

# Waste management country profile

with a focus on municipal and packaging waste

# Luxembourg

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## Key messages

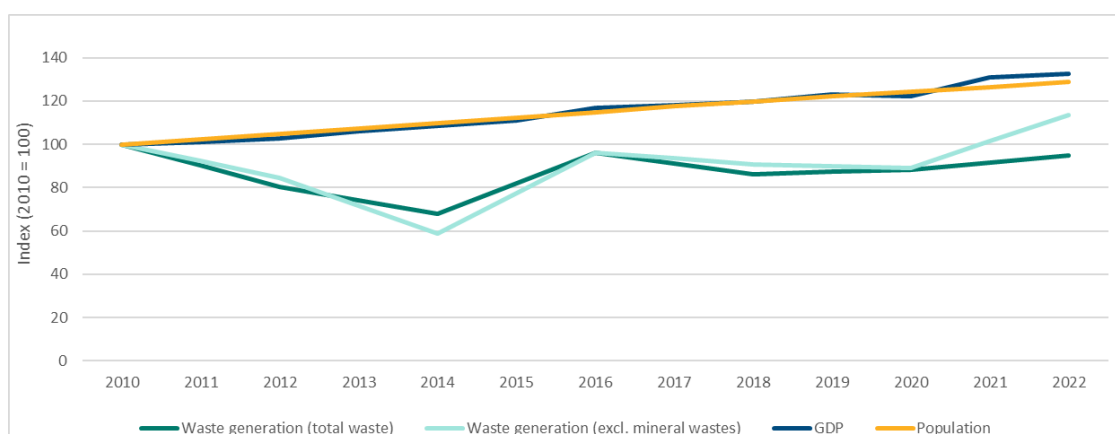
- Waste generation in Luxembourg fluctuated heavily in the 2010-2022 period with an overall small decrease. Nevertheless, due to the strong variations in waste generation, no conclusions concerning decoupling from economic growth could be made. Data collection has improved since 2014.
- Luxembourg is considered to be on track to meet the 2025 preparing for reuse and recycling target for municipal waste and the recycling targets for all packaging waste materials except plastics, as well as the 2035 landfill target for municipal waste. Data for 2022 indicate that Luxembourg recycled 63.7% of its packaging waste and 54.5% of its municipal waste.
- Luxembourg has made progress in reducing its landfill rate, as well as slightly increasing the recycling rates of municipal waste and packaging waste. For plastic packaging recycling, Luxembourg has to speed up its progress towards reaching the 2025 recycling target.
- Luxembourg would benefit from more effective incentives for citizens and businesses to sort waste at source and enhance recycling.

## Trends in waste generation and treatment

### Total waste generation

The total amount of waste generated in Luxembourg follows a small overall decrease over the considered time period (Figure 1). Excluding the major mineral waste categories alters this overall trend, revealing a moderate increase. This rise is mainly attributable to a significant increase in the generation of combustion wastes from 2020 onward. Data reported for 2010-2014 is less reliable, and data collection has considerably improved since 2014. Due to the strong variations in waste generation, there are no clear signs of decoupling between waste generation and economic growth.

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



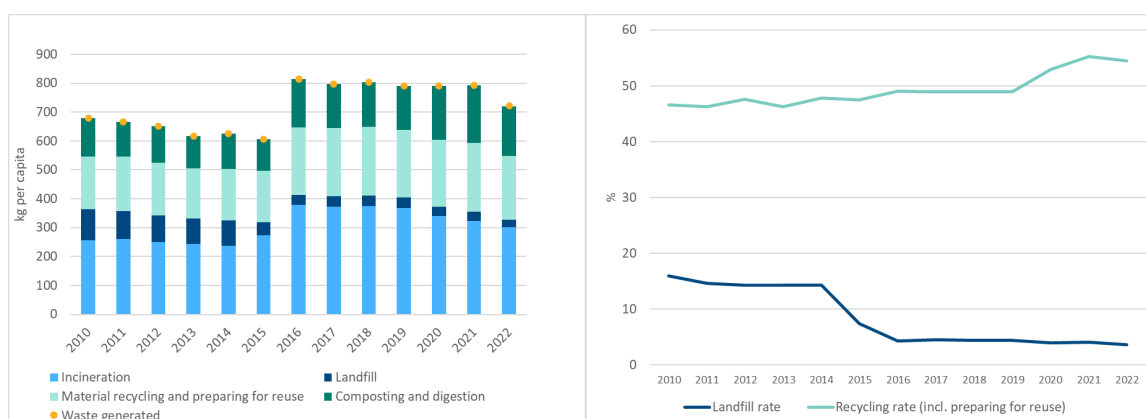
**Source:** Eurostat (2024a, 2024b, 2024f)

**Note:** Waste generation data for odd years are interpolated.

## Municipal waste

Municipal waste generation in Luxembourg significantly increased between 2010 and 2021 (Figure 2, left). However, the increase in 2016 is attributable to the broadening of the scope of municipal waste in the reporting. Since 2016, municipal waste generation stagnated, with a drop in 2022. In 2022, the country generated 721 kg/cap of municipal waste, which is significantly above the (estimated) EU-27 average of 513 kg/cap. This high amount could be partly due to the significant number of cross-border commuters and the inclusion of municipal waste from other sources than households, which account for around 30% of municipal waste generated (EC, 2022).

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



**Source:** Eurostat (2024d)

**Note:** There is a break in series in 2016. From 2016, the definition of waste considered as municipal waste has been broadened. 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. Luxembourg has been applying the new reporting rules already since 2015 but improvements were made in 2020 and again in 2022 with respect to the accuracy of the average loss rates (MECB, 2024).

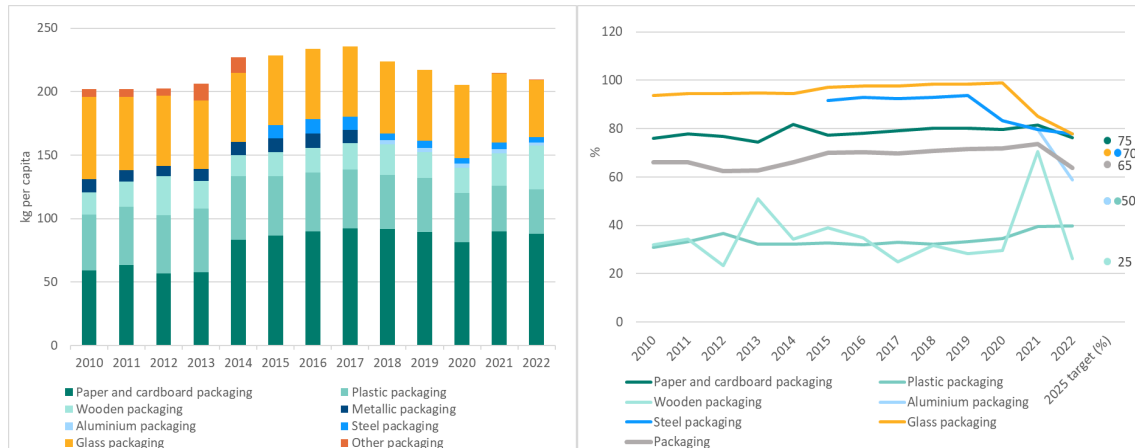
The preparing for reuse and recycling rate of municipal waste in Luxembourg slightly increased since 2010 reaching 54.5% in 2022 (Figure 2, right). This is slightly above the (estimated) EU-27 average of 49% in the same year. The preparing for reuse and recycling rate increased mainly at the expense of the landfill rate which decreased by 12 percentage points to 4% in 2022 (Figure 2, right). The incineration rate stagnated during this period, standing at 41.7% in 2022.

Luxembourg has also reported data to show compliance with the preparing for reuse and recycling target of 55% for 2025, as laid down in the Waste Framework Directive. The difference between these (provisional) data, following the reporting obligation of the Waste Framework Directive, and the data shown in Figure 2 (voluntary reporting) is below 1 percentage point for the preparing for reuse and recycling rate both in 2021 and 2022. The 2022 data according to this reporting obligation are still awaiting validation by Eurostat (Eurostat, 2024c).

## Packaging waste

Packaging waste generation in Luxembourg has stagnated since 2010 (Figure 3, left). The country generated 209 kg/cap in 2022, which is significantly above the (estimated) EU-27 average of 186 kg/cap in the same year <sup>(1)</sup>.

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



**Source:** Eurostat (2024e)

**Note:** As of the reference year 2020, the rules for calculating recycled packaging waste have changed, pursuant to Article 6a of Directive 94/62/EC. Luxembourg has been applying the new reporting rules already since 2015 but improvements were made in 2020 and again in 2022 with respect to the accuracy of the average loss rates (MECB, 2024).

The country's overall packaging waste recycling rate dropped in 2022 below the 2010 level and was 63.7%. The overall recycling rate is mainly influenced by paper and cardboard as this constitutes the largest fraction. For 2022, Luxembourg reported recycling rates above the 2025 targets except for plastic packaging and total packaging. However, all recycling rates dropped in 2022 compared to 2021. Wood packaging waste has the lowest recycling rate of all fractions, and the rate includes the repair of wooden pallets since 2021. The peak in wood waste recycling in 2021 can be mainly explained by a better understanding of the amount of pallets in the overall wood waste generation. (MECB, 2024)

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

### Legislative framework and waste management plans

On 9 June 2022, Luxembourg amended its Waste Law of 21 March 2012 (N° 60/2012) and its Packaging and Packaging Waste Law of 21 March 2017 (N° 330/2017) incorporating EU's Directive 2018/851 and Directive 2018/852, respectively (Journal Officiel, 2022a, 2022b, 2017b, 2017a). Within the context of waste management, the Waste Law aims at promoting reuse, recycling and recovery of waste. For example, retailers are required to establish dedicated collection facilities for packaging waste. In addition, municipalities are subjected to

<sup>(1)</sup> 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.

new targets for preparing municipal waste for reuse and recycling, and recycling centres are to be transformed into resource centres, accessible to all residents of the Grand Duchy of Luxembourg. (Environnement Public, 2018)

The amended Waste Law establishes the legal framework for waste management in Luxembourg. The National Waste Management Plan (NWMP) 'Plan National de Gestion des Déchets et Ressources' (PNGDR) serves as the operational tool. The NWMP is a general document that outlines the main axes of the waste management policy. The current plan, the third revision, aims to incorporate recent developments in waste management and proposes management strategies aligned with the waste hierarchy, while embracing the circular economy principles. (Environnement Public, 2018)

### ***Waste prevention policies***

Luxembourg's current National Waste Prevention Programme (NWPP) is integrated into the PNGDR, spanning 2016 to 2022, and underwent review in 2018 (Government of Luxembourg, 2018). A new PNGDR is being developed using findings from a 2023 evaluation report as the foundation for the updated plan (Gouvernement du Grand-Duché de Luxembourg, 2024a). There is no budget specified for the implementation of the NWPP (EEA, 2023).

Priority waste streams for prevention in the PNGDR 2016-2022 are food and organic waste, construction and demolition waste, hazardous waste, household and municipal waste, packaging waste, waste electrical and electronic equipment (WEEE), manufacturing waste, and other types like bulky waste, littering waste, waste from sewage treatment, used tyres, and end-of-life vehicles (EEA, 2023).

No indicators have been adopted. Instead, the PNGDR 2016-2022 includes one or more quantitative targets for each priority waste stream, for example (EEA, 2023):

- Reduce bulky waste by 20% by 2022.
- Achieve zero littering.
- Reduce the consumption of lightweight plastic bags without an overall increase in the production of packaging.
- A 50% reduction in the amount of food waste by 2022.

To achieve the reduction target for bulky waste, Luxembourg aims to develop recovery and restoration systems for consumer goods deposited in recycling centres (Government of Luxembourg, 2018).

Luxembourg has created a special website dedicated to repairing and sharing <sup>(2)</sup>. Reuse is integrated into resource centres (formerly called recycling centres) by an ongoing project (Gouvernement du Grand-Duché de Luxembourg, 2024b). The focus is on accelerating the implementation of repair systems, as current options lack financial investment. Initiatives such as repair cafés will also be promoted, as well as linking repair services to job creation (EEA, 2023).

Implementation of prevention measures is highlighted across various areas including sustainable production and consumption, reuse, food waste reduction, littering reduction, and

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<sup>(2)</sup> <https://repairandshare.lu/>

awareness-raising campaigns. To promote sustainable consumption, the Environment Ministry has launched the 'Clever lessen' project. This initiative aims to encourage local products and seasonality, reduce food waste, and address the production and distribution of food through, for example, implementing a deposit system for reusing containers. Additionally, the project raises awareness among stakeholders at all levels (EEA, 2023).

In 2021, a national strategy for circular economy called 'Strategie Kreeslafwirtschaft Lëtzebuerg' was developed to transform Luxembourg towards a circular economy and centre of competence in the field. The strategy applies principles of circular economy in a systemic way to meet socioeconomic and environmental aspects (Government of Luxembourg, 2021) Luxembourg has also established a strategy known as 'Null Offall Lëtzebuerg', with the objectives of reducing waste and managing resources more responsibly and sustainably, while implementing principles of the circular economy (Lëtzebuerg Ministère de l'Environnement, du Climat et du Développement, 2020).

Luxembourg has reported reuse data for 2021 to the EEA according to Commission Implementing Decision (EU) 2021/19 (EEA, 2024):

- 2729.3 tonnes of textiles,
- 87.3 tonnes of electrical and electronic devices, and
- 700 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***

In Luxembourg, residual waste is primarily collected door-to-door and to some extent at civic amenity sites. The same applies to glass and paper and cardboard, complemented with bring points. For bio-waste, a large part of the population is covered by door-to-door collection. Glass collection mainly targets glass packaging, complemented with systems for other glass at civic amenity sites. Plastic, metal, and composite packaging are collected door-to-door by the Producer Responsibility Organisation (PRO) Valorlux. Since 2021, this collection has included all plastic packaging, improving collection rates and reducing incineration. Certain plastics and non-packaging metals are separately collected at civic amenity sites. Municipalities must ensure public access to separate collection of paper, metals, glass, plastics, bio-waste and packaging waste. Furthermore, Luxembourg mandates the separate collection of packaging waste from non-household sources. (Environnement Public, 2018; ETC/CE, 2022)

In Luxembourg, around 60% of the citizens are incentivised to sort at source through a pay-as-you-throw system for collecting municipal waste, which is either based on weight or the volume and/or frequency of waste collection (ETC/CE, 2022; Environnement Public, 2018). There is still potential to expand the pay-as-you-throw system for residual waste to improve sorting at source and enhance recycling.

Although the Commission's Environmental Implementation Review (EIR) recommends employing economic measures to redirect reusable and recyclable waste from incineration, there are only voluntary deposit-return systems in place for specific types of reusable

packaging (MECB, 2024). Therefore, a mandatory deposit-return scheme for packaging could boost reuse and further increase the capture of recyclable waste. (ETC/CE, 2022; EC, 2023)

In Luxembourg, there is one Extended Producer Responsibility (EPR) scheme in place for packaging waste from both households and non-households. It covers paper, cardboard, metals, glass, plastics, wood, and composites. Packaging waste from non-households is not yet fully included but will be included from 2025 onwards (Administration de l'environnement, 2021). For household packaging waste, Valorlux is the approved Producer Responsibility Organisation (PRO). Producers can fulfil their obligations individually, although in practice, all producers are represented by Valorlux (ETC/CE, 2022). The EPR scheme for packaging encompasses several obligations in terms of, *inter alia*, take-back of packaging, individually or collectively achieving recycling targets and informing users and consumers about sorting and recycling systems. Luxembourg has no advanced fee modulation, i.e. fee modulation beyond the broad material categories such as higher fees for difficult-to-recycle plastic types or combinations of materials. There is also no packaging tax applied. (ETC/CE, 2022)

### ***Policies and instruments to discourage landfilling or incineration***

Luxembourg has no landfill tax in place, while the country's landfill rate is low (Figure 2, right). Nevertheless, a relatively high gate fee of EUR 200 per tonne applies to non-hazardous municipal waste. Furthermore, a ban exists on landfilling untreated municipal waste and organic waste with a Total Organic Carbon (TOC) content above 5% (Environnement Public, 2018).

Luxembourg strongly relies on incineration for the disposal of mixed municipal waste (Figure 2, left). As mentioned before, Luxembourg could benefit from the introduction of an incineration tax and the phasing out of subsidies for this type of waste treatment. This would help redirect reusable and recyclable waste away from incineration. (EC, 2022)

### ***Prospects for meeting the targets on recycling and landfilling***

In the past 12 years, Luxembourg has managed to divert waste first from landfilling to incineration and more recently from incineration to recycling. Now the main waste treatment method is recycling, followed by incineration.

According to the EEA's early warning assessment (ETC/CE, 2022), the country was considered to be on track to meet the 2025 target for the preparing for reuse and recycling of municipal waste of 55%, as well as all 2025 packaging waste recycling targets except plastic packaging. For the reference year 2022, Luxembourg reports a municipal waste preparing for reuse and recycling rate of 54.5%, and recycling rates above the 2025 targets for all packaging waste materials except total packaging waste (63.7%) and plastic packaging, which needs to increase from 39.8% in 2022 to 50% in 2025. The reported landfill rate has been below the 10% target for 2035 since 2015.

Consequently, the European Commission did not issue any policy recommendations for waste management performance. Nevertheless, the Commission's Environmental Implementation Review (EIR) emphasised the potential to divert reusable and recyclable waste from incineration, potentially through the implementation of economic measures and by gradually phasing out subsidies to incineration or by introducing an incineration tax. Furthermore, the EIR 2022 recommended that new policies and economic instruments should be introduced to

further implement the waste hierarchy and make reuse and recycling more economically attractive. (EC, 2022)

Meanwhile, Luxembourg has decided to postpone the deadline for meeting the 2025 target for plastic packaging waste until 2028, making use of the postponement option in the Packaging and Packaging Waste Directive. (EC, 2024)

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