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Waste Management in Germany 2023

Facts, data, figures

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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. 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, circular economy 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. Around 11,000 companies with more than 280,000 employees in total generate an annual turnover of roughly 80 billion euros. The management infrastructure comprises 14,500 facilities, achieving high rates of recycling for municipal waste (67 percent), production and



Circular economy also pays off financially

commercial waste (around 70 percent) and construction and demolition waste (almost 90 percent).

In Germany, the core elements of circular economy are set out in the 2018 Circular Economy Act (KrWG). It transposes the EU Waste Framework Directive into national law, forms the legal basis for 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.

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 ecologically sound way.

Ultimately, 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 necessary, but it is not an alternative to circular economy.

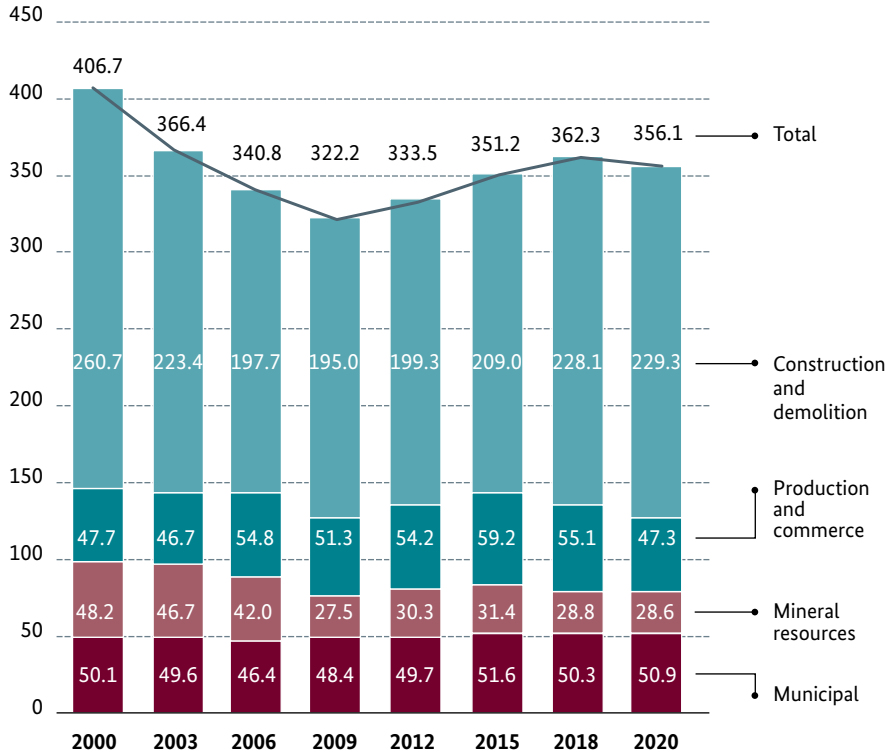
To protect the environment, combat climate change and conserve resources, we will always need state-of-the-art waste management facilities. Key elements of this are recycling, energy recovery from non-recyclable waste and landfilling of residues. The high costs of energy recovery resulting from environmental stipulations, especially for 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 approx. 50 million tonnes of municipal waste are recycled. However, the share of recyclates from recycling is only just over 50 percent of municipal waste.

Figure 1: Waste generation in Germany 2000 to 2020
including hazardous waste

in million tonnes



Source: Federal Statistical Office, 2020

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Waste Management in Germany 2023 | Facts, data, figures

Figure 2: Decoupling waste generation from economic performance 2000 to 2020

in billion euros

Year	Gross domestic product, price adjusted (billion euros)	Net waste generation (billion euros)	Waste intensity of net waste generation
2000	100	100	100
2004	102.2	83.5	81.7
2008	111.4	84.7	76
2012	113.9	82	71.9
2016	121.7	88.3	72.6
2020	131.3	87.6	66.7

Legend:

- Gross domestic product, price adjusted (light blue bars)
- Net waste generation (dark teal bars)
- Waste intensity of net waste generation (red line)

Source: Federal Statistical Office, 2022



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, circular economy also covers the upstream industrial phases, where these may influence how waste is generated and managed. In this context, the recycling-friendly design of products in terms of their ease of dismantling, pollutant content and resource consumption and exploring options for waste prevention both play an important role.



The aim of waste prevention is to minimise waste generation and pollutant content of waste, with a view to conserving resources. To this end, the German government and federal states (Länder) adopted the second Waste Prevention Programme in 2020. The first programme, adopted in 2013, provided for public measures. The updated programme addresses the many opportunities for waste prevention available to the public, private companies and institutions.

It is therefore crucial to raise public awareness and sensitise people to the benefits of effective waste prevention. Opting for durable, streamlined and repairable goods rather than unnecessary and short-lived products, switching from products to services and from ownership to shared use, a change in behaviour – these are just some examples of how each of us can help protect the planet through informed decisions.



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

Additionally, at the event organised by the German Association of Local Public Utilities (VKU) every year at the end of November to mark the start of the European Week for Waste Prevention, commissioned by the Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, best-practice examples are presented and new developments are discussed.

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 answers so it can live up to its responsibility. However, an efficiency strategy can only be successful in the long term if its efficiency gains are not swallowed up by rising 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.

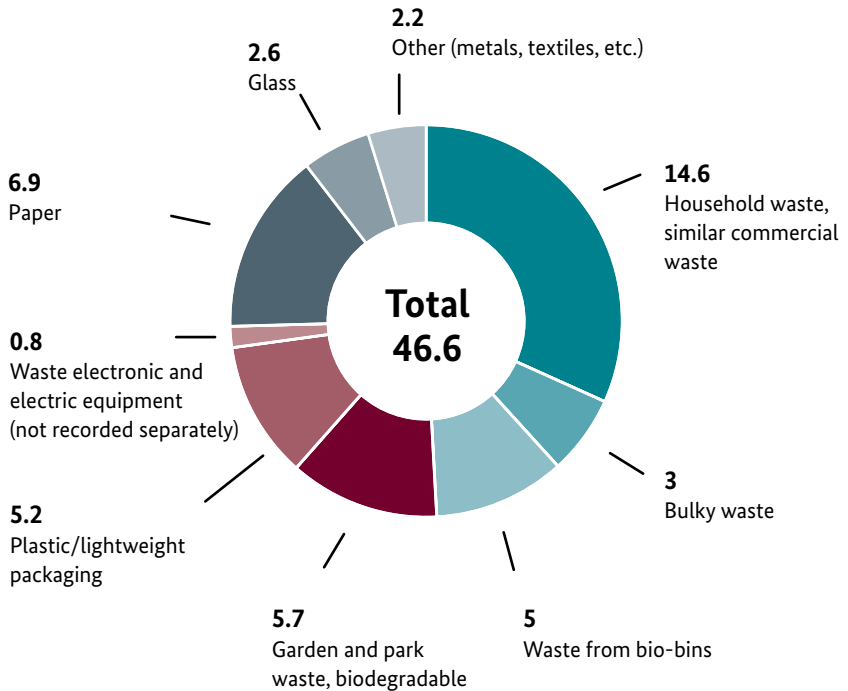
The high recycling and recovery rates in Germany help save resources and primary energy, and highlight the waste industry's contribution to sustainable economic practices.

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. 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. A further approx. 5 million tonnes of incineration capacity were available in 32 refuse-derived fuel (RDF) power plants. In 2017, a total of 45 MBT plants with a capacity of around 5 million tonnes treated some 4.5 million tonnes of waste. Only around 0.5 million tonnes of this waste was subsequently landfilled.

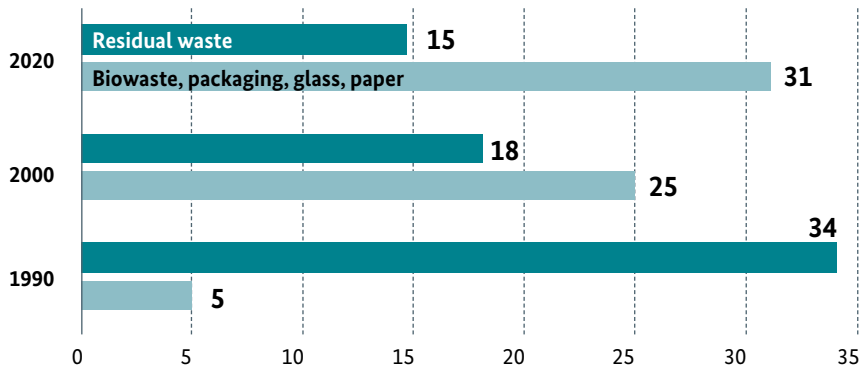
Figure 3: Composition of household waste in 2020
in million tonnes



Source: Federal Statistical Office, 2022; BMUV

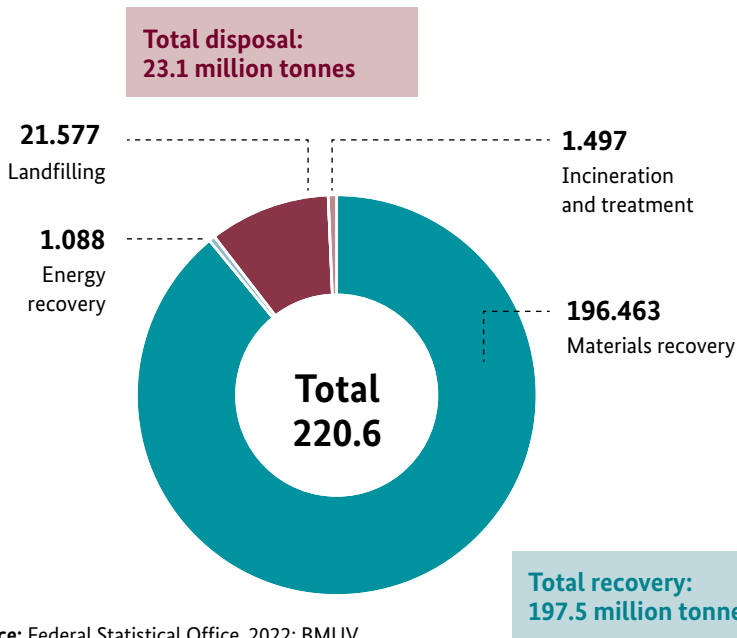
Figure 4: More recyclables than residual waste in 2020 – household waste

in million tonnes



Source: Federal Statistical Office, 2022



Figure 5:**Construction and demolition waste in 2020 (including road construction waste, non-hazardous) in million tonnes**

Source: Federal Statistical Office, 2022; BMUV





4

Commercial waste

Waste from private households is generally collected by public waste management providers, but the 3.6 million plus businesses in Germany are themselves responsible for the disposal or recovery of their waste.

To implement the five-step waste hierarchy, the new Commercial Wastes Ordinance (GewAbfV), which entered into force on 1 August 2017, introduced a strict cascade of obligations prioritising the separate collection and recycling of paper, board and cardboard, glass, plastics, metals, wood, textiles, biowaste 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 undergo energy recovery or be disposed of 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. The German government is currently reviewing the recycling rate based on developments in the waste industry and the experience gained.

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.

5

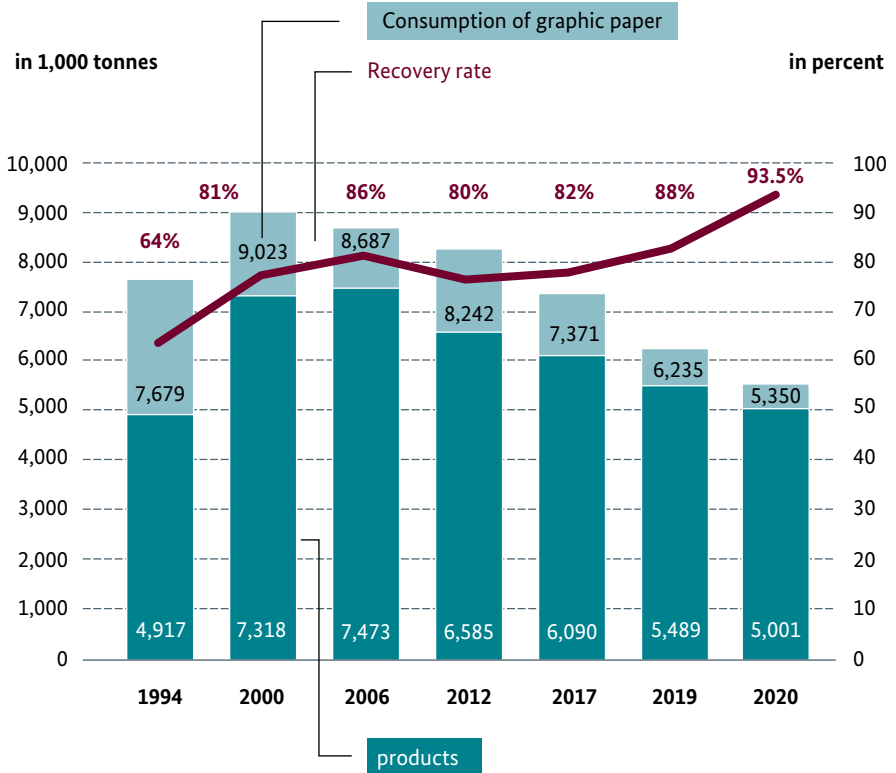
Waste graphic paper

At 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.

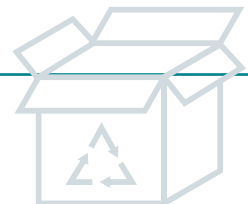
The term graphic paper refers to print products and paper for office and administration purposes. In September 2001, the positive results led AGRAPA to reaffirm its 1994 voluntary commitment and further pledge to permanently maintain the rate at 80 percent (+/- 3 percent). To date, it has been able to achieve this target, which is very welcome news for the environment. The paper industry is clearly meeting 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.



Figure 6: Recovery of waste graphic paper 1994 to 2019
(recovery rate)



Source: Arbeitsgemeinschaft Graphische Papiere, Federal Environment Agency, 2022; BMUV



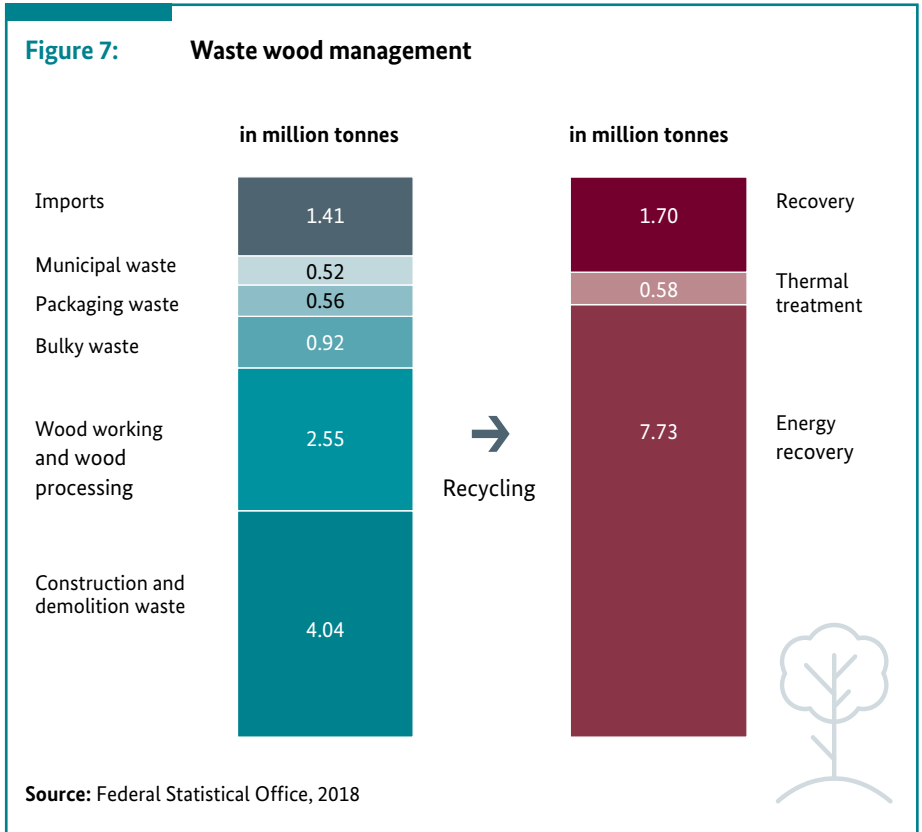


6

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. Around 1.7 million tonnes per year were 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 recycling takes place in the wood recycling industry during the production of chipboard; the waste wood used must comply with stringent limit



values for contaminants as specified 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, there have been changes in the legal framework (priority of recycling over energy recovery in line with the five-step waste hierarchy) and technological advances in sorting, pre-treatment, sampling and quality control of waste wood for recycling. The German government is currently revising the Waste Wood Ordinance to reflect these changes and better exploit the potential of waste wood for recycling.

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 packaging waste in households, regulated by the Packaging Act (VerpackG), has great public support and is widely used.

In 2020, around 97 percent of Germany's packaging waste was consigned to recovery. On average, every German citizen already consigns around 30 kilograms



Table 1: Development of recovery rates for packaging waste 1991 to 2020 (packaging subject to a quota)

	1991	1997	2007	2012	2017	2019	2020
Glass	53.7	83.5	83.7	84.7	84.4	84.1	84.2
Aluminium	16.6	79.7	74.2	91.4	91.1	95.9	96.0
Tinplate	37.1	79.5	91.6	93	90.9	91.5	91.9
Plastics	11.6	61	62.2	99	99.4	99.6	99.7
Paper, cardboard	55.8	88.6	86.9	99.4	99.7	99.8	99.8
Beverage cardboard	0	61.6	66.7	98.8	99.4	99.6	99.6
Total recovery rate	39.2	82.6	79.2	96.3	96.8	96.8	96.9

Source: Gesellschaft für Verpackungsmarktforschung mbH (GVM), 2021; BMUV

of separately collected waste for recovery in bags and bins for packaging. On top of this is the separate collection of glass and paper packaging.

To encourage the prevention of packaging waste in particular and promote well-functioning circular economy, the Packaging Act was revised in 2021. This included the prevention of unnecessary packaging waste by introducing a ban on the sale of lightweight plastic carrier bags 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 in reusable packaging. The goal is to replace plastic one-way disposable packaging.



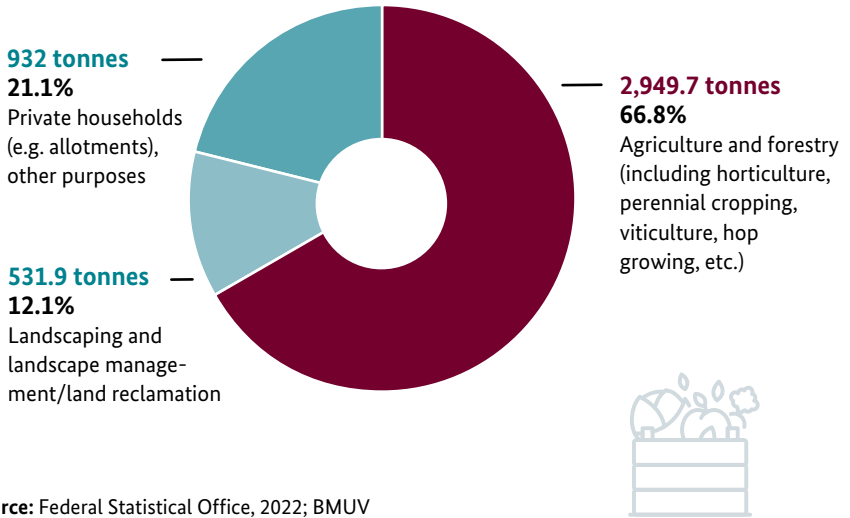
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Biowaste

Over the past 30 years, the volume of biowaste collected separately as part of municipal and commercial waste management has increased considerably, and continues to rise. The reason for this is the obligation, which was introduced by the Circular Economy Act (KrWG) and entered into force on 1 January 2015 to ensure the separate collection of biowaste from private households. In light of this, public waste management bodies are continuously expanding their services for the separate collection of biowaste from households (in particular by providing bio-bins and setting up collection points for green waste).

According to the Federal Statistical Office, in 2020 in Germany around 13.65 million tonnes of biodegradable waste (biowaste) from private households, facilities and of commercial and industrial origin were treated in composting plants (around 7.41 million tonnes) and in anaerobic digestion plants and biogas installations (around 6.24 million tonnes). Around 5.3 million tonnes were collected in bio-bins (64 kilograms per capita) and 5.33 million tonnes of garden and park waste (64 kilograms per capita) were collected separately (in total around 10.63 million tonnes/128 kilograms per capita). The Federal Statistical Office also estimated that in 2020, private households themselves composted and used around 2.6 million tonnes (31 kilograms per capita) of their own biowaste.



Figure 8: Use of compost in 2020

Source: Federal Statistical Office, 2022; BMUV

In the same year, 1,102 composting and anaerobic digestion plants treating biodegradable waste separately or with other waste were recorded in waste statistics. Of these, 218 were biowaste composting facilities, 599 green waste composting facilities, 227 anaerobic digestion plants (biogas plants) and 58 combined anaerobic digestion and composting facilities.

In total, 97 percent of all biodegradable waste brought to waste management facilities in 2020 underwent materials recovery, in other words was recycled. In the case of waste composted by private households, 100 percent recycling in gardens and plant pots can be assumed. Around 4.8 million tonnes of compost were produced from biowaste, which was used as fertilisers and soil improvers in various sectors (see figure 8).



9

Marketing of composts and digestates

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

Biowaste 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 Renewable Energy Sources Act (EEG) therefore supports the addition of a digestion phase for existing composting plants. Combined processes of this kind generate both usable biogas and valuable compost, which can be used as fertiliser and soil improver.

10

Residual waste

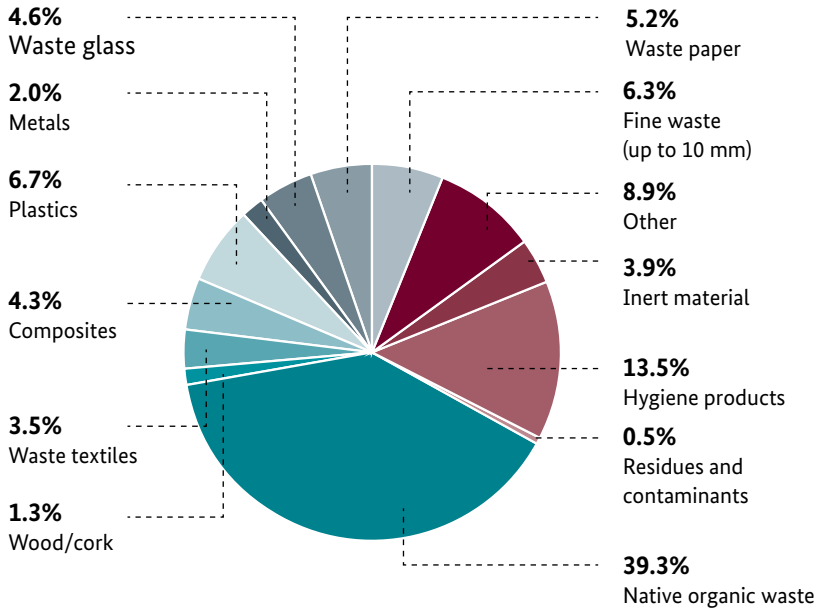
Revised EU waste legislation requires member states to increase their recycling rates. Up to now, the goal has been to recycle 50 percent of municipal waste (i.e. waste from private households and small businesses). The new targets call for recycling rates of 55 percent in 2025, 60 percent in 2030 and 65 percent in 2035. The revised legislation also changes the calculation of the rate from an input-based to an output-based method. This means that Germany, too, must further increase its waste recycling.

Figure 9 shows the waste fractions in residual waste that to date have not been recycled. Organic waste in particular holds huge potential, accounting for nearly 40 percent of residual waste. This potential must be tapped. The separate collection of biowaste 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 bio-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.



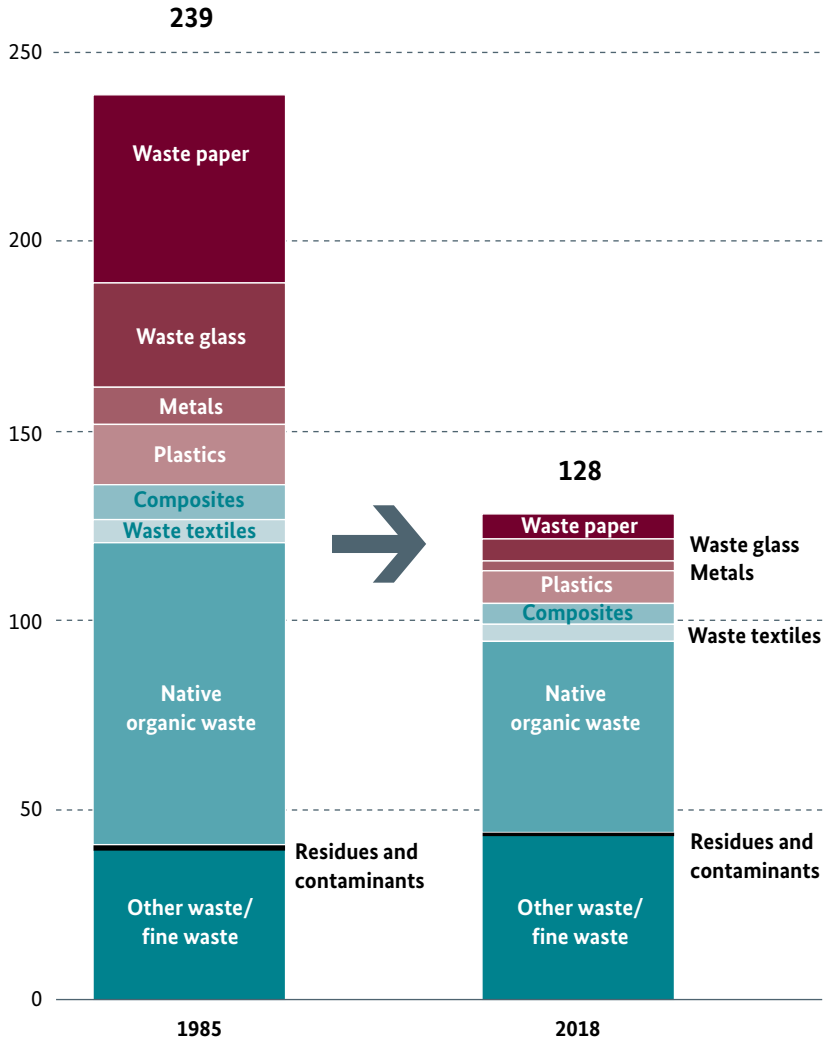
Figure 9: Composition of household waste in Germany
in percent by weight



Source: Federal Environment Agency, 2020

The introduction of separate collection systems for different waste fractions (paper, glass, packaging, biowaste, 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



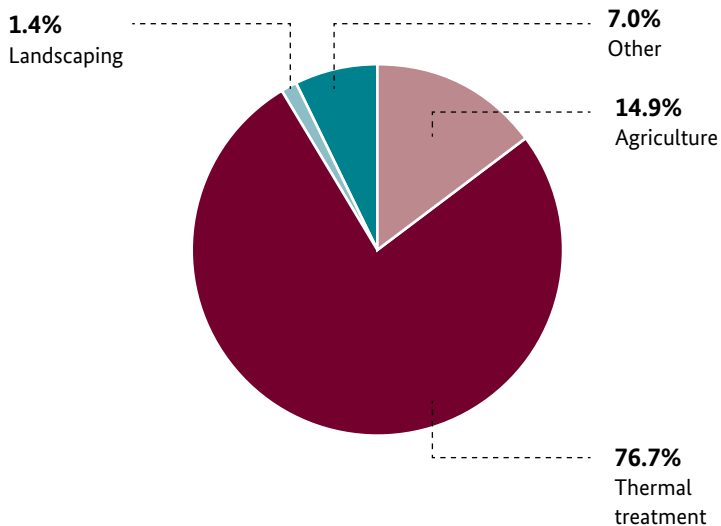
Source: Federal Environment Agency, 2020

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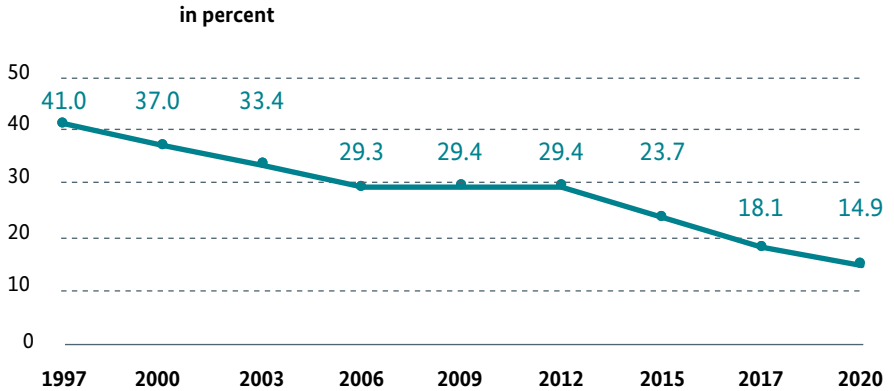
Sewage sludge

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 15 percent in 2020) and in landscaping (between one and two percent in 2020).

Figure 11: Management and use of sewage sludge in 2020



Source: Federal Environment Agency, 2020

Figure 12: Use of sewage sludge in agriculture 1997 to 2020

Source: Federal Environment Agency, 2020

However, some 77 percent of sewage sludge was incinerated and the ash either landfilled, used in road construction or for backfilling in underground mines. The valuable phosphorous is usually lost in this process. Since there are only limited reserves of phosphorous worldwide, the German government supports procedures for the recovery of phosphorous from domestic wastewater and sewage sludge to supplement the direct application of sewage sludge on soils. In contrast, the Government and federal states have jointly resolved to significantly restrict direct application of sewage sludge on soils, especially in agriculture, in a step-by-step process starting in 2029. An obligation to recover phosphorous from sewage sludge will be introduced at the same time. To enforce this, the German government revised the 1992 Sewage Sludge Ordinance (AbfKlärV). The amended ordinance entered into force on 3 October 2017.





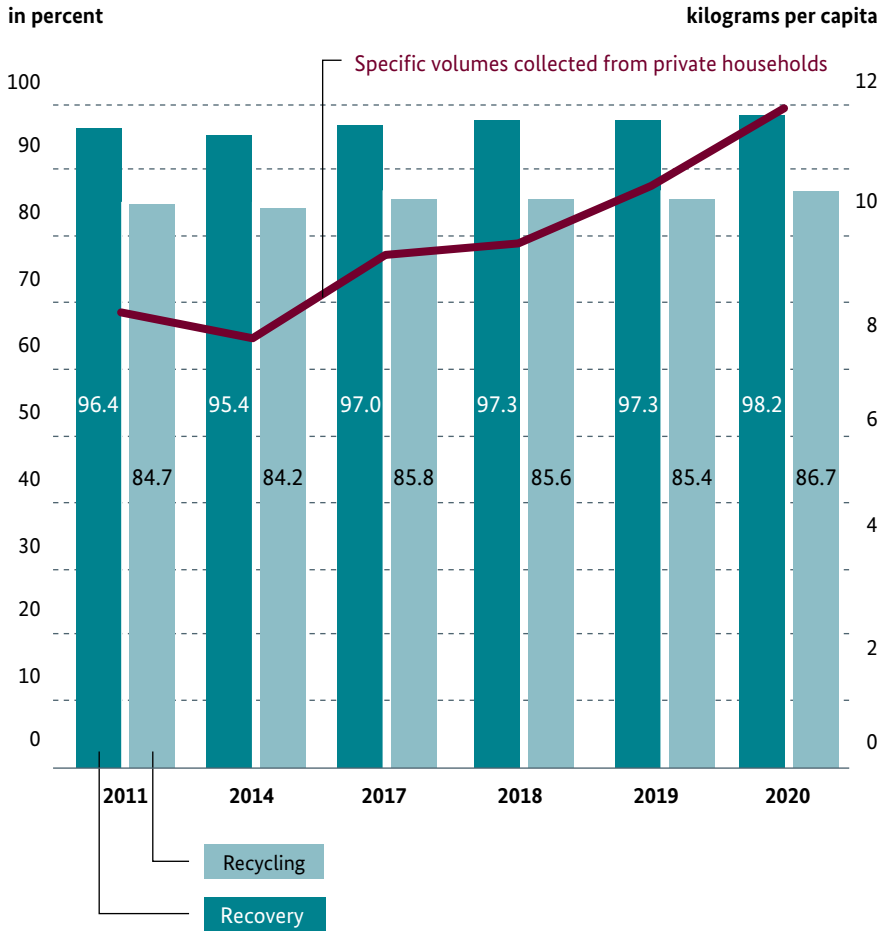
12

Waste electrical and electronic equipment

In the period between 2011 and 2020, around 8 million tonnes of waste electrical and electronic equipment (WEEE) were collected and consigned to proper treatment processes.

To date, each year Germany has far exceeded the recovery and recycling targets for WEEE prescribed by the EU. Up to 2018, EU member states had to meet a return and collection rate for waste equipment from private households and businesses of 45 percent of the amount placed on the market in the preceding three years. This rate was increased to 65 percent in 2019. Achieving the increased collection rate is proving to be a difficult challenge. A rate of around 45 percent has been reached to date. In light of the new target and with a view to improving resource efficiency, it is imperative that we continue to improve WEEE collection rates in future, in terms of both quantity and quality.

Figure 13: Collection volumes and recovery rates of electrical and electronic equipment 2011 to 2020



Volumes returned (tonnes per year)

710,250 722,968 836,907 853,124 947,067 1,037,019

Source: Federal Statistical Office, 2022; BMUV

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 the EU member states.

A collection rate 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).

Every year, more than 60,000 tonnes of portable batteries and accumulators are placed on the market in Germany. Although the amount of portable batteries sold continues to increase every year, Germany consistently complies with the applicable EU-wide collection provisions. Containers for waste portable batteries are available in shops and at municipal collection points. Automotive and industrial batteries are also collected and consigned to recycling.



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

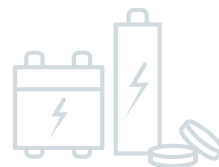
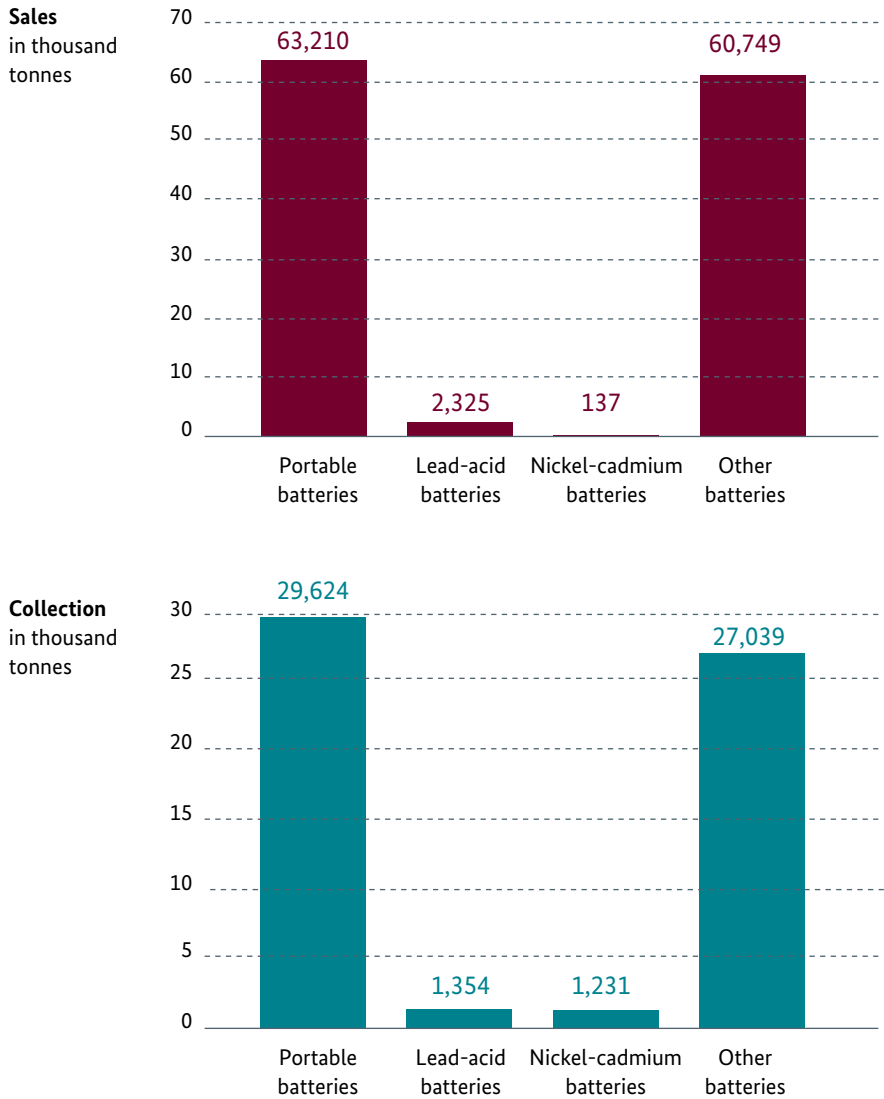


Figure 14: Sales and collection volumes of portable batteries in 2021

Source: Federal Environment Agency



14

End-of-life vehicles

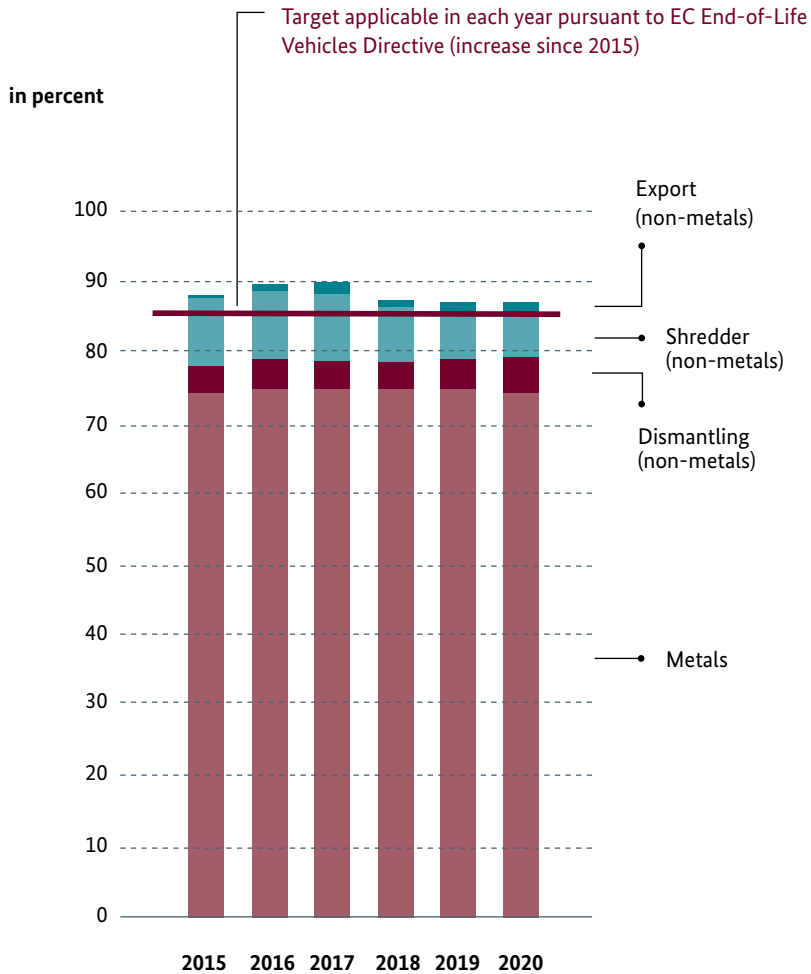
Since 2015, the EU End-of-Life Vehicles Directive (2000/53/EC) and the German End-of-Life Vehicles Ordinance (AltfahrzeugV) have prescribed a recycling rate (reuse, recycling) of 85 percent and a total recovery rate (reuse, recovery) of 95 percent by an average empty weight per vehicle. These rates apply 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.

From 2005 (recycling) and 2006 (recovery), Germany consistently exceeded the binding targets for the period 2006 to 2014 of 80 and 85 percent respectively. Since 2006, (recycling) and 2010 (recovery), Germany has almost without exception exceeded the higher targets of 85 percent and 95 percent that came into

force in 2015. However, the recovery target of 95 percent was narrowly missed in 2019 (93.6 percent) and in 2020 (94 percent). The main reason in both years was that the shredding facilities only received a very low number of scrap bodies in comparison with the number of end-of-life vehicles.

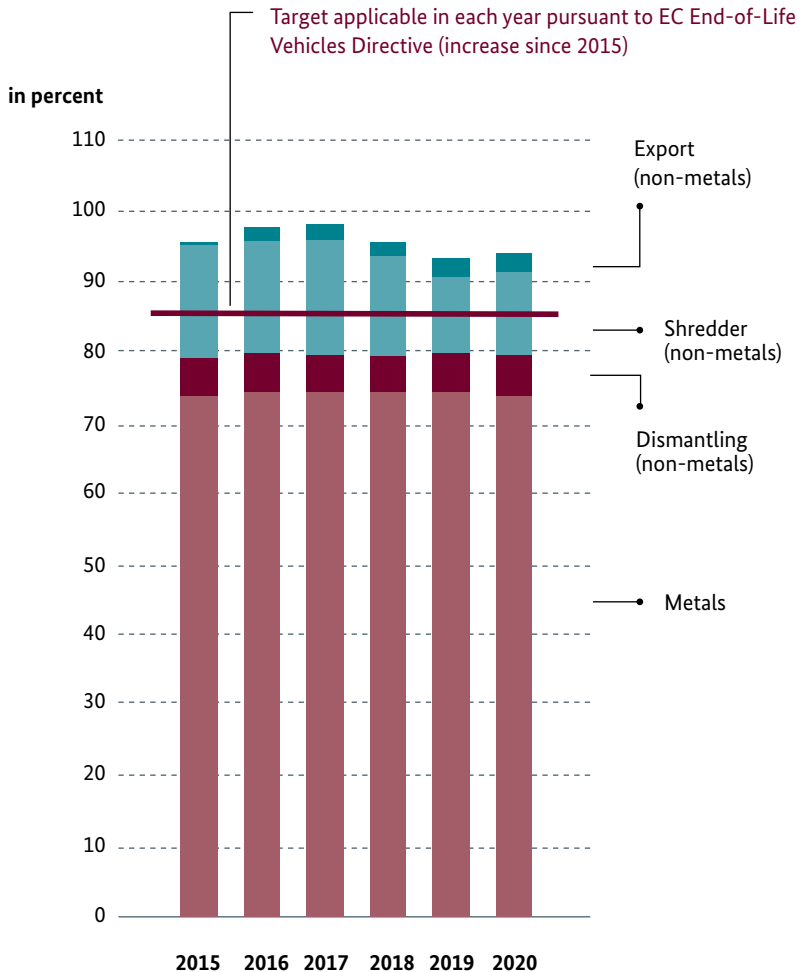


Figure 15: Total end-of-life vehicle recycling rates in Germany 2015 to 2020



Source: Federal Statistical Office, 2020; BMUV

Figure 16: Total end-of-life vehicle recovery rates in Germany 2015 to 2020



Source: Federal Statistical Office, 2020; BMUV

15

Mineral waste

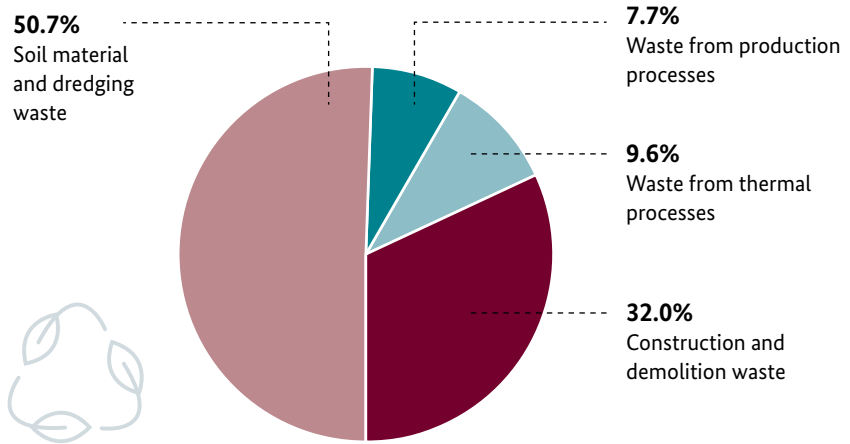
Mineral waste is the largest waste stream in Germany, amounting to an annual volume of more than 275 million tonnes. As well as construction and demolition waste and excavated soil, it includes slag and ash from incineration processes in the energy and metals industries. Mineral waste holds enormous 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 underground mines. In light of the continuously increasing construction activities in Germany and the resource conservation goals, it is crucial to promote high-quality recycling in the long term.

The Substitute Building Materials Ordinance (EBV) will enter into force on 1 August 2023.

It will promote the use of secondary raw materials and enhance circular economy in the process. 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 17: Origin of mineral waste

Source: Federal 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 that so far have been put off by the different, federal state-specific provisions 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 deployment of recycled building materials.



16

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.

In the EU, the Basel Convention was transposed by adopting 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.

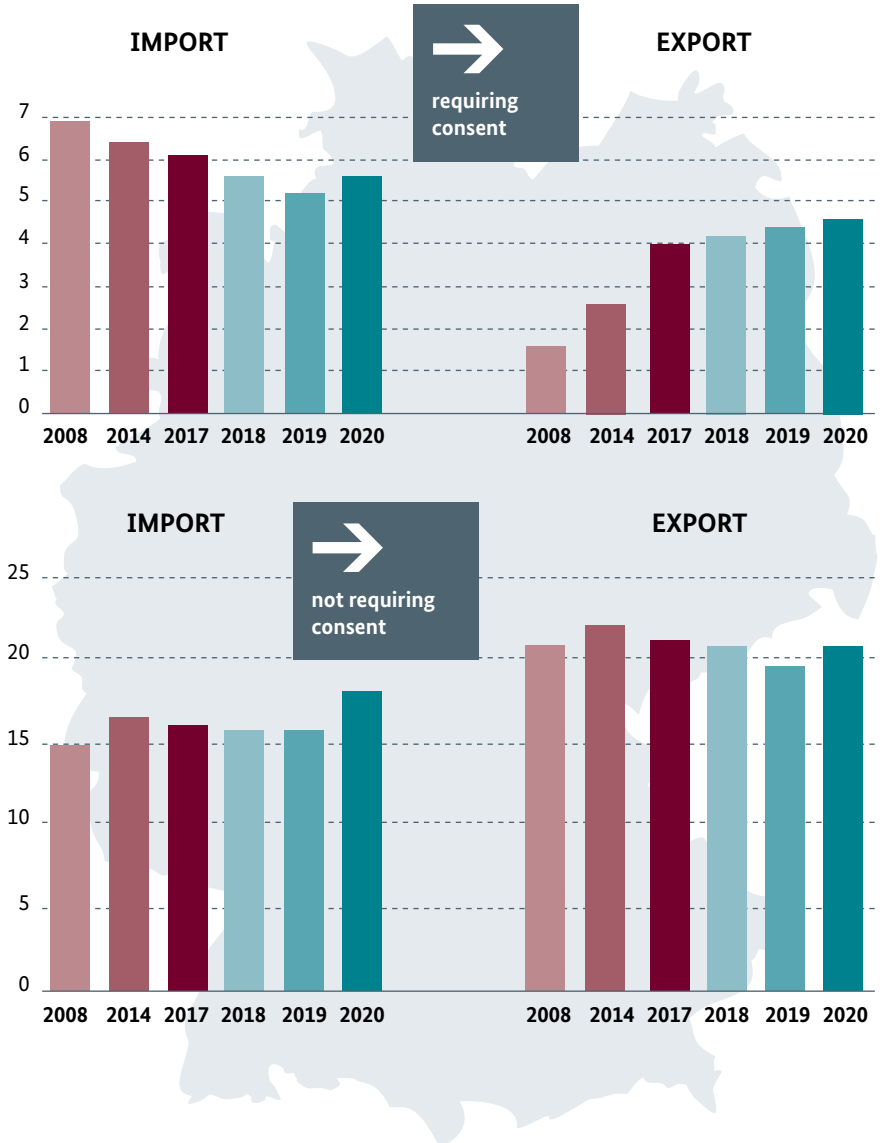
The shipment of hazardous waste in particular requires consent. Where waste shipments require consent, this consent must be obtained in advance from the relevant authorities. Transport and disposal operations are tracked in the movement documents.

More stringent EU stipulations on the shipment of plastic waste have applied since 1 January 2021. They are based on a decision in the framework 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 18: Transboundary waste shipment 2008 to 2020

in million tonnes



Source: Federal Environment Agency, 2022; BMUV

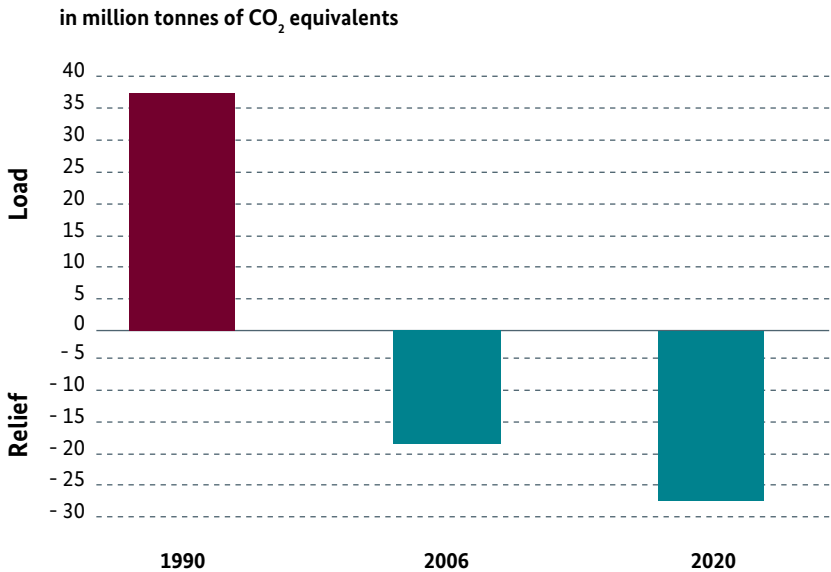
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Waste management as climate action

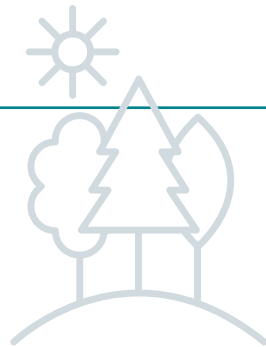
The main contribution of waste management and circular economy to climate action is that it has ended the landfilling of untreated biodegradable waste. As a result of the 2005 ban on the landfilling of biodegradable waste alone, emissions from landfills in particular fell by around 77 percent compared with 1990 levels. Today, these emissions only total around 10 million tonnes of carbon dioxide equivalents (CO₂ equivalents).

To lend added impetus to this natural decline of residual landfill gas emissions, Germany's National Climate Initiative funds measures for improving landfill ventilation and modernising gas collection systems in existing landfills. The aim is to further cut landfill gas emissions to around 5 million tonnes of CO₂ equivalents by 2030. CO₂ equivalent describes the warming effect of a greenhouse gas compared with that of CO₂. Further gas-reducing effects are achieved through



Figure 19: Emissions of climate gases 1990 to 2020

Source: IFEU study 2010, Öko-Institut e.V.; BMUV



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. Since 1990, annual emissions from the waste management industry have been reduced in this way by around 65 million tonnes of CO₂ equivalents.

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:

Latest information and press releases on the German government's waste policies

→ www.bmuv.de/WS103

Waste policies

→ www.bmuv.de/WS585

Waste law

→ www.bmuv.de/WS591

Types of waste/waste streams

→ www.bmuv.de/WS596

Waste treatment/waste technologies

→ www.bmuv.de/WS614

International policies

→ www.bmuv.de/WS621

German RETech Partnership

→ www.bmuv.de/WS620

→ www.retech-germany.net/en/

Waste statistics

→ www.bmuv.de/WS626



European Week for Waste Reduction
→ www.wochederabfallvermeidung.de/home/

List of abbreviations

AGRAPA	Arbeitsgemeinschaft Graphische Papiere (graphic paper working group)
AbfKlärV	Sewage Sludge Ordinance
AbfVerbrG	Waste Shipment Act
AltfahrzeugV	End-of-Life Vehicles Ordinance
AltholzV	Waste Wood Ordinance
BMUV	Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection
CO₂	carbon dioxide
EBV	Substitute Building Materials Ordinance
EEG	Renewable Energy Sources Act
EU	European Union
GewAbfV	Commercial Wastes Ordinance
KrWG	Circular Economy Act
VerpackG	Packaging Act
VKU	German Association of Local Public Utilities

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