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Waste Management in Germany 2025

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Edited by

BMUKN, Division C III 1

Design

wbv Media, Bielefeld, Sabine Ernat

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Introduction

The goal of circular economy is to reduce resource consumption by using raw materials efficiently and keeping them in the industrial cycle for as long as possible. A circular economy embraces all stages, from resource extraction, product design and manufacture to sale, consumption and the closure of the cycle through reuse and recycling. This means that, while the concept of closed substance cycles focuses on closing the loop at the end of the cycle through waste management, a circular economy approach goes beyond that to include aspects such as raw material supply, procurement, eco-design and waste prevention.

As early as the 1980s, environmental policy prioritised the closed substance cycle as an extension of waste management. Germany's above average per capita consumption of resources gives the country a particular responsibility in this matter. The German public is generally aware of the importance of waste separation and recycling. Modern sorting, treatment and recycling technologies are now well-established and recycling capacity has been expanded.

Allowing for economic and structural changes, waste volumes generally reflect the material standard of living. A decrease in waste volumes irrespective of economic influences was recorded up to 2009 – measured as waste intensity (ratio of economic performance to waste volumes). This is why the challenges are continuing to grow. It will remain crucial to recover raw materials and energy sources from waste and return them to the industrial cycle.

Circular economy also pays off financially. It has evolved into a major high-performance economic sector in Germany. There are more than 280,000 people working in some 11,000 companies with an annual turnover of around 80 billion euros. The management infrastructure comprises 14,500 facilities, achieving high rates of recycling for municipal waste (67 percent), production and commercial waste (around 70 percent) and construction and demolition waste (almost 90 percent).



Circular economy also pays off financially

In Germany, the core elements of a circular economy are set out in the 2012 Circular Economy Act (KrWG). It implements the EU Waste Framework Directive in national law, forms the legal basis for the circular economy and contains key fundamental principles. Beginning with the legal definition of waste, these include in particular the polluter pays principle, the five-step waste hierarchy, producer responsibility, waste prevention and the new duty of care for distributors and traders in the careful management of their goods. This duty of care is reinforced by the entry into force of the new EU Ecodesign Regulation, which enshrines in Union law the prohibition of the destruction of unsold goods.

The aim of this publication is to showcase what citizens achieve together with their municipalities and industry, and to provide examples to other countries wishing to close their materials cycles in an environmentally sound way. Ultimately, implementing the circular economy is a global task, and German companies, scientific institutions and municipal stakeholders can make a valuable contribution with their expertise, services and modern technologies.

1

Waste generation

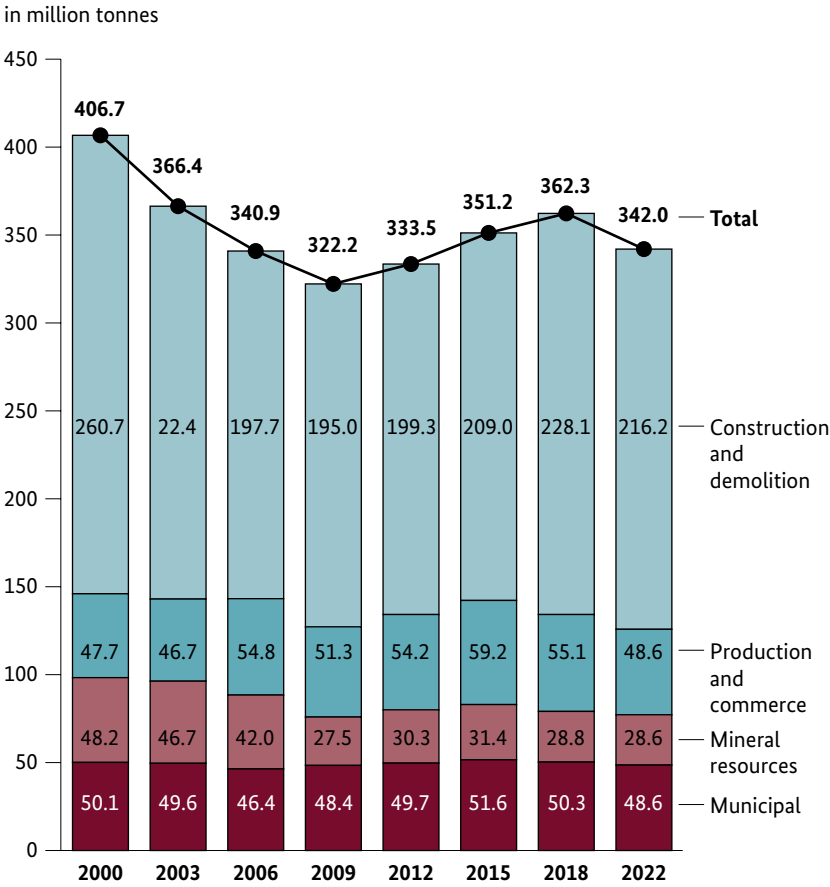
Germany still produces far too much waste. Waste volumes reflect material prosperity, but there are a number of ways to decouple this prosperity from the generation of waste. For municipal waste in particular, it is imperative to step up efforts to promote consumer awareness and waste prevention. Waste prevention is an essential aspect of the circular economy.

To protect the environment, combat climate change and conserve resources, we will always need state-of-the-art waste management facilities. Key elements of this are recycling, energy recovery from non-recyclable waste and landfilling of residues. The high costs of energy recovery resulting from environmental stipulations, especially flue gas purification, create the necessary economic incentives to give priority to recycling.

Every year around 340 million tonnes of waste are generated (without double counting). The vast majority of this waste is construction and demolition waste that is reused for construction measures. Around two-thirds of the approximately 50 million tonnes of municipal waste are recycled. However, the recyclate recovered in this way is only just over 50 percent of municipal waste.

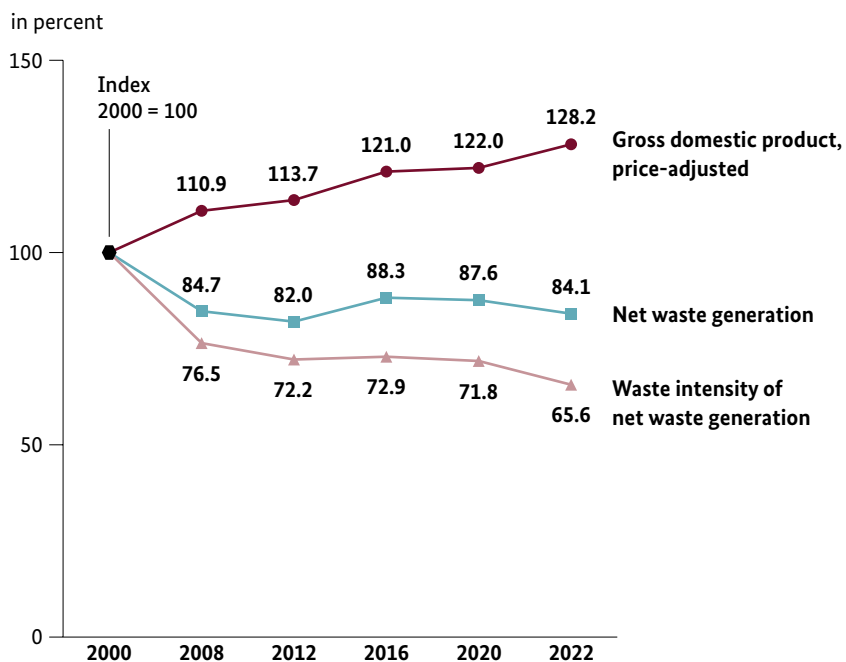


Figure 1: Waste generation in Germany 2000 to 2022
(including hazardous waste)



Source: Federal Statistical Office, 2024

Figure 2: Decoupling waste generation from economic performance 2000 to 2022



Source: Federal Statistical Office, 2024



To protect the environment,
combat climate change and
conserve resources, we will
always need state-of-the-art
waste management facilities

2

Waste prevention

In addition to the waste industry, the circular economy also covers the upstream industrial phases, where these may influence how waste is generated and managed. To this end, in 2020 the German government and federal states (Länder) updated the Waste Prevention Programme.



Waste prevention has top priority in the waste hierarchy. It aims to minimise the generation and pollutant content of waste, with a view to conserving resources. The first programme, adopted in 2013, concerned public measures. The updated programme addresses the many opportunities for waste prevention available to the public, private companies and institutions.

Waste prevention takes many forms, ranging from designing durable, repairable products to keeping products in service until the end of their useful life. It is also crucial to raise public awareness and sensitise people to the benefits of effective waste prevention. Each one of us can help prevent waste and protect the environment by making careful choices. For instance, we can opt for durable, repairable products instead of unnecessary or short-lived articles, prioritise use over ownership and give away functioning products that we no longer need.



It is crucial to raise public awareness and sensitise people to the benefits of effective waste prevention

Additionally, best-practice examples are presented and new developments discussed at the kick-off event for the European Week for Waste Prevention that is organised every year at the end of November by the German Association of Local Public Utilities (VKU). The event is commissioned by the Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety (BMUKN).

3

Recovery and disposal

To achieve sustainable development, we need to decouple resource consumption from economic growth. Germany, with its above-average resource consumption, needs solutions that enable it to meet its responsibility. However, for a resource efficiency strategy to be successful in the long term, any efficiency gains it achieves must not be swallowed up by an increase in production and consumption. Waste prevention and increased materials recovery from waste are a key to this. Our goal is to transform the waste industry into a source for obtaining raw materials and for the production of goods.

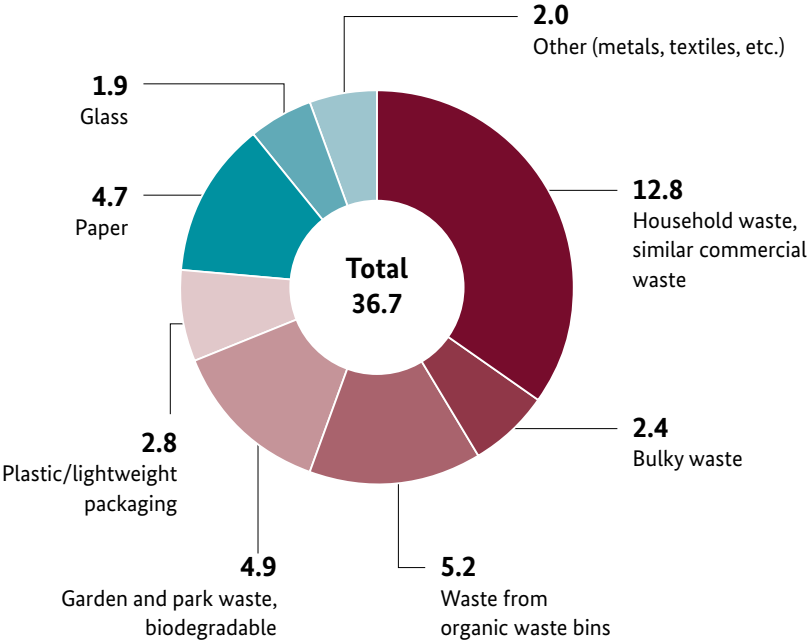
The high recycling and recovery rates in Germany help save resources and primary energy, and highlight the waste industry's contribution to sustainable economic practices.

Non-recoverable waste must be disposed of safely, without harming human health or the environment. Prior to being landfilled, organic waste must undergo mechanical biological treatment (MBT) or thermal treatment to render it inert and significantly reduce releases of leachate and landfill gases. The methane that forms in landfills is 34 times more damaging to the climate than CO₂ (carbon dioxide). The landfilling of untreated organic waste has been banned since mid-2005.



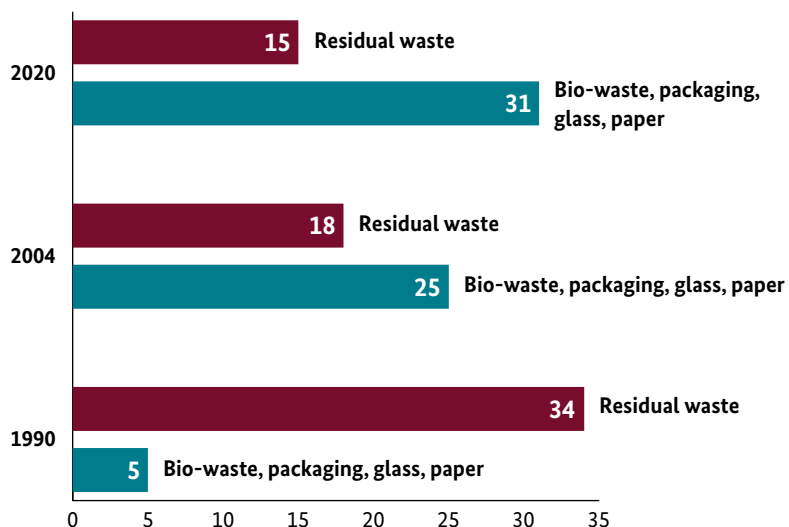
In 2017, 68 waste incineration plants with a capacity of around 20 million tonnes were operating in Germany for the treatment of residual waste. Around 5 million tonnes of additional incineration capacity were available in 32 refuse-derived fuel (RDF) power plants. In 2017, a total of 45 MBT plants with a capacity of approximately 5 million tonnes treated some 4.5 million tonnes of waste. Only about 0.5 million tonnes of this waste was subsequently landfilled.

Figure 3: Composition of household waste in 2023
in million tonnes



Source: Federal Statistical Office, 2025; Federal Environment Ministry

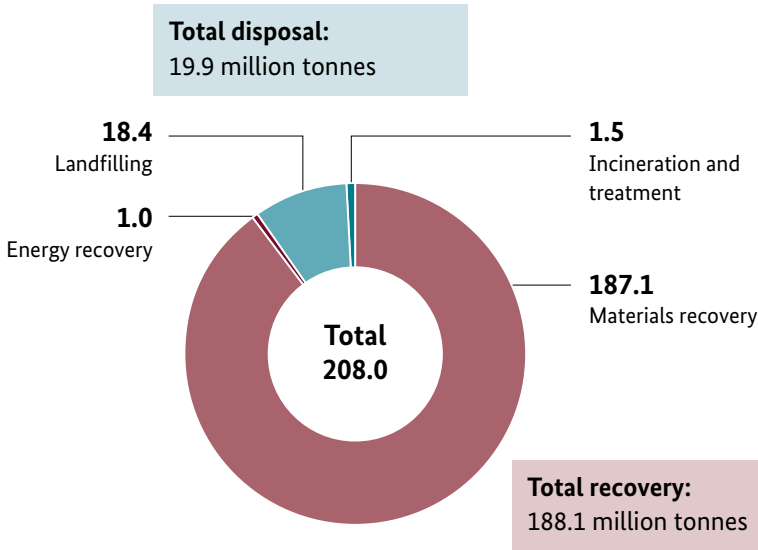
Figure 4: More recyclables than residual waste in 2020 – household waste
in million tonnes



Source: Federal Statistical Office, 2020; Federal Environment Ministry

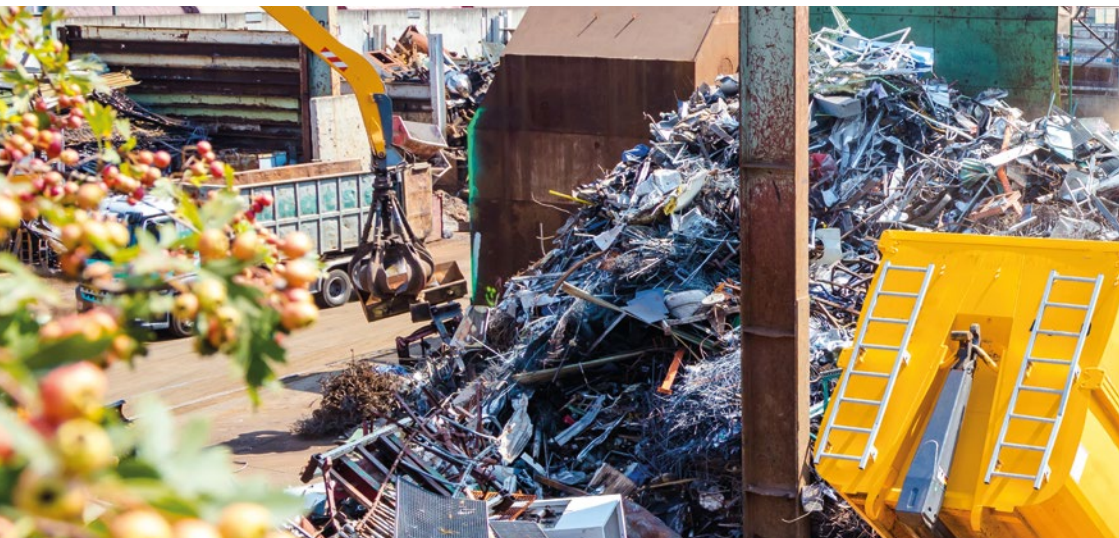


Figure 5: Construction and demolition waste in 2022
(including road construction waste, non-hazardous)
in million tonnes



Source: Federal Statistical Office, 2024; Federal Environment Ministry





4

Commercial waste

Waste from private households is generally collected by public waste management providers, but the over 3.6 million businesses in Germany are themselves responsible for the disposal or recovery of their waste. To implement the five-step waste hierarchy, the Commercial Wastes Ordinance (*GewAbfV*) of 2017 introduced a strict cascade of obligations prioritising the separate collection and recycling of paper, board and cardboard, glass, plastics, metals, wood, textiles, bio-waste and other production-specific waste fractions.

Any remaining mixed waste must be consigned to pre-treatment to extract the recoverable components for recycling. Mixed waste may only be consigned to energy recovery or disposal if its separation is shown to be technically impossible or economically unreasonable.



Additionally, since 1 January 2019, pre-treatment facilities must fulfil specific technical requirements (including minimum components) and achieve a sorting rate of at least 85 percent and a recycling rate of at least 30 percent.

Operators of facilities must document compliance with requirements for separate collection, giving reasons for any deviation, and keep a record of waste consigned to pre-treatment and energy recovery. Authorities can request corresponding documentation from operators to check compliance with the requirements of the Commercial Wastes Ordinance.

The Commercial Wastes Ordinance has since been evaluated. This evaluation showed that while the Ordinance has generated important momentum for improving separate collection and bolstering recycling, it has not yet had its full intended effect. Based on this evaluation, in December 2024 the Federal Cabinet adopted an amending ordinance to the Commercial Wastes Ordinance that is currently being debated in the Bundestag and Bundesrat. The revision aims to make the provisions of the Commercial Wastes Ordinance more stringent and more enforceable, and to strengthen monitoring by authorities. This will improve separate collection and ensure that the target recycling rate is achieved during the pre-treatment of mixed waste.

5

Waste graphic paper

Alongside packaging, materials such as printed materials and office documents are the main group of paper products in terms of volume. In view of the high consumption and short life of these products, recycling graphic paper is of great value for environmental protection.

On the initiative of the Federal Environment Ministry, on 26 September 1994 the Arbeitsgemeinschaft Graphische Papiere (graphic paper working group, AGRAPA), an alliance of associations and organisations of the paper producing, importing and printing industry, paper wholesalers and publishing houses, signed a voluntary commitment declaration pledging to gradually increase the recovery rate of waste graphic paper and, from 2000, to meet a recovery target of 60 percent.

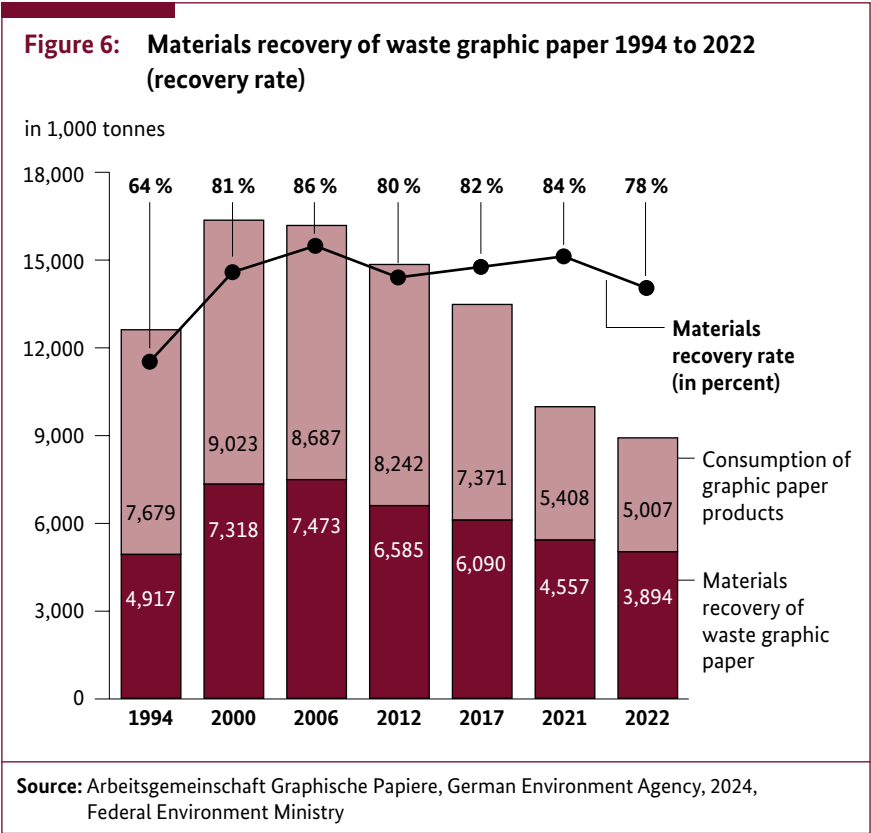
In September 2001, the positive results led AGRAPA to reaffirm its 1994 voluntary commitment and further pledge to permanently maintain the rate at 80 percent (+/- 3 percent). This commitment is consistently met, which is very welcome news for the environment. The paper industry is clearly fulfilling its producer responsibility, while at the same time the commitment reinforces the value of waste paper recycling in the German paper industry and makes a significant contribution towards relieving the burden on the environment.



However, a high recycling rate is only one side of the coin. It is also important that recycled products are used extensively, and the voluntary commitment by AGRAPA addresses this point too. Publishing houses and the printing industry, importers of

paper and paper products and paper wholesalers have committed to promoting the use of materials containing recycled paper in their respective sectors wherever possible.

The revised and extended voluntary commitment declaration made to the Federal Environment Ministry by AGRAPA's member associations along the graphic paper chain entered into force in 2023. Under the new commitment, the umbrella associations and their member companies pledge to gradually phase out, by 2028, the use of newspaper ink containing mineral oils. As an interim step, it was agreed that the quantity (measured in tonnes) of mineral oils entering the waste paper cycle through newspaper ink would be halved by 2025 compared to 2020.





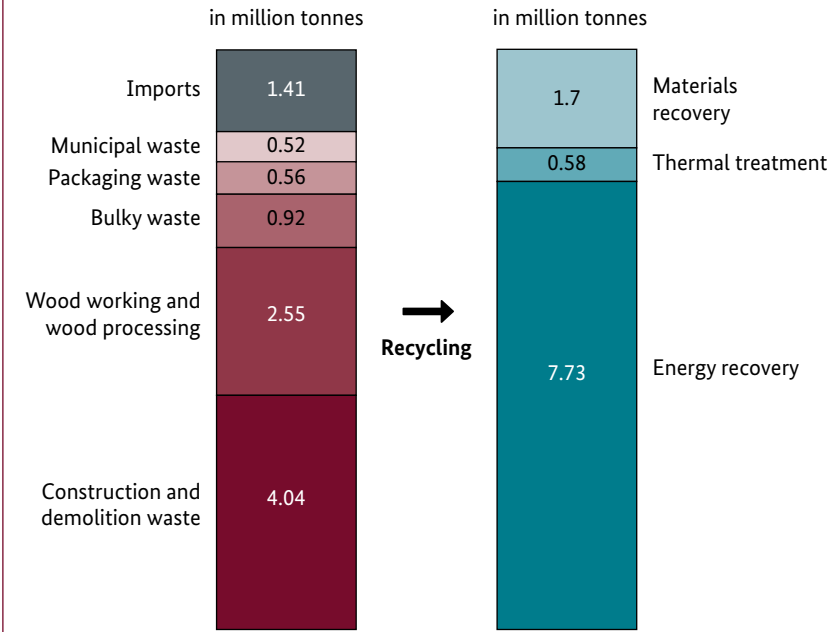
6

Waste wood

In 2016, around 10 million tonnes of waste wood were generated in Germany. Of this, 4 million tonnes were construction and demolition waste, 2.6 million tonnes from woodworking and wood processing, 0.9 million tonnes of household and bulky waste, 0.6 million tonnes of packaging waste and 0.5 million tonnes of municipal waste. In addition, 3.2 million tonnes of waste wood were imported and 1.8 million tonnes were exported. Following mechanical treatment, 7.7 million tonnes underwent energy recovery and 0.6 million tonnes were thermally treated. Since 2016, each year around 1.7 million tonnes have been recycled and used in the wood recycling industry for chipboard manufacture (including exports).

Waste wood management in Germany is regulated by the Waste Wood Ordinance (*AltholzV*). The ordinance covers materials and energy recovery and disposal of waste wood, and sets out the requirements for safe, high-quality recycling. Most waste wood is recycled in the production of chipboard. The waste wood used must comply with stringent limit values for contaminants as specified

Figure 7: Waste wood management



Source: Federal Statistical Office, 2018

in the ordinance. Energy recovery takes place in around 80 waste wood power plants with an installed capacity of around 800 megawatts that are subject to the requirements of air quality law.

Since the entry into force of the Waste Wood Ordinance in 2002, the legal framework has evolved (priority of recycling over energy recovery in line with the five-step waste hierarchy) and there have been technological advances in sorting, pre-treatment, sampling and quality control of waste wood for recycling. In light of these developments, the German government is currently reviewing how to better exploit the recycling potential of waste wood.

7

Packaging waste

Packaging is part of daily life. It generally comprises glass, aluminium, tinplate, plastic, paper, cardboard, paperboard and wood. Reusing or recycling these valuable (secondary) raw materials helps conserve natural resources, save energy and reduce greenhouse gas emissions.

The separate collection of household packaging waste, regulated by the Packaging Act (*VerpackG*), is widely accepted and used by the public. This separate collection from households is instrumental in enabling high-quality recovery of packaging waste. In 2022, around 97 percent of Germany's packaging waste was consigned to recovery. On average, every year German citizens already consign around 30 kilograms each of separately collected waste for recovery in bags and bins for packaging. Household waste glass and paper packaging are also collected separately.



To encourage the prevention of packaging waste in particular and promote a well-functioning circular economy, the Packaging Act was revised in 2021.

The revision included preventing unnecessary packaging waste by banning the sale of lightweight plastic carrier bags (thickness 15 to 50 micrometres) from 1 January 2022. In addition, with effect from 1 January 2023, restaurants, bistros and cafés offering takeaway food and drinks are required to also sell their products

Table 1: Development of recovery rates for packaging waste 1991 to 2022 (packaging subject to a quota), in percent							
	1991	1997	2007	2012	2020	2021	2022
Glass	53.7	83.5	83.7	84.7	84.2	85.0	84.6
Aluminium	16.6	79.7	74.2	91.4	96.0	96.2	96.7
Tinplate	37.1	79.5	91.6	93.0	91.9	90.2	90.2
Plastics	11.6	61.0	62.2	99.0	99.7	99.8	99.8
Paper, cardboard	55.8	88.6	86.9	99.4	99.8	99.8	99.9
Beverage board	0	61.6	66.7	98.8	99.6	99.6	99.4
Total recovery rate	39.2	82.6	79.2	96.3	96.8	97.1	97.0
Source: Gesellschaft für Verpackungsmarktforschung (GVM), 2023; Federal Environment Ministry							

in reusable packaging. The particular goal here is to replace single-use plastic packaging.

German law is influenced by the EU Packaging Directive 94/62/EC. In future, this directive will be replaced by Regulation (EU) 2025/40 of the European Parliament and of the Council of 19 December 2024 on Packaging and Packaging Waste. Initial provisions in the Regulation will take effect from August 2026, many others from 2030.

Compared to the EU Packaging Directive, the EU Packaging Regulation contains a number of new requirements, most of which will apply directly to economic operators. For example, in future packaging must be recyclable and plastic packaging must contain a specified share of recycled content. In addition, the EU Packaging Regulation also prescribes mandatory reusable rates in various sectors, for example beverage containers. It also requires Member States to reduce their generation of packaging waste. Every Member State must achieve a 5 percent reduction in packaging waste generated per capita by 2030 and a 15 percent reduction by 2040 compared to 2018.

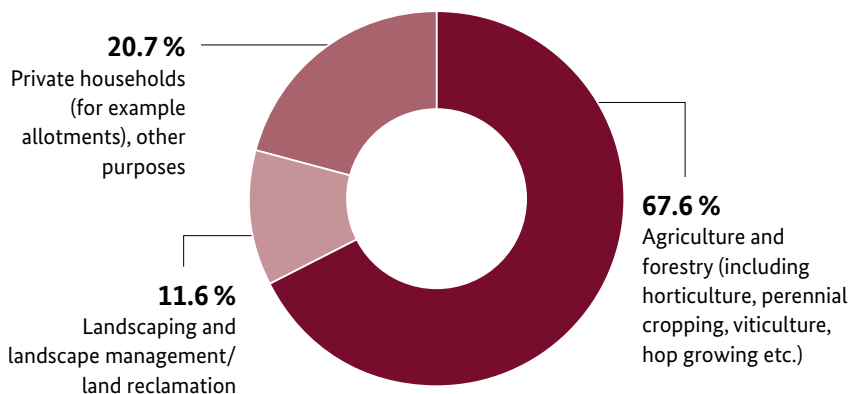
8

Bio-waste

The volume of bio-waste collected separately as part of municipal and commercial waste management has increased considerably over the past 30 years, a trend that continues today. The separate collection of bio-waste has been mandatory at national level since early 2015, in accordance with the Circular Economy Act (*KrWG*). From the beginning of 2024, it has also been required throughout the EU under the Waste Framework Directive. In light of this, public waste management providers are continuously expanding their services for the separate collection of household bio-waste (in particular by providing organic waste bins and setting up collection points for green waste).

According to the Federal Statistical Office, in 2022 in Germany around 14.1 million tonnes of biodegradable waste (bio-waste) from private households, institutions and commercial and industrial sources were treated in composting plants (around 6.7 million tonnes) and in anaerobic digestion plants and biogas installations (around 7.4 million tonnes). Around 5.1 million tonnes of this separately collected bio-waste were from organic waste bins and 4.8 million tonnes were garden and park waste (60 kilograms per capita and 57 kilograms per capita respectively, giving a total of 9.9 million tonnes of separately collected bio-waste or 117 kilograms per capita). The Federal Statistical Office also estimated that, in 2020, private households composted and used around 2.6 million tonnes (31 kilograms per capita) of their own bio-waste.



Figure 8: Use of compost in 2022 (in percent)

Source: Federal Statistical Office, 2022; Federal Environment Ministry

Waste statistics for 2022 recorded 1,104 composting and anaerobic digestion plants in Germany, treating biodegradable waste separately or with other waste. These plants included 206 bio-waste composting facilities, 612 green waste composting facilities, 226 anaerobic digestion plants (biogas plants) and 60 combined anaerobic digestion and composting facilities.

Around 690 million cubic metres of biogas were produced from the separately collected bio-waste for use as a sustainable energy source. Composted bio-waste accounted for around 90 percent of the 4.4 million tonnes of compost produced from waste. The composts were used as fertiliser and soil improvers in various sectors (see figure 8).



9

Marketing of composts and digestates

Separately collected bio-waste is turned into high-quality composts and digestates for use as fertilisers (nutrients) and soil improvers (humus). Digesting suitable bio-waste in biogas plants also allows usable energy (biogas) to be recovered, while composted bio-waste can be made into substrate mixtures for specific applications. This approach can contribute significantly to resource conservation.

Bio-waste also plays an increasingly important role in energy generation. Biogas can be used to generate power and heat, or processed and fed into the natural gas grid. The National Climate Initiative (NKI) therefore supports the addition of a digestion phase for existing composting plants. In addition to usable biogas, combined processes of this kind produce valuable compost which can be used to fertilise and improve soil.

10

Residual waste

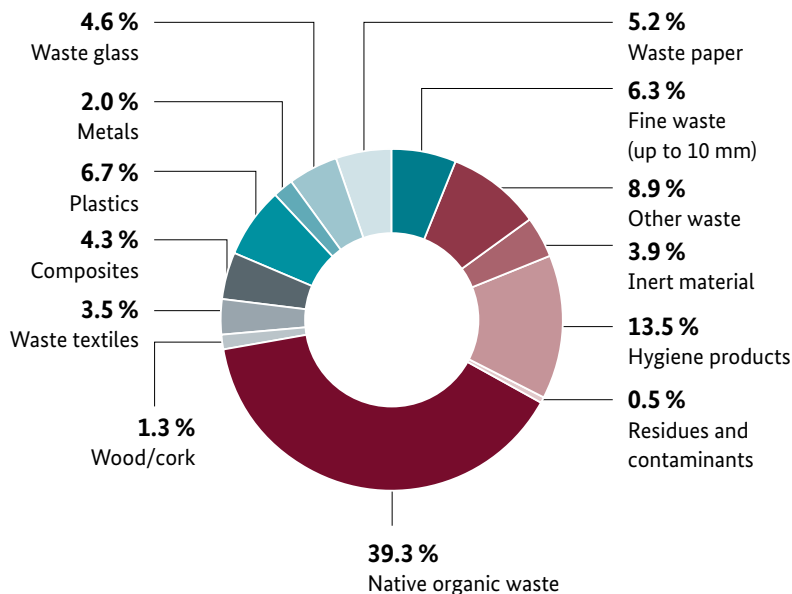
Revised EU waste legislation requires Member States to increase their recycling rates. The new targets call for recycling rates of 55 percent in 2025, 60 percent in 2030 and 65 percent in 2035. The revised law also changes the rate calculation method from input-based to output-based. This means that Germany, too, must further increase its waste recycling.

Figure 9 shows the waste fractions in residual waste that have not been recycled up to now. Organic waste in particular holds huge potential, accounting for nearly 40 percent of residual waste. This potential must be tapped. The separate collection of bio-waste has not yet been introduced across the whole of Germany, even though there is an obligation to do so. Other fractions of residual and bulky waste are equally suitable for recycling.

High-quality waste recycling cannot be achieved without separate collection. That is why Germany's recycling and waste management industry supports the separation of waste and waste fractions right from the source. For instance, packaging waste or other physical contaminants mistakenly put in the organic waste bin prevent the compost produced from meeting the quality requirements for fertilisers and other uses. Glass in the paper bin makes the waste paper unusable in paper mills; uncleaned packaging waste makes sorting difficult.



Figure 9: Composition of household waste in Germany
in percent by weight

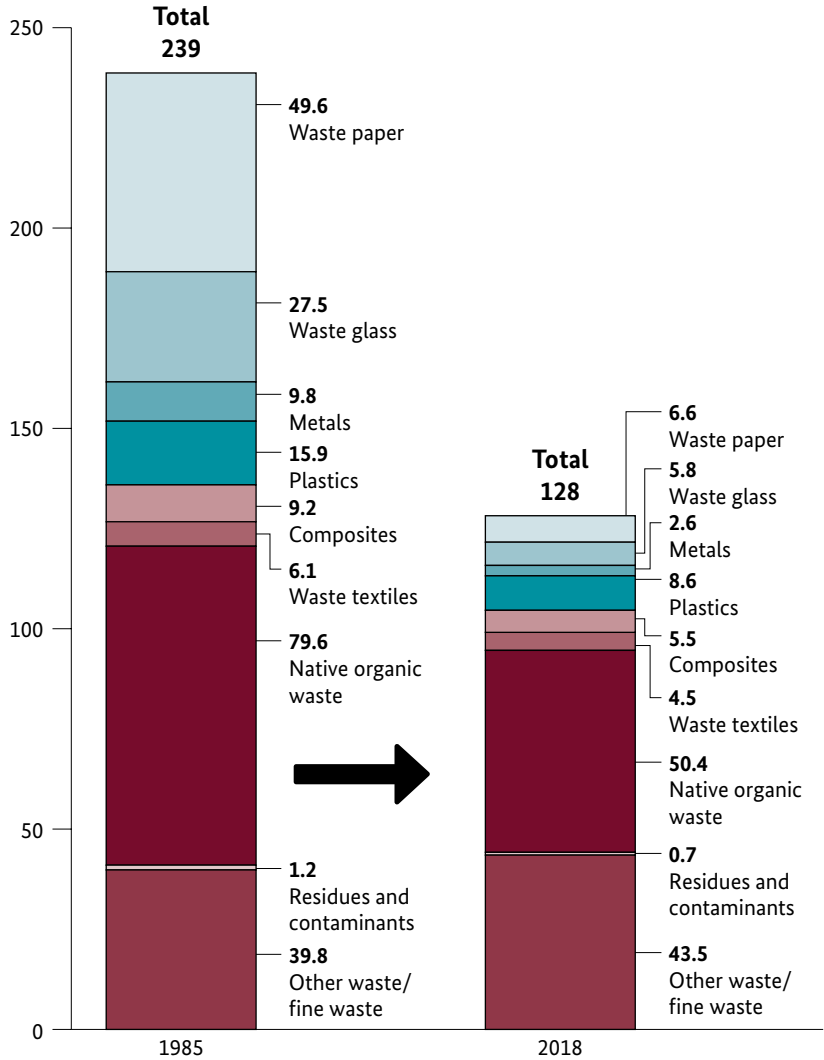


Source: German Environment Agency, 2020

The introduction of separate collection systems for different waste fractions (paper, glass, packaging, bio-waste, harmful substances, residual waste etc.) gave an enormous boost to recycling (67 percent is now recycled) and slashed the volume of residual waste. Figure 10 shows the decline in residual waste volumes from private households from 1985 (239 kilograms per capita per year) up to 2018 (128 kilograms per capita per year). It also shows the drop in volumes of individual residual waste fractions. This data is from a Federal Environment Ministry research project on residual waste analysis.

Figure 10: Comparison of specific household waste volumes and composition in 1985 and 2018

All figures in kg per capita per year



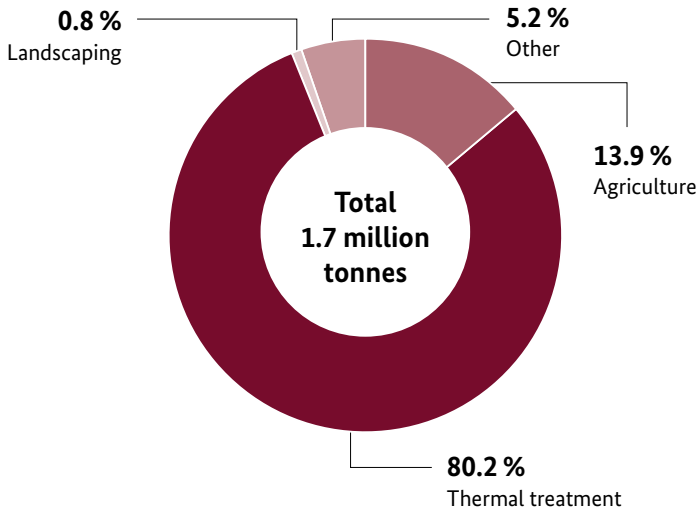
Source: German Environment Agency, 2020

11

Sewage sludge

Sewage sludge from municipal sewage treatment plants (around 1.7 million tonnes dry weight) contains a range of plant nutrients, in particular phosphorous, which is essential to all living things. For this reason, sewage sludge is used as a fertiliser in agriculture (around 14 percent in 2022) and in landscaping (between one and two percent in 2022). However, as harmful substances in the sewage sludge still enter the environment in this way, use as fertiliser is only an option for sewage sludge with a low level of contaminants. This use will be further reduced in future.

Figure 11: Management and use of sewage sludge in 2022

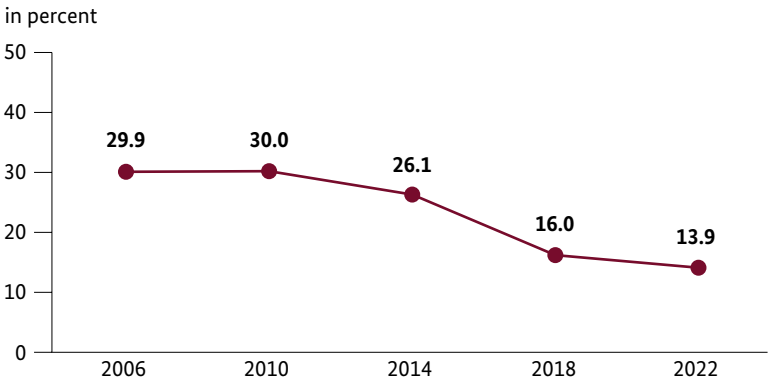


Source: Federal Statistical Office, 2023; Federal Environment Ministry

Currently, most sewage sludge is incinerated (80 percent in 2022) and the ash either landfilled or used in road construction or as backfill in mines. In these processes the valuable resource phosphorous is left unused. Since there are only limited reserves of phosphorous worldwide, the German government supports the recovery of phosphorous from sewage sludge and sewage sludge incineration ash. From 2029, this phosphorous recovery will be mandatory. In contrast, the government and federal states have jointly resolved to gradually introduce, from 2029, significant restrictions on the direct application of sewage sludge on soils, especially in agriculture. To implement this, the German government revised the 1992 Sewage Sludge Ordinance (*AbfKlärV*). The amended ordinance entered into force on 3 October 2017.



Figure 12: Use of sewage sludge in agriculture 2006 to 2022



Source: Federal Statistical Office, 2023



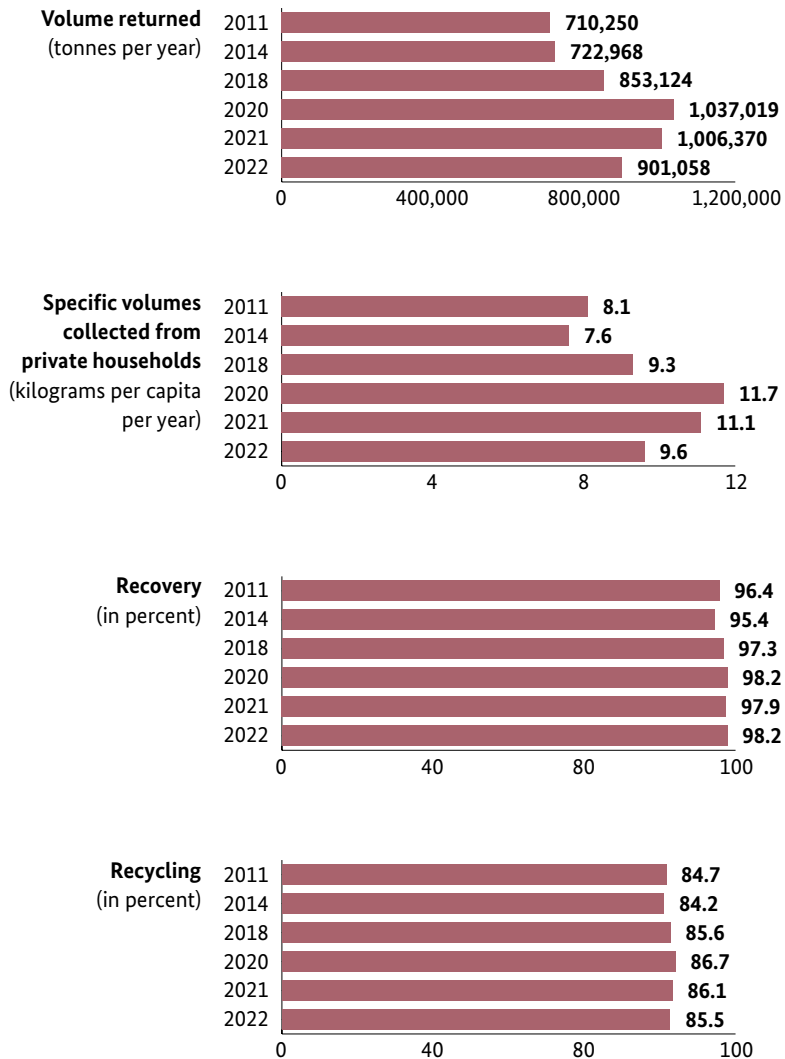
12

Waste electrical and electronic equipment

In the period between 2012 and 2022, around 9 million tonnes of waste electrical and electronic equipment (WEEE) were collected and consigned to proper treatment processes.

This means that, each year, the public returned an average of 10 kilograms of WEEE per capita through separate collection. Since 2019, European Union Member States must meet a return and collection rate for WEEE from private households and businesses of 65 percent of the amount placed on the market in the preceding three years. In 2022, Germany once again fell significantly short of this target, with a collection rate of 31.7 percent. In light of this, and with a view to improving resource efficiency, it is imperative that we continue to improve WEEE collection rates in future. At the same time, in all the years evaluated to date, Germany has far exceeded the WEEE recovery and recycling targets stipulated by the EU, with over 85 percent of collected WEEE being recycled.

Figure 13: Collection volumes and recovery rates of waste electrical and electronic equipment 2011 to 2022



Source: Federal Statistical Office, 2024; Federal Environment Ministry

13

Waste batteries

Since the EU Battery Directive entered into force in 2006, the separate collection and recycling of all batteries has been mandatory in all EU Member States. In Germany, return and disposal of all waste batteries have been regulated since 2009 by the Batteries Act (*BattG*), which implements the EU provisions.

The new Regulation (EU) 2023/1542 concerning batteries and waste batteries entered into force on 17 August 2023. Under the new Battery Regulation, the entire life cycle of batteries is addressed for the first time. The new regulation considers product and waste stages together and categorises batteries as waste portable batteries, waste light means of transport batteries (LMT batteries) and starting, lighting and ignition batteries (SLI batteries).

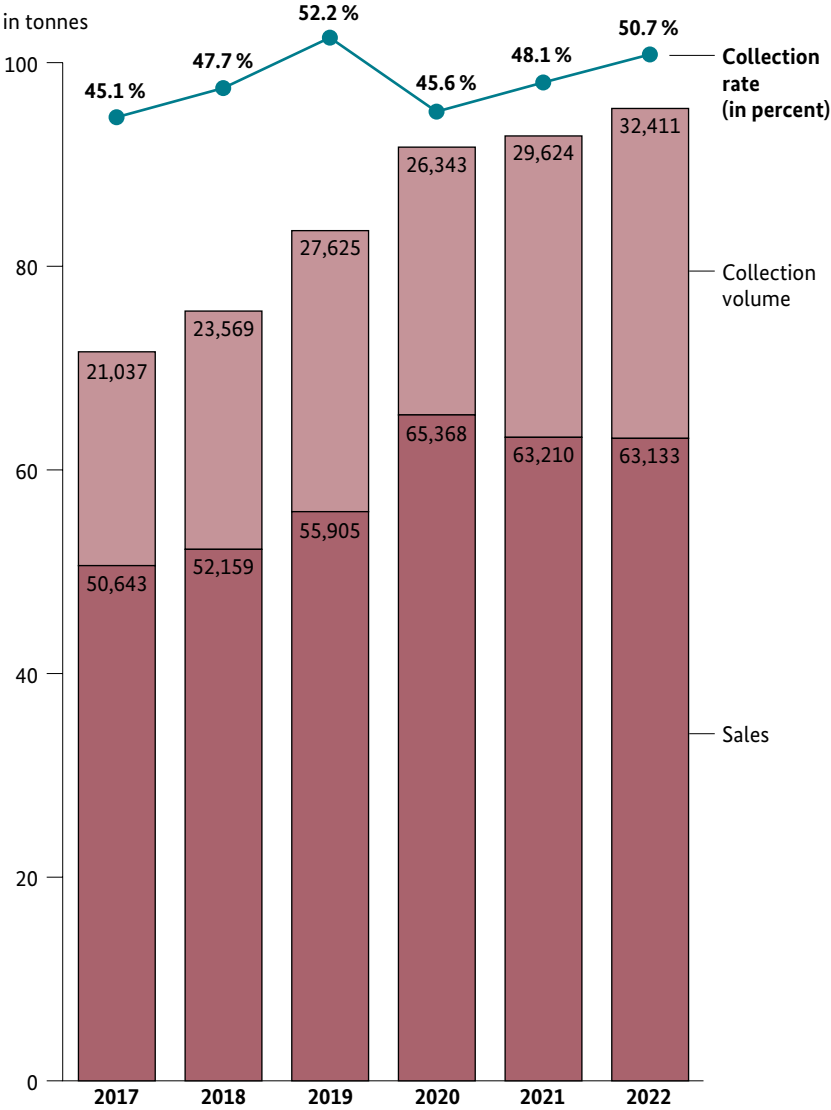
A collection rate for waste portable batteries of 45 percent has applied in all EU Member States since 2016 (based on the amounts placed on the market during the preceding three years). Germany's revised Batteries Act already raised the national collection rate to 50 percent in 2021. In future, ambitious requirements will have to be met under the Battery Regulation.

Every year, more than 63,000 tonnes of portable batteries are placed on the market in Germany. Although sales of portable batteries increase every year, Germany consistently complies with the applicable EU-wide collection requirements. There are return points for waste portable batteries in shops, for example, and at municipal recycling centres.

Valuable secondary raw materials such as zinc, iron, lead, cobalt, plastic and lithium can be recovered from waste batteries for reuse.



Figure 14: Collection of waste portable batteries 2017 to 2022



Source: Federal Statistical Office, 2024; Federal Environment Ministry



14

End-of-life vehicles

Since 2015, the End-of-Life Vehicles Directive (2000/53/EC) and the German End-of-Life Vehicles Ordinance (AltfahrzeugV) have required a recycling rate of 85 percent and a total recovery rate (reuse/recovery) of 95 percent by average empty weight per vehicle. These rates apply to the total volume of end-of-life vehicles (ELV) in a given year and do not have to be met for each individual ELV.

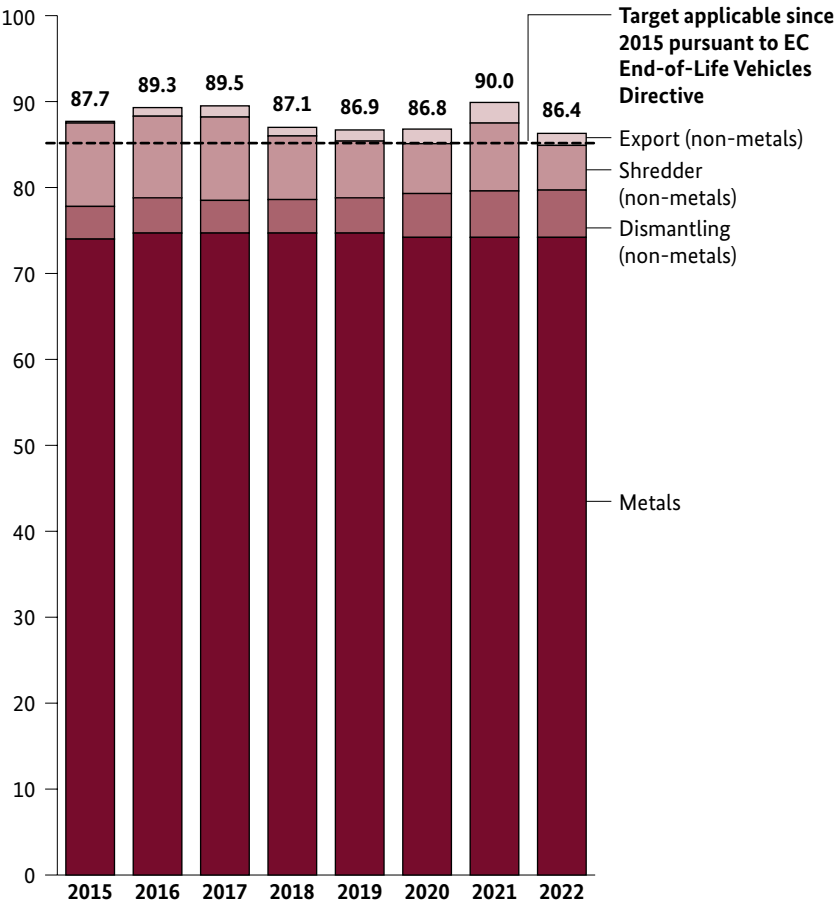
For the most part, the higher targets that have applied since 2015 have already been exceeded in Germany since 2006 (recycling) and since 2010 (recovery). However, the recovery target of 95 percent was narrowly missed in 2019, 2020 and 2022, by 1 to 1.4 percent. The main reason in all three years was the very low number of scrap bodies received by shredding facilities compared to the number of end-of-life vehicles.



Figure 15: End-of-life vehicle recovery rates in Germany 2015 to 2022

Reuse and recycling

Share of total vehicle weight
in percent

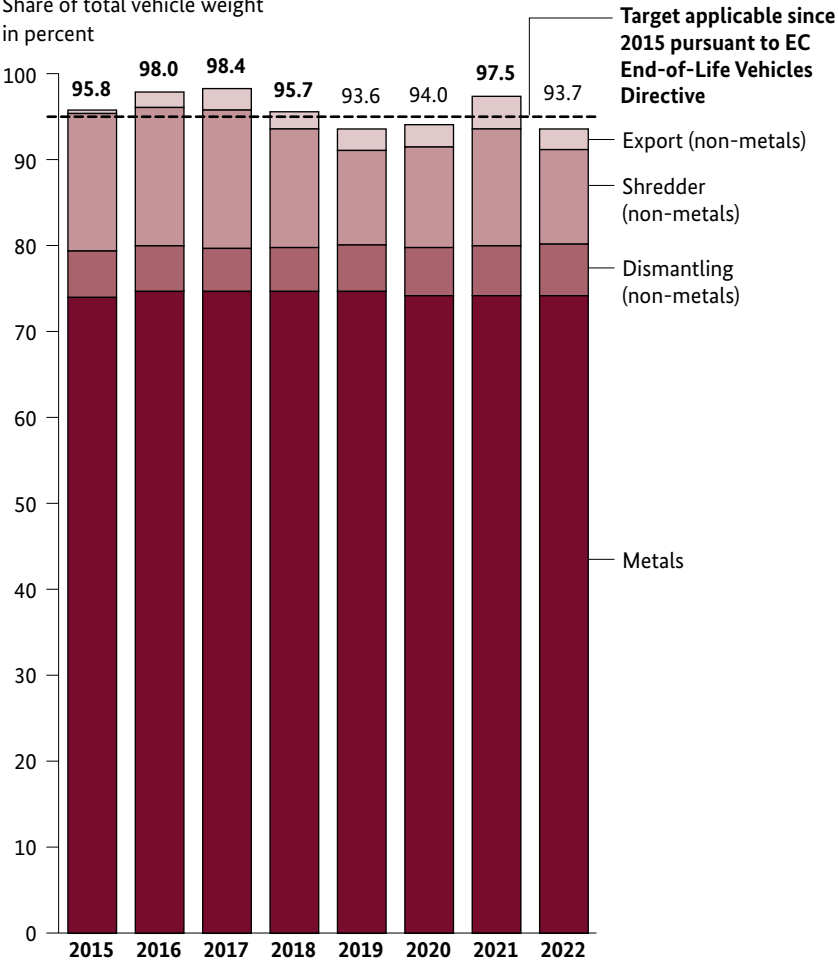


Source: German Environment Agency, 2024

End-of-life vehicle recovery rates in Germany 2015 to 2022 **Figure 15**

Reuse and recovery

Share of total vehicle weight
in percent



Source: German Environment Agency, 2024

15

Mineral waste

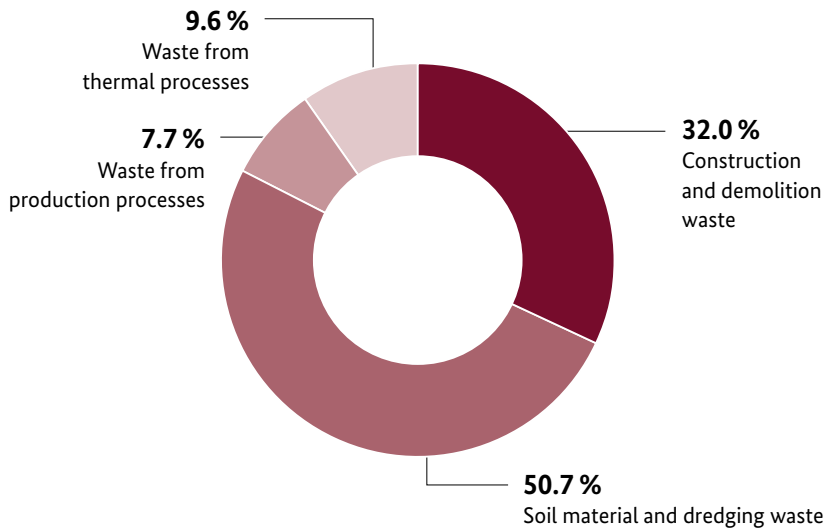
Mineral waste is the largest waste stream in Germany, with an annual volume of more than 200 million tonnes. As well as construction and demolition waste and excavated soil, it includes slag and ash from incineration processes in the energy and metals industries. Mineral waste holds enormous potential for recycling. Around 90 percent of mineral waste can currently be recovered.

A significant proportion of mineral waste is used in the construction industry as a substitute building material, for example as aggregate in recycled building materials used for roads, railway lines and paved surfaces, in building construction as recycled concrete, as a substitute material in landfill construction, or for backfilling in mines. Construction activities in Germany and the goals for resource conservation make it necessary to promote high-quality recycling for the long term.



On 1 August 2023, the Commercial Wastes Ordinance (*Gewerbeabfallverordnung*) entered into force. It aims *GewAbfV* to promote the use of secondary raw materials and in this way strengthen the circular economy.

At the same time, stringent standards for the materials to be used will protect soil and groundwater as valuable resources, and safeguard against the release of environmentally hazardous substances.

Figure 16: Origin of mineral waste

Source: German Environment Agency, 2017

The Substitute Building Materials Ordinance is the first nationwide ordinance regulating the manufacture of mineral substitute materials and their use in technical constructions. If the provisions on manufacture and the requirements on use in technical constructions are met, there is no need for a permit under water law. Private and public authorities and clients who were previously daunted by the varying provisions at federal state level can now use quality-assured substitute building materials without complication and with legal certainty.

The ordinance will lead to a further increase in demand for substitute building materials in Germany and to greater use of recycled building materials.



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Waste shipment

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal entered into force in 1992. There are around 190 Parties to the Convention.

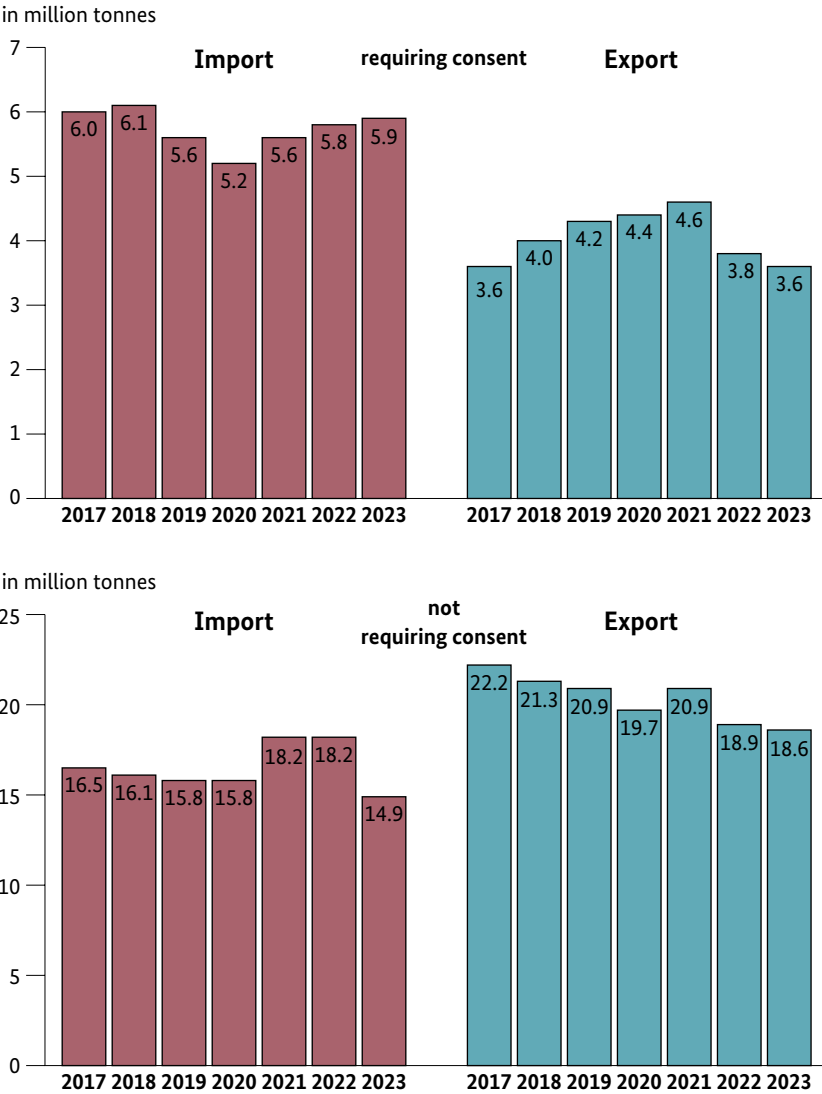
The Basel Convention was incorporated into EU law through the adoption of the EU Waste Shipment Regulation, which is legally binding for all Member States. The German Waste Shipment Act (*AbfVerbrG*) contains supplementary provisions applicable in Germany.

The shipment of hazardous waste in particular requires consent. Where consent is required, it must be obtained in advance from the relevant authorities. Transport and disposal operations are tracked in the movement documents.

More stringent EU stipulations on the shipment of plastic waste have applied since 1 January 2021. They are based on a decision taken at the level of the Basel Convention.

The large volumes of waste imported into Germany compared with its waste exports in the case of shipments requiring consent is primarily attributable to the high standard of waste management structures in Germany, in conjunction with economic factors.

Figure 17: Transboundary waste shipment 2017 to 2023



Source: German Environment Agency, 2024; Federal Environment Ministry

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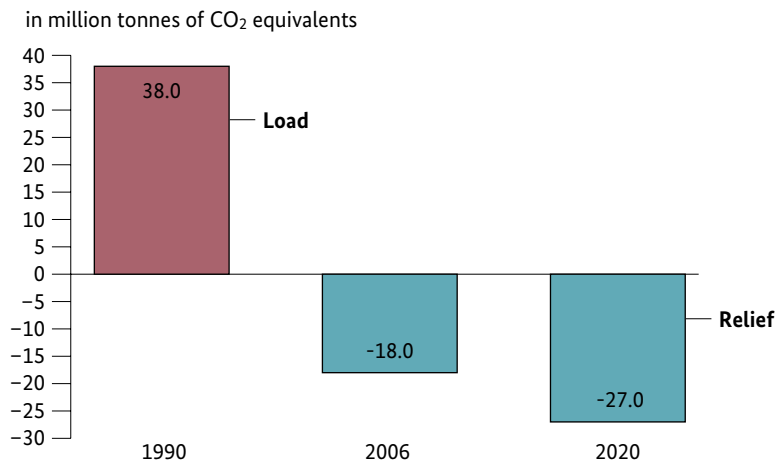
Waste management as climate action

The ban on landfilling untreated waste, which entered into force in June 2005, was a far-sighted policy decision that has played a pivotal role in climate change mitigation in the waste sector. The legal basis for ending the landfilling of untreated waste from human settlements was established in 1993 in the Technical Instructions on Waste From Human Settlements (*TA Siedlungsabfall*) and codified in the 2001 Waste Deposition Ordinance (now integrated in the Landfill Ordinance). Thus, for the past two decades in Germany, waste has only been landfilled if it does not significantly contribute to methane formation or other contamination such as organically polluted leachate. This requirement is verifiably and effectively defined in legally prescribed criteria for the acceptance of waste for landfill, including a parameter for total organic carbon content (TOC).



Germany's climate action successes in the waste management sector are described in the National Climate Action reports. The greenhouse gas emissions reported are primarily methane and nitrous oxide and originate in landfills or biological and other waste (and wastewater) treatment processes. Including the wastewater sector, greenhouse gas emissions of 5.6 million tonnes of CO₂ equivalents were reported for 2022.

Excluding wastewater, emissions for 2022 were around 3.5 million tonnes of CO₂ equivalents. This is a reduction of over 90 percent compared to 1990. This decline is mainly due to the reduced formation and emission of methane in landfills. The rise in emissions from biological waste treatment during the same period can be attributed to the increase in capacities for the digestion and/or composting of separately collected bio-waste.

Figure 18: Emissions of climate gases

Source: IFEU study 2010, Öko-Institut e.V.; Federal Environment Ministry

The ban on landfilling will bring emissions from landfills down to around 0.5 million tonnes of CO₂ equivalents in 2040. To supplement this natural decline, the National Climate Initiative also supports aeration measures and measures for optimising gas collection in existing landfills. Greenhouse gas emissions from biological treatment facilities cannot be avoided completely, in spite of organisational and technical improvements.

Further gas-reducing effects are achieved through waste prevention, reuse, recycling of materials such as metals, glass, paper and cardboard, packaging, plastics and waste wood, as well as through the energy recovery of waste as a substitute for fossil fuels. The climate reports present this data in the chapters on industry or energy and the reductions are credited to the respective sector.

Information on the internet

The Federal Environment Ministry website provides a wealth of useful information, including links and references, especially to contact points for waste management and environmental organisations:

Current press releases of the Federal Environment Ministry

→ www.bundesumweltministerium.de/en/press/current-press-releases

Waste policy

→ www.bundesumweltministerium.de/en/topics/water-management/circular-economy-overview/overview-waste-policy

Circular economy and waste law in Germany (in German only)

→ www.bundesumweltministerium.de/WS592

Types of waste/waste flows

→ www.bundesumweltministerium.de/en/topics/water-management/circular-economy-overview/overview-types-of-waste-and-waste-flows

Waste treatment and waste technology

→ www.bundesumweltministerium.de/en/topics/water-management/circular-economy-overview/waste-treatment-and-technology

German RETech Partnership e.V. (RETech)

→ www.bundesumweltministerium.de/en/topics/water-management/circular-economy-overview/international-policy/german-retech-partnership
→ <https://retech-germany.net/en/home/>

Statistics on individual areas of waste management

→ www.bundesumweltministerium.de/en/topics/circular-economy/waste-management-statistics



European Week for Waste Reduction

→ <https://ewwr.eu/>

List of abbreviations

AGRAPA	Arbeitsgemeinschaft Graphische Papiere (graphic paper working group)
AltfahrzeugV	End-of-Life Vehicles Ordinance
BattG	Batteries Act
BMUKN	Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety
CO₂	carbon dioxide
EC	European Community
EU	European Union
e.V.	eingetragener Verein (registered company)
KrWG	Circular Economy Act
LV battery	low voltage battery
mbH	mit beschränkter Haftung (with limited liability)
NKI	National Climate Initiative
TOC	total organic carbon

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