Recycling in Germany

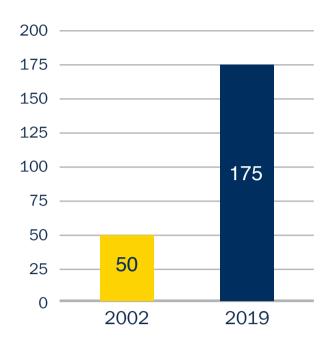
Raw material imports in Germany¹ (in billion euro)

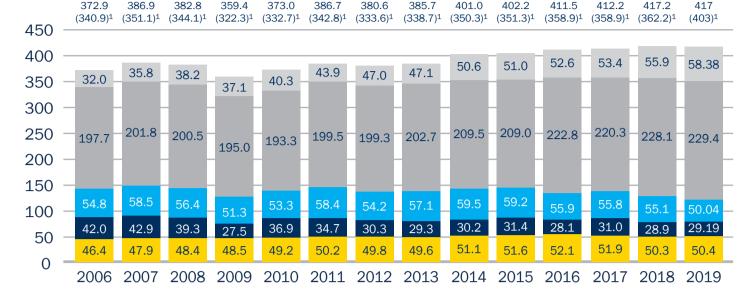
Amount of waste produced, including hazardous waste^B (in million tonnes)

85%

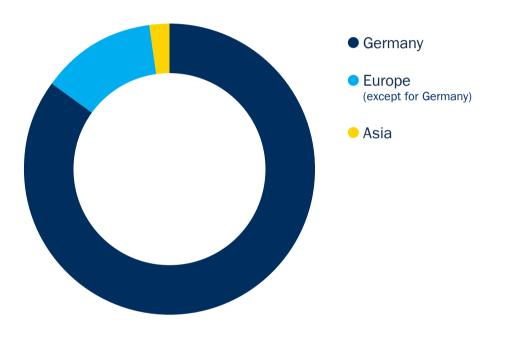
13%

2%

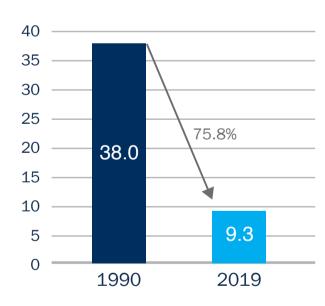




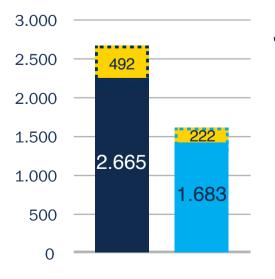
Export of lightweight packaging from Germany^D in 2017



Reduction of greenhouse gas emissions of the waste management industry, 1990-2019 ^D (in million tonnes)



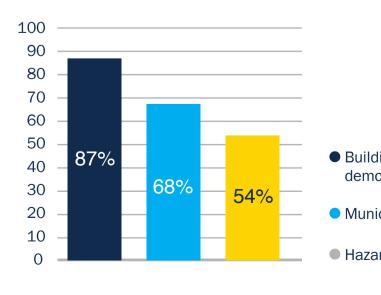
Primary raw material savings through the use of recycled raw materials ^H (in Germany, 2013) in million tonnes



Savings through recycling

- Direct Material Input (DMI): in Germany produced raw materials, imported raw materials, manufactured and miscellaneous articles
- Raw Material Input (RMI): in Germany produced raw materials, imported raw materials, manufactured and miscellaneous articles + needed raw materials for the production of imports

Recycling quota^A (in Germany, 2019)



^A Source: Statistisches Bundesamt [German Federal Statistical Office], 2019 ^B Source: Statistisches Bundesamt [German Federal Statistical Office], 2021 ^C Source: Statistisches Bundesamt [German Federal Statistical Office], 2020 ^D Source: Umweltbundesamt [Federal Environment Agency], 2020 ^E Source: Umweltbundesamt [Federal Environment Agency]/ GVM [German Society for Packaging Market Research], 2019

disposal process as raw material/products. ³ Waste from the extraction and treatment of mineral resources.

¹ Net waste volume, excluding waste from waste treatment plants.

² Without waste from waste water treatment plants (EWC 1908), waste from the preparation of

water intended for human consumption or industrial water (EWC 1909), waste from the soil

and groundwater remediation (EWC 1913) and secondary waste that develop from the waste

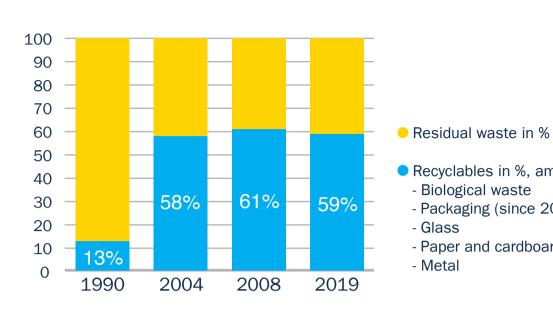
More recyclables than residual waste^c (Household waste in Germany)

- Waste from waste treatment plants²
- Building and demolition waste (including road construction waste)
- Other waste (in particular from production and trade)
- Waste from the extraction and treatment of mineral resources; all types of waste referred to in the waste chapter 01 in accordance with the European Waste Catalogue (EWC)
- Municipal waste

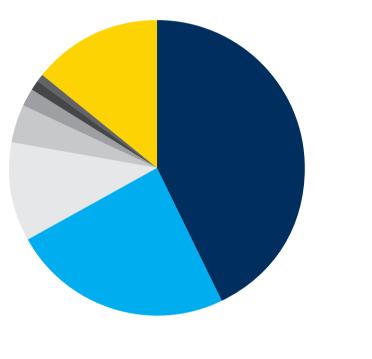
closed cycle econom

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In Germany



Use of recycled plastics ^D (in Germany, 2019)



 Building 	43%
Packaging	24%
 Agriculture 	11%
Vehicles	4%
Electronics	2%
Household goods	1%
• Furniture	1%
Others	14%

Recyclables in %, among others:

Biological waste

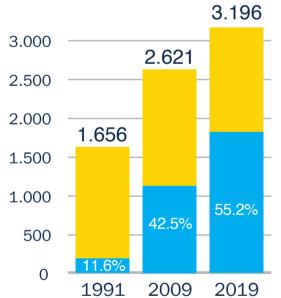
- Glass

Metal

- Packaging (since 2004)

- Paper and cardboard

Consumption of plastic packaging (in kilotonnes) and their recycling material quota ^E (in per cent)

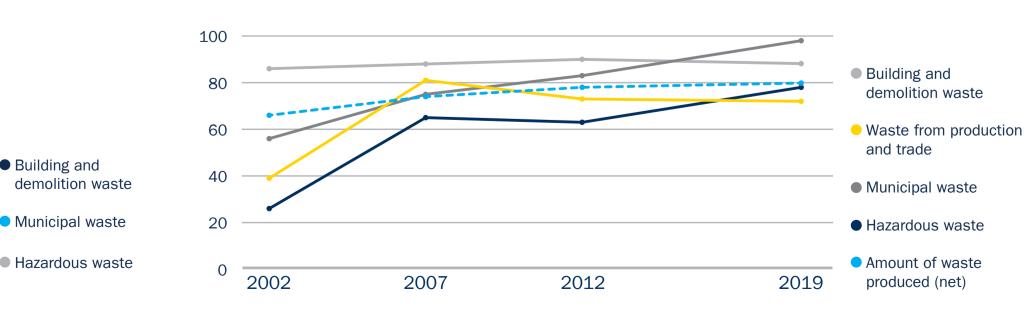


– Increase in recycling by 370 % – About 81% of material recycling is based on the recycling of packaging

Consumption of plastic packaging in kilotonnes

Recycling quota (recycling material) in %

Recycling quota of the main waste streams^B (in per cent)



^F Source: BMU [German Federal Ministry of the Environment] / Roland Berger:

- "GreenTech made in Germany 2018 the environmental technology atlas for Germany", 2018
- ^G Source: Oberösterreichische Zukunftsakademie [Upper Austrian Future Academy],
- "Endlichkeit der Rohstoffe [Finiteness of fossil raw materials]", 2013 ^H Source: BMU [German Federal Ministry of the Environment],
 - Deutsches Ressourceneffizienzprogramm ProgRess III [German Resource Efficiency Program], 2020
- ¹ Source: BGR Resource Report Germany 2002, 2003 ^J Source: BP Statistical Review of World Energy, 2021
- ^K Source: OECD-Umweltausblick 2030 [OECD-environmental prospect 2030], 2008
- ^L Source: World's Automotive Group: "World Vehicles in Operation by Vehicle Type"

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Additional interesting facts on closed cycle economy

(in billion tonns)

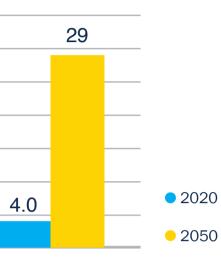
Copper Nickel Gold

The mobile telephone as "raw materials mine" ^H Material components of an average mobile telephone (proportion by weight in percent)

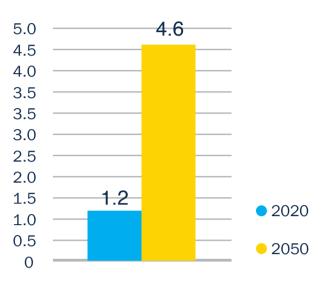
- Silicium
- Plastics
- Iron Aluminium
- Copper
- Lead
- Zinc
- Nickel Silver Gold



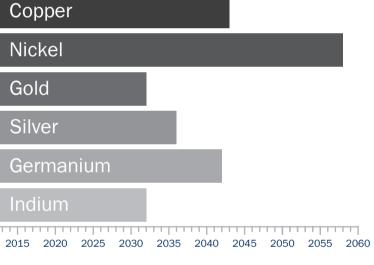
Worldwide oil consumption ^{J, K}



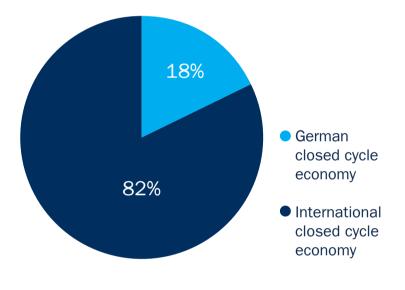
Number of passenger cars worldwide D, L (in billions)

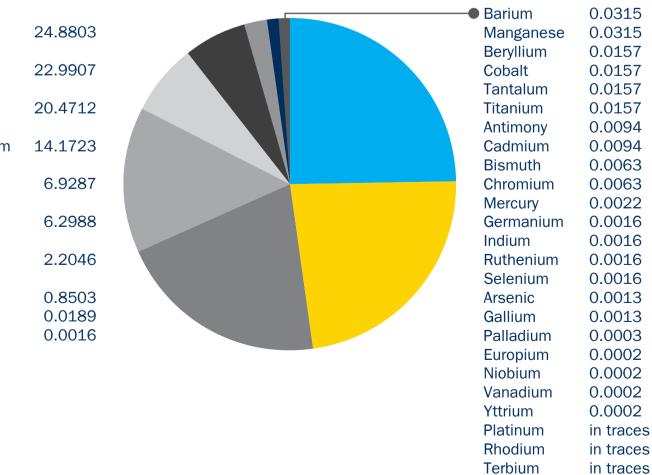


Finite nature of raw materials ^G Range of coverage of reserves in years



Proportion of the German lead market closed cycle economy on the world market ^F worldwide (2016)





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