



# 8th Environment Action Programme

Waste generation in Europe

---



# Waste generation in Europe

Published 28 Jun 2023

[Home](#) > [Analysis and data](#) > [Indicators](#) > Waste generation in Europe

Between 2010 and 2020, total per capita waste generation decreased by 4.2% in the EU. The EU aims to significantly decrease its total waste generation by 2030 and the observed decrease could indicate some progress towards this. However, the decrease is recent (2018-2020) and coincides with the slow-down of the EU economy due to the COVID-19 pandemic. Waste generation has followed trends in economic growth relatively closely. It therefore does not seem likely that waste generation will significantly decrease by 2030 in context of the current return to economic growth. Substantial additional effort would be required to sustain the decrease in waste generation.

## Figure 1. Waste generation and decoupling per capita in the EU-27

Index (2010=100)



Source: Eurostat.



The EU has long strived to fulfil its policy objective to reduce waste through preventing waste generation, which is the first step in the waste hierarchy as laid down in the EU [Waste Framework Directive](#)<sup>[1]</sup>. The zero pollution ambition of the EU is to significantly reduce total waste by 2030<sup>[2]</sup>.

Between 2010 and 2020, total waste generation per capita decreased by 4.2% (or from 5.0 to 4.8 tonnes/capita) in the EU-27. This decrease occurred because of a decrease in 2018-2020, when the COVID-19 pandemic and the ensuing economic slow-down played a key role.

Major mineral wastes, such as hard rocks, concrete, soils and others (all of which are mainly produced in the mining and construction sectors) feature in large quantities in relation to other waste types. They also usually represent an environmental issue of relatively less concern because of their inert nature. If we exclude them from the totals, the remaining and more environmentally significant waste streams still increased by 1.4% (or an increase of 25 kg/capita).

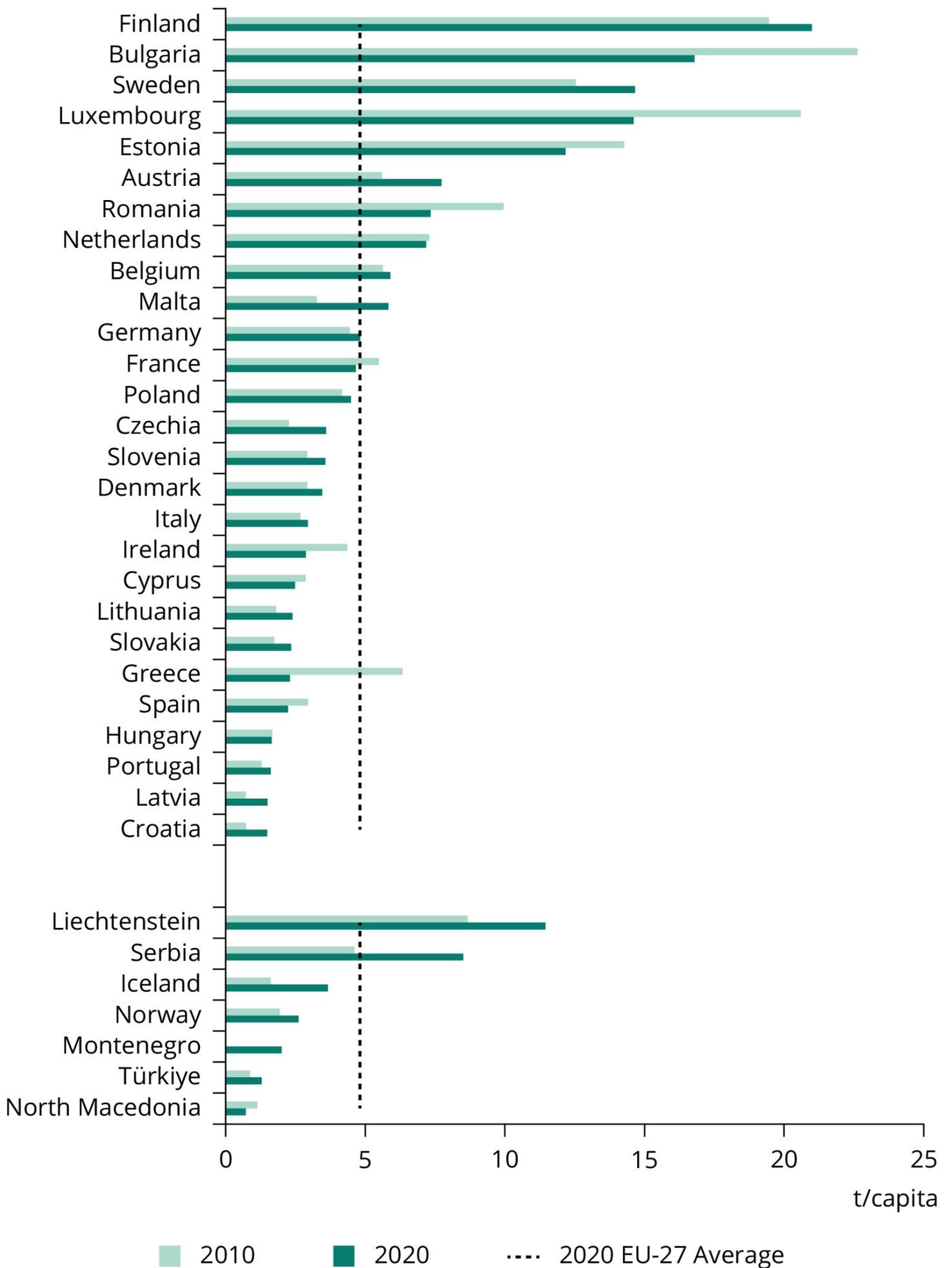
For total waste generation, the observed decrease is driven by waste generated in the mining and quarrying, and construction sectors, which is logical as major mineral waste constitutes a large part of total waste generation (64% in 2020). If this type of waste is excluded, the trend in waste generation is driven by decreasing waste generation in the manufacturing and the energy sectors, and increases in waste generated by households and by water and waste treatment activities. The latter indicates improvements in waste management as the increased presence of secondary waste<sup>[3]</sup> from waste management indicates increases in recycling.

The main driver for the trend in waste volumes is considered to be economic growth, with gross domestic product (GDP) the most common parameter used to track the economy's size. For the period 2010-2020, the EU's per capita GDP increased in real (deflated) terms by 6% and, although waste generation decreased in the same period, it followed relatively closely trends in GDP development, albeit at a slower pace, indicating a relative decoupling.

In 2020, the EU economy contracted due to measures to contain the COVID-19 pandemic and waste generation registered a substantial decrease of 8% compared with 2018. Therefore, although for the entire period 2010-2020, waste decreased while the economy grew, the EU has not yet achieved absolute decoupling (i.e., constantly decreasing waste generation in a growing economy).

It seems unlikely that the per capita total waste generation will significantly decrease by 2030. The only observed decrease in waste generation is very recent (2018-2020) and has coincided with negative GDP growth rates. In addition, waste generation has historically followed relatively closely GDP growth and since 2020 the GDP growth rates have been positive and the European Central Bank [projects](#) this to remain as such in the coming years. Substantial additional effort would be required to significantly decrease the per capita waste generation by 2030.

## **Figure 2. Generation of waste, excluding major mineral waste, per capita and by European country (2010 and 2020)**



Source: Eurostat.



On average, 4.8 tonnes of total waste were generated per EU citizen in 2020, down from 5.0 tonnes/capita in 2010. This average masks large country differences both in absolute waste volumes per capita and in waste generation trends.

Amounts generated ranged from less than 1.5 tonnes per capita (Portugal) to 21 tonnes per capita in 2020 (Finland) for EU Member States, and from less than 1 tonne (North Macedonia) to 11.5 tonnes (Liechtenstein) for other European countries. Different levels partly reflect the different structures of countries' economies, and extreme numbers and significant differences can be influenced by specific country situations. In general, 11 of the 27 EU Member States (14 of the 34 countries with available data) for 2020 were above the EU average.

Trends over time also show a mixed picture between countries: The total waste generated per capita increased in 16 Member States (21 of the 34 countries with available data) and decreased in the rest. In the EU, the largest relative decrease was observed in Greece and the largest relative increase in Latvia (the highest increase overall was in Iceland). In some cases, the trends are influenced by improvements in data quality over time.

## ▼ Supporting information

---

### Definition

This indicator consists of two figures about waste generation. Figure 1 shows indexed values of waste generation, waste generation excluding major mineral waste and GDP with 2010 taken as a reference year (2010=100%). GDP was chosen as a basic indicator of economic growth. Figure 2 shows total waste generation per capita by European country. Data presented in the form of a bar chart are displayed as a comparison of the reference year (2010) and the last available year.

### Methodology

#### Methodology for indicator calculation

Figure 1: Raw data for waste generation (total and excluding major mineral wastes) and GDP were retrieved from Eurostat. Eurostat aggregates for the EU-27 were used. Data on waste generation contain all NACE activities and households. Frequency of data publishing varies from every 2 years (for waste generation) to every year (for GDP). The aggregated figures are indexed to 2010, which means that the figure for each year is divided by the figure for 2010 and then multiplied by 100. Information on data sets uncertainties can be found directly in the metadata and explanatory notes provided by Eurostat. Only official datasets by Eurostat have been used.

Figure 2: Data for waste generation were retrieved from Eurostat. Data are displayed for country level, contain all NACE activities and households, and are expressed in kg per capita. To provide the broadest possible picture of European countries, geographical coverage was extended to the EEA-32 member countries and West Balkan cooperating countries. Frequency of data publishing is every 2 years. Gap filling was applied for three countries where 2018 data were used to fill the

2020 data gap. Information on data sets uncertainties can be found directly in the metadata and explanatory notes provided by Eurostat. Only official datasets by Eurostat have been used.

## **Policy/environmental relevance**

One of the symbols of the linear economy system, which predominated in recent decades, is the high consumption of resources followed by high waste generation ('take-make-dispose'). This economic model is based on increasing profits generated by the consumption of primary resources and increasing demand for short-cycle products. In 2015, 2018 and 2020, the European Commission adopted Circular Economy packages to make the transition to a circular economic model where resources are used in a more sustainable way. The waste hierarchy serves to set priorities for EU and national waste policies and gives the highest priority to waste prevention, followed by preparing for reuse, recycling, and other methods of recovery and disposal. These priorities are highlighted by recent waste and resource efficiency policies and strategies at EU and national levels.

This indicator is a headline indicator for monitoring progress towards the 8<sup>th</sup> Environment Action Programme (8<sup>th</sup> EAP) <sup>[4][5]</sup>. It contributes mainly to monitoring aspects of the 8<sup>th</sup> EAP priority objective Article 2.2.c that shall be met by 2030: 'advancing towards a well-being economy that gives back to the planet more than it takes and accelerating the transition to a non-toxic circular economy, where growth is regenerative, resources are used efficiently and sustainably, and the waste hierarchy is applied'. For the purposes of 8<sup>th</sup> EAP monitoring, this indicator assesses specifically whether the EU will significantly reduce the per capita total amount of generated waste by 2030<sup>[6]</sup>.

The zero pollution ambition of the EU calls for a significant reduction in EU waste generation by 2030 and this indicator also monitors progress towards this EU policy objective.

## **Accuracy and uncertainties**

### **Methodology uncertainty**

No uncertainty has been specified.

### **Data sets uncertainty**

### **Rationale uncertainty**

No uncertainty has been specified.

## **Data sources and providers**

- [Generation of waste by waste category, hazardousness and NACE Rev. 2 activity \(env\\_wasgen\)](#), Statistical Office of the European Union (Eurostat)
- [GDP and main components \(output, expenditure and income\)](#), Statistical Office of the European Union (Eurostat)

## ▼ Metadata

---

### DPSIR

Pressure

### Topics

# Waste and recycling # Resource use and materials # Circular economy

### Tags

# WST004 # Waste generation # Industrial waste generation # 8th EAP

### Temporal coverage

2010-2020

### Geographic coverage

Albania	Austria
Belgium	Bosnia and Herzegovina
Bulgaria	Croatia
Cyprus	Czechia
Denmark	Estonia
Finland	France
Germany	Greece
Hungary	Iceland
Ireland	Italy
Latvia	Liechtenstein
Lithuania	Luxembourg
Malta	Montenegro
Netherlands	North Macedonia
Norway	Poland
Portugal	Romania
Serbia	Slovakia
Slovenia	Spain
Sweden	Switzerland
Turkey	

### Typology

Descriptive indicator (Type A - What is happening to the environment and to humans?)

### UN SDGs

Responsible consumption and production

### Unit of measure

· Figure 1: Index (2010=100)

· Figure 2: t/capita

### Frequency of dissemination

Every 2 years

### Contact

[info@eea.europa.eu](mailto:info@eea.europa.eu)

## References and footnotes

---

1. EU, 2018, Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste, OJ L 150, 14.6.2018, p. 109-140.  
[↵](#)
2. EC, 2021, 'Zero pollution action plan', ([https://environment.ec.europa.eu/strategy/zero-pollution-action-plan\\_en](https://environment.ec.europa.eu/strategy/zero-pollution-action-plan_en)) accessed November 10, 2022.  
[↵](#)
3. This waste is generated during the treatment of waste and comprises, for example, sorting residues, sludges and incineration ashes. More complex waste management such as recycling and incineration usually results in more secondary waste.  
[↵](#)
4. EC, 2022, COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS on the monitoring framework for the 8th Environment Action Programme: Measuring progress towards the attainment of the Programme's 2030 and 2050 priority objectives  
[↵](#)
5. EU, 2022, Decision (EU) 2022/591 of the European Parliament and of the Council of 6 April 2022 on a General Union Environment Action Programme to 2030  
[↵](#)
6. EC, 2021, COMMISSION STAFF WORKING DOCUMENT Digital Solutions for Zero Pollution Accompanying the document Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Pathway to a Healthy Planet for All EU Action Plan: 'Towards Zero Pollution for Air, Water and Soil'  
[↵](#)