

*Data extracted in September 2024.
Planned article update: October 2026*

Highlights

" In 2022, 5.0 tonnes of waste were generated per EU inhabitant."

" In 2022, 40.8% of waste were recycled and 30.2% landfilled in the EU."

This article gives an overview on [waste](#) generation and treatment in the [European Union \(EU\)](#) and several non-EU 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](#) .

Total waste generation

In 2022, the total waste generated in the [EU](#) by all economic activities and households amounted to 2 233 million tonnes or 4 991 kg per capita.

Waste generation by economic activities and households, 2022

(% share of total waste)

	Mining and quarrying	Manufacturing	Energy	Waste/water	Construction and demolition	Other economic activities	Households
EU	22.7	10.3	3.0	10.5	38.4	6.1	9.0
Belgium	0.0	12.6	0.2	24.7	41.4	13.4	7.7
Bulgaria	72.4	5.5	10.0	4.4	1.6	3.5	2.6
Czechia	0.3	12.5	1.0	13.5	43.8	17.9	11.0
Denmark	0.1	5.6	4.0	7.7	56.1	10.0	16.6
Germany	1.3	14.4	2.1	13.1	55.1	4.7	9.4
Estonia	11.5	17.2	50.2	3.5	9.0	6.0	2.6
Ireland	8.8	31.3	1.6	13.4	18.5	14.3	12.0
Greece ⁽¹⁾	11.6	14.5	5.8	13.5	33.5	7.8	13.4
Spain	7.0	12.0	0.8	19.6	30.6	9.9	20.0
France	0.1	5.3	0.2	7.3	71.6	5.3	10.0
Croatia	10.0	7.6	1.4	20.1	24.8	18.8	17.3
Italy	0.8	14.9	1.2	21.5	42.5	3.8	15.3
Cyprus	5.4	15.0	0.1	12.5	28.0	26.3	12.7
Latvia	0.1	12.3	1.1	36.3	12.5	9.9	28.0
Lithuania	0.4	19.2	3.8	23.1	9.9	18.7	24.9
Luxembourg	8.2	6.0	0.2	4.5	75.3	3.2	2.6
Hungary	0.2	16.0	18.3	4.0	37.4	6.2	17.9
Malta	1.5	0.9	0.0	6.4	77.7	6.1	7.4
Netherlands	0.1	10.8	0.5	7.7	64.7	9.5	6.8
Austria	0.0	7.9	0.6	3.9	76.6	4.9	6.1
Poland	36.5	14.8	7.9	13.9	12.3	6.6	8.0
Portugal	0.2	15.7	1.1	20.5	19.7	15.6	27.2
Romania	85.2	4.1	3.4	1.8	0.5	2.1	2.8
Slovenia	0.1	12.9	4.3	3.4	6.6	67.0	5.7
Slovakia	1.2	27.0	6.7	9.4	9.8	26.5	19.4
Finland	76.4	9.4	0.9	1.0	9.6	1.2	1.5
Sweden ⁽²⁾	77.3		1.2	5.2	8.3		2.6
Iceland ⁽³⁾	0.0	24.2	0.0	2.0	3.6	31.0	39.2
Liechtenstein	0.0	0.6	0.0	0.3	91.8	0.1	7.3
Norway	1.6	13.9	2.0	8.7	39.3	18.7	15.9
Montenegro	21.0	1.8	26.6	0.7	18.4	11.2	20.2
North Macedonia	26.1	25.8	0.5	11.5	3.4	6.1	26.6
Serbia	93.2	0.6	3.7	0.5	0.4	0.3	1.3
Türkiye	24.1	20.3	25.4	0.3	0.0	5.3	24.6
Albania ⁽⁴⁾	1.0	68.0	0.0	6.2	0.0	24.9	0.0
Bosnia and Herzegovina	0.2	35.6	47.2	0.0	1.6	0.5	15.0
Kosovo ⁽⁵⁾	0.3	10.2	84.6	0.4	2.5	2.0	0.0

(¹) provisional data.

(²) confidential data on waste generated by manufacturing.

(³) 2020 data.

(⁴) 2021 data.

(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.

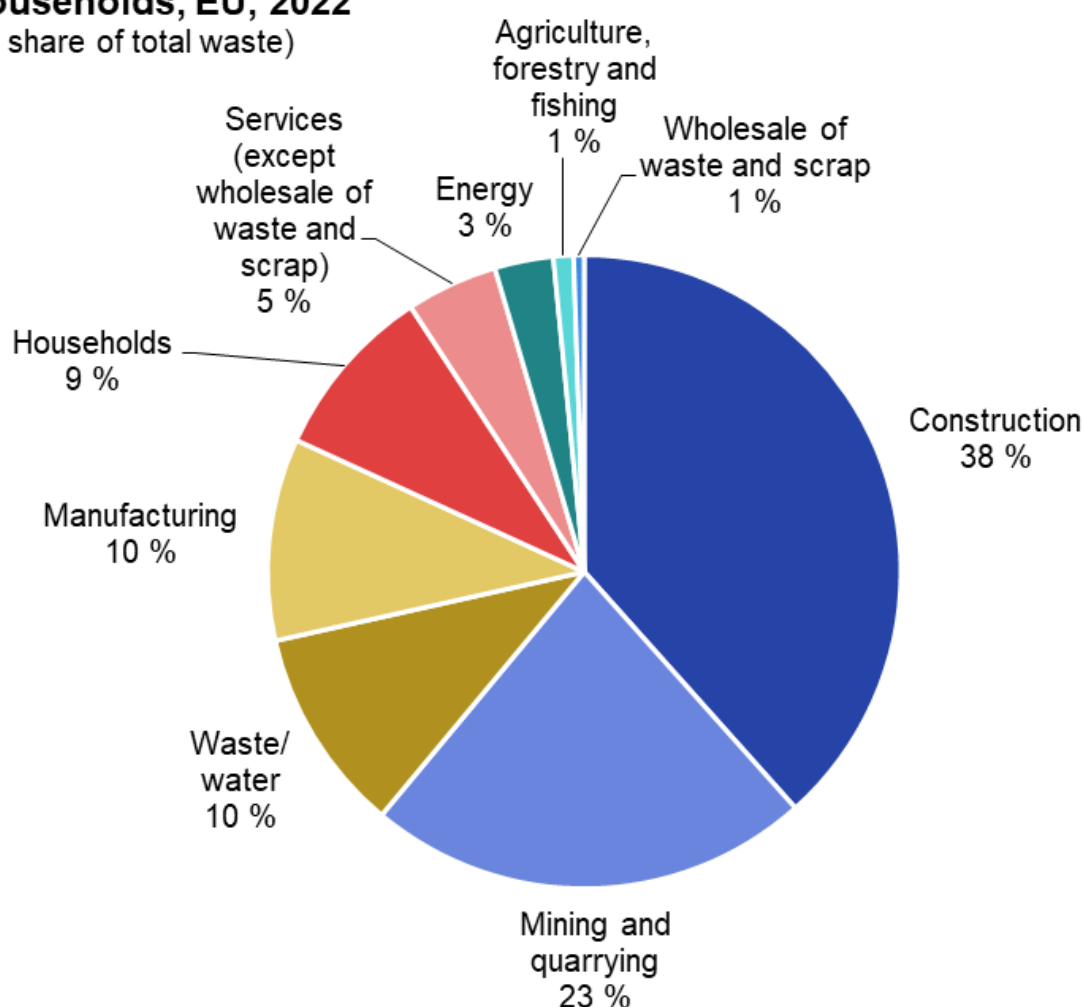
Source: Eurostat (online data code: env_wasgen)

Table 1: Waste generation by economic activities and households, 2022 (% share of total waste) Source: Eurostat (env_wasgen)

The share of different economic activities and of households in total waste generation in 2022 is presented in Figure 1. In the EU, construction contributed 38.4% of the total in 2022 and was followed by mining and quarrying (22.7%), waste and water services (10.5%), manufacturing (10.4%) and households (8.9%); the remaining 9.2% was waste generated from other economic activities, mainly services (5.2%) and energy (3.0%).

Waste generation by economic activities and households, EU, 2022

(% share of total waste)



Source: Eurostat (online data code: env_wasgen)

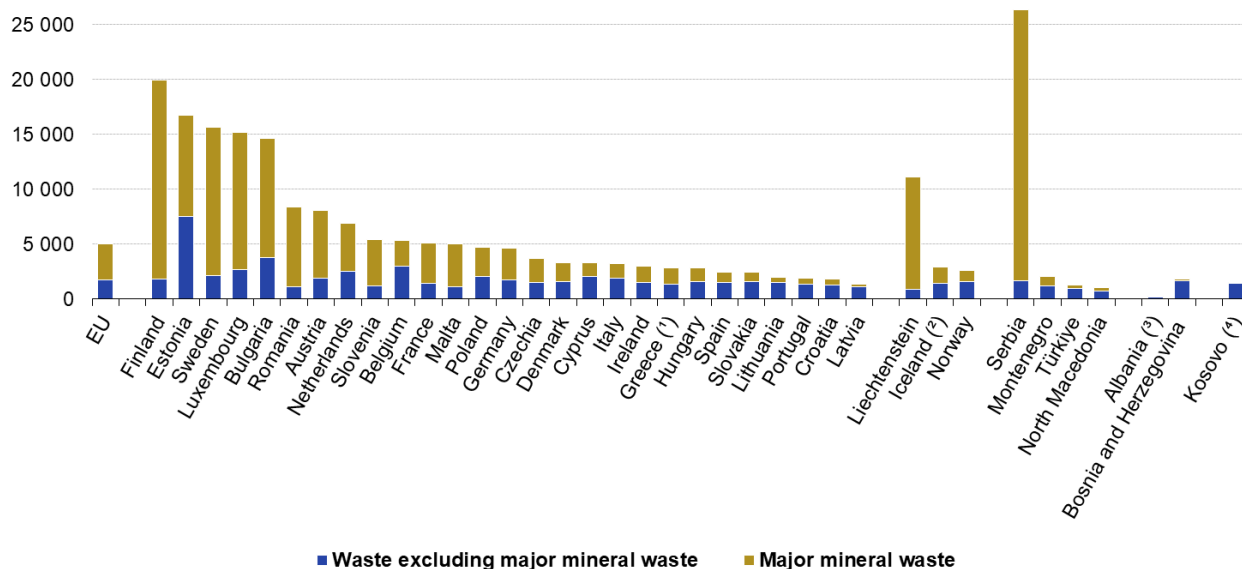
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Figure 1: Waste generation by economic activities and households, EU, 2022 (% share of total waste) Source: Eurostat (env_wasgen)

Figure 2 shows an analysis of the amount of waste generated in a standardised form, in relation to population size. The high levels of total waste generated in some of the smaller EU countries can be clearly seen, with particularly high values recorded for Finland where on average almost 20 tonnes of waste were generated per inhabitant in 2022, 4 times the EU average of 5.0 tonnes per inhabitant. Several of the EU countries 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 to the high shares.

A lot of the waste from mining and quarrying and from construction and demolition is classified as major mineral waste: the analysis presented in Figure 2 distinguishes major mineral waste from all other wastes. Of the total waste generated in the EU in 2022, 64% (3.2 tonnes) per inhabitant was major mineral waste. The relative share of major mineral waste in the total waste generated varied considerably between EU countries, which may reflect, at least to some degree, different economic structures. In general, those EU countries that had higher shares of major mineral waste were those that were characterised as having relatively sizeable mining and quarrying activities, such as Finland, Romania and Sweden, and/or construction and demolition activities, such as Luxembourg; in these countries, major mineral waste accounted for between 82% and 91% of all waste generated.

Waste generation, 2022 (kg per capita)



Note: sorted on total waste generated.

(¹) provisional data.

(²) data 2020.

(³) data 2021.

(⁴) 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_wasgen)

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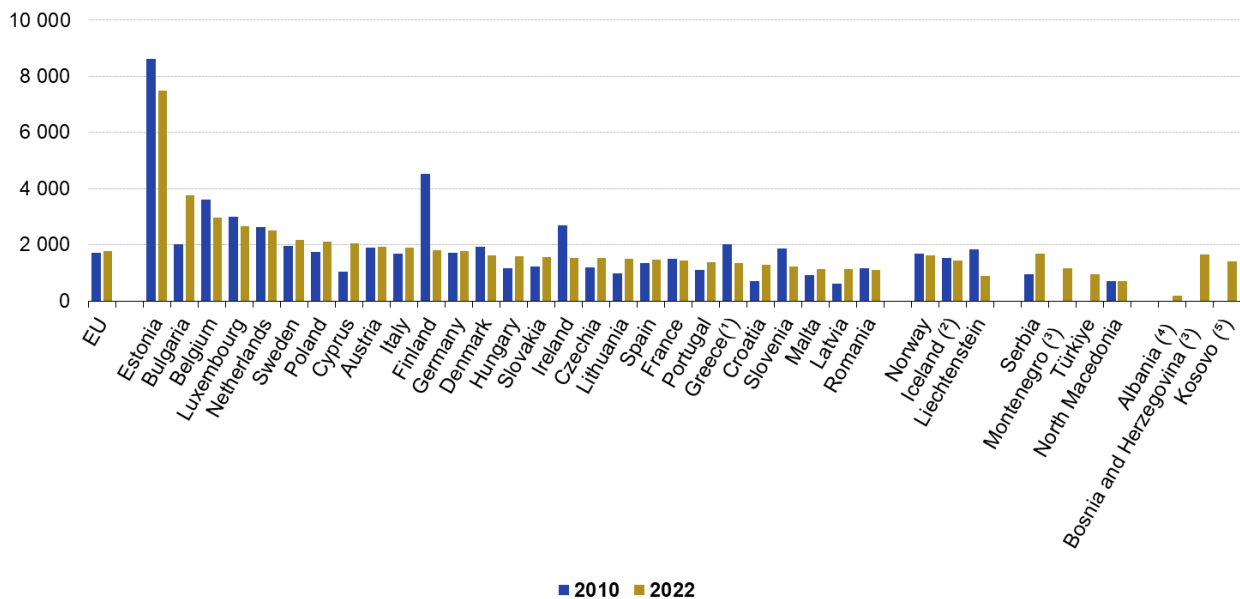
Figure 2: Waste generation, 2022 (kg per capita) Source: Eurostat (env_wasgen)

Waste generation excluding major mineral waste

In the EU, 795 million tonnes of waste excluding major mineral waste were generated in 2022, equivalent to 36% of the total waste generated. When expressed in relation to population size, the EU generated, on average, 1.8 tonnes per inhabitant of waste excluding major mineral waste in 2022 (Figure 3).

Across the EU countries, waste generation excluding major mineral waste ranged from an average of 7.5 tonnes per inhabitant in Estonia to 1.1 tonnes per inhabitant in Romania, Latvia and Malta in 2022. The large quantity of waste generated in Estonia is related to energy production based on oil shale.

Waste generation, excluding major mineral waste, 2010 and 2022 (kg per capita)



(¹) provisional data. (²) data 2020. (³) 2010: not available. (⁴) data 2021.

(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_wasgen)

eurostat

Figure 3: Waste generation, excluding major mineral waste, 2010 and 2022 (kg per capita) Source: Eurostat (env_wasgen)

Table 2 shows the development of EU waste generation excluding major mineral waste analysed by economic activity. In 2022, the highest levels of waste generation were recorded for waste and water services (216 million tonnes), for households (193 million tonnes) and for manufacturing activities (166 million tonnes). Their developments followed different patterns over time: between 2004 and 2022, waste generation (excluding major mineral waste) by waste and water services and by households increased by 187.2% and 10.6 %, respectively, while generation by manufacturing activities diminished quite considerably, down by 30.7%.

Waste generation, excluding major mineral waste, EU, 2004-2022
(million tonnes)

	2004	2006	2008	2010	2012	2014	2016	2018	2020	2022	Change 2022/2004 (%)
Total	779.5	789.9	760.5	758.7	758.3	769.0	784.6	812.9	776.3	794.9	2.0
Agriculture, forestry and fishi	62.3	56.7	45.5	20.2	20.4	17.7	19.7	19.4	20.7	22.3	-64.3
Mining and quarrying	10.4	7.1	10.0	7.9	7.5	7.7	6.9	8.1	7.5	8.0	-23.0
Manufacturing	239.9	225.8	216.8	190.5	176.4	176.0	179.0	179.8	166.6	166.3	-30.7
Energy	85.4	93.3	84.1	78.6	88.8	87.4	74.7	75.7	45.7	59.0	-31.0
Waste/water	75.2	83.3	98.9	129.9	155.0	180.7	196.8	208.5	212.4	216.1	187.2
Construction	34.4	33.4	34.8	42.1	39.8	38.6	37.8	41.3	38.7	39.8	15.6
Other sectors	97.7	111.2	88.7	103.5	89.6	85.1	88.5	94.0	89.0	90.9	-7.0
Households	174.1	179.2	181.6	186.0	180.7	175.9	181.2	186.1	195.7	192.6	10.6

Source: Eurostat (online data code: env_wasgen)

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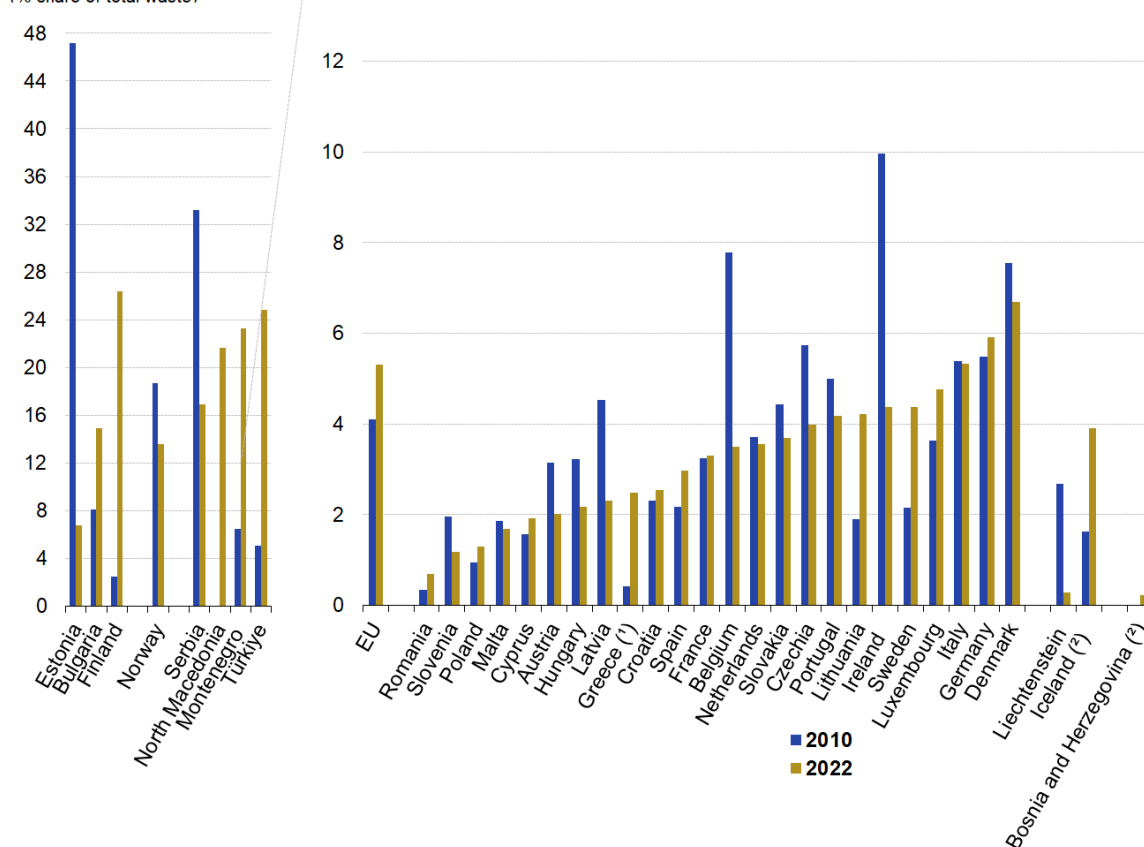
Table 2: Waste generation, excluding major mineral waste, EU, 2004-2022 (million tonnes) Source: Eurostat (env_wasgen)

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 in 2022, 119.0 million tonnes (5.3% of the total) were classified as hazardous waste.

Compared with 2010, 31.1% more hazardous waste was generated in 2022 in the EU. This is an increase in quantity terms from 90.8 to 119.0 million tonnes. A substantial increase was observed between 2020 and 2022 (25%), largely attributed to an almost eightfold rise in the volume of hazardous waste in Finland during this period. In 2022, the share of hazardous waste in total waste generation was between 0.7% in Romania and 24.6% in Finland. Among the non-EU countries shown in Figure 4, Türkiye recorded the highest share of hazardous waste in total waste generation (24.8%) and was followed by Montenegro (23.3%), North Macedonia (21.6%), Serbia (16.9%) and Norway (13.5%).

Hazardous waste generated, 2010 and 2022
(% share of total waste)



Note: sorted on 2022 data. The two parts of the figure have different scales for the y-axis

(*) provisional data (**) 2020 data (*) 2010: not available.

Source: Eurostat (online data code: env_wasgen)

eurostat

Figure 4: Hazardous waste generated, 2010 and 2022 (% share of total waste) Source: Eurostat (env_wasgen)

Waste treatment

In 2022, some 1 992 million tonnes of waste were treated in the EU. This does not include exported waste but includes the treatment of waste imported into the EU. The reported amounts are therefore not directly comparable with those on waste generation.

Figure 5 shows the development of total waste treatment in the EU, as well as for the two main treatment categories – recovery and disposal – during the period 2004-2022. The quantity of waste **recovered**, in other words recycled, used for backfilling (the use of waste in excavated areas for the purpose of slope reclamation or safety or for engineering purposes in landscaping) or incinerated with energy recovery, increased by 40.6% from 870 million tonnes in 2004 to 1 223 million tonnes in 2022; as a result, the share of such recovery in total waste treatment rose from 45.9% in 2004 to 61.4% in 2022. The quantity of waste subject to disposal decreased from 1 027 million tonnes in 2004 to 769 million tonnes in 2022, which was a decrease of 25.1%. The share of disposal in total waste treatment decreased from 54.1% in 2004 to 38.6% in 2022.

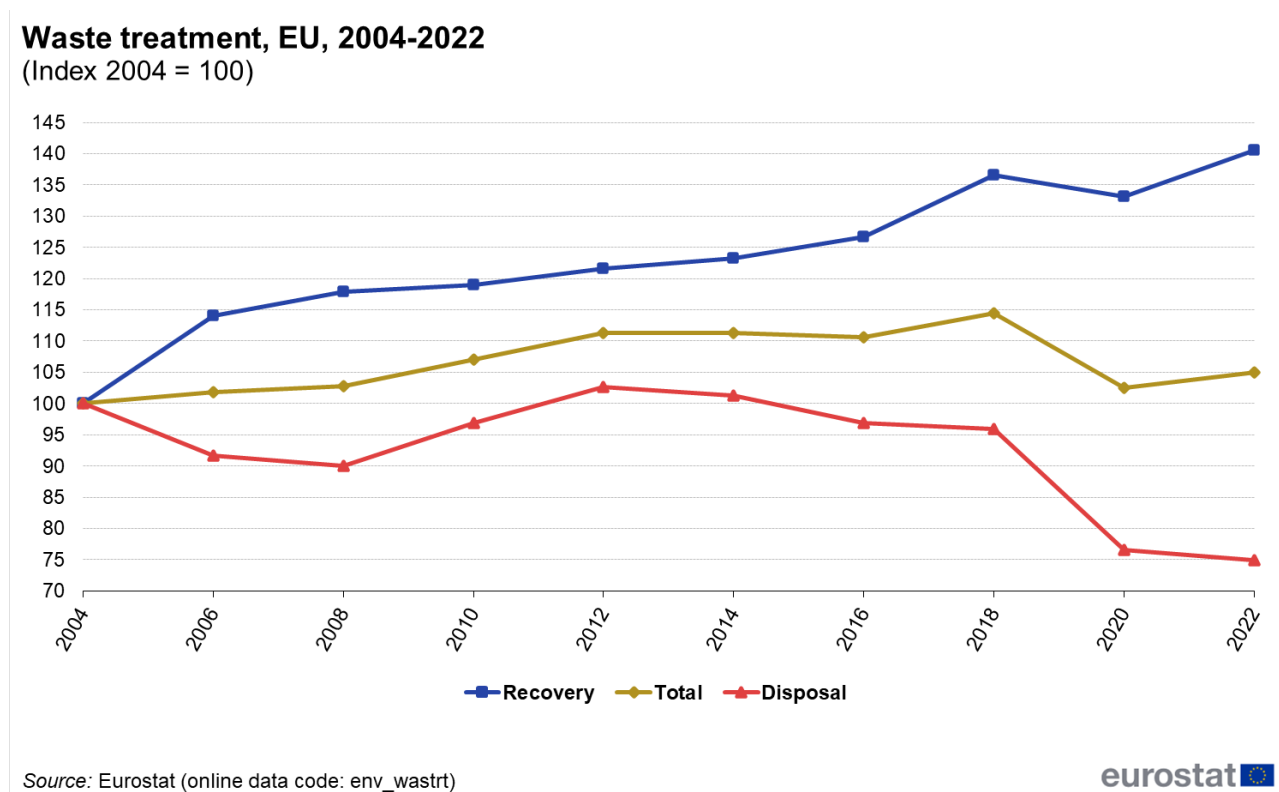
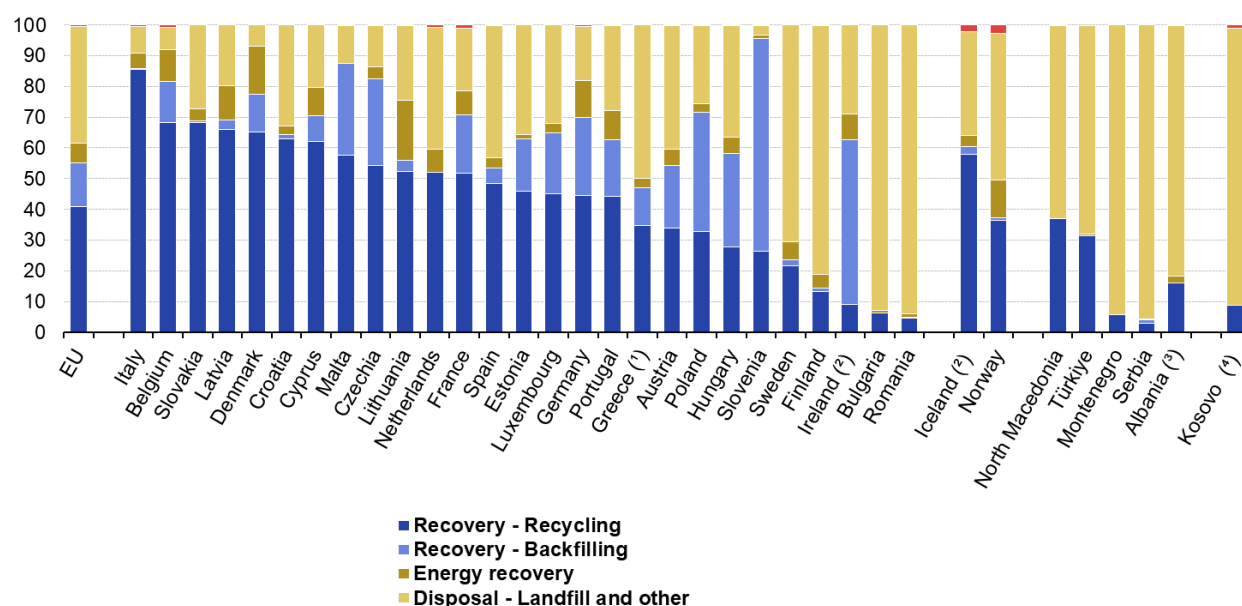


Figure 5: Waste treatment, EU, 2004-2022 (Index 2004 = 100) Source: Eurostat (env_waslrt)

As stated above, in the EU in 2022, more than a half (61.4%) of the waste was treated in recovery operations: recycling (40.8% of the total treated waste), backfilling (14.2%) or energy recovery (6.4%). The remaining 38.6% was either landfilled (30.2%), incinerated without energy recovery (0.4%) or disposed of otherwise (8.0%). Significant differences could be observed among the EU countries regarding the use they made of these various treatment methods. For instance, some countries had very high recycling rates (Italy, Belgium, Slovakia and Latvia), in others landfill is the prevailing treatment category (Romania, Bulgaria, Finland, see Figure 6).

Waste treatment by type of recovery and disposal, 2022

(% of total treatment)



(¹) provisional data. (²) 2020 value. (³) data 2021.

(⁴) 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_wasstr)

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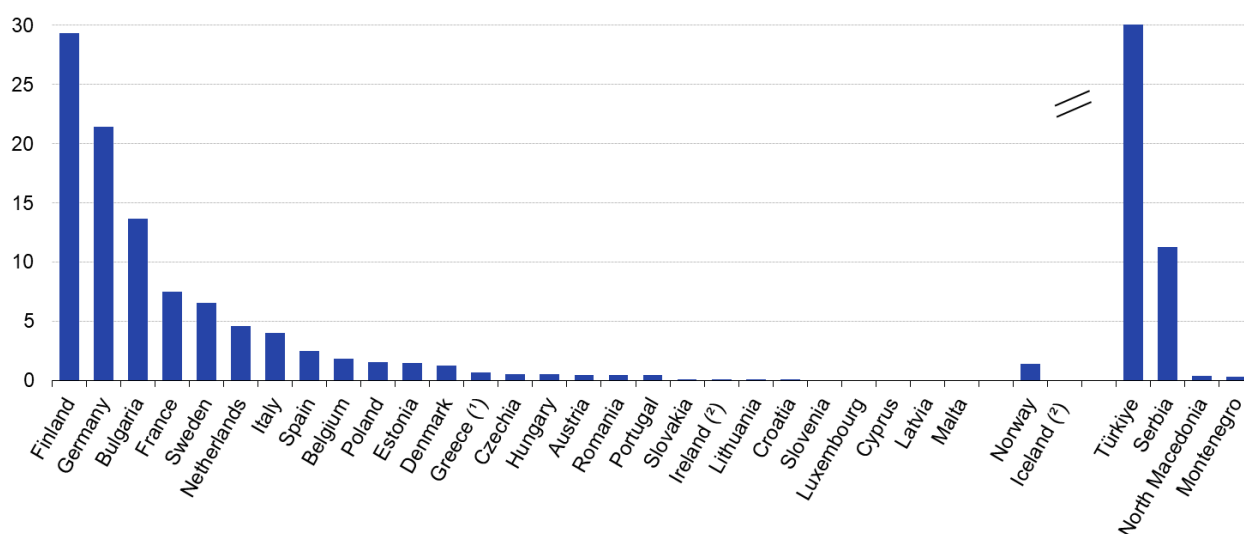
Figure 6: Waste treatment by type of recovery and disposal, 2022 (% of total treatment) Source: Eurostat (env_wasstr)

Hazardous waste treatment

In total, 99.6 million tonnes of hazardous waste were treated in the EU in 2022, with more than 70% of this treated in just four EU countries, Finland (29.3 million tonnes or 29.5% of EU total), Germany (21.4 million tonnes or 21.5%), Bulgaria (13.7 million tonnes or 13.7%), and France (7.5 million tonnes or 7.5%) see Figure 7.

Hazardous waste treatment, 2022

(million tonnes)



eurostat 

Figure 7: Hazardous waste treatment, 2022 (million tonnes) Source: Eurostat (env_wastrt)

In 2022, 36.4% of the hazardous waste treated in the EU was recovered: 30.0% by recycling or backfilling (67 kg per inhabitant) and 6.4% by energy recovery (14 kg per inhabitant, see Figure 8). The remaining 63.6% were incinerated without energy recovery (4.1% or 9 kg per inhabitant), landfilled, in other words deposited into or onto land or through land treatment (41% or 91 kg per inhabitant) or disposed of by other way (18.5% or 41 kg per inhabitant).

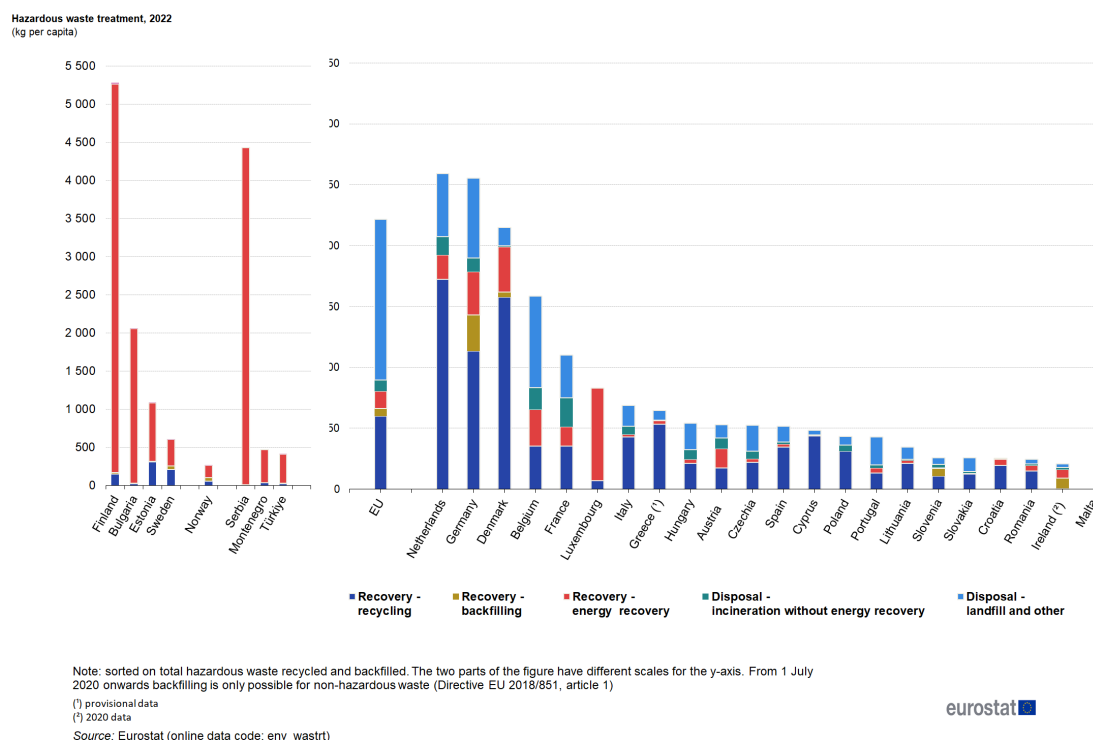


Figure 8: Hazardous waste treatment, 2022 (kg per capita) Source: Eurostat (env_wastrt)

Source data for tables and graphs

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

Data sources

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 2 years. Data on waste generation and treatment are currently available for even reference years from 2004 to 2022.

Context

EU waste management policies aim to reduce the environmental and health impacts of waste and improve Europe's resource efficiency by extracting high-quality resources from waste as much as possible. The European Green Deal aims to promote growth by transitioning to a modern, resource-efficient and competitive economy. For more information see: [Waste and recycling](#).

The Waste Framework Directive ([Directive 98/2008/EC](#) article 4) 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:

- 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.

Explore further

Other articles

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

Database

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

Waste generation and treatment (env_wasgt)

Dedicated section

- [Waste](#)

Publications

- [Energy, transport and environment statistics](#) — 2022 edition
- [Environmental statistics and accounts in Europe](#) (2010)

Main tables

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

Waste generation and treatment (t_env_wasgt)

Methodology

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

External links

- [European Commission — DG Environment — Waste in the EU](#)
- [European Environment Agency — Waste and material resources](#)
- [Thematic strategy on the prevention and recycling of waste](#)

Legislation

- [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