

*Data extracted in August 2023.
Planned article update: February 2024.*

" 527 kg of municipal waste per capita were generated in the EU in 2021."

" 49 % of municipal waste in the EU was recycled (material recycling and composting) in 2021."

Country codes

This article shows trends in [municipal waste](#) generation and treatment in the [European Union \(EU\)](#) from 1995 to 2021. 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 ([env_wasmun](#)) . 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.

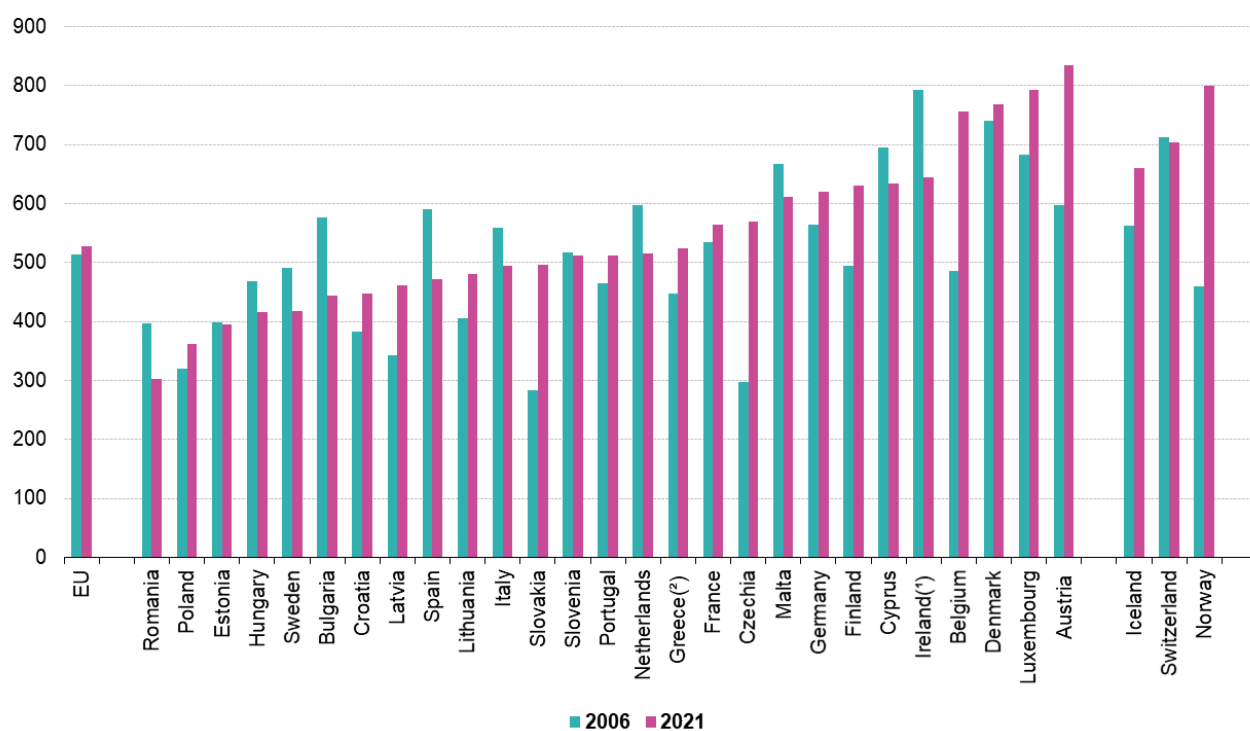
Municipal waste generation

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 2021. For better readability, Figure 1 covers only the years 2006 and 2021. Both include the [EU aggregates](#) for comparison. In Figure 1, countries are ranked in increasing order by municipal waste generation in 2021.

For 2021, municipal waste generation totals vary considerably, ranging from 302 kg per capita in Romania to 835 kg per capita in Austria. 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](#) .

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 of 1995 to 2003.

Municipal waste generated, 2006 and 2021 (kg per capita)



Note: Countries are ranked in increasing order by municipal waste generation in 2020.

(¹) Ireland 2020 data.

(²) Greece 2019 data.

Source: Eurostat (online data code: env_wasmun)

Figure 1: Municipal waste generated, 2006 and 2021 (kg per capita) Source: Eurostat (env_wasmun)

Municipal waste generated, in selected years, 1995-2021

(kg per capita)

	1995	2000	2005	2010	2015	2020	2021	Change 2021/1995 (%)
EU	467	513	506	503	480	521	527	12.9
Belgium	455	471	482	456	412	729	755	66.0
Bulgaria	694	612	588	554	419	408	445	-36.0
Czechia	302	335	289	318	316	543	570	88.8
Denmark	521	664	736	758	822	814	769	47.6
Germany	623	642	565	602	632	641	620	-0.5
Estonia	371	453	433	305	359	383	395	6.4
Ireland ⁽¹⁾	512	599	731	624	557	644	644	25.7
Greece ⁽²⁾	303	412	442	532	488	524	524	72.8
Spain	505	653	588	510	456	464	472	-6.6
France	475	514	529	534	516	538	565	18.8
Croatia	220	262	336	379	393	418	447	103.6
Italy	454	509	546	547	486	487	495	9.1
Cyprus	595	628	688	695	620	609	633	6.5
Latvia	264	271	320	324	404	478	461	74.5
Lithuania	426	365	387	404	448	483	480	12.7
Luxembourg	587	654	672	679	607	790	793	35.0
Hungary	460	446	461	403	377	403	416	-9.5
Malta	387	533	625	623	641	643	611	57.6
Netherlands	539	598	599	571	523	533	515	-4.6
Austria	437	580	575	562	560	834	835	90.9
Poland	285	320	319	316	286	346	362	27.3
Portugal	352	457	452	516	460	513	513	45.6
Romania	342	355	383	313	247	290	302	-11.8
Slovenia	596	513	494	490	449	487	511	-14.3
Slovakia	295	254	273	319	329	478	497	68.5
Finland	413	502	478	470	500	611	630	52.6
Sweden	386	425	479	441	451	431	418	8.3
Iceland	426	462	516	484	588	614	659	55
Norway	624	613	426	469	422	604	799	27.9
Switzerland	602	659	664	711	728	706	704	16.9
United Kingdom ⁽³⁾	498	577	581	509	483	463	:	:
Bosnia and Herzegovina	:	:	:	340	352	352	:	:
Montenegro ⁽⁴⁾	:	:	:	494	530	486	515	:
North Macedonia	:	:	:	381	441	441	459	:
Albania	:	:	:	:	491	369	311	:
Serbia	:	:	:	363	259	427	442	:
Türkiye	441	465	458	410	424	415	416	-6
Kosovo ⁽⁵⁾	:	:	:	:	252	255	270	:

(1) 2020 data instead of 2021.

(2) 2019 data instead of 2020 and 2021.

(3) 2018 data instead of 2020.

(4) 2012 data instead of 2010.

Note: data presented in italic are estimated.

(5) 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)

eurostat 

Table 1: Municipal waste generated, in selected years, 1995-2021 (kg per capita) 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](#). EU Member States are asked to distinguish between incineration with and without energy recovery¹. In this article only the total

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 on 12 December 2010.

amount incinerated is analysed.

Table 2 shows the amount of municipal waste treated in the EU for the period 1995 to 2021 by treatment method, in million tonnes and in kg per capita. Figure 2 shows the amount of waste generated at EU level and the amount of waste by treatment category (landfill, incineration, material recycling, composting and other).

Municipal waste landfilled, incinerated, recycled and composted, EU, 1995-2021

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Change 2020/1995 (%)
million tonnes																												
Landfill	121	117	117	114	113	112	107	104	99	93	88	88	87	83	82	79	74	67	63	59	57	54	53	53	55	54	54	-56
Incineration	30	30	33	33	34	36	37	39	39	41	45	48	49	51	52	53	55	54	56	57	57	58	59	59	59	62	62	106
Material Recycling (¹)	23	26	30	32	37	38	40	43	43	43	46	47	52	53	54	55	56	58	56	59	63	65	66	67	67	70	72	212
Composting	14	16	17	18	19	23	23	24	24	26	26	27	28	30	30	29	29	30	31	33	33	36	38	38	39	43	42	199
Other	10	13	12	11	12	11	12	12	12	13	16	13	11	10	7	6	6	6	5	4	4	5	4	5	5	4	5	-44
kg per capita																												
Landfill	286	276	276	266	263	262	250	241	229	215	202	202	199	190	186	178	167	153	142	134	127	121	120	119	124	121	121	-58
Incineration	70	71	77	78	79	84	87	90	90	95	103	111	112	116	117	121	125	122	127	128	128	131	133	132	131	138	138	98
Material Recycling (¹)	54	62	69	75	85	87	92	100	100	100	105	109	119	120	123	125	128	130	128	134	141	146	148	149	150	156	161	196
Composting	33	38	41	42	45	53	54	57	57	59	59	61	64	69	67	66	66	69	71	73	75	82	85	85	87	97	95	184
Other	23	31	28	27	28	27	27	27	28	31	37	30	24	23	17	13	13	13	11	9	9	10	14	14	12	10	12	-47

(¹) including preparation for reuse

Note: estimated by Eurostat.

Source: Eurostat (online data code: env_wasmun)

eurostat

Table 2: Municipal waste landfilled, incinerated, recycled and composted, EU, 1995-2021 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 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, the total amount of municipal waste landfilled has diminished. In the reference period, the total municipal waste landfilled in the EU fell by 67 million tonnes, or 55 %, from 121 million tonnes (286 kg per capita) in 1995 to 54 million tonnes (121 kg per capita) in 2021. This corresponds to an average annual decline of 3.0 %. Also, for the shorter period 2006-2021, landfilling fell by 3.0 % per year on average.

As a result, the landfilling rate (landfilled waste as share of generated waste) in the EU dropped from 61 % in 1995 to less than 23 % in 2021.

This reduction can partly be attributed to the implementation of European legislation, for instance [Directive 62/1994](#) on packaging and packaging waste. By 2001, EU 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. By 31 December 2025 65 % of the packaging waste has to be recycled.

Furthermore, [Directive 31/1999](#) on landfill stipulated that EU 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, to 35 % by 16 July 2016 and to 10 % until 2035. 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 (material recycling and composting) rose from 37 million tonnes (87 kg per capita) in 1995 to 115 million tonnes (257 kg per capita) in 2021 at an average annual rate of 4.3 %. The share of municipal waste recycled overall rose from 19 % to 49 %.

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.

Waste incineration has also increased steadily in the reference period, though not as much as recycling and composting. Since 1995, the amount of municipal waste incinerated in the EU has risen by 32 million tonnes or 106 % and accounted for 62 million tonnes in 2021. Municipal waste incinerated has thus risen from 70 kg per capita to 138 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.

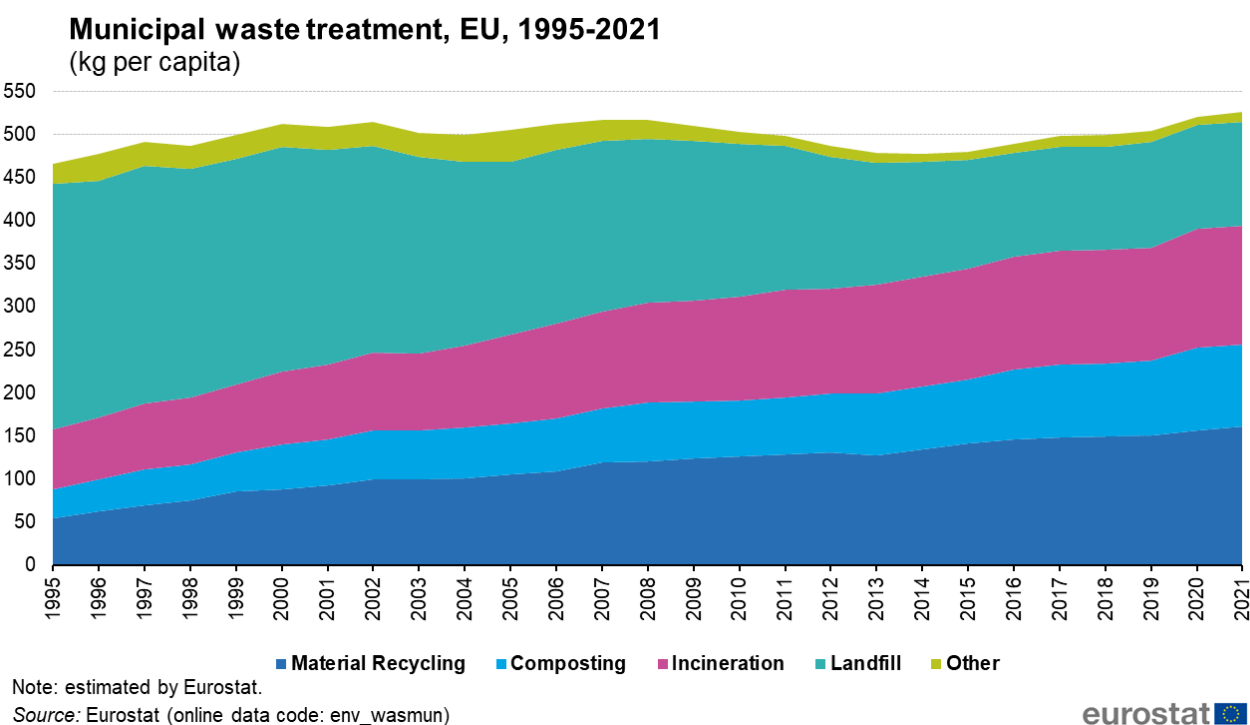


Figure 2: Municipal waste treatment, EU, 1995-2021 (kg per capita), Source: Eurostat (env_wasmun)

Source data for tables and graphs

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

Data sources

The data cover the period from 1995 to 2021 for the 27 EU Member States (Croatia only has complete sets since 2006). For the [candidate countries](#) ,coverage is as follows: Bosnia and Herzegovina (since 2008), North Macedonia (since 2008), Albania (since 2013), Serbia (since 2011) and Türkiye. For the [EFTA](#) countries, Iceland, Norway and

Switzerland and the potential EU candidate countries Kosovo² and Albania (since 2013), data are given to the extent possible. United Kingdom data is covered until 2018.

Definitions

The municipal waste classification is based on the [Directive 851/2018](#) amending the [Waste Framework Directive \(Directive 2008/98/EC\)](#) and 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](#)
- [Waste statistics](#)
- [Packaging waste statistics](#)
- [End-of-life vehicle statistics](#)
- [Waste statistics - electrical and electronic equipment](#)
- [Waste shipment statistics](#)

Publications

- [Energy, transport and environment statistics](#) - 2020 Edition
- [Generation and treatment of municipal waste](#) - Statistics in focus 31/2011

²This 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.

Main tables

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

Waste statistics (env_wasmun)

Database

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

Waste statistics (env_was)

Waste streams (env_wasst)

Dedicated section

- [Waste - Overview](#)

Methodology

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

Legislation

- [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
- [Waste Framework Directive \(Directive 2008/98/EC\)](#)
- [Directive 1999/31/EC](#) of 26 April 1999 on the landfill of waste
- [Summaries of EU legislation: Landfill of waste](#)
- [Directive 94/62/EC](#) of 20 December 1994 on packaging and packaging waste
- [Summaries of EU legislation: Packaging and packaging 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](#)