Waste management country profile

with a focus on municipal and packaging waste

Denmark

March 2025

European Environment Agency

Key messages

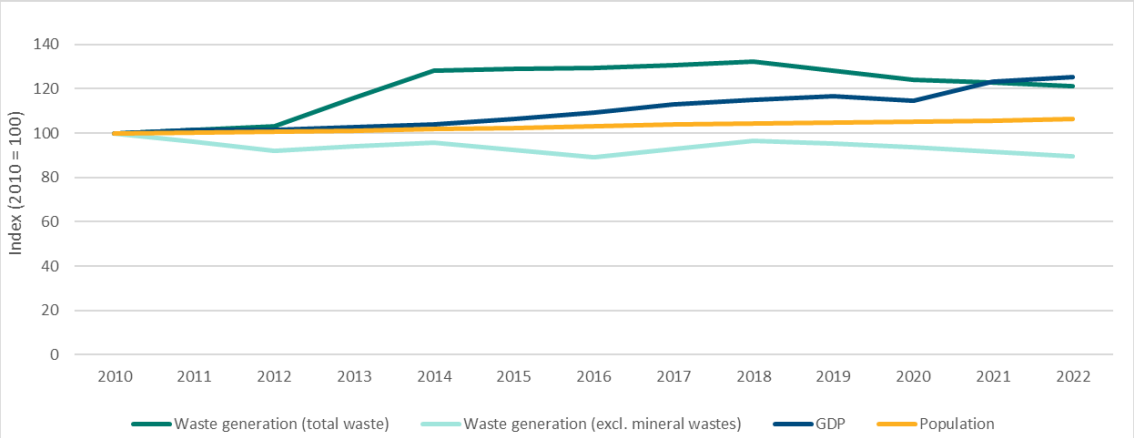
- The total amount of waste generated in Denmark increased until 2018 and has decreased since. While a longer data series is required for confirmation, the latest data points suggest a potential decoupling between waste generation and economic growth.
- Denmark is considered to be on track to meet the 2035 landfill target, the 2025 municipal waste recycling target and the 2025 targets for packaging waste recycling for all materials, except for plastic packaging.
- In the period 2011-2019, the recycling rate of municipal waste has slightly increased. In 2020, the change to the new reporting rules, which included the deduction of sorting residues, led to a reduction in the preparing for reuse and recycling rate. According to national waste statistics, 50% of municipal waste was recycled or prepared for reuse in 2022, and 46% according to data currently published by Eurostat.
- The recycling rate for total packaging waste has fluctuated over the past decade, not least due to several methodological changes. In 2022, the recycling rate was 64.9%, thus very close to the 2025 target. The recycling of plastic and steel packaging needs improvement.
- In order to further enhance recycling and reduce waste generation, Denmark could benefit from strengthening and/or introducing policy instruments for promoting waste prevention and making preparing for reuse and recycling more economically attractive, and diverting more waste away from incineration.

Trends in waste generation and treatment

Total waste generation

The total amount of waste generated in Denmark increased until 2018 and has decreased since (Figure 1). This trend is primarily driven by the largest waste categories, namely soils and mineral waste from construction and demolition. When excluding mineral waste, recyclable wastes and mixed ordinary wastes dominate as the largest waste fractions. Denmark's GDP increased throughout the considered period, with the exception of a reduction in 2020, most likely due to the Covid-19 outbreak. While a longer data series is required for confirmation, the latest data points suggest a potential decoupling between waste generation and economic growth.

Figure 1 Generation of waste (total and excluding major mineral wastes), population and economic development, 2010-2022



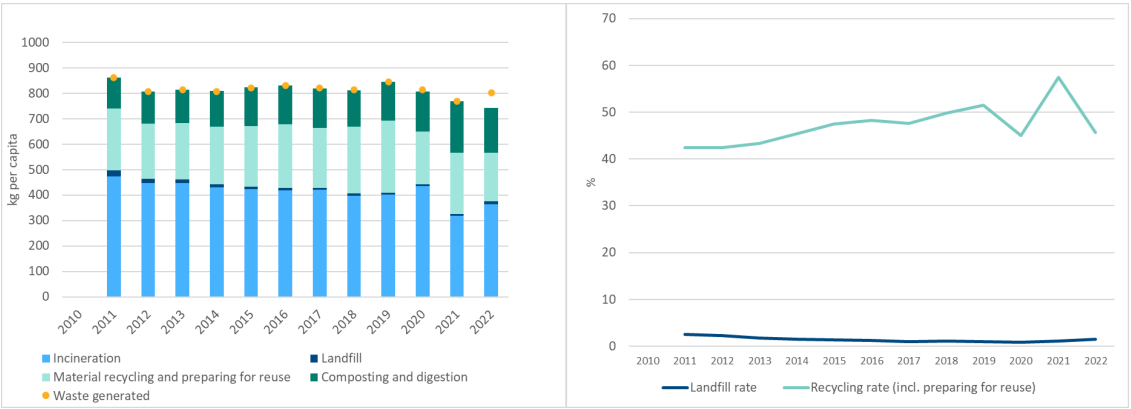
Source: Eurostat (2024a, 2024b, 2024f)

Note: Waste generation data for odd years are interpolated.

Municipal waste

Denmark's municipal waste generation has decreased slightly over the past decade (Figure 2, left). According to data published by Eurostat, Denmark generated 802 kg/cap of municipal waste, which is significantly above the (estimated) EU-27 average of 513 kg/cap. However, according to the latest revised Danish waste statistics, this was 746 kg/cap in 2022 (Ministry of Environment of Denmark, 2024; Danish EPA, 2024).

Figure 2 Municipal waste management (left) and rates of recycling (incl. preparing for reuse) and landfill (right), 2010-2022



Source: Eurostat (2024d)

Note: No data are available for 2010. As of the reference year 2020, new reporting rules apply for calculating recycled municipal waste pursuant to the targets laid down in Article 11.2(c-e) of Directive 2008/98/EC. These new reporting rules have been implemented in Denmark from the reference year 2020 onwards. The data for 2020-2022 will be revised (Ministry of Environment of Denmark, 2024; Danish EPA, 2024).

According to data published by Eurostat (Figure 2), the preparing for reuse and recycling rate was 46% in 2022. According to a recent revision of Danish waste statistics which still have to be submitted to Eurostat, the preparing for reuse and recycling rates were 44% in 2020, 48% in

2021 and 50% in 2022 (Ministry of Environment of Denmark, 2024). Nearly half of the municipal waste is incinerated with energy recovery while only about 1-2% is landfilled.

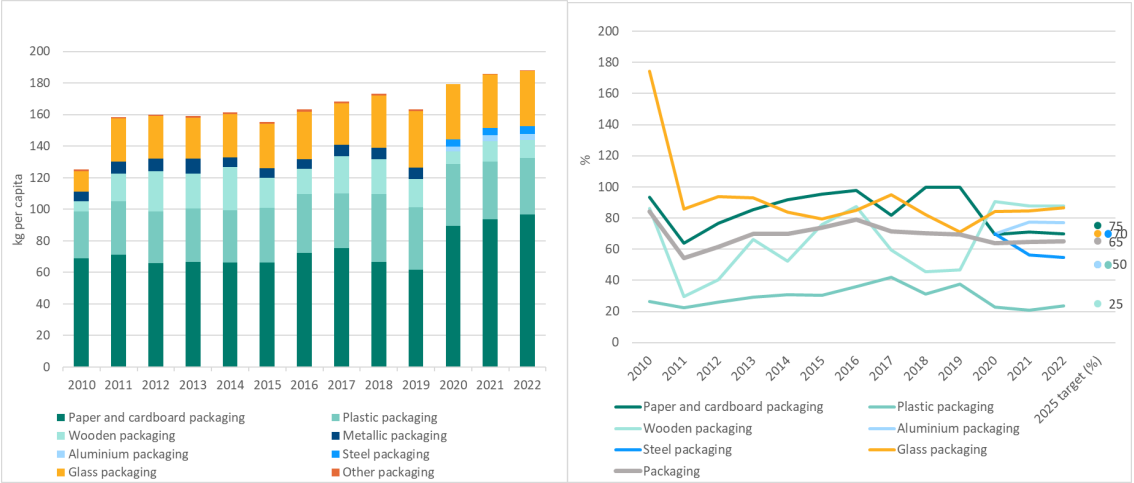
The data shown in Figure 2 differ from the provisional data reported by the Danish authorities to show compliance with the preparing for reuse and recycling target of 55% for 2025, as laid down in the Waste Framework Directive. Denmark reported a preparing for reuse and recycling rate in response to the target that was 5-10 percentage points below the data shown in Figure 2 for the reference year 2021, while the data reported for 2022 are very close to the data shown in Figure 2. The 2022 data according to this reporting obligation are provisional and are still awaiting validation by Eurostat (Eurostat, 2024c).

In 2019, Denmark had 24 ordinary waste incineration plants, of which 17 are owned by municipalities. In 2020, the government decided to reduce the waste incineration capacity by approximately 30% by 2030, to correspond to the amount of residual waste in 2030 (EC, 2022). To adjust the capacity, the Danish legislation was changed in 2023 so that from 2025 onwards, municipalities have to tender the incineration of the collected waste foreseen for incineration, and the waste incineration plants will have to compete for receiving the waste (Ministry of Environment of Denmark, 2023). Environmental requirements for the incineration plants will be tightened so that plants that lag environmentally either invest in technological improvements or close.

Packaging waste

Denmark's packaging waste generation has been increasing, from 125 kg/cap in 2010 to 187 kg/cap in 2022, very close to the (estimated) EU-27 average of 186 kg/cap in the same year ([1]) (Figure 3, left).

Figure 3 Packaging waste generation (left) and recycling rates (right), 2010-2022



Source: Eurostat (2024e)

Note: There is a break in time series flagged for 2020 for the recycling rates. As of the reference year 2020, the rules for calculating recycled packaging waste have changed, pursuant to Article 6a of Directive 94/62/EC. These new reporting rules have been

([1]) The EU-27 average might be influenced by the situation that not all Member States already fully apply the reporting rules for packaging waste as defined in the Commission Implementing Decision 2019/665.

implemented in Denmark from the reference year 2020 onwards. (Ministry of Environment of Denmark, 2024)

The recycling rate of total packaging waste has decreased slightly since 2010, reaching 65% in 2022, the same as the (estimated) EU-27 average in the same year, and nearly hitting the 2025 recycling target. The recycling rate is mainly driven by paper and cardboard packaging recycling, as it is the largest packaging waste fraction. The recycling rates for paper and cardboard and for plastic decreased significantly since 2019 (Figure 3, right). These decreases can be attributed to the change in methodology: before 2020, reporting of recycled amounts was based on collected quantities, but since the reference year 2020, collected but not recycled materials are deducted. The fluctuations in the recycling rate of wooden packaging are influenced by the supply and replacement of reused wooden pallets and recycling activities which may not take place in the same year as waste generation (ETC/CE, 2022). For the reference year 2020 and onwards, it is mandatory to report steel and aluminium packaging separately. In 2022, the recycling rates of both fractions exceeded the 2025 target.

Policies in place to encourage waste prevention measures and to increase recycling

Legislative framework and waste management plans

Overall, the Danish waste legislation follows the EU waste legislation. The main acts and regulations regarding municipal waste and packaging waste include the Environmental Protection Act and the Statutory Order on Waste. Denmark's National Plan for Prevention and Management of Waste (Ministry of Environment of Denmark, 2021) was adopted in 2021. This plan covers the entire territory and is supplemented by municipal waste management plans (WMP). (Ministry of Environment of Denmark, 2024)

Waste prevention policies

Denmark's National Waste Prevention Programme (NWPP) is integrated into the National Plan for Prevention and Management of Waste 2020-2032 (EEA, 2023b), called the Circular Economy Action Plan, published in 2021 (Ministry of Environment of Denmark, 2021). Waste prevention measures and initiatives are incorporated and fully integrated into the programme, supplemented by a dedicated section (chapter 3) on waste prevention (EEA, 2023b). The budget foreseen for the implementation of the project is not specified.

The Action Plan for Circular Economy includes qualitative objectives, indicators and initiatives spanning the entire value chain, from design and consumption to waste management. Examples of objectives related to waste prevention include (Ministry of Environment of Denmark, 2021):

- less waste and less marine litter,
- strengthening circular economy measures and better implementation of EU eco-design regulations,
- making ecolabels mandatory in state procurement,
- reducing limescale in drinking water to enhance the durability of electric appliances and to decrease the use of cleaning agents,
- requiring the inclusion of total cost of ownership in state procurement, and
- reducing the amount of food waste in all parts of the value chain.

The priority waste/material streams covered by the Circular Economy Action Plan are biomass, construction waste, and plastics (EEA, 2023b). For biomass, the prevention focus is on food waste. With respect to construction, it aims for an efficient use of materials, with objectives such as promoting climate-friendly building materials and minimising material waste on construction sites. For plastics, the focus is on limiting unnecessary consumption. Examples of objectives are banning the marketing of specific single-use plastic products, a 50% reduction in selected plastic takeaway packaging, and research initiatives on circular plastic and textiles (Ministry of Environment of Denmark, 2021).

The programme's effectiveness will be monitored annually and evaluated after six years. No information about the evaluation of the previous NWPP ('Denmark Without Waste: Recycle More - Incinerate Less', published in 2013 (EEA, 2023b)) is available in the Circular Economy Action Plan 2020-2032 (Ministry of Environment of Denmark, 2021).

The Circular Economy Action Plan includes several indicators to address waste prevention. Examples of indicators are the material footprint (tonnes per capita), resource productivity (DKK per kg), climate footprint of public procurement (million tonnes of CO_2-eq), and qualitative targets, including significantly reducing the amount of marine waste and reducing the amount of food waste in all parts of the food value chain. As an indicator for reducing the environmental impact of construction and demolition, Denmark monitors the proportion of constructions certified with the Nordic Swan Ecolabel, DGNB, LEED or BREEAM. (Ministry of Environment of Denmark, 2021)

Based on the 2021 data submitted to the EEA in compliance with Commission Implementing Decision (EU) 2021/19 (EEA, 2024), Denmark reused:

- 5000 tonnes of textiles,
- 27000 tonnes of electrical and electronic devices, and
- 46000 tonnes of furniture.

It should be noted that these data have been reported for the first time. As the reporting process matures, it is expected that these data will strengthen but for now, caution is advised in drawing insights from the dataset. More information about the interpretation and limitations of the dataset is available (EEA, 2024).

Policies to encourage separate collection and recycling

Denmark has a mandatory separate collection system for recyclables at household properties and companies. The collection is material-based and the collection systems do not distinguish between packaging and non-packaging waste. To improve the citizen's understanding of the waste collection system, a harmonised pictogram and colour scheme has been streamlined nationally since July 2021 and is rolled out together with the national harmonisation of the separate collection system. Public entities and private companies are obliged to use the same pictograms and sorting criteria. This is used or underway to be used by nearly all Danish municipalities. (ETC/CE, 2022)

The Statutory Order of Waste (Miljøministeriet, 2020) introduced this pictogram system together with mandatory sorting criteria for ten waste fractions (food, paper, cardboard, glass, metal, plastics, food- and drink cartons, textiles, hazardous waste and residual waste). Door-to-door collection has become mandatory for these ten waste fractions. Co-mingling is allowed

for a set of specified combinations of waste materials. If door-to-door collection is not possible, collection points must be placed within 'a short walking distance'. Co-mingled collection is allowed for certain combinations of waste streams (Ministry of Environment of Denmark, 2024). At the end of 2023, 80 out of 98 Danish municipalities had introduced the separate collection of all 10 waste fractions, and by 2025 full implementation is expected. The implementation status is regularly monitored and made publicly available (Miljøministeriet, 2024).

Denmark has implemented a pay-as-you-throw scheme in some regions and municipalities (covering 50-80% of the population). (ETC/CE, 2022)

Denmark has no Extended Producer Responsibility (EPR) scheme for packaging, however, it will be introduced in 2025 for all types of packaging materials (ETC/CE, 2022). The system will include advanced fee modulation, depending on the difficulty in recycling the packaging, and will use a fixed percentage malus and a variable percentage bonus based on the surplus from the malus. (Ministry of Environment of Denmark, 2024)

Denmark applies packaging taxes with an escalator (taxes on packaging, bags and disposable tableware are indexed with 5.5% in 2024), covering beverage packaging (excl. for dairy), PVC films for food, bags and disposable tableware. Packaging that is included in the deposit-return scheme is exempted from the packaging taxes. Denmark implements mandatory deposit-return systems for aluminium drink cans, glass and plastic drink bottles, and a voluntary system for plastic crates. (ETC/CE, 2022)

Policies and instruments to discourage landfilling or incineration

Denmark has a ban on landfilling recyclable and combustible waste and applies a landfill tax of 475 DKK/tonne before VAT (64 EUR/tonne), which is considerably higher than the EU-27 average of EUR 39-46/tonne (EEA, 2023a). It has been constant since 1987. Since 1999, Denmark has applied a tax on the incineration of residual municipal waste of 52.5 DKK/GJ (7 EUR/GJ), consisting of a tax on heat generated from waste incineration of 20.7 DKK/GJ (3 EU/GJ), and an incineration tax of 31.8 DKK/GJ (4 EUR/GJ). Since 2010, a CO_2-tax of 179.2 DKK/tonne of CO_2 emitted (24 EUR/tonne) is levied on incinerated non-biodegradable waste. The tax on heat and the CO_2-tax increase annually with the national net price index. (ETC/CE, 2022)

Prospects for meeting the targets on recycling and landfilling

After waste management stagnating for many years, Denmark managed to divert waste from incineration to recycling. In the EEA's early warning assessment (ETC/CE, 2022), Denmark was considered to be on track to meet the 2025 targets for the preparing for reuse and recycling municipal waste of 55% and for packaging recycling of 65%, and the 2035 target to reduce landfilling to 10% of the generated municipal waste. Denmark has applied the new reporting rules for showing compliance with these targets since the reference year 2020. The recycling rate of municipal waste increased until 2019. When the new reporting rules were applied as of 2020, the recycling rate decreased due to the distraction of sorting residues, and progress might be masked by this change in methodology.

Moreover, based on the data, the packaging recycling rate dropped to 64% in 2020 when the new reporting rules were implemented. The recycling rates of glass, aluminium, and wooden

packaging surpassed the 2025 recycling targets in 2022, while they need to be increased for plastic and steel packaging.

The Environmental Implementation Review (EIR) 2022 priority actions recommended introducing policy instruments for promoting waste prevention and making preparing for reuse and recycling more economically attractive, as well as shifting reusable and recyclable waste away from incineration with energy recovery (EC, 2022).

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