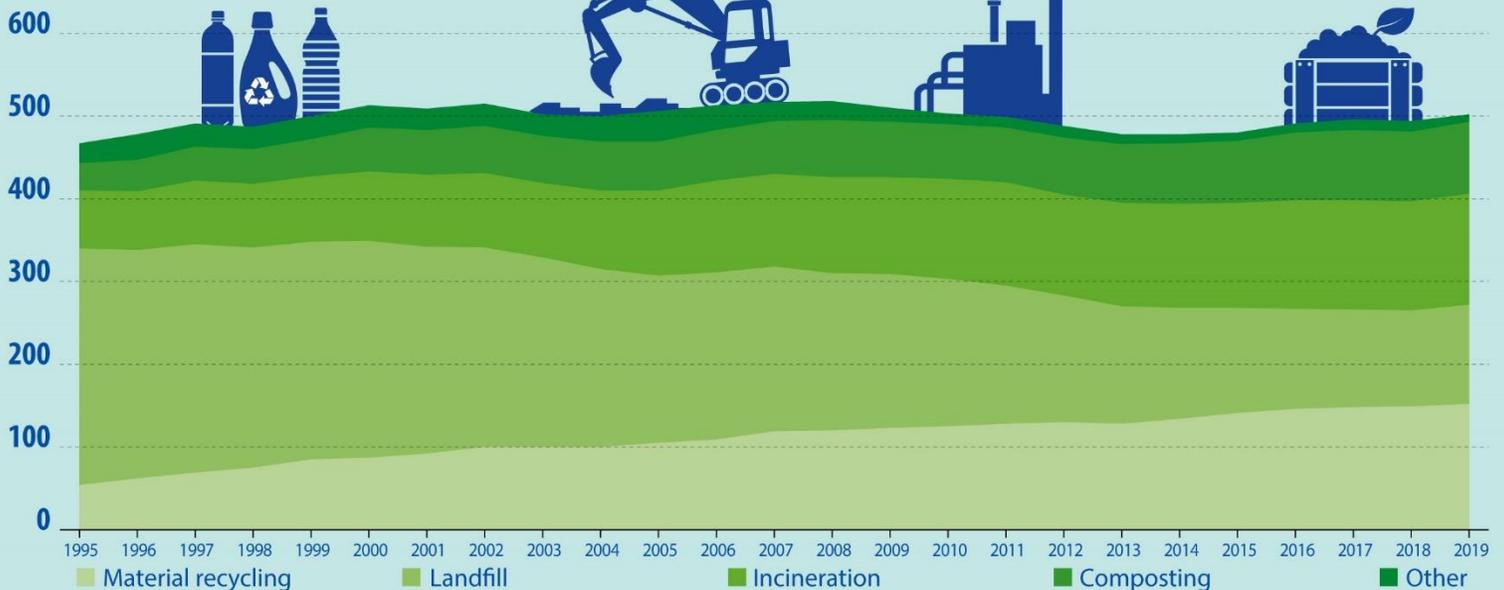


Municipal waste treatment in the EU, 1995-2019

(kg per person)



Eurostat provides statistics on waste generated in the EU. Since 1995, more waste is being generated and the amount of municipal waste incinerated in the EU has doubled. The total amount of municipal waste landfilled in the EU has more than halved.

Waste Management in the EU: The Deceptively Easy Solutions

Key Points

- The waste management policies in the EU encourages innovation in separate garbage collection, recycling, reuse, and limits landfilling.
- The EU adopted different waste management policies for better waste management, including a circular economy approach, waste to energy initiative, and smart waste directive.
- Nevertheless, the EU is still faced with a big waste management issue, as the waste generated per capita versus recycled waste is still very high.
- Encouraging the development of markets for recycled products and introducing economic instruments as incentives would promote municipal waste separation and recycling.
- Imposing stricter sanctions especially for construction material manufacturers and construction companies, and initiating directives targeting factories and manufacturers to use recycled or recyclable materials and packaging will be essential.

Introduction

Waste is defined “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”, as per the Directive 2008/98/EC Article 3(1).

Waste has a great impact on the environment as well as the well-being of people. The EU faces significant challenges in ensuring proper compliance across the entire scope of its legislative activity, but waste poses threats to the health and well-being of Europeans.

Nevertheless, the waste generated in the EU per capita is still high and it did not decrease significantly in the last few years, despite the waste management policies. It is estimated that the average European citizen generates around 5 tons of waste per year. However, only a small portion of the total waste generated in the EU is recycled.

EU Waste in Numbers

It is estimated that around 2,337 million tons are the total waste generated in the EU in 2018 through different economic activities and households. Figure 1 shows the share of each of these activities, where construction constitutes most of the waste (35.9%). Following that, mining and quarrying (26.6 %) and manufacturing (10.6 %) come second, whereas household accounts for 8.2 %, in addition to other activities.

Moreover, approximately 74 % (5.2 tons per inhabitant) of the total waste generated in the EU are major mineral waste. These wastes are mainly from mining and quarrying, and from construction and demolition.

Therefore, looking at the waste generated, excluding major mineral waste, to get a prospective on other types of wastes generated, 812 million tons of waste was generated in 2018. Looking at the trend of waste

generation in the EU in the figure shown, many of the countries’ waste generation is still the same, if not higher, such as Belgium and Ireland. Also, it is worth noting that between 2004 and 2018, waste generation (excluding major mineral waste) by waste and water services and by households increased by 175.9 % and 6.7 %, respectively.

Figure 1 - Types of Waste Generated in the EU

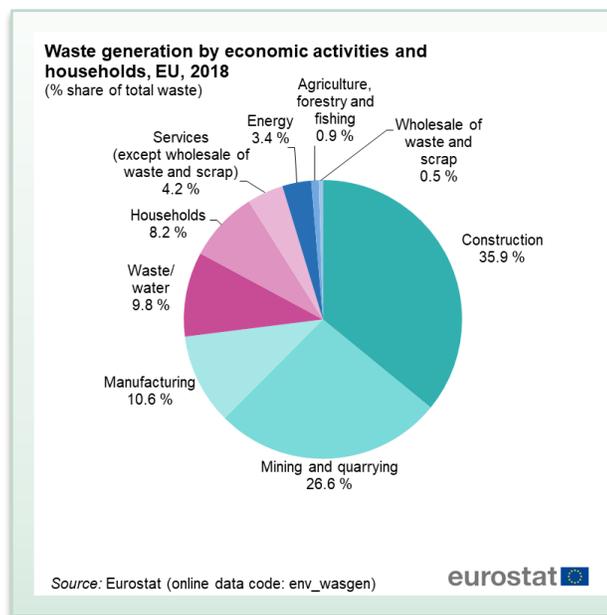
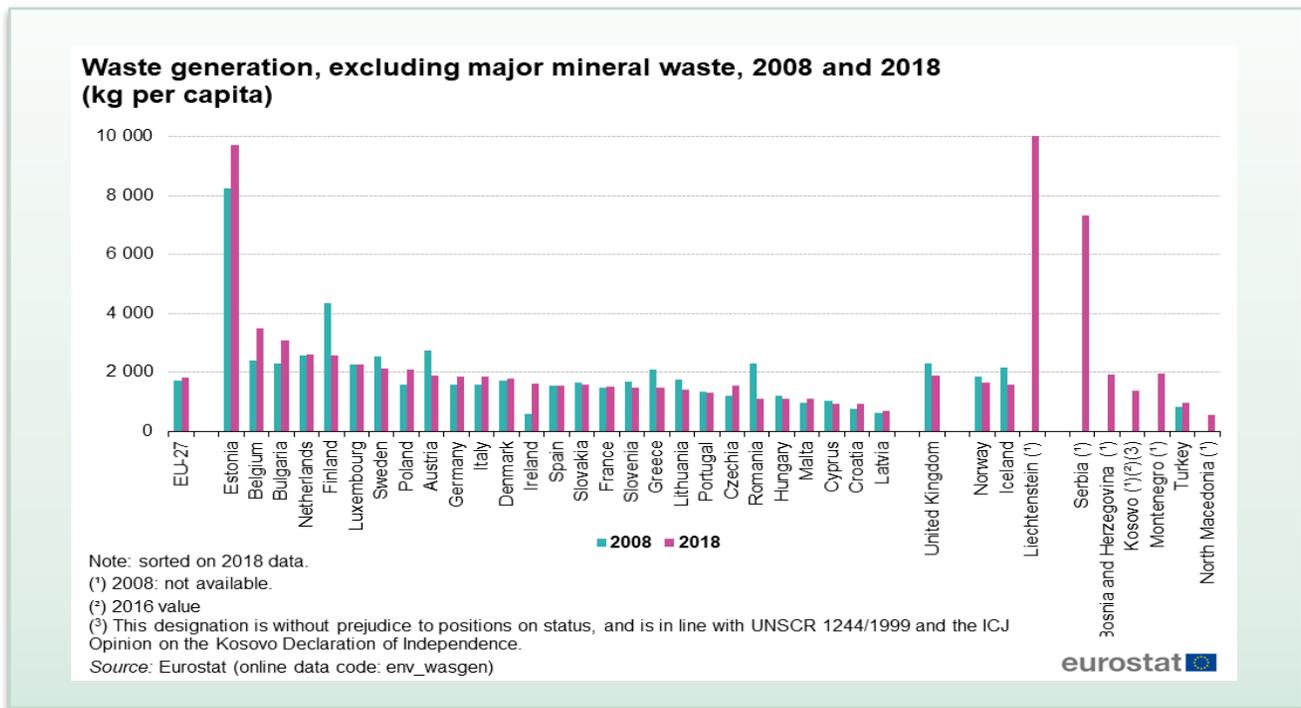


Figure 1 - Waste Generation in 2008 vs. 2018 in the EU



Waste Management and Prevention – Current Policies

To improve its resource efficiency and achieve a greener circular economy, the EU aims to prevent products and materials from becoming waste as long as possible. If that is inevitable, then it would aim to turn the waste into a resource or energy. The outcomes will be the creation of sustainable growth and jobs, reduction of greenhouse gas (GHG) emissions, and reducing the need to import raw materials and the pressure on natural resources. It will also contribute to achieving the EU’s 2050 climate neutrality target and stop biodiversity loss.

Circular Economy through Prevention and the 3 Rs

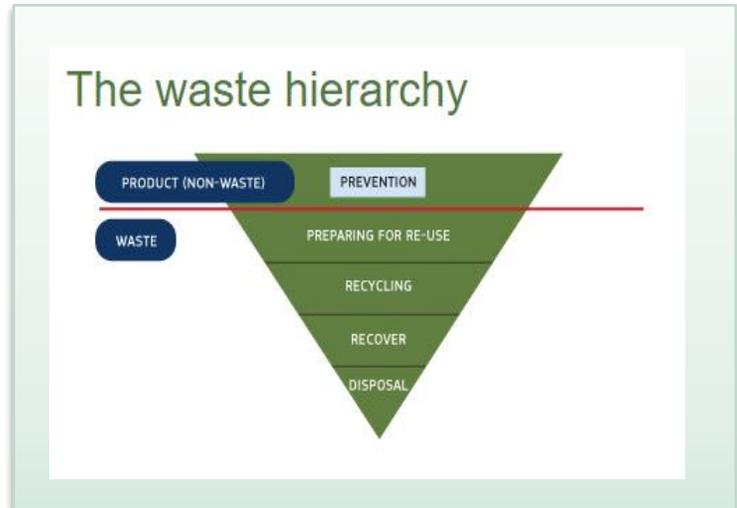
The EU Waste Framework Directive is set to protect the environment and human health by preventing and reducing the negative impacts caused by the waste generation and to improve resource efficiency. The approach defines a 'hierarchy' to be followed by EU Member States in waste management. Starting with waste prevention followed by re-use, to be the most preferred options, then recycling (including composting), and energy recovery. Waste disposal into landfills would be the very last resort.

The directive also targets increasing the recycling of specific waste streams. These targets waste streams include electronic equipment, cars, batteries, construction, demolition, municipal and packaging waste, and to reduce the landfilling of biodegradable waste.

Figure 3 – EU waste hierarchy

Waste to Energy Initiatives

To minimize the amount of landfilled waste, when waste cannot be prevented nor recycled, the EU commission proposed its energy recovery as an approach. The waste to energy initiative was introduced to improve the recovery of energy in the incineration of waste. Rather than a typical incineration, where energy is lost through evaporation.



Waste-to-energy approach includes waste treatment processes to generate energy, such as in the form of electricity, heat, or waste-derived fuel to be used, where each of such energies has different environmental impacts and circular economy potential.

The approach to waste to energy is intended to provide incentives for innovation and help create high-quality jobs by highlighting proven energy-efficient technology. **Main waste-to-energy processes include the following:**

1. Waste co-incineration in combustion plants (e.g., power plants) as well as cement and lime production.
2. Waste incineration in specially designated facilities.
3. Biodegradable waste anaerobic digestion.
4. Production of solid, liquid, or gaseous waste fuels.

Waste Framework Directive

Under the revised Waste Framework Directive, European households and businesses will be required to recycle at least 55% of their municipal waste by 2025, with a goal of reaching 65% by 2035. The European Parliament adopted a resolution on the new circular economy action plan in February 2021. The resolution calls for additional measures to achieve a carbon-neutral, environmentally sustainable, toxic-free, and fully circular economy by 2050. It includes stricter recycling rules, and binding material use and consumption targets by 2030.

Packaging Waste Directive

A separate packaging directive requires governments to ensure that 70 % of product packaging is recycled by 2030. EU plans to gradually ban plastic usage and decrease its plastic manufacturing, replacing them with ecofriendly alternatives like paper bags. In support of this, the EU rules on single-use plastic products aim to prevent and reduce the impact of certain plastic products on the environment, especially the marine environment and human health. They also aim to promote the transition to a circular economy with innovative and sustainable products and materials as well as contributing to the efficient processing of the internal market.

Landfill Directive

By 2035, no more than 10% of waste may be disposed in landfills. Currently, the EU28 average is 28 percent, with very different realities in different countries. The repercussions of inadequate implementation of this directive are numerous, as poorly maintained illegal landfills (typically dumps in isolated rural regions) can degrade groundwater quality, putting public health at risk. They also encourage the dumping of potentially recyclable materials in an inappropriate manner.

Waste generation in the EU

The overall failures hindering effective compliance with EU environmental law originate with the Member States' weak and difficult-to-compare statistics provided to the Commission. Frequently, such information is based on perfectly legal definitional variances deriving from skeletal texts in the original directives. This makes any legal action by the Commission - which has the power to take countries to the Court of Justice over implementation - extremely difficult. Many compliance issues in the waste sector arise from complaints from members of the public, rather than from any organized pattern of police, due to a lack of regular and precise data from EU Member States. Despite the enthusiasm of successive EU Environment Commissioners for implementation, there has been a lack of will and resources in practice.

The quantity of municipal waste produced per inhabitant in the EU decreased from 2005 to 2018. Trends, on the other hand, can differ from one country to the next. In Denmark, Germany, Greece, Malta, and the Czech Republic, for example, municipal garbage per capita increased, whereas it declined in Bulgaria, Spain, Hungary, Romania, and the Netherlands. Denmark, Malta, Cyprus, and Germany had the most municipal garbage per person, while Hungary, the Czech Republic, Poland, and Romania had the least.

Waste management in action

According to 2017 EU figures, 46 percent of all municipal waste is recycled or composted. However, waste management procedures in the EU vary greatly, and many nations continue to discard substantial amounts of urban waste.

In countries like Belgium, the Netherlands, Denmark, Sweden, Germany, Austria, and Finland, landfilling is practically non-existent. In this case, incineration, coupled with recycling, is critical. In addition, Germany and Austria are the EU's top recyclers.

Lithuania, Latvia, Ireland, Italy, France, Estonia, Slovenia, and Luxembourg are among the countries that employ incineration and send a third or less of their garbage to landfill. These countries, except for Latvia and Estonia, recycled more than 40% of household waste.

Smart Waste – an Interreg Europe Initiative

Smart Waste aims to improve public policies supporting innovation within waste management procedures. The outcome will be cost-effective, more sustainable, and efficient waste management, through more waste prevention, increased re-use and recycling, as well as recovery of waste.

Smart waste has conducted many projects in the region, some are VALE smart waste project in Italy, integrated waste management in Municipality of Burgas in Bulgaria, incorporating a Circular Economy strategy into a political instrument (Waste Management Plan) in Denmark, and recycle service 2025, a reversed waste collection system for residual waste with pay-as-you-throw in Netherlands.

The initiative supports better/innovative waste management where outcome would be beneficial to citizens (lower costs and improved services), companies (counselling / access) and environment (higher resource efficiency / more sustainable business).

Conclusion

The waste generated in the EU per capita is high and it did not decrease significantly in the last few years, despite the waste management directives available. Both individuals and manufacturers need to be involved heavily to reduce the amount of waste generated and increased recycled and re-used waste. This can be done through developing markets for recycled products and introducing economic incentives. In addition, stricter sanctions and directives for using recycled materials are essential. Finally, proper hazardous waste disposal facilities improvement should be encouraged and continued to ensure the safety and well-being of people and the environment. All the nations in the queue for EU membership, except for Iceland, are relatively impoverished and will need to work hard to improve their waste management strategies.

Recommendations

- Promote municipal waste separation and recycling by encouraging the development of markets for recycled products and reusing them. Decreasing plastics utilization will lead to a healthy environment for human beings, animals and plants. Separating different types of waste makes getting rid of them easy and effective as suggested by the circular economy norm and as emphasized by the European green deal.

- Impose stricter polluter sanctions like carbon tax, especially for construction materials' manufacturers, factories, and construction companies, as construction waste substitute a very large percentage of the waste (hazardous mostly), and initiate directives targeting those factories and manufacturers to use recycled or recyclable materials and packaging, which filters into adapting a green economy and healthier environment.
- Continue to develop and improve the necessary facilities for proper hazardous waste disposal. Alternatives to dumping them in the sea or burning them can be to get rid of them in an efficient way to avoid harm to the environment, like using biomass strategy.
- Member states should comply with those initiatives and provide annual action plans explaining their implementations of the directives and initiatives and possible improvements.

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