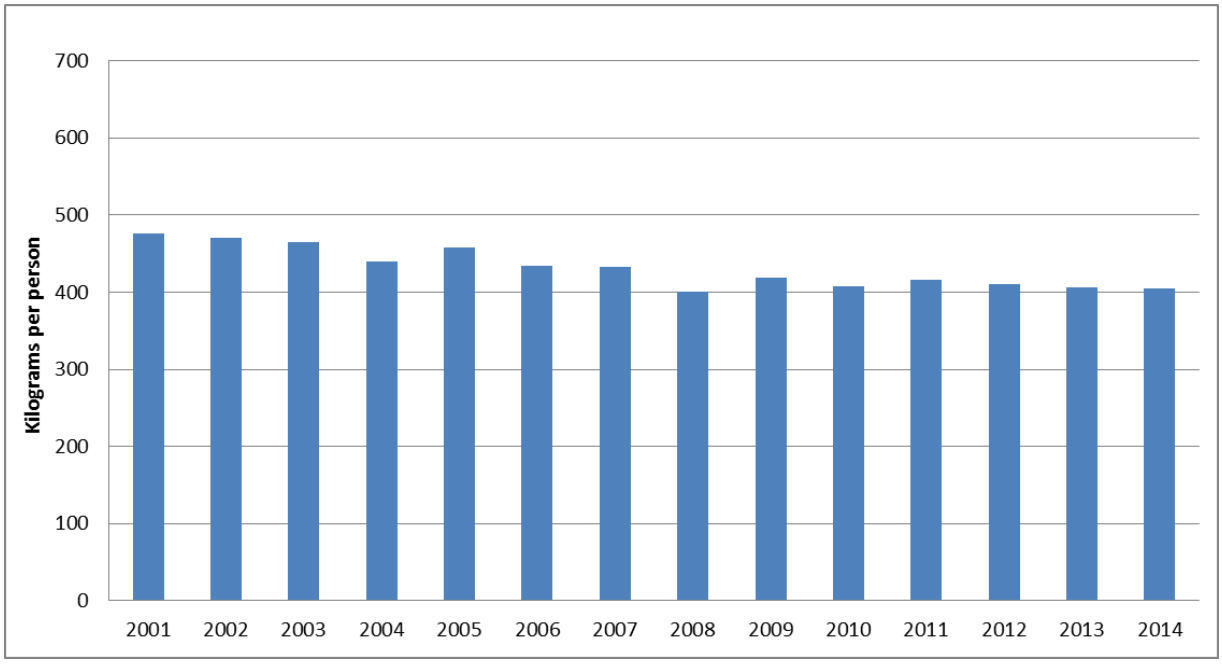
[1] Treatment rates are dependent on several factors:

- waste undergoing mechanical biological treatment (MBT) treatment losses mass, and as only final treatment amounts are to be reported to Eurostat, the waste treatment rates might be lower than the generation and collection rates;
- some countries estimate waste generation based on population, common where the collection coverage is less than 100 %, while treatment rates are based on statistics of actual waste amounts,

than the treated amount. Relating it to the total amount of MSW managed would generally result in higher rates for all waste management paths for Turkey.

Figure 2.0 shows the development of MSW generation per person in Turkey from 2001 to 2014. The data shows relatively stable waste generation, which is declining slightly, from 476 kilograms per person in 2001 to 405 kilograms in 2014.

Figure 2.1 Turkey, municipal waste generation per person, 2001–2014



Source: Eurostat, 2016.

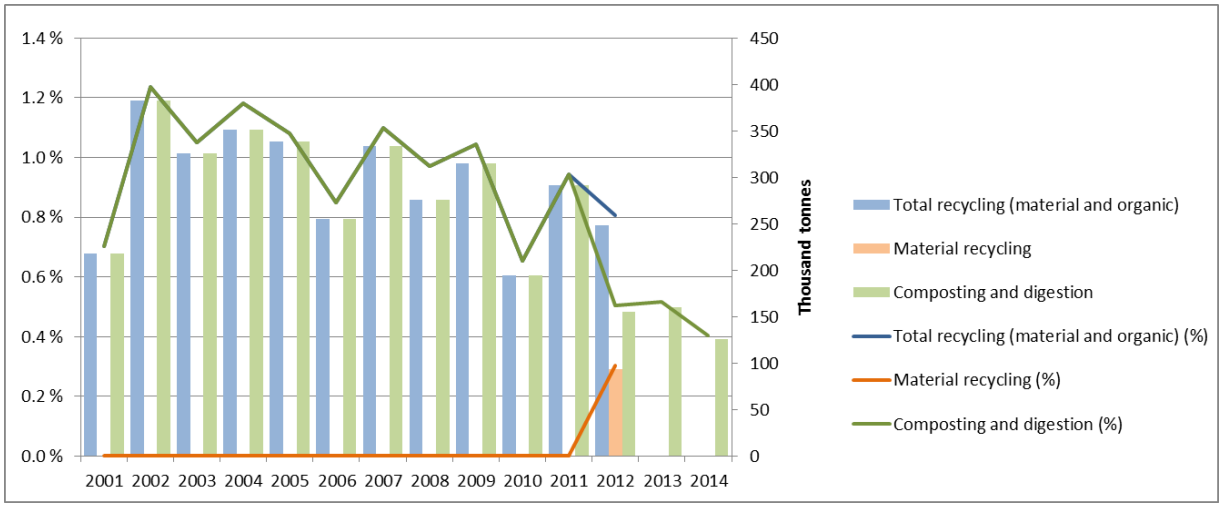
Municipal solid waste mostly comprises domestic residues and its composition varies by season. Generally, the organic fraction is large to the high consumption of vegetables and fruits. In rural areas MSW contains more ash as stoves are typically used for heating purposes in the winter season. (Turan, *et al.*, 2009)

2.1.1 The recycling of municipal solid waste, 2001–2014

Figure 2.1 shows the development of MSW recycling in Turkey – total recycling, material recycling and composting and other biological treatment. According to Eurostat, data is not available on the material recycling of MSW in Turkey, except for 93 000 tonnes reported in 2012. The data shown in Figure 2.1 therefore most likely underestimates the amount of MSW recycled. Organic recycling shows considerable fluctuation over the years, ranging from 126 000 tonnes to 383 000 tonnes annually.

These data especially do not include recycled packaging waste which accounts for 2.3 million tonnes both from municipal and industrial/commercial sources in Turkey according to the Ministry of the Environment and Urbanization (MoEU, 2016b). While the share of packaging waste from municipal sources is currently unknown, including part of this waste in the numbers increases the recycling rate. According to data reported in the National Waste Management Plan and Action Plan (MoEU, 2016b), Turkey generated 28.6 million tonnes of MSW in 2014. Out of this amount, 90% were collected and about 99.1 % of this collected waste was either landfilled in sanitary landfills (61.07 %) or dumpsites (28.25 %), while around 11% were recovered (comprising 5.3 % packaging waste recycling and 5.3 % MBT, biological processes and energy recovery).

Figure 2.1 Turkey, recycling of municipal solid waste, 2001–2014, per cent and tonnes



Source: Eurostat, 2016.

The low reported amounts of recycled MSW is probably influenced by poor reporting which does not necessarily equate to 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 not reflected in the figures reported to Eurostat.

2.1.2 Landfill 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.

2.1.3 Regional differences of municipal solid waste recycling, 2001–2013

Turkey reports no regional data for recycling to Eurostat.

2.1.4 Recycling and landfill taxes

There is no landfill tax in Turkey, at the moment.

2.1.5 Environmental benefits of better municipal solid waste management

No assessment of the environmental benefits associated with municipal waste is available for Turkey.

2.2 Uncertainties in the reporting

Some uncertainties or differences in how countries report recycling of MSW can result in different recycling levels. This applies, for example, to the following issues:

- the extent of packaging waste from households and similar packaging from other sources that are included or not included in the reported recycling of MSW;
- the definition of municipal waste used by the country, such as the inclusion/exclusion of home composting;
- the methodology used to report the inputs/outputs of MBT and sorting plants.

Since 1994, statistics on MSW management have been processed and compiled by the Turkish Statistical Institute (Turan *et al.*, 2009), with the data collected using survey questionnaires (Turkstat, 2016). From 2004 onwards the quality of the data has improved due to weighing of the waste amounts at treatment sites (Eurostat, 2015).

Data on packaging waste have been collected by the MoEU (TCA, 2007), but these are currently not reported to Eurostat.

2.3 Important initiatives taken to improve municipal solid waste management

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

For packaging waste, ÇEVKO, a non-profit organisation dedicated to packaging waste recycling, was established in 1991, and declared, in 2005, as the authorised institution for all packaging waste management in Turkey. In 2010, a second packaging waste institution, TUKCEV, was authorised by the MoEU followed by PAGÇEV in 2014 and AGED 2015 (MoEU, 2016a).

Waste management plans involving details on the collection process have been prepared by municipalities since 2008 (MoEU, 2012). By the end of 2015, 620 packaging waste management plans had been approved by the MoEU (MoEU, 2016a). Legislative targets for the recycling of packaging waste according to the Turkish law responding to the EU Packaging Waste Directive are shown in Table 2.1.

Table 2.1 Turkey, targets for the recycling of packaging waste, percentage of waste 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, 2011 (MoEU)

Currently, most of the EU Directives concerning MSW have been incorporated into Turkey's national legislation in (MoEU, 2016a):

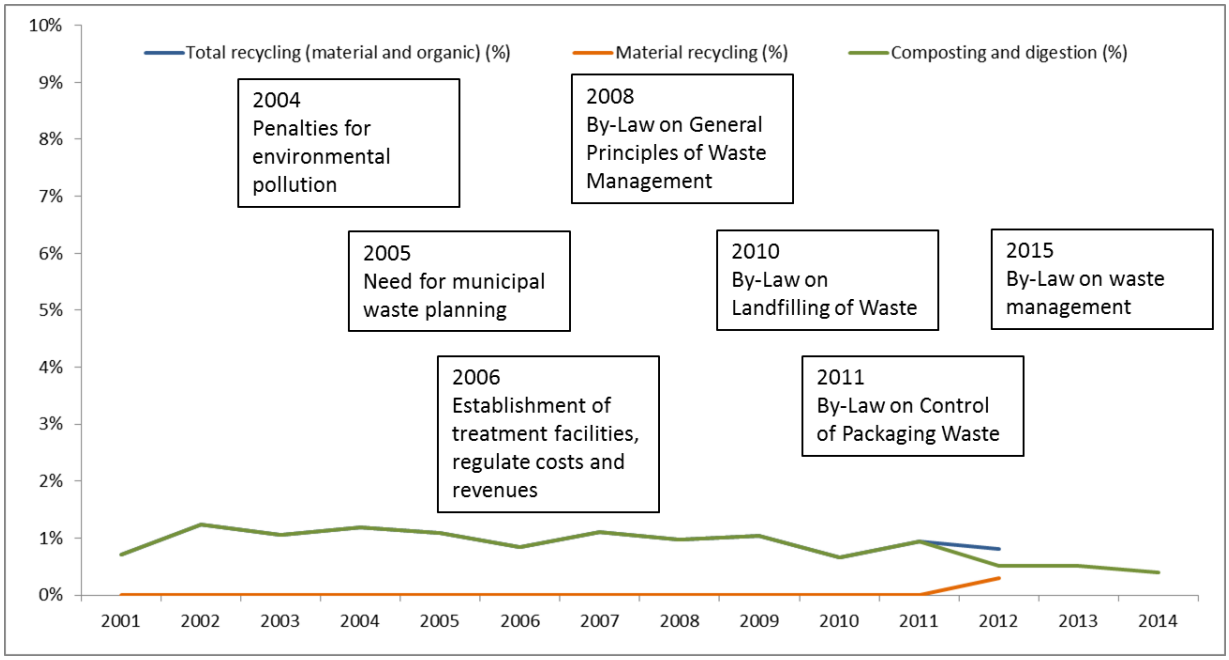
- By-Law on (2.4.2015 – 29314);
- By-Law on Control of Packaging Waste (24.8.2011);
- By-Law on Landfilling of Waste (26.3.2010);
- By-Law on Control of Waste Electrical and Electronic Equipment (22.5.2012–28300);
- Amendment on By-Law on Control of Hazardous Waste (5.11.2013–28812);
- Amendment on By-Law on Control of Landfilling of Waste (11. 3.2015–29292);
- By-Law on the Control of Waste Vegetable Oils (6.6.2015–29378);
- By-Law on Waste from Extractive Industries (15. 7.2015–29417).

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 in draft. This strategy will include the measures to be taken with the methods such as recycling, composting, biogas production and energy/material recovery. According to this Strategy, the implementation of the EU Landfill Directive (99/31/EC) will be carried out by 2025 (MoEU, 2012).

In order to decrease the amount of biodegradable waste sent to landfill, new MBT plants are under construction. Eight composting facilities and 21 facilities for electricity production from methane gas are currently operating (MoEU 2016a).

Figure 2.2 Turkey, recycling of municipal solid waste and important policy initiatives, 2001–2014



Source: Eurostat, 2016. Note: Data is not available on the material recycling of MSW, except for 2012.

2.4 Possible future trends

Although there are some missing variables (i.e. materials recovery rate), Turkey has time series data on MSW beginning from the 1990s. In addition, there are important pieces of legislation in place that give an indication of future trends in MSW practices.

An extraordinary effort and an improvement in communication and cooperation between the government, local authorities and the public and private sectors are required for achieving proper implementation of the regulations discussed in this country profile.

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