

Waste management indicators

Statistics Explained

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" In the EU, 58% or 371 million tonnes of domestically generated waste were recycled in 2020."

" In the EU, 19% or 122 million tonnes of domestically generated waste were landfilled in 2020."

[EU waste policy](#) aims at establishing a circular economy where materials and resources are maintained in the economy for as long as possible and where the [disposal](#) of waste is the last option of waste management. This new set of waste management indicators provided by Eurostat is a way to monitor progress towards more [recycling](#) and less disposal. The set of indicators on the 'management of waste excluding major mineral wastes' measures how waste generated in the EU as a whole and in individual Member States is finally treated, whether in the [European Union \(EU\)](#) / EU Member States or abroad. The indicator set reflects the treatment rates of the waste produced in a given country by type of treatment.

Overview

The waste management indicator set combines treatment data collected under [Regulation \(EC\) No 2150/2002](#) (WStatR) with import/export data from international trade statistics ([COMEXT](#) database) or from national sources. WStatR treatment data provide information on the amounts of waste that are managed in Member States, no matter in which country the waste is generated. Hence, the amount of treated waste reported by country A excludes the waste that arises in country A but is treated in country B (e.g. because appropriate treatment facilities are lacking). However, it may include waste imported from country B for treatment. In order to link the treatment data to the domestically generated waste the WStatR data are adjusted for imports and exports by means of trade statistics according to the formula:

Amount of domestically generated waste treated =
Waste treated in country (WStatR data) + Waste exported for treatment (COMEXT data) - Waste imported for treatment (COMEXT data)

The indicators are expressed in volumes of treated waste by treatment category as a proportion of the total amount of domestically treated waste. The indicator set comprises treatment rates for the six treatment categories defined in WStatR (see Table 1).

The set of indicators covers waste from all economic sectors and from households but excludes some mineral waste types that arise in large quantities and originate mainly from the mining and the construction sector.

Table 1 illustrates the calculation of the waste management indicators and shows the results for the [EU](#) for reference year 2020, broken down by type of treatment. According to WStatR data, in 2020 a total of 634 million tonnes of waste excluding major mineral wastes were treated in the EU. This amount includes waste imports from outside the EU of 82 million tonnes but does not cover 92 million tonnes of waste that leave the EU for treatment in non-EU countries. Overall, the EU is a net exporter of waste with net exports amounting to 10.2 million tonnes. Exports to non-EU countries mainly consist of metal wastes, paper and cardboard wastes, plastic wastes and other wastes for recycling.

The adjustment for imports and exports results in a total of 644 million tonnes of domestically generated waste excluding major mineral wastes (see column 6 in Table 1). Overall, 57.6 % or 371 million tonnes of the domestically generated waste were recycled. Energy recovery accounted for 19.2 % or 124 million tonnes and waste incineration for 1.5 % or 9 million tonnes of waste. 122 million tonnes or 18.9 % of waste were landfilled; 0.2 % of waste was disposed by other means.

Treatment of domestically generated waste excl. major mineral wastes and imports/exports of waste for EU, 2020

(1 000 tonnes; %)

1	2	3	4	5	6	7
Treatment category	Treatment in the EU (WStatR)	Extra-EU export for treatment (COMEXT)	Extra-EU import for treatment (COMEXT)	Extra-EU net trade for treatment (*) (COMEXT)	Treatment of domestically generated waste	Treatment rate for domestically generated waste
				(=C3-C4)	(=C2+C5)	(based on C6)
Recycling (RCV_R)	357 371	86 589	72 830	13 758	371 129	57.6%
Backfilling (RCV_B)	16 711	0	0	0	16 711	2.6%
Energy recovery (RCV_E)	126 766	4 561	7 527	-2 965	123 801	19.2%
Incineration (DSP_I)	9 515	251	391	-140	9 376	1.5%
Landfilling (DSP_L)	122 264	737	1 236	-499	121 765	18.9%
Other disposal (DSP_OTH)	1 173	0	0	0	1 173	0.2%
Total treatment	633 800	92 140	81 980	10 154	643 954	100.0%

(*) Positive values = net exports; negative values = net imports

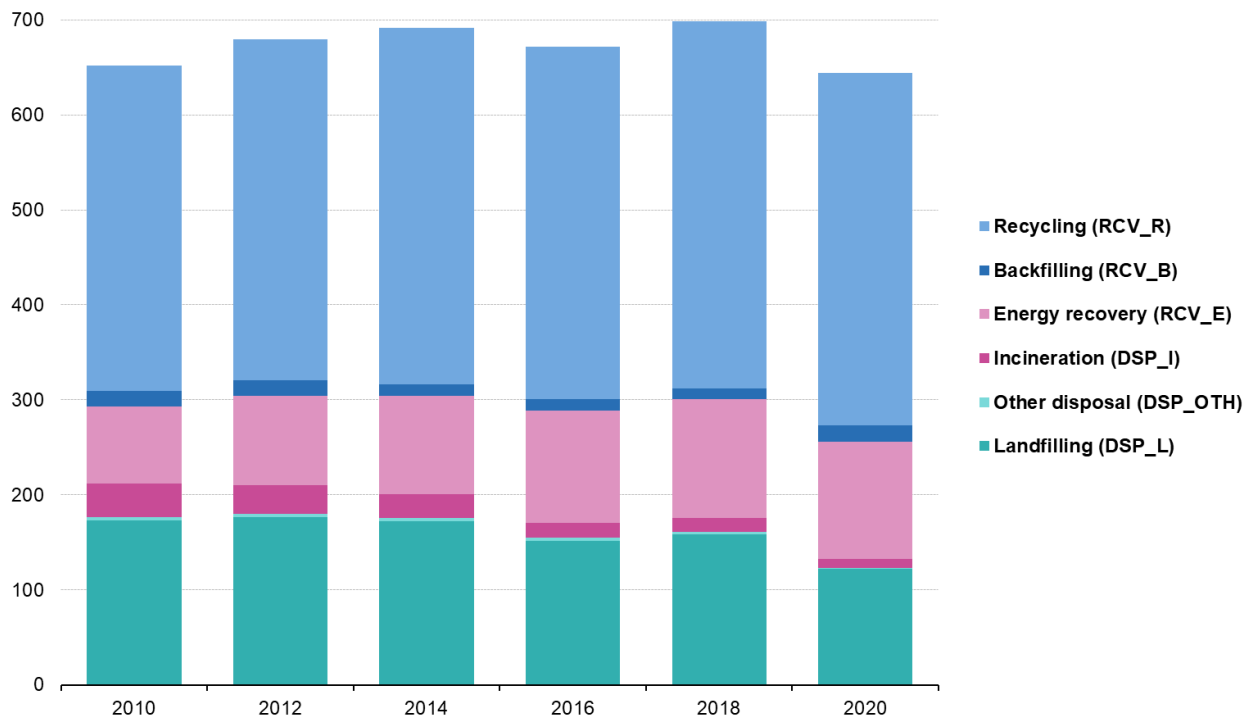
Source: Eurostat (online data code: env_wasflow; env_wasoper)

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Table 1: Treatment of domestically generated waste excl. major mineral wastes, imports and exports of waste in the EU, 2020 (1 000 tonnes, %) Source: Eurostat (env_wasoper)

Figure 1 shows the treatment of domestically generated waste for the EU from 2010 to 2020; the corresponding treatment rates are shown in Figure 2. The total amount treated decreased from 652 million tonnes in 2010 to 644 million tonnes in 2020. The recycled amount has grown between 2010 and 2020 by 28 million tonnes, consequently, the recycling rate increased to 58 %. Energy recovery has also been on the rise since 2010 with an increase of 43 million tonnes. The share of energy recovery grew accordingly from 12 % to 19 %. A part of this increase is presumably caused by the reclassification of waste incineration plants pursuant to the energy efficiency criterion set out in the Waste Framework Directive. This partly explains the decrease of waste incineration without energy recovery between 2010 and 2020 by 26 million tonnes. The increase of recycling and energy recovery resulted in a diversion of waste from landfills. The landfilled amounts decreased from 2010 to 2020 by 51 million tonnes resulting in a landfill rate of 19 % in 2020.

Treatment of domestically generated waste excl. major mineral wastes in the EU, 2010 to 2020



Source: Eurostat (online data code: env_wasoper)

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Figure 1: Treatment of domestically generated waste excl major mineral wastes in the EU, 2010 to 2020 (million tonnes) Source: Eurostat (env_wasoper)

Treatment rates for domestically generated waste excl. major mineral wastes in the EU, 2010 to 2020 (%)



Source: Eurostat (online data code: env_wasoper)



Figure 2: Treatment rates for domestically generated waste excl major mineral wastes in the EU, 2010 to 2020 (%) Source: Eurostat (env_wasoper)

Table 2 shows the treatment of domestically generated waste by EU Member State and by type of treatment for the year 2020 in tonnes. The heights of the columns in figure 1 reflect the treated amounts of domestically generated waste for each country; the segments display the amounts by type of treatment. Table 2 shows that the treated amounts of waste excluding major mineral wastes per inhabitant vary considerably across countries, reflecting differences between them in economic structure, in energy production and in consumption. The treatment rates have to be evaluated against the background of the Member States' economic structures. Results of ranking by treatment rates should not be overvalued.

Treatment of domestically generated waste excl. major mineral wastes by country and by type of treatment, 2020

(1 000 tonnes)

	Total treatment (TRT)	Of which:					Other disposal (DSP_OTH)
		Recycling (RCV_R)	Backfilling (RCV_B)	Energy Recovery (RCV_E)	Incineration (DSP_I)	Landfilling (DSP_L)	
EU	643 954	371 129	16 711	123 801	9 376	121 765	1 173
Belgium	42 316	36 926	0	3 643	578	1 169	0
Bulgaria*	15 015	3 401	0	623	6	10 924	61
Czechia	12 330	7 268	610	1 191	-45	3 305	0
Denmark	8 182	5 117	175	2 764	7	118	1
Germany	139 724	76 631	4 879	43 919	1 983	12 291	20
Estonia**	11 213	1 167	288	457	0	9 301	0
Ireland*	4 044	1 671	306	1 264	12	719	71
Greece	:	:	0	:	:	:	1 480
Spain	44 612	21 455	79	3 489	111	19 466	12
France	87 374	41 302	0	22 258	4 002	19 254	558
Croatia	3 354	2 007	27	178	2	1 132	8
Italy	79 536	57 608	0	8 899	1 024	12 005	0
Cyprus	809	353	0	31	0	424	0
Latvia	1 771	1 232	22	56	0	451	10
Lithuania*	2 245	1 611	0	246	3	374	12
Luxembourg	1 146	811	0	245	4	85	0
Hungary	11 683	6 251	9	1 255	84	4 084	0
Malta	400	98	0	0	9	293	0
Netherlands	44 088	32 763	0	9 322	1 101	820	82
Austria	13 229	8 307	2	0	0	1 228	0
Poland	53 119	27 508	10 216	3 733	283	11 378	1
Portugal	7 834	3 023	41	1 116	34	3 621	0
Romania	17 308	6 368	41	1 959	83	8 854	3
Slovenia	2 726	2 178	0	337	56	155	0
Slovakia	7 220	4 362	0	568	12	2 257	22
Finland	10 960	4 408	68	5 557	138	772	17
Sweden*	18 100	9 049	94	7 302	132	1 511	12

* 2018 value

** 2016 value

Source: Eurostat (online data code: env_wasoper)

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Table 2: Treatment of domestically generated waste excl. major mineral wastes by country and by type of treatment, 2020 (1 000 tonnes) Source: Eurostat (env_wasoper)

Recycling

The [recycling](#) rate is highly relevant for measuring progress towards a circular economy. In 2020, the EU as a whole recycled 58 % of domestically generated waste, which corresponds to 835 kg per inhabitant. Metal wastes (EWC-Stat 06), animal and vegetal wastes (EWC-Stat 09) and paper and cardboard wastes (EWC-Stat 07.2) account for more than half of recycled waste. Combustion wastes (12.4), wood wastes (07.5), mineral wastes from waste treatment (EWC-Stat 12.8, 13) and glass wastes (EWC-Stat 07.1) account for another quarter of the total for recycling.

In Member States, the recycling rates vary between 87 % in Belgium and Slovenia and 10 % in Estonia (see Table 3). Apart from Slovenia and Belgium seven countries reported recycling rates of 60 % and more: Lithuania, Italy, Portugal, Luxembourg, Czechia, Austria and Denmark. When related to population, the recycled amounts are highest in Belgium, Luxembourg and the Netherlands.

In countries with a waste intensive energy production, the overall recycling rate is highly dependent on the management of the energy related waste types.

Recycling of domestically generated waste excluding major mineral wastes in the EU, 2020

(1 000 tonnes)

	Recycling of domestically generated waste		
	1 000 t	kg/inhabitant	%
EU	371 129	835	58
Belgium	36 926	3 205	87
Bulgaria*	3 401	489	23
Czechia	8 076	755	65
Denmark	5 094	875	62
Germany	77 739	935	56
Estonia**	1 167	878	10
Ireland*	1 506	303	37
Greece	:	:	:
Spain	21 455	453	48
France	41 302	611	47
Croatia	1 859	458	55
Italy	56 544	948	71
Cyprus	270	304	33
Latvia	1 232	648	70
Lithuania*	1 611	576	72
Luxembourg	811	1 287	71
Hungary	4 932	505	42
Malta	98	190	25
Netherlands	22 386	1 286	51
Austria	8 267	929	62
Poland	27 508	726	52
Portugal	5 500	534	70
Romania	5 694	295	33
Slovenia	2 375	1 133	87
Slovakia	3 497	641	48
Finland	4 229	765	39
Sweden*	9 049	876	50

* 2018 value

** 2016 value

Source: Eurostat (online data code: env_wasoper)

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Table 3: Recycling of domestically generated waste excluding major mineral waste in the EU, 2020 (1 000 tonnes, kg/inhabitant, %) Source: Eurostat (env_wasoper)

Landfilling

Landfilled waste represents an enormous loss of resources in the form of both materials and energy and so should be limited as far as possible. At EU-level, the [landfilling](#) of waste has been continuously reduced in recent years and amounted to 125 million tonnes or 19 % of domestically generated waste in 2020. When related to population, 279 kg per inhabitant of waste excluding major mineral wastes were landfilled on average in the EU.

The landfill rates vary widely across Member States reflecting the differences in the waste management systems in general and the policies towards landfilling in particular. An increasing number of Member States introduced landfill bans for recyclable, combustible or untreated waste and economic incentives to divert waste from landfills. The success of these measures is evident in countries such as Denmark, the Netherlands, Belgium, Slovenia, Finland, Sweden, Luxemburg, Germany and Austria, which disposed of less than 10 % of domestically generated waste in landfills.

Landfilling of domestically generated waste excluding major mineral wastes in the EU, 2020

(1 000 tonnes)

	Landfilling of domestically generated waste		
	1 000 t	kg/hab	%
EU	121 765	279	19
Belgium	1 169	101	3
Bulgaria*	10 924	1 571	73
Czechia	3 305	309	27
Denmark	118	20	1
Germany	12 291	148	9
Estonia**	9 301	6 998	83
Ireland*	719	145	18
Greece	:	:	:
Spain	19 466	411	44
France	19 254	285	22
Croatia	1 132	279	34
Italy	12 005	201	15
Cyprus	424	478	52
Latvia	451	237	25
Lithuania*	374	134	17
Luxembourg	85	135	7
Hungary	4 084	418	35
Malta	292	568	73
Netherlands	820	47	2
Austria	1 228	138	9
Poland	11 378	300	21
Portugal	3 621	352	46
Romania	8 854	458	51
Slovenia	155	74	6
Slovakia	2 257	413	31
Finland	772	140	7
Sweden*	1 511	146	8

* 2018 value

** 2016 value

Source: Eurostat (online data code: env_wasoper)

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Table 4: Landfilling of domestically generated waste excluding major mineral wastes in the EU, 2020 (1 000 tonnes, kg/inhabitant, %) Source: Eurostat (env_wasoper)

Incineration

Incineration and energy recovery are essential components of waste management in numerous Member States, in particular in the Nordic countries Finland, Sweden and Denmark, where between 34 % and 52 % of domestically generated waste was incinerated in 2020. In Finland, incineration is particularly high due to the large quantities of wood wastes. Incineration comprises the use of waste as fuel (R1), mainly in power plants and cement kilns, and the thermal treatment of waste for disposal with the aim of reducing the volume and/or the hazardousness of the waste (e.g. incineration of health care waste).

Incineration and energy recovery of domestically generated waste excluding major mineral wastes in the EU, 2020

(1 000 tonnes)

	Incineration and energy recovery of domestically generated waste		
	1 000 t	kg/hab	%
EU	9 376	298	19
Belgium	4 221	366	10
Bulgaria*	623	90	4
Czechia	1 146	107	9
Denmark	2 771	475	34
Germany	45 902	552	33
Estonia**	457	344	4
Ireland*	1 264	255	31
Greece	:	:	:
Spain	3 600	76	8
France	26 261	389	30
Croatia	180	44	5
Italy	9 923	167	12
Cyprus	31	35	4
Latvia	56	29	12
Lithuania*	246	88	11
Luxembourg	249	396	21
Hungary	1 339	137	11
Malta	9	18	2
Netherlands	10 423	598	24
Austria	3 693	414	28
Poland	4 016	106	4
Portugal	1 150	112	15
Romania	2 042	106	12
Slovenia	393	187	14
Slovakia	579	106	8
Finland	5 695	1 030	52
Sweden*	7 302	707	40

* 2018 value

** 2016 value

Source: Eurostat (online data code: env_wasoper)

eurostat 

Table 5: Incineration including energy recovery of domestically generated waste in the EU, 2020 (1 000 tonnes, kg/inhabitant, %) Source: Eurostat (env_wasoper)

Source data for tables and graphs

- [Waste management indicators - tables and figures](#)

Data sources

The set of waste management indicators is based on waste treatment data collected under [Regulation \(EC\) No 2150/2002](#) on waste statistics (WStatR). The data are adjusted for imports and exports using international trade statistics ([COMEXT](#) data) or national data on imports and exports of waste. The indicator set is available for every second year starting with reference year 2010 and covers the 28 EU Member States.

The indicator set covers both non-hazardous and hazardous waste from all economic sectors and from households. However, it excludes the mineral waste categories *mineral wastes from construction and demolition* (EWC-Stat 12.1), *other mineral wastes* (12.1, 12.3, 12.5), *soils* (12.6) and *dredging spoils* (12.7), which account for around two thirds of the total waste in the EU and mainly originate from mining and construction.

The waste management indicators are published by Eurostat as a pilot data set. They are considered as good approximations for the treatment of domestically generated waste but have some limitations, as follows:

- The [Combined Nomenclature](#) (CN) used for international trade statistics does not consistently distinguish between wastes and goods, i.e. some CN-codes cover not only wastes but also non-wastes (by-) products.
- Trade statistics give information on the geographical destination of the waste but not on type of treatment at the place of destination. Hence, the type of treatment is based on assumptions.
- If calculated at country level, additional limitations result from the fact that the statistics on intra-EU trade do not cover 100 % of the traded goods/wastes because of reporting thresholds.

Context

EU waste management policies aim to reduce the environmental and health impacts of waste and improve Europe's resource efficiency. The long-term goal is to turn Europe into a recycling society, avoiding waste and using unavoidable waste as a resource wherever possible. The aim is to achieve much higher levels of recycling and to minimise the extraction of additional natural resources. Proper waste management is a key part of ensuring resource efficiency and the sustainable growth of European economies. For more information, see [circular economy](#) . To achieve this goal, the revised [Directive 98/2008](#) of 2008 introduced a five-step waste hierarchy where prevention is the best option, followed by re-use, recycling and other forms of recovery, with disposal such as landfill being the last resort.

Waste management is the second largest contributor to employment growth in the environmental economy, as shown by environmental goods and services ([EGSS](#)) accounts.

Other articles

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

Publications

- [Energy, transport and environment statistics 2020 edition](#)
- [Manual on waste statistics](#)

Database

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

Waste management by waste operations (t, %) (env_wasoper)

Waste management by waste operations and waste flow (t) (env_wasflow)

Dedicated section

- [Waste](#)

Methodology

- [Waste management by waste operations](#) (ESMS metadata file — env_wasoper_esms)

Legislation

- [Regulation \(EC\) No 2150/2002](#) of 25 November 2002 on waste statistics
- [Summaries of EU legislation: Waste statistics](#)

External links

- [European Environment Agency — Waste and material resources](#)