

*Data extracted in May 2017. Most recent data: Further Eurostat information, Main tables and Database .
Planned article update: October 2018.*

This article gives an overview on [waste](#) generation and treatment in the [European Union \(EU\)](#) and several non-member countries. It draws exclusively on data collected in accordance with [Regulation \(EC\) No 2150/2002](#) of the [European Parliament](#) and [Council](#) on waste statistics.

Waste, defined by [Directive 2008/98/EC](#) Article 3(1) as 'any substance or object which the holder discards or intends or is required to discard', potentially represents an enormous loss of resources in the form of both materials and energy. In addition, the management and disposal of waste can have serious environmental impacts. [Landfill](#) , for example, takes up land space and may cause air, water and soil pollution, while [incineration](#) may result in emissions of air pollutants.

EU waste management policies therefore aim to reduce the environmental and health impacts of waste and to improve the EU's [resource efficiency](#) . The long-term aim of these policies is to reduce the amount of waste generated and when waste generation is unavoidable to promote it as a resource and achieve higher levels of [recycling](#) and the safe [disposal of waste](#) .

Main statistical findings

Total waste generation

In 2014, the total waste generated in the [EU-28](#) by all economic activities and households amounted to 2 503 million tonnes; this was the highest amount recorded for the EU-28 during the period 2004-2014 (a time series only exists for even years).

As might be expected, the overall amount of waste generated is related to some extent to the population and economic size of a country. In Table 1, the smallest EU Member States generally reported the lowest levels of waste generation and the larger ones the highest. Nevertheless, relatively high quantities of waste were generated in Bulgaria and Romania and a relatively low quantity in Italy.

	Total		Mining and quarrying	Manufacturing	Energy	Construction and demolition	Other economic activities	Households
	(million tonnes)	(kg per inhabitant)						
EU-28	2 502.9	4 931	28.1	10.2	3.7	34.7	14.9	8.3
Belgium	65.6	5 838	0.1	21.7	2.1	40.2	27.3	8.6
Bulgaria (*)	179.7	24 872	88.6	:	5.1	0.7	4.0	1.5
Czech Republic	23.4	2 223	1.0	18.8	4.3	40.2	21.8	13.9
Denmark	20.1	3 558	0.1	6.4	5.4	52.6	18.5	17.1
Germany	387.5	4 785	1.9	15.8	2.6	53.3	16.9	9.5
Estonia	21.8	16 587	36.3	20.2	32.6	3.1	5.6	2.2
Ireland (*)	15.2	3 285	17.8	:	2.1	12.4	57.6	10.0
Greece	69.8	6 404	67.9	7.0	15.6	0.7	2.3	6.5
Spain	110.5	2 378	16.9	13.4	4.8	18.5	28.3	18.3
France	324.5	4 913	0.7	6.7	0.5	70.2	13.1	8.8
Croatia (*)	3.7	879	0.1	:	3.2	16.6	48.9	31.2
Italy	159.1	2 617	0.6	16.7	2.0	32.5	29.5	18.6
Cyprus (*)	2.1	2 406	:	:	:	31.0	48.9	20.2
Latvia	2.6	1 315	0.2	9.4	27.8	17.3	18.3	27.1
Lithuania	6.2	2 114	0.4	42.1	1.6	7.0	30.1	18.7
Luxembourg	7.1	12 713	1.8	4.0	0.0	84.5	6.1	3.4
Hungary	16.7	1 688	0.5	16.2	13.9	20.7	31.0	17.7
Malta (*)	1.7	3 896	2.2	:	0.2	74.5	13.8	9.3
Netherlands	133.2	7 901	0.1	10.1	1.3	68.1	14.1	6.4
Austria	55.9	6 541	0.1	9.7	0.9	72.1	9.8	7.5
Poland	179.0	4 710	42.3	17.6	12.2	9.5	13.7	4.6
Portugal	14.6	1 402	1.9	17.9	1.2	10.3	36.3	32.3
Romania (*)	175.6	8 820	87.0	:	4.0	0.6	6.2	2.2
Slovenia	4.7	2 273	0.2	28.1	13.5	17.4	28.9	12.0
Slovakia (*)	8.9	1 636	3.2	:	6.1	15.6	55.4	19.6
Finland	96.0	17 572	65.4	10.7	1.5	17.0	3.7	1.7
Sweden	167.0	17 226	83.2	3.4	1.1	5.3	4.5	2.5
United Kingdom	251.0	3 885	10.5	3.2	1.3	48.0	26.0	11.0
Iceland (*)	4.5	1 651	0.0	17.6	0.3	2.1	36.1	44.0
Liechtenstein	0.6	14 919	1.7	2.0	0.1	0.0	0.4	95.9
Norway (*)	11.7	2 283	2.8	:	1.3	23.0	52.7	20.3
Montenegro	1.2	1 872	22.5	5.2	31.7	9.2	15.3	16.1
Former Yugoslav Republic of Macedonia	2.2	1 058	3.4	67.9	23.3	0.5	4.9	0.0
Serbia	49.1	6 890	84.5	1.8	9.1	0.6	0.7	3.3
Turkey (*)	73.1	947	4.2	:	32.8	:	20.2	42.8
Bosnia and Herzegovina	0.5	1 161	1.6	27.2	71.1	0.0	0.0	0.0
Kosovo (UNSCR 1244)	1.0	574	19.3	7.0	0.0	0.3	26.3	47.0

(*) Other economic activities includes also manufacturing.

(*) Other economic activities includes also mining, quarrying, manufacturing and energy.

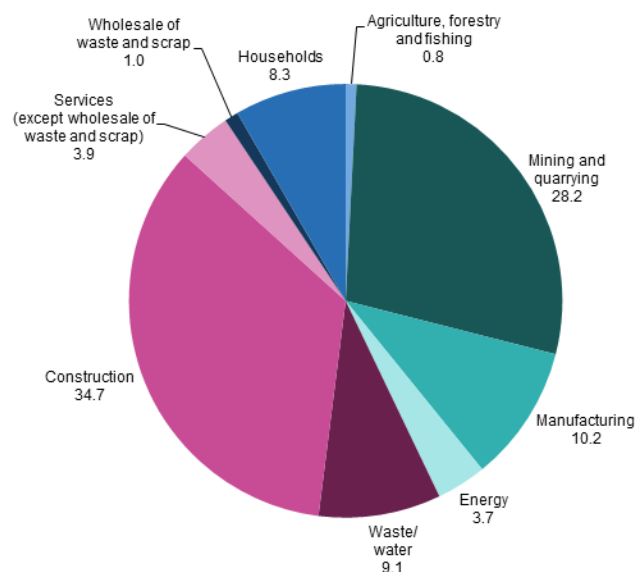
(*) 2012.

(*) Other economic activities includes also manufacturing, construction and demolition.

Source: Eurostat (online data code: env_wasgen)

Table 1: Waste generation by economic activities and households, 2014 Source: Eurostat (envwasgen)

The share of different economic activities and of households in total waste generation in 2014 is presented in Figure 1. In the EU-28, construction contributed 34.7 % of the total in 2014 and was followed by mining and quarrying (28.2 %), manufacturing (10.2 %), waste and water services (9.1 %) and households (8.3 %); the remaining 9.5 % was waste generated from other economic activities, mainly services (3.9 %) and energy (3.7 %).



Source: Eurostat (online data code: env_wasgen)

Figure 1: Waste generation by economic activities and households, EU-28, 2014(%) Source: Eurostat (envwasgen)

Figure 2 shows an analysis of the amount of waste generated in a standardised form, in relation to population size. The high levels of waste generated in some of the smaller EU Member States can be clearly seen, with a particularly high value recorded for Bulgaria where on average 24.9 tonnes of waste were generated per inhabitant in 2014, five times the 4.9 tonnes per inhabitant average across the EU-28. Several of the Member States with particularly high levels of waste generated per inhabitant reported very high shares of waste from mining and quarrying, while elsewhere construction and demolition often contributed high shares.

A lot of the waste from mining and quarrying and from construction and demolition is classified as major mineral wastes: the analysis presented in Figure 2 distinguishes major mineral wastes from all other wastes. Almost two thirds (64 % or 3.2 tonnes per inhabitant) of the total waste generated in the EU-28 in 2014 was major mineral wastes. The relative share of major mineral wastes in the total waste generated varied considerably between EU Member States, which may reflect, at least to some degree, different economic structures. In general, those EU Member States that had higher shares of major mineral wastes were those that were characterised as having relatively sizeable mining and quarrying activities, such as Bulgaria, Sweden, Romania and Finland, and/or construction and demolition activities, such as Luxembourg; in these Member States, major mineral wastes accounted 85 % or more of all waste generated, as was also the case in Liechtenstein and Serbia. Major mineral wastes accounted for less than one fifth of all waste generated in Croatia, Portugal and Belgium, as was also the case in Norway, Turkey, Bosnia and Herzegovina (2012 data), the former Yugoslav Republic of Macedonia and Iceland (2012 data).

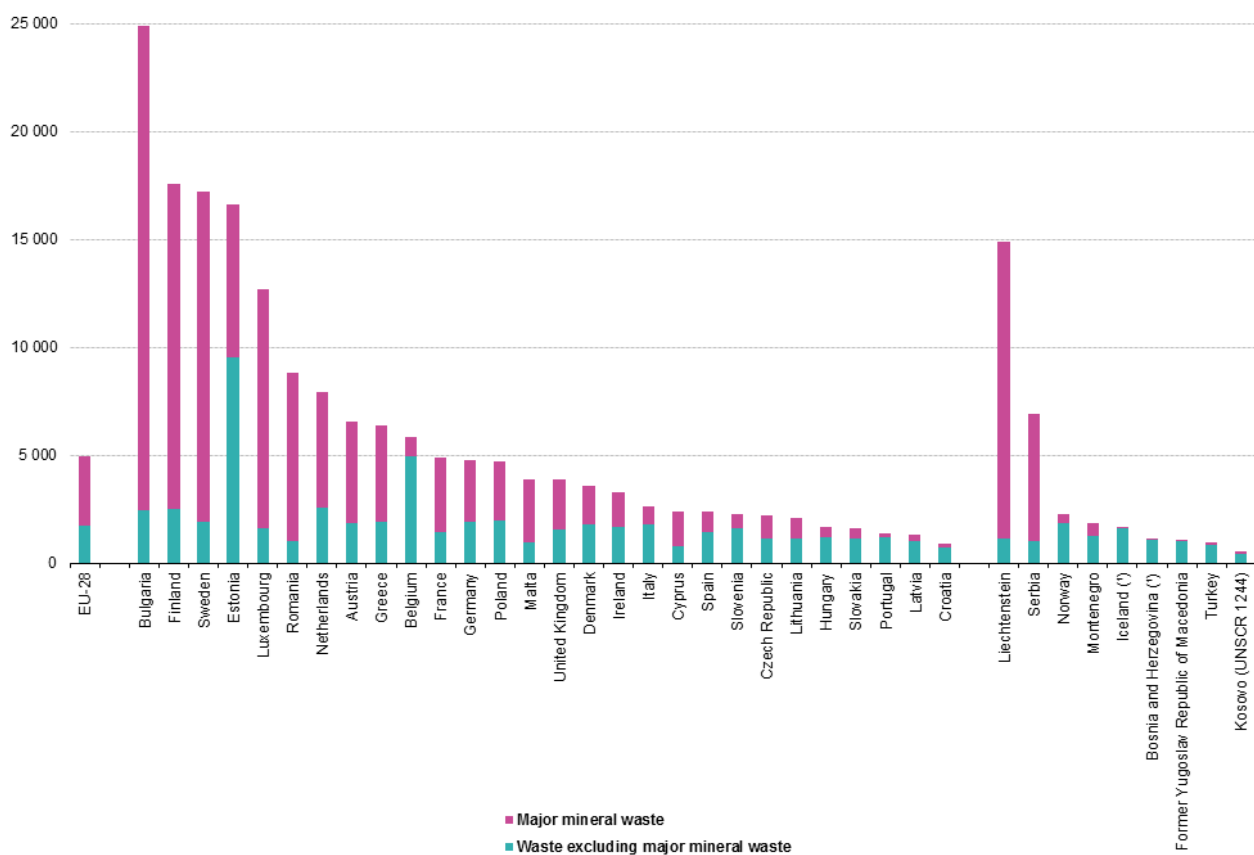
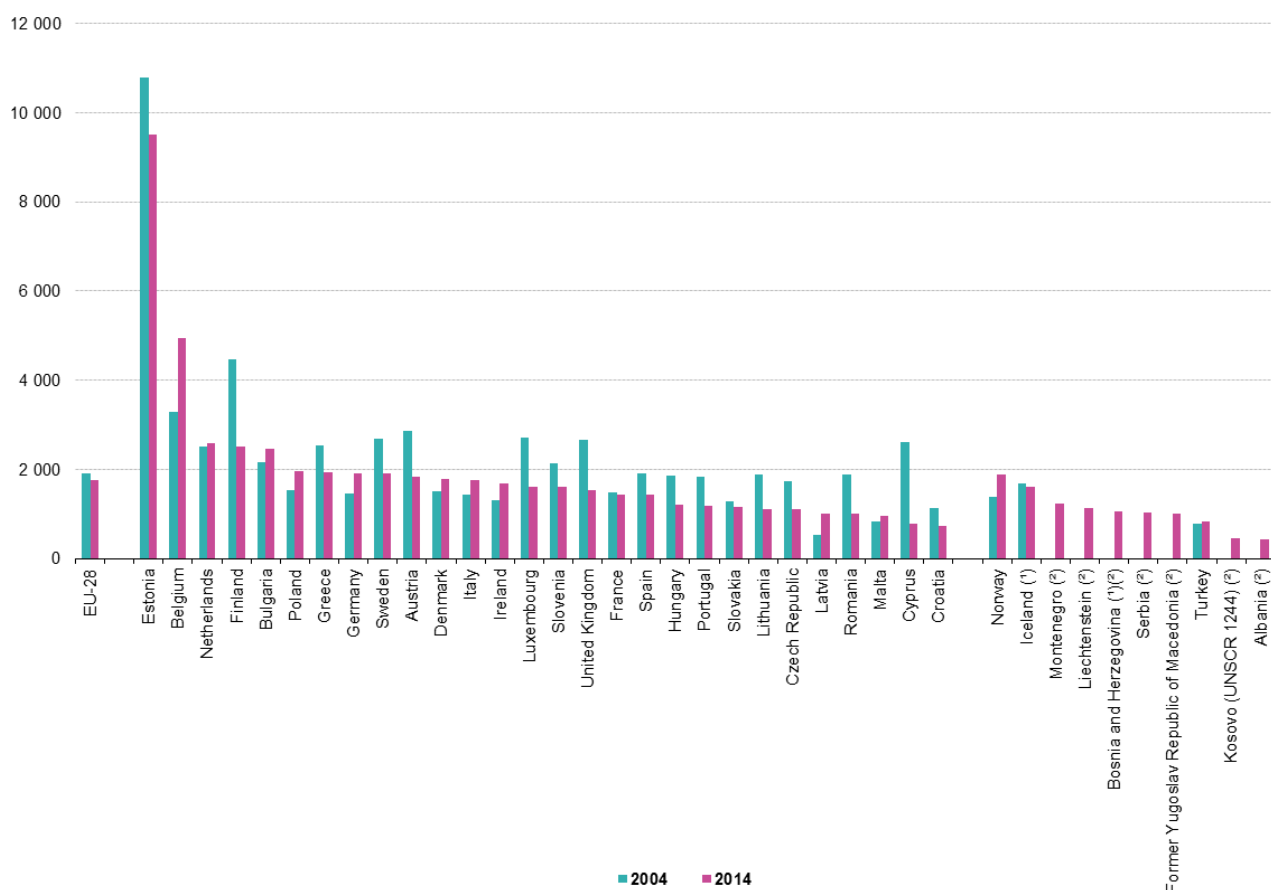


Figure 2: Waste generation, 2014(kg per inhabitant)Source: Eurostat (envwasgen)

Waste generation excluding major mineral wastes

In the EU-28, 891 million tonnes of waste excluding major mineral wastes were generated in 2014, equivalent to 36 % of the total waste generated (Table 2). When expressed in relation to population size, the EU-28 generated, on average, 1.8 tonnes per inhabitant of waste excluding major mineral wastes in 2014 (Figure 3). While the overall level of waste excluding major mineral wastes fell 5.3 % between 2004 and 2014, the quantity per inhabitant fell by 8.0 % (as the EU’s population also grew over this period).



(*) 2012 instead of 2014.

(*) 2004: not available.

Source: Eurostat (online data code: env_wasgen)

Figure 3: Waste generation, excluding major mineral wastes, 2004 and 2014(kg per inhabitant)Source: Eurostat (envwasgen)

Across the EU Member States, waste generation excluding major mineral wastes ranged, in 2014, from an average of 723 kg per inhabitant in Croatia to 9.5 tonnes per inhabitant in Estonia. The large quantity of waste generated in Estonia is related to energy production based on oil shale.

Table 2 shows the development of EU-28 waste generation excluding major mineral wastes analysed by economic activity. In 2014, the highest levels of waste generation were recorded for water and waste services, for households and for manufacturing activities (208 million tonnes, 204 million tonnes and 184 million tonnes). Their developments followed different patterns over time: waste generation (excluding major mineral waste) by water and waste services increased by 87.7 % between 2004 and 2014. The quantity of waste (excluding major mineral waste) generated from construction also grew at a rapid pace (rising by 57.2 % overall during the period under consideration). At the same time, waste generated (excluding major mineral waste) by households and by energy activities remained quite stable. Waste (excluding major mineral waste) generated by agriculture, forestry and fishing fell by 68.7 % and that from manufacturing activities by 32.2 %. Likewise, the quantity of waste (excluding major mineral waste) generated by mining and quarrying and by other sectors also diminished quite considerably, down by nearly a quarter (24.1 % and 22.7 % respectively).

	2004	2006	2008	2010	2012	2014	Rate of change 2004-2014 (%)
	(million tonnes)						
Total	941.1	942.3	903.4	875.2	884.2	890.8	-5.3
Agriculture, forestry and fishing	63.1	57.4	46.2	21.7	22.3	19.7	-68.7
Mining and quarrying	10.4	7.1	10.1	8.0	7.8	7.9	-24.1
Manufacturing	271.4	250.5	236.6	202.8	190.5	184.1	-32.2
Energy	92.2	100.0	88.8	81.9	93.6	90.7	-1.6
Waste/water	110.9	110.2	130.1	149.0	178.7	208.0	87.7
Construction	39.3	45.2	38.7	50.9	60.1	61.8	57.2
Other sectors	148.8	160.9	140.6	146.5	122.0	115.0	-22.7
Households	205.0	211.0	212.3	214.4	209.3	203.5	-0.7

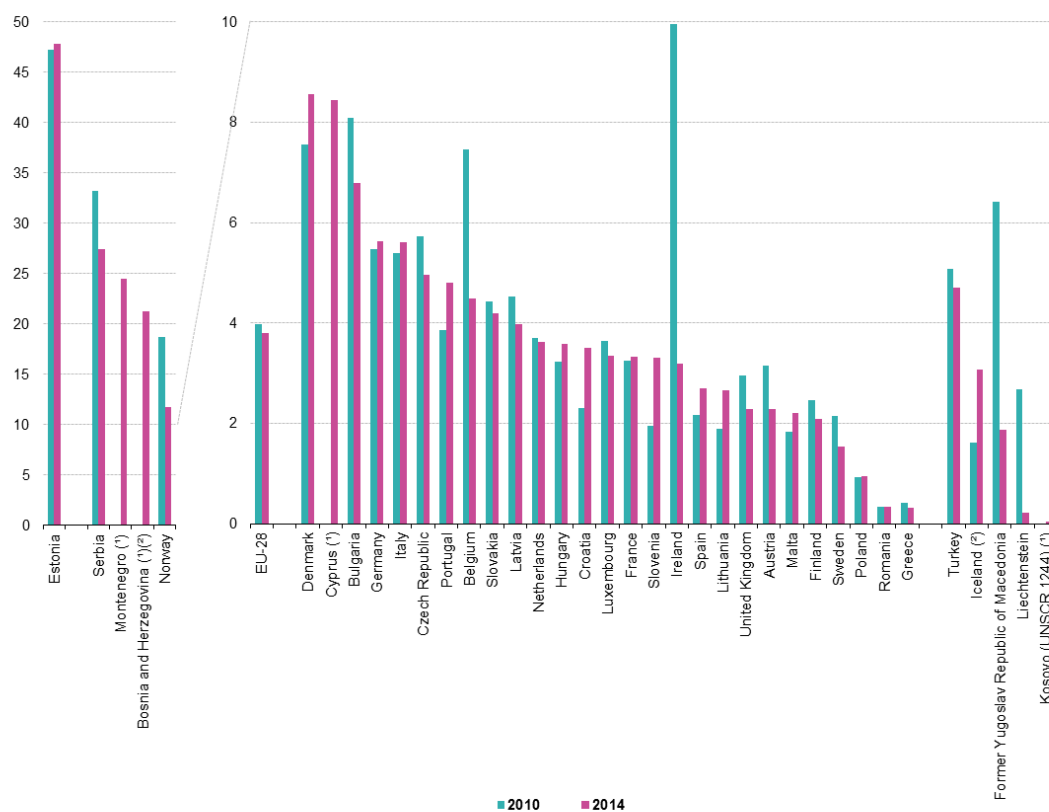
Source: Eurostat (online data code: env_wasgen)

Table 2: Waste generation, excluding major mineral wastes, EU-28, 2004-2014 Source: Eurostat (envwasgen)

Hazardous waste generation

Hazardous waste may pose an elevated risk to human health and to the environment if not managed and disposed of safely. Among the waste generated in the EU-28 in 2014, some 95.0 million tonnes (3.8 % of the total) were classified as hazardous waste.

Compared with 2010, 2.2 % more non-hazardous waste was generated in 2014 in the EU-28 and 2.8 % less hazardous waste, the latter decreasing in quantity terms from 97.8 to 95.0 million tonnes. In 2014, the share of hazardous waste in total waste generation was below 9.0 % in all of the EU Member States except for Estonia, where it made up a 47.7 % share of the total (see Figure 4). The very high share for Estonia was principally due to energy production from oil shale. Among the non-member countries shown in Figure 4, Serbia recorded the highest share of hazardous waste in total waste generation (27.4 %) due to intensive activity in mining and quarrying, and was followed by Montenegro (24.4 %), Bosnia and Herzegovina (21.2 %, 2012 data) and Norway (11.7 %).



Note: the two parts of the figure have different scales for the y-axis.

(*) 2010: not available.

(*) 2012 instead of 2014.

Source: Eurostat (online data code: env_wasgen)

Figure 4: Hazardous waste generated, 2010 and 2014(% share of total waste)Source: Eurostat (envwasgen)

Waste treatment

In 2014, some 2 320 million tonnes of waste were treated in the EU-28 (see Table 3); this includes the treatment of waste imported into the EU and the reported amounts are therefore not directly comparable with those on waste generation.

	Total (million tonnes)	Landfill	Incineration	Energy recovery (%)	Backfilling	Recycling
EU-28	2 319.5	47.4	1.5	4.7	10.2	36.2
Belgium	42.8	8.2	4.3	13.6	0.0	73.9
Bulgaria	175.7	97.9	0.0	0.1	0.0	2.0
Czech Republic	19.9	17.3	0.4	5.1	29.1	48.1
Denmark	17.7	21.7	0.0	20.7	0.0	57.6
Germany	370.7	19.2	2.3	10.5	25.3	42.7
Estonia	20.7	65.6	0.0	2.5	11.9	20.0
Ireland	10.0	42.6	0.1	7.2	37.4	12.7
Greece	67.1	88.4	0.0	0.2	8.1	3.2
Spain	103.4	47.9	0.0	3.4	12.6	36.1
France	299.7	29.3	2.0	4.5	10.7	53.6
Croatia	3.5	51.1	0.0	1.4	2.0	45.5
Italy	129.2	16.0	5.2	1.6	0.2	76.9
Cyprus	1.8	58.9	0.0	1.7	25.9	13.5
Latvia	1.9	34.8	0.0	8.7	0.9	55.5
Lithuania	4.5	67.6	0.1	4.1	2.5	25.8
Luxembourg	8.5	38.3	0.0	2.5	16.0	43.3
Hungary	13.7	39.4	0.7	8.9	3.7	47.3
Malta	1.6	28.9	0.4	0.0	37.5	33.3
Netherlands	130.6	45.4	1.0	7.9	0.0	45.7
Austria	53.9	38.6	0.2	6.5	20.1	34.7
Poland	182.4	24.9	0.4	2.7	21.5	50.5
Portugal	9.9	31.8	10.0	3.1	0.0	55.0
Romania	172.2	94.4	0.0	1.3	0.6	3.7
Slovenia	5.4	9.2	0.6	4.9	33.5	51.8
Slovakia	7.1	53.8	0.8	4.4	0.0	40.9
Finland	93.3	80.9	0.5	4.8	0.0	13.8
Sweden	163.3	84.4	0.1	4.7	1.6	9.3
United Kingdom	209.0	41.5	3.6	0.9	10.4	43.6
Iceland (*)	0.5	30.7	0.0	2.7	0.6	66.0
Norway	11.7	17.9	0.5	35.8	5.3	40.5
Montenegro	1.0	98.8	0.0	0.1	0.0	1.0
Former Yugoslav Republic of Macedonia	1.5	98.7	1.3	0.0	0.0	0.0
Albania	1.2	74.8	3.1	0.5	0.0	21.6
Serbia	49.4	97.3	0.0	0.1	0.0	2.6
Turkey	79.3	70.2	0.0	0.7	:	29.0

(*) 2012.

Source: Eurostat (online data code: env_wastrt)

Table 3: Waste treatment, 2014 Source: Eurostat (env_wastrt)

Nearly half (47.4 %) of the waste treated in the EU-28 in 2014 was disposed of other than through incineration (landfilling). A further 36.2 % of the waste treated in the EU-28 in 2014 was sent to recovery operations other than energy recovery and backfilling (for simplification referred to as recycling). Just over one tenth (10.2 %) of the waste treated in the EU-28 was backfilled, while the remainder was sent for incineration, either with energy recovery (4.7 %) or without (1.5 %). Significant differences could be observed among the EU Member States concerning the use they made of these various treatment methods. For instance, some Member States had very high recycling rates (Italy and Belgium), while others favoured landfill (Bulgaria, Romania, Greece, Sweden and Finland).

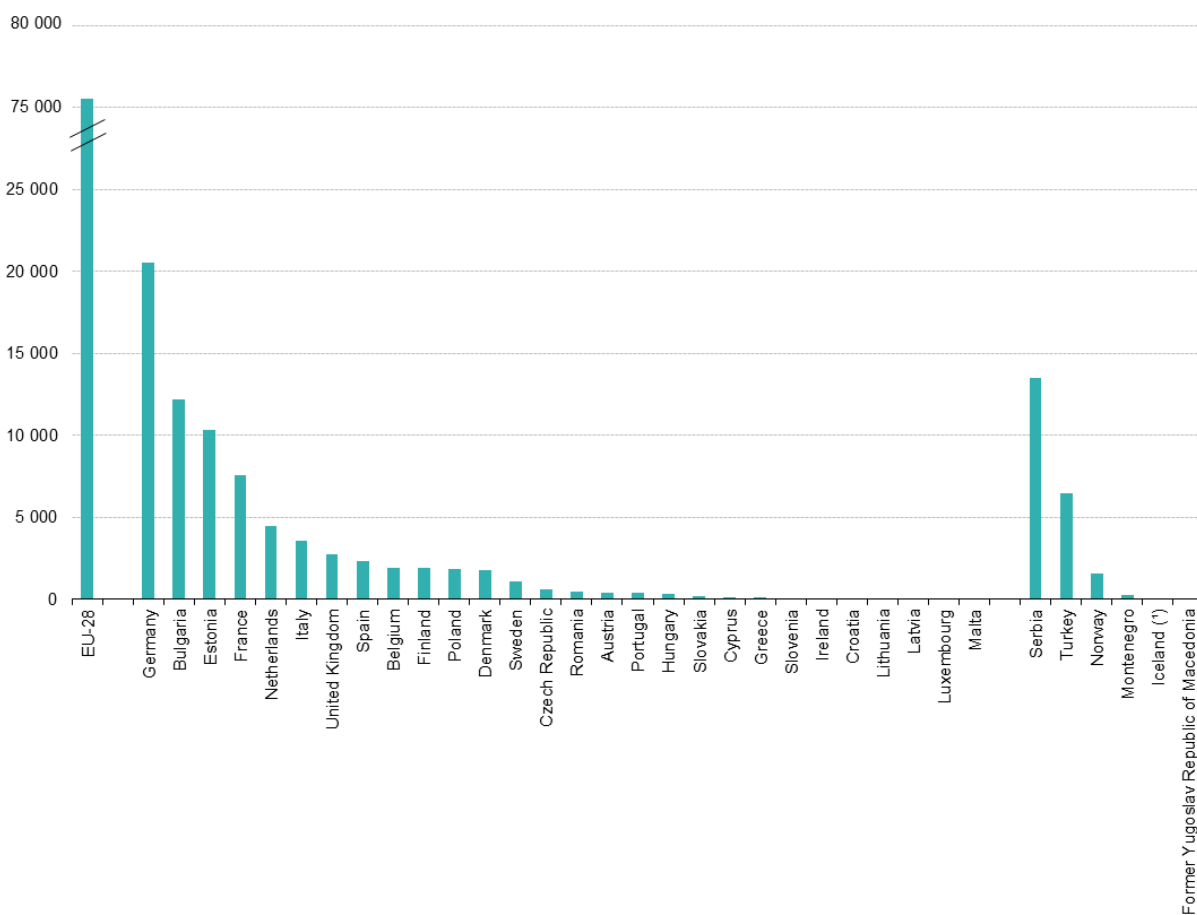
Figure 5 shows the development of waste treatment in the EU-28 for the main treatment categories during the period from 2004 to 2014. The quantity of waste subject to disposal in 2014 was 1.7 % lower than it had been in 2004; its share in total waste treatment fell from 54.6 % to 48.9 %. The quantity of waste **recovered**, in other words incinerated with energy recovery, recycled or used for backfilling (the use of waste in excavated areas for the purpose of slope reclamation or safety or for engineering purposes in landscaping) grew by 23.4 % from 960 million tonnes in 2004 to 1 185 million tonnes in 2014; as a result, the share of such recovery in total waste treatment rose from 45.4 % in 2004 to 51.1 % by 2014.



Source: Eurostat (online data code: env_wastrt)

Figure 5: Development of waste treatment, EU-28, 2004-2014(2004 = 100)Source: Eurostat (envwastrt)

In total, 75.6 million tonnes of hazardous waste were treated in the EU-28 in 2014, with more than half of this treated in just three EU Member States, Germany (27.2 %), Bulgaria (16.1 %) and Estonia (13.6 %)(Figure 6).

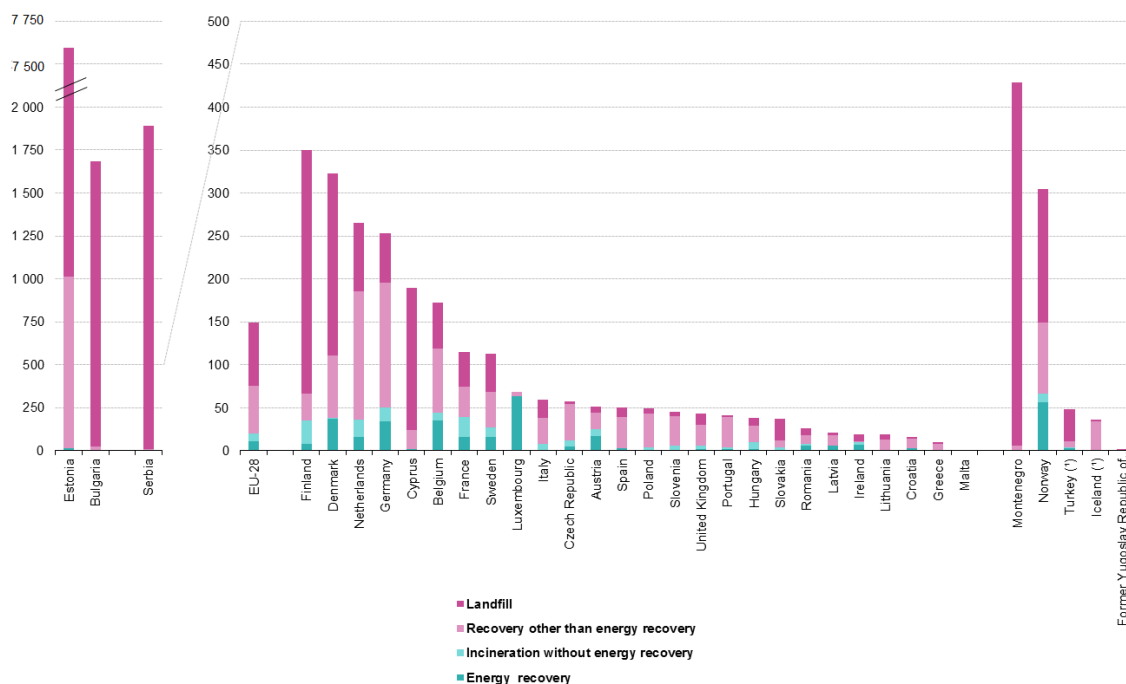


(*) 2012.

Source: Eurostat (online data code: env_wastrt)

Figure 6: Hazardous waste treatment, 2014(thousand tonnes)Source: Eurostat (envwastrt)

Nearly half (49.0 %) of the hazardous waste treated in the EU-28 was landfilled, in other words deposited into or onto land or through land treatment and release into water bodies, equivalent to 73 kg per inhabitant (Figure 7). Some 6.0 % of all hazardous waste was incinerated without energy recovery (9 kg per inhabitant) and a further 7.4 % with energy recovery (11 kg per inhabitant). More than one third (37.5 %) of hazardous waste in the EU-28 was recovered (recycled or used for backfilling) in 2014, equivalent to 56 kg per inhabitant.



Note: the two parts of the figure have different scales for the y-axis.
 (*) 2012
 Source: Eurostat (online data code: env_wastrt)

Figure 7: Hazardous waste treatment, 2014(kg per inhabitant)Source: Eurostat (env_wastrt)

Data sources and availability

In order to monitor the implementation of waste policy, in particular compliance with the principles of recovery and safe disposal, reliable statistics on the production and management of waste from businesses and private households are required. In 2002, [Regulation \(EC\) No 2150/2002](#) on waste statistics was adopted, creating a framework for harmonised Community statistics in this field.

Starting with reference year 2004, the Regulation requires EU Member States to provide data on the generation, recovery and disposal of waste every two years. Data on waste generation and treatment are currently available for even reference years from 2004 to 2014.

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 element in ensuring resource efficiency and the sustainable growth of European economies. For more information see [the Europe 2020 strategy](#).

Accordingly, the revised Waste Framework Directive 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 as the last resort. In line with this hierarchy, the [7th Environment Action Programme](#) sets the following priority objectives for waste policy in the EU:

- reduce the amount of waste generated;
- maximise recycling and re-use;
- limit incineration to non-recyclable materials;

- phase out landfilling to non-recyclable and non-recoverable waste;
- ensure full implementation of the waste policy targets in all EU Member States.

Furthermore, the waste management domain is the second most important contributor to employment growth in the environmental economy as shown by environmental goods and services (EGSS) accounts. For more information see the article [Environmental economy - employment and growth](#) .

See also

- [End-of-life vehicle statistics](#)
- [Environmental economy — employment and growth](#)
- [Municipal waste statistics](#)
- [Packaging waste statistics](#)
- [Recycling — secondary material price indicator](#)
- [Waste shipment statistics](#)
- [Waste statistics — electrical and electronic equipment](#)

Further Eurostat information

Publications

- [Energy, transport and environment indicators — 2016 edition](#)
- [Environmental statistics and accounts in Europe \(2010\)](#)
- [Waste indicators on generation and landfilling measuring sustainable development 2004–2010 — SiF 22/2013](#)

Main tables

- [Waste](#) (tenvwas), see:

Waste generation and treatment (tenvwasgt)

Database

- [Waste](#) (envwas), see:

Waste generation and treatment (envwasgt)

Dedicated Section

- [Waste](#)

Methodology / Metadata

- [Manual on waste statistics](#)
- [Waste generation and treatment](#) (ESMS metadata file — envwasgtesms)

Source data for tables and figures (MS Excel)

- [Waste statistics: tables and figures](#)

Other information

- [Environmental Data Centre on Waste](#)
- [Regulation \(EC\) No 2150/2002](#) of 25 November 2002 on waste statistics
- [Regulation \(EU\) No 849/2010](#) of 27 September 2010 amending Regulation (EC) No 2150/2002 of the European Parliament and of the Council on waste statistics

External links

- [Being wise with waste: the EU's approach to waste management](#)
- [European Commission — DG Environment — Waste in the EU](#)
- [European Environment Agency — Waste and material resources](#)
- [Thematic strategy on the prevention and recycling of waste](#)

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