

*Data extracted in
January 2019.*

Planned article update: June 2019.

This article shows trends in [municipal waste](#) generation and treatment in the [European Union \(EU\)](#) from 1995 to 2017. There is a very distinct trend towards less landfilling as countries move steadily towards alternative ways of treating waste.

Municipal waste accounts for only about 10 % of total waste generated when compared with the data reported according to the Waste Statistics Regulation (tab env_wasgen). However, it has a very high political profile because of its complex character, due to its composition, its distribution among many sources of waste, and its link to consumption patterns.

Municipal waste generation

Figure 1 and Table 1 show municipal waste generation by country expressed in kilograms per capita. To illustrate trends, Table 1 shows waste for selected years, covering the period 1995 to 2017. For better readability, Figure 1 covers only the years 2005 and 2017. Both include the [EU-28 aggregates](#) for comparison. In Figure 1, countries are ranked in increasing order by municipal waste generation in 2017.

For 2017, municipal waste generation totals vary considerably, ranging from 272 kg per capita in Romania to 781 kg per capita in Denmark. The variations reflect differences in consumption patterns and economic wealth, but also depend on how municipal waste is collected and managed. There are differences between countries regarding the degree to which waste from commerce, trade and administration is collected and managed together with waste from [households](#).

In at least 19 of the 31 countries (Member States and EFTA), the amount of municipal waste generated per capita increased between 1995 and 2017. Based on 1995 and 2017 figures the highest average annual growth rates were recorded for Latvia (2.3 %), Malta (2.0 %) and Denmark (1.9 %).

Bulgaria showed the largest reduction, with an annual average decrease of -2.3 %, followed by Slovenia, -1.1 % and Romania, -1.0 %.

From 2004 on, methodologies were finalised in most countries, so the waste generation time series of 2004 and later is more accurate and stable than that between 1995 and 2003.

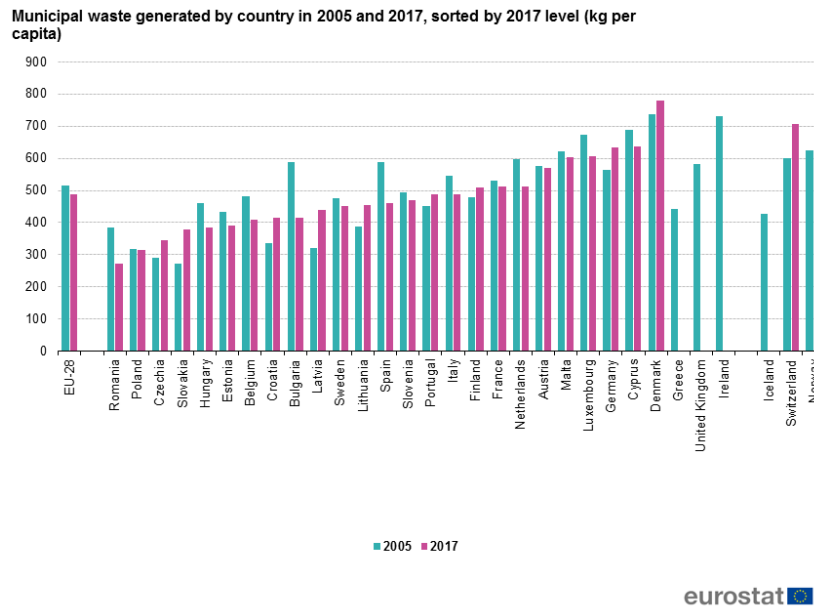


Figure 1: Municipal waste generated by country in 2005 and 2017, sorted by 2017 level (kg per capita) Source: Eurostat (env_wasmun)

Municipal waste generated by country in selected years

(kg per capita)

	1995	2000	2005	2011	2017	change (%) 1995-2017
EU-28	473	521	515	497	487	.
Belgium	455	471	482	456	409	-10.1
Bulgaria	694	612	588	508	416	-40.1
Czechia	302	335	289	320	344	13.9
Denmark	521	664	736	781	781	50.0
Germany	623	642	565	626	633	1.6
Estonia	371	453	433	301	390	5.1
Ireland	512	599	731	616	.	.
Greece	303	412	442	503	.	.
Spain	505	653	588	485	462	-8.6
France	475	514	530	534	513	7.9
Croatia	.	262	336	384	416	.
Italy	454	509	546	529	489	7.8
Cyprus	595	628	688	672	637	7.1
Latvia	264	271	320	350	438	65.7
Lithuania	426	365	387	442	455	6.8
Luxembourg	587	654	672	666	607	3.3
Hungary	460	446	461	382	385	-16.3
Malta	387	533	623	589	604	55.9
Netherlands	539	598	599	568	513	-4.9
Austria	437	580	575	573	570	30.3
Poland	285	320	319	319	315	10.7
Portugal	352	457	452	490	487	38.4
Romania	342	355	383	259	272	-20.5
Slovenia	596	513	494	415	471	-21.0
Slovakia	295	254	273	311	378	28.2
Finland	413	502	478	505	510	23.5
Sweden	386	428	477	449	452	17.2
United Kingdom	498	577	581	491	.	.
Iceland	426	462	516	495	.	.
Norway	624	613	426	485	748	19.8
Switzerland	600	656	661	689	706	17.7
Montenegro	.	.	.	524	.	.
The former Yugoslav Republic of Macedonia	.	.	.	357	344	.
Serbia	.	.	.	375	306	.
Turkey	441	465	458	416	425	-3.6
Bosnia and Herzegovina	.	.	.	340	352	.
Kosovo*	228	.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence

Source: Eurostat (online data code: env_wasmun)



Table 1: Municipal waste generated by country in selected years (kg per capita), 1995-2017 Source: Eurostat (env_wasmun)

Municipal waste treatment

In this section, differences in the management of municipal waste are shown and treatment strategies are identified based on reported amounts of municipal waste [landfilled](#), [incinerated](#), [recycled](#) and [composted](#). Member States are asked to distinguish between incineration with and without energy recovery¹. In this article only the total amount incinerated is analysed.

Table 2 shows the amount of municipal waste treated in the European Union (EU-28) for the period 1995 to 2017 by treatment method, in million tonnes and kg per capita. Figure 2 shows the amount of waste generated at EU-28 level and the amount of waste by treatment category (landfill, incineration, recycling, composting).

¹The Waste Framework Directive offers in Annex II an energy efficiency criterion that helps to objectify the classification of incineration facilities and to improve data comparability. The criterion came into force by 12 December 2010.

Municipal waste landfilled, incinerated, recycled and composted in the EU-28, 1995 to 2017

	Municipal waste landfilled, incinerated, recycled and composted in the EU-28																	change (%) 1995-2017						
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011		2012	2013	2014	2015	2016	2017
	million tonnes																							
Landfill	145	143	144	141	140	140	139	132	129	119	110	108	107	101	98	93	88	79	73	68	64	60	58	-40
Incineration	32	32	35	35	36	39	40	41	41	44	48	51	52	55	54	57	60	59	62	64	65	68	68	111
Recycling	25	28	32	35	40	40	42	45	47	49	52	54	60	60	61	63	64	66	65	68	71	73	74	196
Composting	14	16	17	18	19	24	24	25	26	29	31	32	34	35	35	34	35	36	38	38	38	41	43	205
Other	19	14	12	12	12	11	12	12	12	13	13	11	11	9	8	8	8	8	8	8	7	6	6	-43
	kg per capita																							
Landfill	302	296	299	290	288	288	278	269	255	239	221	220	215	201	190	180	171	156	145	134	126	117	114	-62
Incineration	67	68	72	73	75	80	82	85	85	90	98	104	104	109	111	114	119	118	122	126	127	134	133	87
Recycling	52	59	66	72	82	83	88	95	97	99	105	109	119	120	122	124	128	130	128	134	140	143	144	175
Composting	30	34	36	37	40	49	50	53	54	57	59	62	64	70	68	69	67	70	72	74	75	81	81	175
Other	39	29	26	24	24	24	24	24	24	27	27	27	25	21	19	19	19	19	19	19	18	17	16	-32

Source: Eurostat (on the data code: env_wasmun)

eurostat

Table 2: Municipal waste landfilled, incinerated, recycled and composted in the EU-28, 1995 to 2017 Source: Eurostat (env_wasmun)

The 'other treatment' category was calculated as the difference between the sum of the amounts treated and the amounts of waste generated. This difference arises in countries that have to estimate waste generation in areas not covered by a municipal waste collection scheme and thus report more waste generated than treated. In addition, the 'other treatment' category reflects the effects of import and export, weight losses, double-counting of secondary waste (e.g. landfilling and recycling of residues from incineration), differences due to time lags, temporary storage and, increasingly, the use of pre-treatment, such as [mechanical biological treatment \(MBT\)](#). This may even lead to a rise in 'other treatment' for a given year. At EU-28 level, these effects contribute only marginally and tend to cancel each other out. However, at country level, the effects can be considerable.

Even though more waste is being generated in the EU-28, the total amount of municipal waste landfilled has diminished. In the reference period, the total municipal waste landfilled in the EU-28 fell by 85 million tonnes, or 59 %, from 145 million tonnes (302 kg per capita) in 1995 to 58 million tonnes (114 kg per capita) in 2017. This corresponds to an average annual decline of 4.1 %. For the shorter period 2005-2017 landfilling has fallen by as much as 5.3 % per year on average.

As a result, the landfilling rate (landfilled waste as share of generated waste) compared with municipal waste generation in the EU-28 dropped from 64 % in 1995 to 23 % in 2017.

This reduction can partly be attributed to the implementation of European legislation, for instance [Directive 62/1994](#) on packaging and packaging waste. By 2001, Member States had to recover a minimum of 50 % of all packaging put on the market. With the revised recovery target of 60 % to be achieved by 31 December 2008, there was a further rise in the amount of packaging waste collected separately.

Furthermore, [Directive 31/1999](#) on landfill stipulated that Member States were obliged to reduce the amount of biodegradable municipal waste going to landfills to 75 % by 16 July 2006, to 50 % by 16 July 2009 and to 35 % by 16 July 2016. The reduction was calculated on the basis of the total amount of biodegradable municipal waste produced in 1995. The Directive has led to countries adopting different strategies to avoid sending the organic fraction of municipal waste to landfill, namely composting (including fermentation), incineration and pre-treatment, such as mechanical-biological treatment (including physical stabilisation).

As a result, the amount of waste recycled rose from 25 million tonnes (52 kg per capita) in 1995 to 74 million tonnes (144 kg per capita) in 2017 at an average annual rate of 5.1 %. The share of municipal waste recycled overall rose from 11 % to 30 %.

The European Commission adopted an ambitious [Circular Economy Package](#), which includes revised legislative proposals on waste with a higher common target for the recycling of municipal and packaging waste and lower limits for landfill of municipal waste.

The recovery of organic material by composting has grown with an average annual rate of 5.2 % from 1995 to 2017. Recycling and composting together accounted for 47 % in 2017 relative to waste generation.

Waste incineration has also grown steadily in the reference period, though not as much as recycling and composting. Since 1995, the amount of municipal waste incinerated in the EU-28 has risen by 36 million tonnes or 111 % and accounted for 68 million tonnes in 2017. Municipal waste incinerated has thus risen from 67 kg per capita to 133 kg per capita.

Mechanical biological treatment (MBT) and sorting of waste are not covered directly as categories in the reporting of municipal waste treatment. These types of pre-treatment require an additional final treatment. In

practice, the amounts delivered to mechanical biological treatment or sorting should be reported on the basis of the subsequent final treatment steps. However, the way these amounts are allocated to the four treatment categories (incineration, landfilling, recycling and composting) varies significantly, and some countries report only on the first (pre-)treatment step.

As a consequence, reporting on the current set of variables often requires additional information to relate the amounts of municipal waste landfilled, incinerated, recycled and composted to the amounts generated at country level.

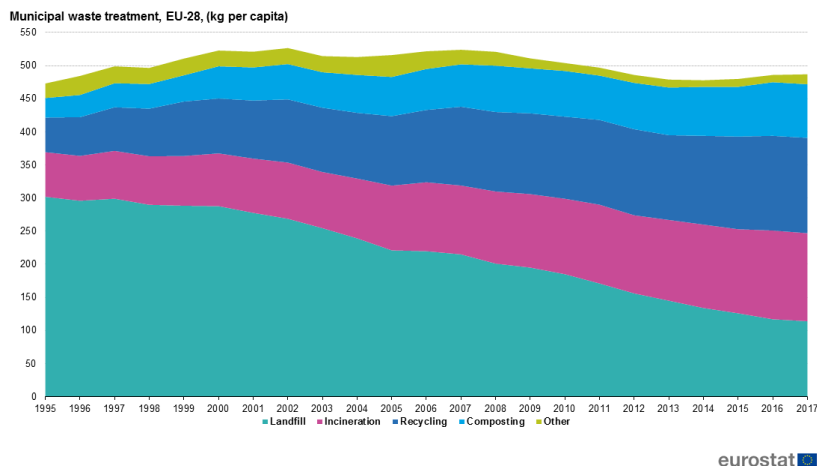


Figure 2: Municipal waste treatment by type of treatment, EU-28, (kg per capita), 1995 - 2017
Source: Eurostat (env_wasmun)

Source data for tables and graphs

- [Municipal waste 2017 - tables and figures](#)

Data sources

The data were extracted from the Eurostat database on 16 July 2018. They cover the period from 1995 to 2016 for the 28 EU Member States (Croatia only has complete sets since 2006). For the [candidate countries](#), coverage is as follows: The former Yugoslav Republic of Macedonia (since 2008), Serbia (since 2006) and Turkey. For the [EFTA](#) countries, Iceland, Norway and Switzerland, and the potential EU candidate country Bosnia and Herzegovina (since 2008), data are given to the extent possible.

Definitions

The municipal waste classification is based on the definitions for the section on waste in the OECD/Eurostat Joint Questionnaire. Further information is available in the

- [ESMS metadata sheet on municipal waste](#) (ESMS metadata file — env_wasmun_esms)

MW generated / MW collected : The data refer to the amount of municipal waste generated. In countries with complete (national) coverage of their municipal waste collection scheme the total of municipal waste generated is equal to the total of municipal waste collected. Some countries do not cover their whole territory with a collection scheme. These countries have added an estimate of the waste generated in areas not covered. For some countries data prior to 2008 refer to municipal waste collected, as it was not possible to make an estimate for the population not covered.

Data for France include the overseas departments (département d'outre-mer or DOM) Martinique, Guadeloupe, Réunion and French Guiana.

Data for Cyprus refer only to the area under the effective control of the Government of the Republic of Cyprus.

Data for Liechtenstein are included in Switzerland.

Context

Eurostat has collected and published data on municipal waste since 1995. Eurostat has conducted surveys on European waste data using the OECD/Eurostat-Joint Questionnaire as the main source. After the introduction of the [Regulation \(EC\) No 2150/2002](#) of 25 November 2002 on waste statistics the data collection on municipal waste based on the joint Questionnaire was continued to maintain the time series and to offer consistent data in an international context outside the EU (OECD, UN).

Other articles

- [Environment statistics introduced](#)
- [Packaging waste statistics](#)
- [End-of-life vehicle statistics](#)
- [Waste statistics - electrical and electronic equipment](#)
- [Waste shipment statistics](#)
- [Waste statistics](#)

Publications

- [Environmental statistics and accounts in Europe](#)
- [Generation and treatment of municipal waste - Statistics in focus 31/2011](#)

Main tables

- [Waste \(t_env_was\)](#) see:

Waste statistics (t_env_wasgt)

Generation of waste by economic activity (ten00106)

Generation of waste by economic activity (hazardous, non-hazardous), 2008 (ten00107)

Generation of waste by waste category (ten00108)

Generation of waste by waste category (hazardous, non-hazardous), 2008 (ten00109)

Waste generated by households by year and waste category (ten00110)

Waste generated by households and by waste category (hazardous, non-hazardous), 2008 (ten00111)

Recovery rates for packaging waste (ten00062)

Recycling rates for packaging waste (ten00063)

Database

- [Waste \(env_was\)](#) , see:

Waste statistics (env_was)

Waste streams(env_wasst)

Dedicated section

- [Environmental Data Centre on Waste](#)

Methodology

- [Waste statistics](#) (ESMS metadata file — env_wasgt_esms)

Legislation

- [Directive 94/62/EC](#) of 20 December 1994 on packaging and packaging waste
- [Directive 1999/31/EC](#) of 26 April 1999 on the landfill of waste
- [Regulation \(EC\) No 2150/2002](#) of 25 November 2002 on waste statistics
- [Directive \(EU\) 2018/851](#) of 30 May 2018 amending Directive 2008/98/EC on waste

External links

- [European Commission - DG Environment - Waste in the EU](#)
- [European Environment Agency - Waste and material resources](#)
- [OECD Website](#)
- [New rules on waste management and recycling](#)
- [European Commission - DG Environment - Circular economy](#)