Country profile

Early warning assessment related to the 2025 targets for municipal waste and packaging waste

Germany

June 2022

European Environment Agency

Contents

Acknowledgements

This assessment was prepared by the ETC/WMGE and the successive ETC/CE under guidance of the European Environment Agency and with inputs from a consortium led by Rambøll Group under contract with the European Commission. It builds to a large extent on the answers provided by the German Umweltbundesamt, the German Environment Agency, in April 2021 to a questionnaire developed by the EEA and ETC/WMGE. The EEA and ETC/CE would like to thank the German authorities for the information provided and for the kind review of drafts of the assessment in 2021 and April 2022.

1 Introduction

1.1 Background and purpose

The Waste Framework Directive 2008/98/EC (as amended by Directive (EU) 2018/851) includes a target to recycle and prepare for reuse, by 2025, 55 % of municipal waste generated. The Packaging and Packaging Waste Directive (94/62/EC as amended by Directive (EU) 2018/852) includes targets for the recycling of packaging waste, both in total and by material, to be achieved by 2025. The Landfill Directive (1999/31/EC as amended by Directive (EU) 2018/850) requires to limit the landfilling of municipal waste to 10 % of the generated municipal waste by 2035. The Directives also foresee that the European Commission, in cooperation with the European Environment Agency, publishes early warning reports on the Member States' progress towards the attainment of the targets, including a list of Member States at risk of not attaining the targets within the respective deadlines, three years ahead of the target dates. This assessment is a contribution from the EEA to the early warning reports according to Article 11b Waste Framework Directive and Art. 6b Packaging and Packaging Waste directive.

This document is an early warning assessment for Germany. The document is based on the analysis of a number of factors affecting recycling performance (success and risk factors). The assessment aims at concluding whether Germany is at risk of missing the targets for municipal waste and packaging waste set in EU legislation for 2025. In addition, it provides a preliminary assessment of the prospects for meeting the 2035 target for landfilling of municipal waste.

The assessment takes into account information that was available before 10 May 2022.

1.2 Approach

The assessment follows a methodology developed by the EEA and ETC/WMGE and consulted with the Eionet in 2020 (ETC/WMGE, 2021), which was adjusted in 2021 taking into account experiences with applying the methodology in 2021 (ETC/CE & ETC/WMGE, 2022). This methodology uses a set of quantitative and qualitative success and risk factors that have been identified to affect the recycling performance. The assessment is to a large extent based on the information provided by the Member State in the reply to an EEA-ETC/WMGE questionnaire as well as on available data and information from Eurostat and other relevant sources. In addition, a consortium under contract with the European Commission (led by Rambøll Group) has conducted a critical review of the draft assessment in Q4/2021 and provided further information.

More specifically, chapter 2.1 assesses the likelihood for Germany to achieve the target to prepare for reuse and recycle at least 55 % of municipal solid waste (MSW) for 2025. Chapter 2.2 assesses the likelihood for Germany to achieve the overall packaging waste and specific packaging materials' recycling targets for 2025. Chapter 2.3 examines the prospects for Germany to landfill less than 10 % of the generated municipal solid waste by 2035. The official early warning assessment for the landfilling target is only due in 2032 and accordingly, the assessment contained in Chapter 2.3 is only preliminary.

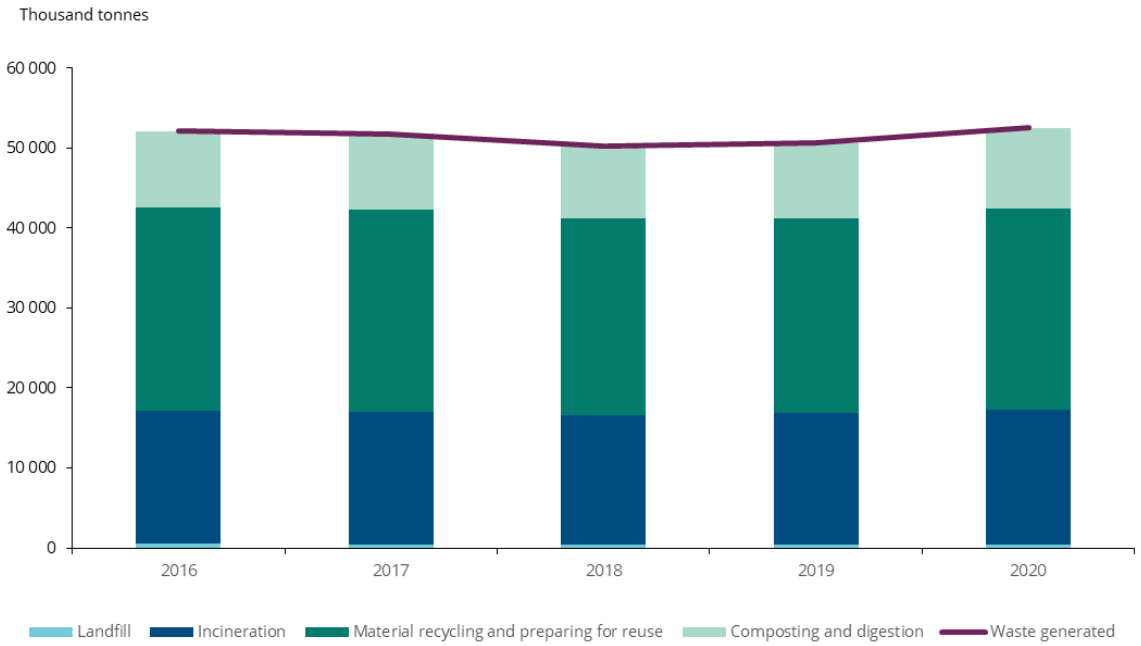
1.3 Member State profile – context parameters

Municipal waste generation and treatment

In 2020, Germany generated 52.6 million tonnes of municipal waste (Figure 1.1). This corresponds to 632 kg/cap in 2020, which is well above the (estimated) EU average of 505 kg/cap. Roughly one third of the generated waste is incinerated. This share has been stable over the last five years (Eurostat, 2022a). German municipal waste statistics include all generated packaging waste. Municipal waste pre-treated in sorting plants or Mechanical Biological Treatment plants is reported based on the input to the plants and the outputs are assigned to incineration, landfill, recycling and composting according to the setup. This might lead to inaccuracies in the actual final destinations of the waste (Statistisches Bundesamt, 2020). However, only about 3.7 million tonnes of municipal waste was treated in Mechanical-(Biological) Treatment plants in 2019 (Statistisches Bundesamt, 2021), so the effect of this methodology on the MSW statistics is probably rather limited. However, the real amount of incinerated municipal waste might be overestimated due to the fact that MBT outputs are reported as incinerated, although a part of them is actually landfilled (UBA-DE, 2021). Germany's landfilling rate decreased slightly between 2016 and 2019 with 0.3 percentage points (Eurostat, 2022a). However, given that MBT outputs are landfilled but reported as incinerated, the actual landfill rate might be higher.

Germany has managed to increase recycling rates over the past ten years, diverting today around two thirds of the municipal solid waste (MSW) generated to recycling and composting/digestion. The recycling rate (material recycling and composting and digestion) has remained steady over the last five years at 67 %. This recycling rate is mainly driven by material recycling which represents 47.8 % while composting/digestion represents 19.3 %.

Figure 1.1 Municipal waste generation and treatment in Germany between 2016 and 2020, in thousand tonnes



Notes: Data for incineration and landfill are flagged as Eurostat estimates for all years; amounts for waste generated, material recycling and preparing for reuse and composting and digestion for 2019 and 2020 are flagged as estimates.

Source: Eurostat (2022a)

Legal Framework

Waste related legislation in Germany comprises a number of laws and ordinances. The regulations can be divided into general regulations, with the Circular Economy Act (KrWG) being the core element, waste-stream specific regulations (e.g. the Packaging Act – VerpackG) and regulations for waste treatment and for cross-border waste shipment.

The KrWG determines the legal framework for waste management in Germany and transposes the Waste Framework Directive (WFD) 2008/98/EC into national law. The act entered into force on 1 June 2012 and sets the legal basis and fundamental principles of the circular economy (Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit, 2021).

The KrWG stipulated separate bio-waste collection as mandatory from January 2015 onwards. The separate collection requirement also applies to paper, metal, plastic and glass waste. The Act set a recycling target of 65 % by 2020 for municipal waste, being more ambitious than the WFD requirements (EEA, 2016).

The KrWG was amended in the light of the amended WFD (Directive 2008/98/EC on waste, amended by Directive 2018/851/EU). This implementation took place through Article 1 of the Law for the Implementation of the WFD of the European Union, adopted in October 2020. The aim is an increased promotion of the circular economy through waste prevention and through increased recycling of waste (Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit, 2021).

The German Packaging Act was amended in the light of the amended Packaging and Packaging Waste Directive (Directive EU/2018/852, amending Directive 94/62/EC on packaging and packaging waste). On 3 July 2021, the amended version of the Packaging Act (Verpackungsgesetz) entered into force, making the Packaging Ordinance, which was in force until 31 December 2018, invalid. Amongst other changes, this law allows international producers and online retailers to appoint an authorised representative in Germany to assume all of their obligations related to packaging. The authorised representative reports the data required to the LUCID Packaging Register and can also be held accountable in Germany. This will help prevent free-riders in online sales. Since 1 January 2022 the existing deposit-refund obligation has been extended to nearly all single-use beverage packaging. As of 1 July 2022 the Packaging Register will be extended to all parties placing packaging filled with goods on the German market. Then producers will be required to register all types of packaging, including deposit-refund packaging, transport packaging or industrial packaging (Zentrale Stelle Verpackungsregister (Central Agency Packaging Register – ZSVR, 2021a).

Waste management plan(s)

Germany has a long tradition of developing waste strategies at a national level, as well as waste management plans in the Federal States and municipalities. Germany has no national Waste management plan , but there are 16 plans at the level of the federal states. A few federal states have started updating their waste management plans in accordance with Directive 2018/851.

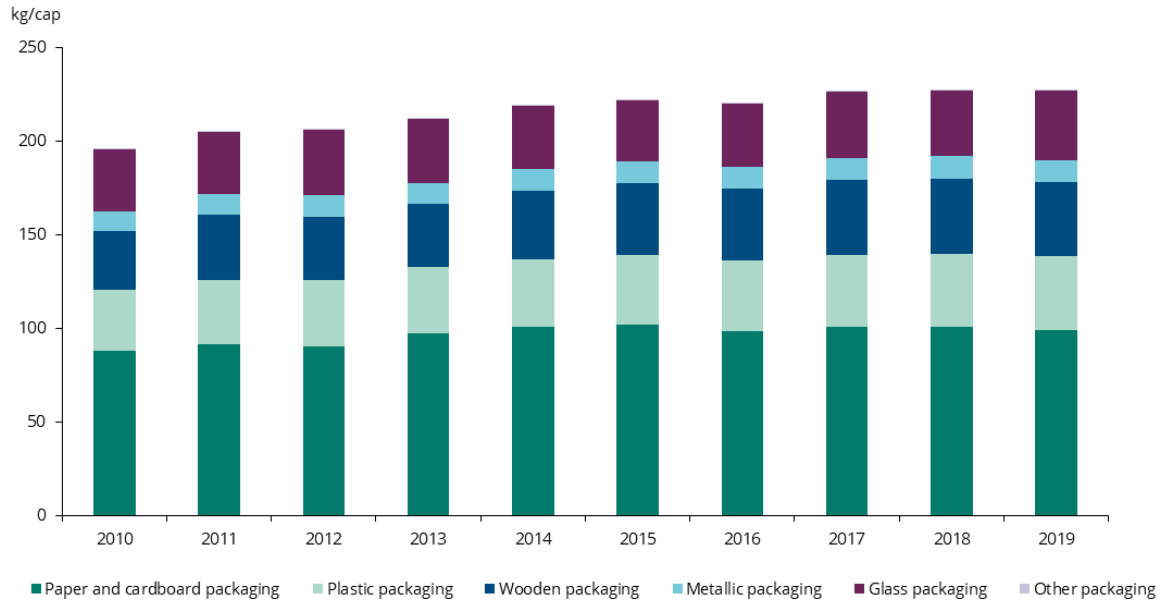
Each federal state's waste management plan contains targets and objectives, as well as policies for municipal waste management. A national waste prevention programme has been in place since 2013, and a revised version has been developed in cooperation with the federal states, the German Environment Agency and other stakeholders (Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit, 2020).

Packaging waste generation and treatment

In Germany, 18.9 million tonnes (228 kg/cap) of packaging waste were generated in 2019, which is well above the EU average of 177 kg/cap.

The overall packaging waste generation increased since 2010, but remained rather stable over the past five years (Figure 1.2). Looking at each of the waste packaging streams, the waste generation rate for most remained stable over the past five years (less than 5 % relative deviation). Waste generation for plastic and glass increased by 5 % and 13 % since 2015 respectively.

Figure 1.2 Packaging waste generation in Germany between 2010 and 2019, in kg per capita



Note: Break in timeseries in 2019 for all fractions

Source: Eurostat (2022b)

Capture rates for recyclables

The capture rate is a good performance indicator of the effectiveness of the separate collection system. The capture rate is calculated by dividing the separately collected weight of a certain material for recycling by the weight of the material in total municipal waste. For Germany, Table 1.1 shows the calculated capture rates for different waste fractions.

Table 1.1 Capture rates for different waste fractions in Germany

	Residual waste composition (%)([b])	Residual waste composition (tonnes)([a])	Separately collected amounts (tonnes) ([b])	Materials in total MSW (tonnes)	Capture rates (%)
Reference year	2017	2018	2018		
Mixed municipal waste, total		13 526 000			
Paper and cardboard	5.2 %	703 352	7 275 900	7 979 252	91 %
Metals	2 %	270 520	484 800	755 320	64 %
Glass	4.6 %	622 196	2 408 200	3 030 396	79 %
Plastic	6.7 %	906 242	2 461 600	3 367 842	73 %
Bio-waste	39.3 %	5 315 718	8 790 000	14 105 718	62 %
Textiles	3.5 %	473 410	1 271 242	1 744 652	73 %
Wood	1.3 %	175 838	8 590 000	8 765 838	98 %

([a]) Note: Share of material in residual waste (household waste only) multiplied with the amount of residual waste in 2018 as reported in the questionnaire by the UBA-DE (2021)

([b]) Source: As reported in the EEA-ETC/WMGE questionnaire by the UBA-DE (2021)

This indicates that there is some room for improvement to capture higher amounts of the generated bio-waste, and to some extent also of metals, glass, plastics, and textiles.

2 Success and risk factors likely to influence future performance

2.1 Target for preparing for reuse and recycling of municipal waste

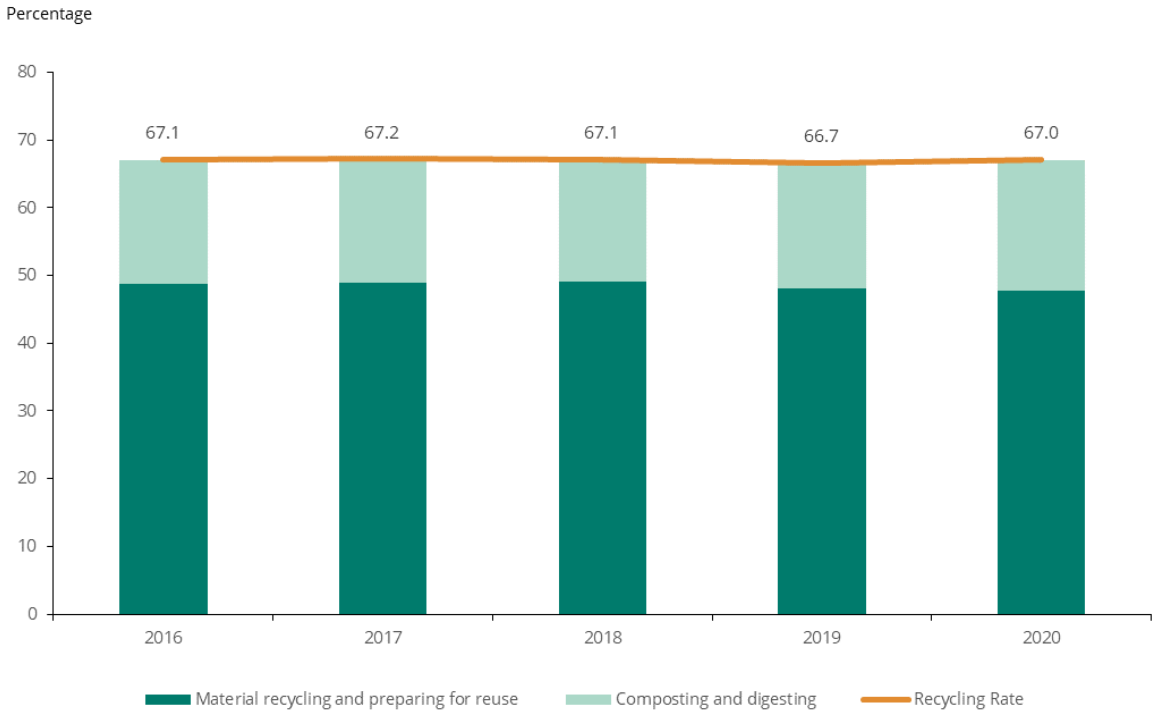
This chapter aims at assessing the prospects of Germany to achieve the **55 % preparing for reuse and recycling target** for municipal waste in 2025. For a detailed description of the methodology followed, the development of success/risk factors and their impact on recycling, please consult the methodology report (ETC/CE & ETC/WMGE, 2022).

2.1.1 Current situation and past trends

SRF MSWR-1.1: Distance to target

The overall recycling rate of Germany has been stable at 67 % since 2016 (Figure 2.1). In this analysis the recycling rate is calculated by dividing the summed amounts of recycling of materials and of composting and digestion by the total generated amounts. The data source used is the Eurostat data set *Municipal waste by waste management operations [env_wasmun]* (following the OECD/Eurostat Joint Questionnaire); Data reported by Member States according to Article 10.2(a) of the Waste Framework Directive are not used for this assessment as the reporting methods differ by Member State, resulting in a lack of comparability between Member States. The data source used here is assumed to be the best available proxy, given that data in accordance with the rules on the calculation of the attainment of the targets as defined in Article 11a are not yet available.

Figure 2.1 Recycling rate in Germany between 2016 and 2020, in percentage



Note: Amounts for waste generated, Material recycling and preparing for reuse and Composting and digestion for 2019 and 2020 are flagged as Eurostat estimates

Source: Eurostat (2022a)

The actual distance to the target for the most recent data point is a key factor determining the likelihood of meeting/not meeting the target. The closer the Member State is to the target already, the more likely that the target will be met. For Germany, in 2020, 47.8 % of the materials were reported to be recycled and 19.3 % went to composting/digestion, resulting in a total recycling rate of 67 %. This means that Germany has already reached the 2025 target of 55 %.

However, the data used for this analysis are based on a different methodology than the calculation rules for the target. The actual impact of the application of the new calculation rules to the recycling rate has not been quantified yet in Germany. According to the German authorities, with the new calculation method, the recycling rate for municipal waste is expected to decrease due to the stricter requirements for reporting (UBA-DE, 2021). A few Member States have provided quantified estimates indicating how the application of the new reporting rules would influence the recycling rate (compared to the data reported to Eurostat under the Joint Eurostat/OECD questionnaire), resulting in reductions between 3.8 and 13 percentage points, and on average 5.5-6.7 percentage points. While the effect depends on how Germany currently reports the data, an effect of a reduction with 5 percentage points is therefore assumed for this assessment, bringing the recycling rate down to 62 %. This assumption does not result in a change of the assessment for this SRF.

Summary result

Target exceeded	Based on the currently available data, Germany's recycling rate was 67.0 % in 2020, 12 percentage points above the 2025 target. Considering, however, the impact of the new calculation rules, we assume a reduction with 5 percentage points for this assessment, resulting in an estimated recycling rate of 62 %, still well above the target.
Robustness of the underlying information	The currently available data do not yet reflect the calculation rules applicable to the 2025 target. Germany has not yet quantified the influence of the new calculation rules on the recycling rate (at the time of writing of this assessment). However, also a recycling rate which would be 5 percentage points below the currently reported one would not change the assessment for this SRF.

SRF MSWR-1.2: Past trend in municipal solid waste recycling rate

The recycling rate over the last five years has remained stable at 67 % (Figure 2.1).

Summary result

RR > 55 %	The recycling rate has remained stable over the last five years at 67 %. For Germany the application of the new calculation rules would result in an estimated recycling rate of 62.0 %.
Robustness of the underlying information	There is no break in the time series data. The recycling rate is likely to be lower once the new calculation rules will be applied, based on credible information received from the German authorities through the EEA-ETC/WMGE questionnaire.

2.1.2 Legal instruments

SRF MSWR-2.1: Timely transposition of the revised Waste Framework Directive into national law

Timely transposition of the Waste Framework Directive as amended by Directive 2018/851 into national law within the foreseen period is key for a waste management system in line with EU requirements.

Germany has transposed the amended WFD into national law with a delay of less than 12 months after the deadline of 5 July 2020.

The Circular Economy Act was amended through Article 1 of the *Law for the Implementation of the Waste Framework Directive of the European Union*, adopted in October 2020. (Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit, 2021).

Summary result

Transposition with a delay of less than 12 months	Germany has transposed the amended WFD into national law with a delay of less than 12 months.
Robustness of the underlying information	Credible information received from the European Commission (status as of 12 November 2021).

SRF MSWR-2.2: Responsibilities for meeting the targets, and support and enforcement mechanisms, e.g. tools, fines etc.

Clearly defined responsibilities, enforcement and support mechanisms for meeting the targets across different entities and governance levels are important for achieving high recycling rates. The clearer the responsibilities for meeting the targets and the accountability for failing the targets are, the higher the chance that the targets will be met.

In Germany, the following authorities and stakeholders have certain responsibilities which influence the recycling rate of municipal solid waste:

- on the national level:
  - National legislation (e.g. Circular Economy Act);
  - Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV);
  - German Environment Agency (Umweltbundesamt – UBA).
- on the level of the federal states (*Bundesländer)*
  - the 16 respective Ministries for the Environment and their subordinated agencies.
- on the local level:
  - local waste authorities.
- other stakeholders:
  - systems (EPR schemes);
  - collection subcontractors;
  - sorting facilities;
  - treatment facilities;
  - private households and comparable sources of municipal solid waste (UBA-DE, 2021).

The Ministry is involved in the legislative process and the highest ranking federal institution concerning environmental policies including waste. The national legislation is responsible for creating/improving federal law, for instance, the packaging act and the Electrical and Electronic Equipment Act (WEEE).

The UBA supports the BMUV in a wide range of environmental matters. Other areas include, in particular, the preparation of legal and administrative provisions, research and development of foundations for suitable measures and the review and examination of procedures and establishments. UBA is also involved in the enforcement of a number of laws.

Each federal state has its own Ministry for the Environment and subordinated agencies. Their task is to enforce laws in the field of waste. The municipalities or authorised third parties ensure environmentally sound waste management.

Domestic waste management falls within the exclusive competence of the legal persons responsible under federal state law (public bodies responsible for waste management), which are, in general, the municipalities. The obligation to hand over household waste to the public bodies responsible for waste management, is regulated in paragraph 17 (1) of the KrWG. These bodies may contract third party service companies, for example private waste management companies, to fulfil their obligations. Although the federal states keep statistics and calculate their own recycling rates (non-binding), eventually only the national recycling targets for Germany count. The KrWG defines targets, but the targets are not cascaded down to the level of the federal states and municipalities, and there are no direct consequences for federal states or municipalities in case they do not meet these targets (UBA-DE, 2021).

The KrWG as a superordinate legal framework includes general regulations on the obligations of the various actors in dealing with waste as well as general monitoring mechanisms. The consequences for ineffective or insufficient action by these actors are defined in federal laws, such as the Packaging Act or WEEE Act (UBA-DE, 2021).

There are also a number of support tools and mechanisms in place to improve the efficiency and performance of the responsible entities influencing the recycling rate of municipal solid waste:

- FAQ-documents, info videos, guidance documents, waste advice centres for the public;
- Sharing good practice between BMUV and UBA;
- Sharing of information among the federal states (*Bundesländer)* as well as coordination on certain issues;
- Sharing of information between BMUV, UBA and the federal states (*Bundesländer).*

Summary result

Clearly defined responsibilities and good set of support tools but weak/no enforcement mechanisms for meeting the recycling targets	Responsibilities are defined and support mechanisms are in place. However, there are no direct consequences for the federal states or municipalities that do not achieve the targets.
Robustness of the underlying information	Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire.

2.1.3 Economic instruments

SRF MSW-3.1: Taxes and/or ban for landfilling residual- or biodegradable waste

Bans and taxes on landfilling of residual municipal waste can help to discourage strong reliance on residual waste treatment and thus support recycling.

In Germany there is no landfill tax in place. Since 1993, there is a landfill ban for waste with a Total Organic Carbon content (TOC) above 3 %, which was introduced through an administrative regulation. Since June 2005, it was fully implemented with the Landfill Ordinance (Bundesministerium der Justiz und für Verbraucherschutz, 2009).

There are, however, exceptions for soils, dredged material, ashes and asphalt. For mechanical-biologically treated waste, the threshold is a TOC of 18 % and a calorific value of 6000 kJ/kg dry substance (UBA-DE, 2021).

Summary result

Ban in place for landfilling residual or biodegradable waste	In Germany, there is no landfill tax, but a ban on waste with a TOC >3 % (18 % for mechanical-biologically treated waste).
Robustness of the underlying information	Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire.

SRF MSWR-3.2: Taxes on municipal waste incineration

Taxes on incineration of mixed municipal waste can help to discourage strong reliance on waste incineration and thus support recycling.

Germany does not apply taxes on municipal waste incineration (UBA-DE, 2021).

Summary result

No incineration taxes	In Germany, there is no tax on municipal waste incineration.
Robustness of the underlying information	Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire.

SRF MSWR-3.3: Pay-as-you-throw (PAYT) system in place

PAYT systems are designed to incentivize citizens to make a bigger effort in separating their waste at source. However, a PAYT system should be designed with the appropriate level of source separation encouragement to ensure that citizens do not misplace waste in recycling bins in order to avoid residual waste charges. Overall, PAYT usually has a positive effect on source separation and thus recycling rates through direct involvement of citizens.

In Germany, the principles and rules for defining waste collection fees are the responsibility of the municipalities, and there is no obligation for municipalities to apply PAYT systems. The current PAYT systems cover about 30 % of the population. The fees depend on the number of containers that were emptied per year or the amount of residual household waste disposed of (UBA-DE, 2021). PAYT systems are mainly implemented in rural areas and suburbs with single or double-family housing structure, less in areas with multi-family housing. Analysis shows that the amount of mixed municipal waste is on average 25 % lower when PAYT is applied (Dornbusch et al., 2020).

Summary result

Less than 50% of the population covered by PAYT	In Germany there is a PAYT system in place, which only covers about 30 % of the population
Robustness of the underlying information	Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire.

2.1.4 Separate collection system

SRF MSWR-4.1: Convenience and coverage of separate collection systems for the different household waste fractions

Separate collection systems are a key enabler for high recycling rates and for collecting recyclables at adequate quality. Generally, the more convenient and accessible these systems are for their users, the better results they deliver. The assessment methodology categorises different types of collection systems (door-to-door, bring points with a density of > 5 per km^2, bring points with a density of < 5 per km^2, civic amenity site) for assessing the degree of convenience, and differentiates between cities (densely populated), towns and suburbs (intermediate densely populated) and rural (thinly populated areas). It then calculates which share of the population is served by which type of system. The assessment is done on a material basis and takes into account the different materials according to their average share in municipal waste. This is described in more detail in the methodology (ETC/CE & ETC/WMGE, 2022).

For Germany, according to the most recent data, the percentage of households living in cities is 56 %, in towns and suburbs 34 % and in rural areas 10 % (Eurostat, 2021a).

In Germany, throughout the country, residual waste is collected separately via door-to-door collection. Paper and cardboard is mainly collected via separate door-to-door collection and to some extent via bring points and civic amenity sites. Plastic, metals and composite packaging waste (e.g. beverage cartons) are usually collected via door-to-door collection, co-mingled in one bin (yellow bin) or in plastic bags (yellow bag). The door-to-door collection or with bring points is usually limited to packaging. In some municipalities, the same system is also used for plastic and metal non-packaging waste. Non-packaging items of the same material are usually collected separately at civic amenity sites or by private companies (scrap trade).

For glass there are about 250 000 waste glass collection containers (bring points) in Germany where people can dispose of their glass waste, usually separated into 3 colours (green, brown, flint). There are some areas where a door-to-door separate collection system is established, e.g. for big housing complexes. The separate door-to-door collection of glass or via bring points is limited to packaging glass. Other glass is sometimes collected separately at civic amenity sites.

Bio-waste (food and garden waste) is mainly collected together via separate door-to-door collection. Some municipalities introduced a bring system for food waste from private households, which is, however, not considered ideal by the German authorities (UBA-DE, 2021). Garden waste is additionally collected via civic amenity sites and to a lesser extent also via separate door-to-door collection during the main garden waste season (Dornbusch et al., 2020).

Textiles in cities and towns and suburbs are mainly collected via bring points and to some extent via separate door-to-door collection and civic amenity sites. In rural areas, separate door-to-door collection, bring points and civic amenity sites are in use. Wood waste, which is mainly included in bulky waste, in cities is mainly collected via civic amenity sites and to some extent via separate door-to-door collection. In towns and suburbs and rural areas wood waste is mainly collected via separate door-to-door collection and to some extent via civic amenity sites. Throughout the country WEEE is collected via bring points and civic amenity sites (UBA-DE, 2021). Table 2.1 gives an overview of the collection system in Germany.

Table 2.1 Characterisation of the collection system in Germany

	Cities (densely populated areas)					**Towns and suburbs** (intermediate density areas)					**Rural areas** (thinly populated areas)			
	Door-to-door – separate	Door-to-door - co-mingled	Bring point (>5 per km²)	Bring point (<5 per km²)	Civic amenity site	Door-to-door – separate	Door-to-door - co-mingled	Bring point (>5 per km²)	Bring point (<5 per km²)	Civic amenity site	Door-to-door – separate	Door-to-door – co-mingled	Bring point	Civic amenity site
Residual waste	xx					xx					xx			
Paper and Cardboard	xx		x		x	xx		x		x	xx		x	x
Ferrous metals	xx		x		x	xx			x	x	xx		x	x
Aluminium	xx		x		x	xx			x	x	xx		x	x
Glass	x		xx		x	x		xx		x	x		xx	x
Plastic	xx		x		x	xx			x	x	xx		x	x
Bio-waste	xx			x		xx			x		xx		x	
food														
garden	x				xx	x				xx	x			xx
Textiles	x		xx		x	x		xx	xx	x	x		x	x
Wood	x				xx	xx				x	xx			x
WEEE			xx		xx			xx		xx			xx	xx
Composite packaging	xx		x		x	xx			x	x	xx		x	x

Note: xx: dominant system; x: other significant systems. Grey cells indicate high convenience collection systems.

Source: UBA-DE (2021)

Summary result

Paper and cardboard	A high share of the population is covered by high convenience collection services.	Door-to-door separate collection or high convenience collection points are the dominant systems in cities, towns and suburbs, and rural areas for paper and cardboard packaging waste and reclaimed paper.
Metals	A high share of the population is covered by high convenience collection services.	Door-to-door separate collection or high convenience collection points are the dominant system in cities, towns and suburbs, and rural areas. These collection systems are focussed on packaging waste. In addition, there is a mandatory Deposit Return System (DRS) for aluminium drink cans in place. Non-packaging metals are mostly collected at civic amenity sites.
Plastics	A high share of the population is covered by high convenience collection services.	Door-to-door separate collection or high convenience collection points are the dominant system in cities, towns and suburbs, and rural areas. These collection systems are focussed on packaging waste. In addition there is a mandatory Deposit Return System (DRS) for plastic drink bottles in place. Non-packaging plastics are collected at civic amenity sites.
Glass	A high share of the population is covered by high convenience collection services	Door-to-door separate collection or high convenience collection points are the dominant

		systems in cities, towns and suburbs, and rural areas for glass.
Bio-waste	A high share of the population is covered by high convenience collection services	For bio-waste door-to-door separate collection is the dominant system in cities, towns and suburbs, and rural areas. Garden waste, representing 50 % of bio-waste in Germany, is both collected door-to-door together with food waste, seasonally separately as garden waste, and via civic amenity sites.
Wood	A medium share of the population is covered by high convenience collection services.	Wood (mainly in bulky waste) is collected via separate door-to-door collection and via civic amenity sites in cities, towns and suburbs, and rural areas.
Textiles	A high share of the population is covered by high convenience collection services.	Textiles are collected via separate door-to-door-collection, bring points and civic amenity sites in cities, towns and suburbs, and rural areas.
WEEE	Medium convenience collection services dominate.	For WEEE different bring-systems are used, including take-back at retailers and civic amenity sites in cities, towns and suburbs, and rural areas.
Robustness of the underlying information		Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire.

SRF MSWR-4.2: Firm plans to improve the convenience and coverage of separate collection for the different household waste fractions

While for paper and cardboard, glass, bio-waste and textiles a large share of the population is already covered by high convenience collection points, there is still room for improvement for WEEE, wood, plastics and metals.

With respect to bio-waste, attempts are being made at federal and state level to expand organic waste collection. For example, the obligation for separate organic waste collection has been effective since 2015. However, this has not yet been implemented by every public waste disposal company. The decision to collect organic waste is taken at the municipal level (UBA-DE, 2021).

The German authorities report that there are no changes planned for the separate collection of wood, plastics and metals. For WEEE, the 2021 amendment of the Electrical and Electronic Equipment (EEE) Act (ElektroG) provides that from 30 June 2022 onwards, in addition to EEE distributors (sales area for electrical and electronic equipment of at least 400 m^2), also distributors of food (total sales area of at least 800 m^2) who offer electrical and electronic equipment several times per calendar year or permanently, have to take back WEEE free of charge during the whole year(Bundesministerium der Justiz, 2021b). The following types of WEEE are concerned:

- Small equipment without any purchase of new equipment;
- Large equipment, when buying a new one of the same type, with similar functions.

In addition to municipal waste management authorities, distributors and manufacturers, also certified primary treatment facilities for WEEE shall in the future be authorized for voluntary collection and return free of charge. For this they can also commission third-party service providers. The new ElektroG (ElektroG3) entered into force on 1 January 2022 (UBA-DE, 2021).

Summary result

Paper and cardboard	N/A (for countries in which a very high share of the population is already covered by high convenience collection services)	A high share of the population is already covered by high convenience collection services
Metals	N/A (for countries in which a very high share of the population is already covered by high convenience collection services)	A high share of the population is already covered by high convenience collection services
Plastics	N/A (for countries in which a very high share of the population is already covered by high convenience collection services)	
Glass	N/A (for countries in which a very high share of the population is already covered by high convenience collection services)	A high share of the population is already covered by high convenience collection services
Bio-waste	N/A (for countries in which a very high share of the population is already covered by high convenience collection services)	Attempts are being made at federal and state level to expand organic waste collection, but the decision must be made at the municipal level.
Wood	No firm plans to improve the convenience and coverage	No changes planned.
Textiles	N/A (for countries in which a very high share of the population is already covered by high convenience collection services)	A high share of the population is already covered by high convenience collection services
WEEE	Firm plans to improve the separate collection system, with clear responsible entities and defined targets and timeline	The EEE Act (ElektroG) extends take-back obligations as of June 2022 to distributors of food offering EEE with a total sales area of at least 800 m²: they will have to take back WEEE. In addition, also certified primary treatment facilities for WEEE shall be authorized for voluntary collection and return free of charge.
Robustness of the underlying information		Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire.

2.1.5 Extended producer responsibility (EPR) and similar schemes

SRF MSWR-5.1: Fee modulation in EPR schemes for packaging

Within EPR schemes, fee modulation (or eco-modulation) is a system with different fees for different types of packaging material and designs. While basic fee modulation, i.e. different fees for the main material groups, are common, advanced fee modulation can create stronger incentives for packaging producers to design for recycling and thus create favourable conditions for higher recycling rates. The level of advancement of the fee modulation is assessed against four criteria that have been selected as benchmarks for a well-designed eco-modulated fee system:

- recyclability, for example differentiating between PET and PS, between different colours of PET, or between 100 % cardboard boxes and laminated beverage cartons;
- sortability and disruptors, for example a malus for labels/caps/sleeves made of other materials, which are not fitted for the recycling technologies of the main packaging;

- recycled content; and
- if there is a transparent compliance check by the Producer Responsibility Organisation (PRO) that producers report correctly.

The Packaging Act (VerpackG) requires to set incentives by varying the fees for different materials and mixes of packaging materials depending on the level of recyclability, the use of recycled materials and the use of renewable raw materials (Bundesministerium der Justiz, 2021a). The Act does, however, not prescribe any prices or specific price differences; those are to be negotiated by the PROs and their producer customers (UBA-DE, 2021).

In order to provide a common methodological basis to determine recyclability, the Central Agency Packaging Register (Zentrale Stelle Verpackungsregister– ZSVR) and the German Environment Agency (UBA) publish a legally binding *Minimum Standard for the Assessment of Recyclability* every year by the 1st of September (§ 21 (3) VerpackG) (Zentrale Stelle Verpackungsregister (Central Agency Packaging Register – and ZSVR), 2020). The standard does not contain any rules for the pricing or the design of incentives, but it ensures that recyclability of packaging subject to § 21 VerpackG is determined on a sound and uniform basis. The standard does not foresee preferential fees for bio-based or biodegradable plastics (UBA-DE, 2021). The PROs have to report annually about the implementation of the fee modulation, and based on these reports, ZSVR and UBA update the Minimum Standard for the Assessment of Recyclability. Due to the competition between PROs, the actual fees are usually not publicly disclosed.

The Packaging Act requires eco fee modulation for all packaging materials. However, the implementation of the PROs differs for different materials as they mostly focus on plastics and composites. The annual reports by PROs are evaluated currently by a research project for the German Environment Agency (publication expected in early 2022).

The Packaging Act foresees that the government reviews the necessity to improve the rules on fee modulation by January 2022, also with a view to increase the use of recyclates and renewable materials in packaging depending on their environmental benefits. This review is elaborated and foreseen to be published by the German Environment Agency by mid-2022.

There are compliance checks to ensure that producers report correctly. There is a packaging register (LUCID), which is available to everyone for free (Zentrale Stelle Verpackungsregister, Central Agency Packaging Register – ZSVR, 2021a). This way, competitors, customers and other interested stakeholders are able to check, whether a certain producer is registered or not. Complaints against producers, who are not registered (or not completely registered) can be forwarded to the respective federal state (Bundesland), the ZSVR or the UBA. All registered producers must submit data on the amount of packaging that must participate in a system they intend to place/have placed on the German Market to both their chosen system and the ZSVR. Producers, who exceed the de minimis threshold, have to submit a declaration of completeness every year. The declaration of completeness requires an independent auditor to audit the information given by the producer. Furthermore, the EPR systems must submit producer-specific data of packaging placed on the market to the ZSVR. These measures shall prevent complete and partial free-riding of EPR obligations (UBA-DE, 2021).

Summary result

There is advanced fee modulation for at least two of the main packaging fractions([a]) AND fee modulation for one packaging fraction meets three assessment criteria	In Germany there is a system of advanced fee modulation in place including the criteria recyclability and recycled content for all types of packaging. There are also compliance checks to ensure that producers report correctly. However, in the implementation of this requirement, the PROs mostly focus on plastics and composites.
Robustness of the underlying information	Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire.

([a]) Note: Paper and cardboard, ferrous metals, aluminium, glass, plastic

2.1.6 Treatment capacity for bio-waste

SRF MSWR-6.1: Capacity for the treatment of bio-waste

Bio-waste is the largest single waste fraction in municipal waste, and adequate treatment capacity needs to be made available.

The overall residual waste in Germany amounts to 13.5 million tonnes in 2018 (UBA-DE, 2021).

The reported share of bio-waste in residual waste is 39 %, meaning that a total of 5.3 million tonnes of bio-waste is present in residual waste (Table 1.1).

Adding the volumes reported as separately collected bio-waste in 2018 of 8.79 million tonnes, results in an overall amount of generated bio-waste of 14.1 million tonnes, excluding home-composted amounts. This means that about 62 % of bio-waste were captured (own calculations, Table 1.1).

German authorities report that the overall available capacity for bio-waste treatment is not exactly known, but certainly sufficient. There are 1 200 bio-waste treatment plants in Germany (UBA-DE, 2021). The total of the approved capacities is estimated to amount to 4.62 million tonnes of treatment capacity in green waste composting plants and 4.83 million tonnes of treatment capacity in organic composting plants. Approximately 1.98 million tonnes of treatment capacity of bio-waste are available in fermentation plants. This adds up to 11.43 million tons of treatment capacity for bio-waste, which is about 80 % of generated municipal bio-waste (UBA-DE, 2021).

Summary result

Enough bio-waste treatment capacity for 80% of generated municipal bio-waste	The overall available capacity for municipal bio-waste treatment in Germany is estimated to be above 80 % of generated municipal bio-waste.
Robustness of the underlying information	Credible information received from the German authorities. The data on bio-waste treatment capacities are estimates.

SRF MSWR-6.2: Legally binding national standards and Quality Management System for compost/digestate

To create a market for compost and digestate, compost should be of a good quality for use as a soil improver or fertilizer. Legally binding standards provide guarantees regarding the quality of the compost/digestate produced. A quality management system aims at addressing different elements of a production process to ensure a stable and high-quality output (product) which helps toward reaching a defined quality for the product.

Germany has mature national standards for compost/digestate quality and a quality management system in place (EEA, 2020). The Biowaste Ordinance (BioAbfV) sets requirements on suitable input materials, processes, quality, and hygiene of composts/digestates and their application, and obligations to prove the compliance with the requirements. The Fertiliser Act and Ordinance set minimum quality criteria for contaminants and useful components. The German Institute for Quality Assurance and Certification (RAL) has developed product-specific quality standards that go beyond the legal minimum requirements, and the Bundesgütegemeinschaft Kompost (BGK), an independent self-governing organization, implements quality standards, supervises plant operators, appoints quality advisors and awards the RAL quality labels (UBA, 2017).

Summary result

Legally binding national standards for compost/digestate quality in place, and quality management system in place	Germany has mature national standards for compost/digestate quality. There is a quality management system in place.
Robustness of the underlying information	This information is robust. It was provided by the German authorities for the development of the 2020 EEA report Bio-waste in Europe – turning challenges into opportunities, and sources from a publication by UBA.

2.2 Target for the recycling of packaging waste

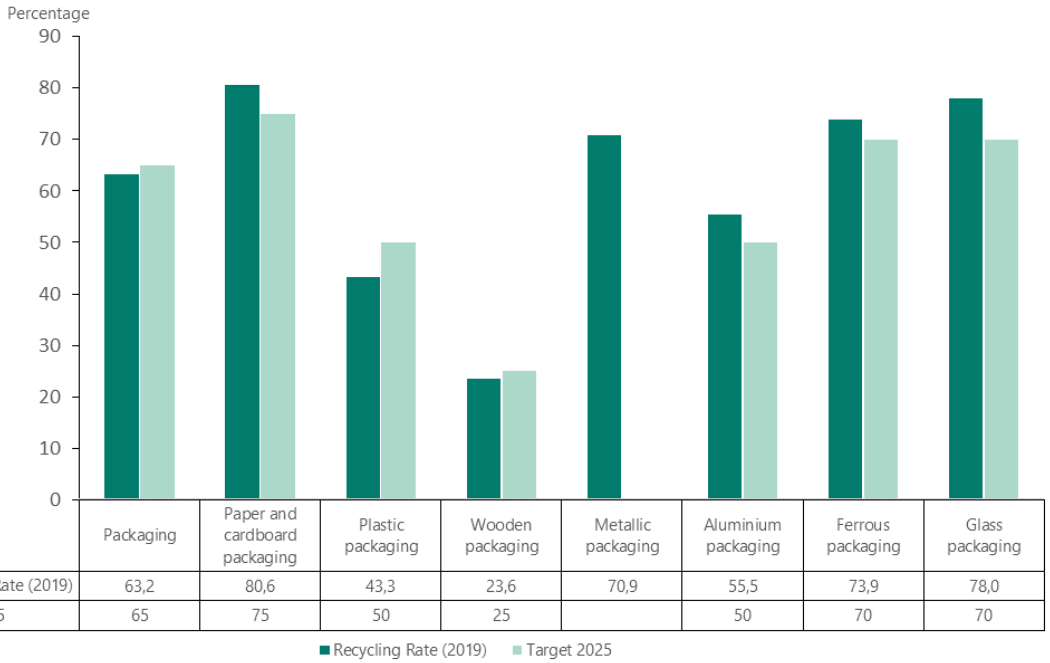
This chapter aims at assessing the prospects of Germany to achieve the **65 % recycling target for packaging waste** in 2025, as well as the **material specific packaging waste recycling targets** (50 % of plastic; 25 % of wood; 70 % of ferrous metals; 50 % of aluminium; 70 % of glass; 75 % of paper and cardboard). In order to conclude on this likelihood, the analysis takes stock of the status of several factors that are proven to influence the levels of recycling in a country. For a detailed description of the methodology followed, the development of success/risk factors and their impact on recycling, please consult the methodology report (ETC/CE & ETC/WMGE, 2022).

2.2.1 Current situation and past trends

SRF P-1.1 Distance to target

The actual distance to the target for the most recent data point is a key factor determining the likelihood of meeting or not meeting the target. This analysis is based on data reported by Germany to Eurostat in accordance with Commission Decision 2005/270/EC as last amended by the Commission Implementing Decision 2019/665 (EC, 2019), published in the dataset *Recycling rates of packaging waste for monitoring compliance with policy targets, by type of packaging [env_waspacr].* For 2019, Germany applied the new calculation rules according to the Commission Implementing Decision 2019/665 for the first time. The calculation points referred to in Article 6c(1)(a) are corrected for non-target materials thus excluding rejected material of the recycling facilities. The latest available data refer to 2019. The performance of Germany for 2019 is illustrated in Figure 2.2.

Figure 2.2 Packaging recycling rates for Germany in 2019, in percentage



	Packaging	Paper and cardboard packaging	Plastic packaging	Wooden packaging	Metallic packaging	Aluminium packaging	Ferrous packaging	Glass packaging
Recycling Rate (2019)	63,2	80,6	43,3	23,6	70,9	55,5	73,9	78,0
Target 2025	65	75	50	25		50	70	70

Source: Eurostat (2022c), EU (2018)

Figure 2.2 shows that in 2019, Germany already exceeds the 2025 target for paper and cardboard packaging (80.6%), aluminium packaging (55.5%), ferrous packaging (73.5%) and glass packaging (78%). However, the wooden packaging recycling rate (23.6 %) lies 1.4 percentage point below the target, and the total packaging recycling rate (63.2%) 1.8 percentage points below the 2025 target.

The largest distance to the target is found for plastic packaging (43.3 %), 6.7 percentage points below the 2025 target. The German Environmental Agency has published detailed information about the data, methodology applied and explanation of changes in the data due to the application of the new reporting rules (UBA, 2021).

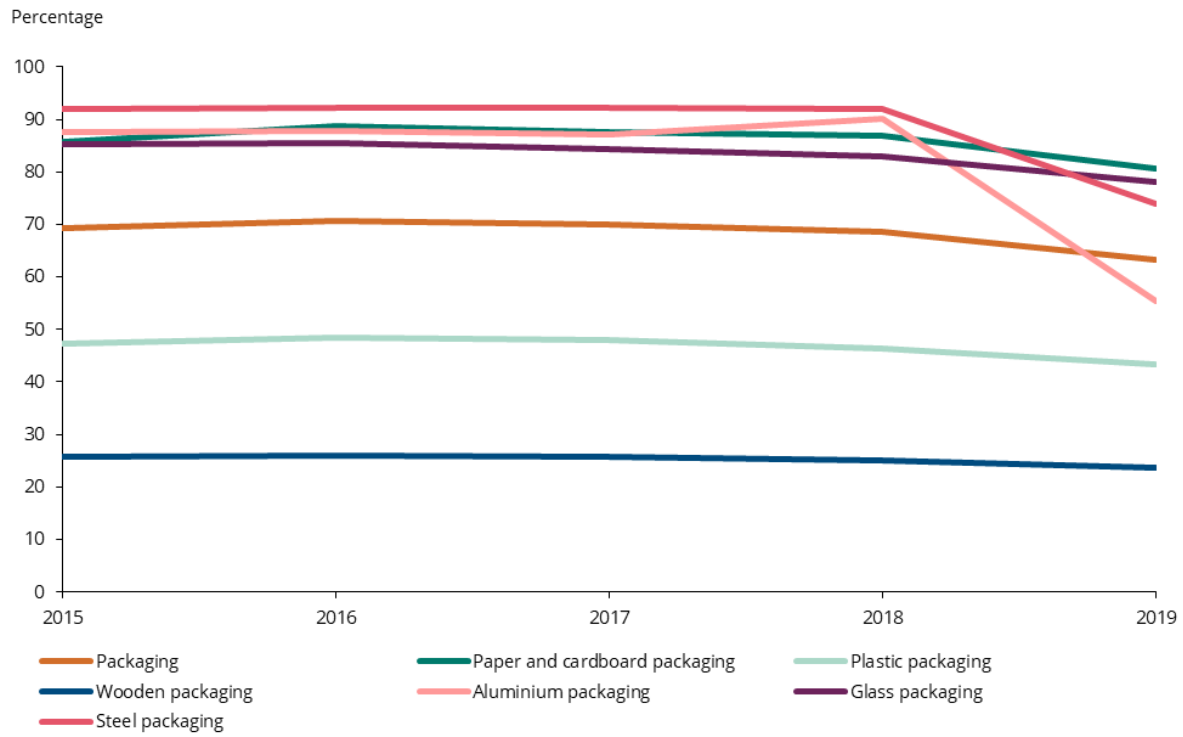
Summary

Total packaging	< 5 percentage points below target	Germany reports a recycling rate of 63.2 % applying the new calculation rules, 1.8 percentage point below the target.
Paper and cardboard packaging	Target exceeded	Germany reports a recycling rate of 80.6 % applying the new calculation rules and already exceeds the recycling target.
Ferrous metals packaging	Target exceeded	Germany reports a recycling rate of 73.9 % applying the new calculation rules and already exceeds the recycling target.
Aluminium packaging	Target exceeded	Germany reports a recycling rate of 55.5 % applying the new calculation rules and already exceeds the recycling target.
Glass packaging	Target exceeded	Germany reports a recycling rate of 78.0 % applying the new calculation rules and already exceeds the recycling target.
Plastics packaging	5 – 15 percentage points below target	Germany reports a recycling rate of 43.3 % applying the new calculation rules, 6.7 percentage points below the target.
Wooden packaging	< 5 percentage points below target	Germany reports a recycling rate of 23.6 % applying the new calculation rules, 1.4 percentage points below the target.
Robustness of the underlying information		The assessment is based on the 2019 packaging waste data reported to Eurostat. The assessment may be considered robust.

SRF P-1.2: Past trend in Packaging Waste Recycling

The development of the historical trend in the recycling rate indicates previous efforts towards packaging waste recycling. In this analysis the recycling rate reported in the Eurostat dataset *Recycling rates of packaging waste for monitoring compliance with policy targets, by type of packaging [env_waspacr]* (latest data year: 2019) is used. The recycling trends for packaging waste by material in Germany are illustrated in Figure 2.3.

Figure 2.3 Trend in packaging waste recycling rates in Germany between 2015 and 2019, in percentage



Note: Break in time series for all fractions in 2019

Source: Eurostat (2022c)

Between 2015 and 2018 the recycling rates remained rather stable and the recycling targets were already exceeded (except for plastic packaging waste). A significant drop in the recycling rates is observed throughout all packaging waste streams in 2019, due to the application of the new calculation rules. Most strikingly, the recycling rate for aluminium packaging dropped from 90.1 % in 2018 to 55.5 % in 2019. This is stated to be an effect of the new calculation rules (Eurostat, 2021b). Given the break in time series due to the implementation of the new calculation rules, the past trends are evaluated based on the development of the recycling rates between 2015 and 2018.

Summary result

Total packaging	RR > 60% and increase in last 5 years < 5 percentage points,	The recycling rate decreased by 0.8 percentage points between 2015 and 2018 (in 2019 there is a break in time series), and is reported to be 63.2 % applying already the new calculation rules (taking into accounts losses in the recycling plants).
Paper and cardboard packaging	RR > 75%	The recycling rate decreased by 1.1 percentage points between 2015 and 2018 (in 2019 there is a break in time series), and is reported to be 80.6 % applying already the new calculation rules (taking into accounts losses in the recycling plants).
Ferrous metals packaging	RR > 70%	The recycling rate increased by 0.1 percentage points between 2015 and 2018 (in 2019 there is a break in time series), and is reported to be 73.9 % applying already the new calculation rules (taking into accounts losses in the recycling plants).

Aluminium packaging	RR > 50%	The recycling rate decreased by 2.6 percentage between 2015 and 2018 (in 2019 there is a break in time series), and is reported to be 55.5 % applying already the new calculation rules (taking into accounts losses in the recycling plants).
Glass packaging	RR > 70%	The recycling rate increased by 2.2 percentage between 2015 and 2018 (in 2019 there is a break in time series), and is reported to be 78.0 % applying already the new calculation rules (taking into accounts losses in the recycling plants).
Plastics packaging	RR > 40%, and increase in last 5 years < 10 percentage points	The recycling rate increased by 1 percentage points between 2015 and 2018 (in 2019 there is a break in time series), and is reported to be 43.3 % applying already the new calculation rules (taking into accounts losses in the recycling plants).
Wooden packaging	RR > 20% and increase in last 5 years < 5 percentage points	The recycling rate increased by 0.8 percentage points between 2015 and 2018 (in 2019 there is a break in time series), and is reported to be 24 % applying already the new calculation rules (taking into accounts losses in the recycling plants).
Robustness of the underlying information		The assessment may be considered robust. However, as the new calculation rules were only applied in 2019, the past trends were based upon the years between 2015 and 2018.

2.2.2 Legal instruments

SRF P-2.1: Timely transposition of the revised Packaging and Packaging Waste Directive into national law

Timely transposition of the Packaging and Packaging Waste Directive, as amended by Directive 2018/852, into national law within the foreseen period is key for a waste management system in line with EU requirements.

Germany has transposed the amended Packaging and Packaging Waste Directive into national law with a delay of less than 12 months after the deadline of 5 July 2020 (see Section 1.3).

Summary result

Transposition with a delay of less than 12 months	Germany has transposed the amended Packaging and Packaging Waste Directive into national law with a delay of less than 12 months.
Robustness of the underlying information	Credible information received from the European Commission (status as of 12 November 2021).

SRF P-2.2: Responsibilities for meeting the targets, and enforcement mechanisms, e.g. fines etc.

In Germany, the following authorities and stakeholders have certain responsibilities which influence the recycling rate of packaging waste:

- On the national level:
  - National legislation;
  - Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV);
  - German Environment Agency (Umweltbundesamt – UBA);

    - Central Agency Packaging Register (Zentrale Stelle Verpackungsregister – ZSVR).
- On the level of federal states (*Bundesländer):*
    - The 16 respective Ministries for the Environment and their subordinated agencies.
- On the local level:
    - Local waste authorities.
- Other stakeholders:
    - Producer Responsibility Organisations (PROs) (also called Extended Producer Responsibility (EPR) systems);
    - Collection subcontractors;
    - Sorting facilities;
    - Treatment facilities;
    - Producers (in the sense of the VerpackG (Packaging Act));
    - Private households and comparable sources of packaging waste (UBA-DE, 2021).

The Packaging Act (VerpackG), which establishes the legal framework for packaging and packaging waste in Germany, is a federal law (Bundesministerium der Justiz, 2021a). The BMUV is the federal ministry responsible for the VerpackG. The ministry is involved in the legislative process and the highest ranking federal agency concerning environmental policies.

UBA is the legal and professional supervisory body over the Central Agency Packaging Register (Zentrale Stelle Verpackungsregister – ZSVR). Additionally, it creates – together with the ZSVR – the annual minimum standard for measuring the recyclability of sales and shipping packaging. It is also involved in checking the plausibility of the reports that the PRO's have to publish each year. Furthermore, as a scientific agency UBA is conducting research and informing citizens and stakeholders on topics related to packaging and packaging waste.

ZSVR is tasked with several central and crucial elements of the VerpackG. This include the running of the packaging register, registering producers, receiving data reports from producers and EPR schemes, creating the annual minimum standard for measuring the recyclability of sales and shipping packaging, checking the plausibility of the reports from the PROs as well as receiving and checking the declarations of completeness by large producers (Zentrale Stelle Verpackungsregister (Central Agency Packaging Register – ZSVR, 2021b).

The VerpackG appoints the federal states (*Bundesländer)* to be responsible for the enforcement of regulatory offences against the VerpackG. In some federal *states* these responsibilities were transferred to subordinated agencies. In some cases these tasks were transferred to the local authorities (*untere Abfallbehörde*). The *Bundesländer* are also responsible for confirming or ending contract with economic entities as c.

Local authorities also have their own set of responsibilities. They have to make binding contracts with the PROs concerning the collection frequency, the size and type of containers for collection of packaging waste.

The PROs are responsible for collecting, sorting and treating packaging waste free of charge for private households and similar places where packaging accrues as waste. They have to release annual reports on the packaging that was registered with them, and on the above-mentioned adherence to the minimum standard. The systems are obliged to inform citizens about packaging waste. Possibly subcontracted collection companies, sorting and treatment facilities are stakeholders for meeting the targets as far as they are involved in the collection, sorting and treatment of the packaging waste. Innovations by these players will affect the ability to meet the targets.

Producers and manufacturers also have an influence on the targets, by making decisions on which (combination of) materials are to be used for their packaging, how easily different components can be separated from each other, if and how much packaging is used and if consumers are informed about the recyclability.
Citizens have an influence on meeting the targets as well by the consumption choices they make and how they dispose of packaging waste (UBA-DE, 2021).

For the mentioned ministries and agencies there are no consequences laid down in the VerpackG. All the general rules and measures a superior administrative body has will also apply here. UBA is the legal and professional supervisory body over the ZSVR. UBA has decided to take a pro-active and communicative approach to its supervisory tasks. The classical instruments of legal and professional supervision remain as options but are rarely used. Furthermore, the VerpackG stipulates the UBA to take over a majority of the ZSVR's tasks in case the latter is not able to carry them out properly (UBA-DE, 2021).

If the producers (in the sense of the VerpackG) and PROs do not comply with their collection and recycling targets, various infringements are established in the VerpackG. All infringements can be prosecuted with fines (please see section 34 paragraph 1 VerpackG for the full list). Some examples:
Fines of up to EUR 200 000 per infringement are possible:

- if a producer does not at all, not correctly or not completely participate in a system;
- if systems do not ensure the collection of empty packaging;
- if waste packaging is not brought to a proper waste treatment;
- if a system is operated without permission.

Fines of up to EUR 100 000 per infringement are possible:

- if a producer does not at all, not correctly, not completely or not in a timely manner register with the ZSVR;
- if a distributor offers packaging for sale, when the producer is not (properly) registered with the ZSVR;
- if a producer does not at all, not correctly, not completely or not in time hands in a declaration of completeness with the ZSVR.

Fines of up to EUR 10 000 are possible:

- if a producer does not at all, not correctly, not completely or not in time reports changes in necessary registering data to the ZSVR.

If systems do not fulfil their duties, as an ultimate consequence the permission for operating the PRO can be revoked by each federal state for their respective territory.

In case private households do not separate their packaging waste properly from other waste, the collection of that packaging waste can be refused until it is properly sorted. In these cases a note as to why the collection was denied will be left for the private household (UBA-DE, 2021).

There are also a number of support tools and mechanisms in place to improve the efficiency and performance of the responsible entities influencing the recycling rate of packaging waste:

- FAQ-documents, info videos, guidance documents, telephone support provided by the ZSVR for producers;
- Sharing good practice between BMUV and UBA;

- Sharing information between UBA and ZSVR;
- Sharing of information among the federal states (*Bundesländer)* as well as coordination on certain issues;
- Sharing of information between BMUV, UBA, ZSVR and the federal states (*Bundesländer).*

(UBA-DE, 2021)

Summary result

Clearly defined responsibilities, enforcement and good set of support mechanisms for meeting the recycling targets	Responsibilities are defined and support mechanisms are in place, and there are direct consequences if the targets are not met.
Robustness of the underlying information	Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire.

2.2.3 Economic instruments

SRF P-3.1: Taxes and/or ban for landfilling residual- or biodegradable waste

Bans and taxes on landfilling of residual waste can help to discourage landfilling and thus support recycling, also of packaging waste.

As described in Section 2.1.3 in more detail, Germany has no landfill tax (UBA-DE, 2021), but there is a landfill ban for waste with a Total Organic Carbon content (TOC) above 3 % (18 % for mechanical-biologically treated waste).

Summary result

Ban in place for landfilling residual or biodegradable waste	In Germany, there is no landfill tax, but a ban on waste with a TOC >3 % (18 % for mechanical-biologically treated waste).
Robustness of the underlying information	Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire.

SRF P-3.2: Taxes on municipal waste incineration

Taxes on incineration of residual waste can help to discourage strong reliance on residual waste treatment and thus support recycling. As described in Section 2.1.3, Germany has no tax on municipal waste incineration (UBA-DE, 2021).

Summary result

No incineration taxes	In Germany, there is no tax on municipal waste incineration.
Robustness of the underlying information	Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire.

SRF P-3.3: Packaging taxes

Packaging taxes can support the aim to reduce packaging waste generation and/or to influence the choice of packaging materials and encourage recyclability and eco-design.

According to the information available, in Germany there is no packaging tax at federal or federal state level. At municipal level, the city of Tübingen recently introduced a packaging tax on single use plastic

(SUP) tableware for immediate use and take away packaging (EUR 0.5), and SUP cutlery (EUR 0.2), as of January 2022 (Universitätsstadt Tübingen, Fachabteilung Steuern, 2021).

Summary result

No packaging taxes	Germany currently has no packaging tax in place.
Robustness of the underlying information	Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire.

SRF P-3.4: Pay-as-you-throw (PAYT) system in place

As a large share of packaging waste is generated in households, incentivising households to separate packaging waste at source, e.g. by applying PAYT systems, is relevant for meeting the recycling targets for packaging waste.

In Germany there is a PAYT system in place, which only covers about 30 % of the population. The fees depend on the number of containers per year which were emptied or the amount of residual household waste disposed of (UBA-DE, 2021).

Summary result

Less than 50% of the population covered by PAYT	In Germany there is a Pay-as-you-throw (PAYT) system in place, which only covers about 30 % of the population
Robustness of the underlying information	Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire.

SRF P-3.5: Deposit return systems

Deposit Return Systems (DRS) generate high capture rates for packaging covered by the system and thus contribute to increased recycling rates.

In Germany the Packaging Act (VerpackG) requires a deposit for refillable packaging and non-refillable beverage packaging (Bundesministerium der Justiz, 2021a). Refillable packaging is defined in section 3, paragraph 3 of the VerpackG. The Act requires sufficient logistics and an effective incentive (normally a deposit) for take-back and re-use. Where such a system is established, no further regulations from VerpackG are applicable (Deutsche Pfandsystem GmbH, 2021).

Section 31 VerpackG establishes a mandatory deposit of at least EUR 0.25 for non-refillable (single-use) beverage packaging, except of beverage cartons and a few other minor packaging types. The deposit must be paid by everyone in the supply chain, including the consumer. The non-refillable beverage packaging must be labelled as such. Retailers selling non-refillable beverage packaging filled with a beverage are obliged to take back the empty packaging and to return the deposit. The taken-back non-refillable beverage packaging must be submitted to waste recovery (Deutsche Pfandsystem GmbH, 2021).

Germany has applied mandatory deposit for certain beverage packaging for many years. However, the VerpackG has removed a range of exemptions from this mandatory deposit. The mandatory deposit now applies to all non-refillable beverage packaging with the exception of packaging listed in section 31, paragraph 4 of the VerpackG, such as beverage cartons, beverage packaging with a filling volume of less than 0.1 litres or more than 3 litres or glass beverage packaging containing alcoholic beverages, certain milk beverages, fruit or vegetable juice (Deutsche Pfandsystem GmbH, 2021) applicable since 1 January 2022. For certain milk beverages the deposit is to be applied by the 1 January 2024.

Non-refillable beverage packaging, which is not included in the deposit system are obliged to participate in a producer responsibility system and must be registered with the Central Agency Packaging Register (Zentrale Stelle Verpackungsregister– ZSVR) (UBA-DE, 2021).

Summary result

<table>
<tr><td>Aluminium drink cans</td><td>Mandatory DRS for nearly all drink cans</td><td rowspan="3">There is a mandatory DRS for aluminium drink cans, plastic drink bottles and glass drink bottles. Exceptions include beverage packaging with a filling volume of less than 0.1 litres or more than three litres or glass beverage packaging containing alcoholic beverages, certain milk beverages, fruit or vegetable juice.</td></tr>
<tr><td>Glass drink bottles</td><td>Mandatory DRS for nearly all drink bottles</td></tr>
<tr><td>Plastic drink bottles</td><td>Mandatory DRS for nearly all drink bottles</td></tr>
<tr><td>Plastic crates</td><td>Voluntary DRS for some plastic crates</td><td>There are deposit return systems for reusable plastic crates for beverage bottles.
But there are also other boxes, for example at butchers, bakers or in the catering trade, which are given out for a deposit.</td></tr>
<tr><td>Wooden packaging</td><td>Voluntary DRS for some wooden packaging</td><td>There is a voluntary deposit return system for wooden pallets.</td></tr>
<tr><td colspan="2">Robustness of the underlying information</td><td>Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire.</td></tr>
</table>

2.2.4 Separate collection system

SRF P-4.1: Convenience and coverage of separate collection for different packaging waste fractions

As a large part of packaging waste comes from households, separate collection systems for households and similar sources are a key condition for achieving high recycling rates of packaging waste and for collecting recyclables at adequate quality. Generally, the more convenient and accessible these systems are for their users, the better results they can deliver. The material specific assessment considers packaging waste from both household and non-household sources. For assessing the convenience and coverage of separate collection systems for households, the same methodology is used here as described in section 2.1.4.

The separate collection system in Germany is described in detail under SRF MSWR-4.1 in section 2.1.4.

The coverage and convenience level for the collection of packaging waste from households is medium to high. The separate collection for non-households is mandatory for all fractions (UBA-DE, 2021).

Summary result

<table>
<tr><td rowspan="2">Paper and cardboard packaging</td><td>1. Packaging waste from households
A high share of the population is covered by high convenience collection services</td><td rowspan="11">The coverage and convenience level for the collection of packaging waste from households is medium to high, source separation is mandatory for commercial and industrial packaging waste.</td></tr>
<tr><td>2. Packaging waste from non-household sources
Separation at source is mandatory for non-household paper and cardboard packaging waste</td></tr>
<tr><td rowspan="2">Ferrous metals packaging</td><td>1. Packaging waste from households
A high share of the population is covered by high convenience collection services</td></tr>
<tr><td>2. Packaging waste from non-household sources
Separation at source is mandatory for non-household ferrous metals packaging waste</td></tr>
<tr><td>Aluminium packaging</td><td>Packaging waste from households
A high share of the population is covered by high convenience collection services</td></tr>
<tr><td rowspan="2">Glass packaging</td><td>1. Packaging waste from households
A high share of the population is covered by high convenience collection services</td></tr>
<tr><td>2. Packaging waste from non-household sources
Separation at source is mandatory for non-household glass packaging waste</td></tr>
<tr><td rowspan="2">Plastics packaging</td><td>1. Packaging waste from households
A high share of the population is covered by high convenience collection services</td></tr>
<tr><td>2. Packaging waste from non-household sources
Separation at source is mandatory for non-household plastic packaging waste</td></tr>
<tr><td>Wooden packaging</td><td>Packaging waste from non-household sources
Separation at source is mandatory for non-household wooden packaging waste</td></tr>
<tr><td colspan="2">Robustness of the underlying information</td><td>Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire.</td></tr>
</table>

Note: The main source for aluminium packaging waste is drink cans from households, therefore the assessment does not consider aluminium non-household waste.

SRF P-4.2: Firm plans to improve the convenience and coverage of separate collection for different packaging waste fractions

Concrete plans are needed to improve the convenience and coverage of separate collection. This SRF is only relevant for MS and materials that do not score 'green' in SRF P-4.1. The assessment is done on a material basis, and summing up the scores of the different materials according to their average

share in packaging waste[1]. Again, the material specific assessment considers packaging waste from both household and non-household sources.

As Germany scores green in all categories this SRF is not relevant (cf SRF P-4.1).

Summary result

<table>
<tr><td rowspan="2">Paper and cardboard packaging</td><td>1. Packaging waste from households
N/A (for countries in which a high share of the population is already covered by high convenience collection services)</td><td rowspan="12">This SRF is not relevant for Germany, since the coverage and convenience level for the collection of packaging waste from households is medium to high and the separate collection for non-households is mandatory for all fractions.</td></tr>
<tr><td>2. Packaging waste from non-household sources
N/A (for countries already having mandatory sorting at source)</td></tr>
<tr><td rowspan="2">Ferrous metals packaging</td><td>1. Packaging waste from households
N/A (for countries in which a high share of the population is already covered by high convenience collection services)</td></tr>
<tr><td>2. Packaging waste from non-household sources
N/A (for countries already having mandatory sorting at source)</td></tr>
<tr><td>Aluminium packaging</td><td>Packaging waste from households
N/A (for countries in which a high share of the population is already covered by high convenience collection services)</td></tr>
<tr><td rowspan="2">Glass packaging</td><td>1. Packaging waste from households
N/A (for countries in which a high share of the population is already covered by high convenience collection services)</td></tr>
<tr><td>2. Packaging waste from non-household sources
N/A (for countries already having mandatory sorting at source)</td></tr>
<tr><td rowspan="2">Plastics packaging</td><td>1. Packaging waste from households
N/A (for countries in which a high share of the population is already covered by high convenience collection services)</td></tr>
<tr><td>2. Packaging waste from non-household sources
N/A (for countries already having mandatory sorting at source)</td></tr>
<tr><td>Wooden packaging</td><td>Packaging waste from non-household sources
N/A (for countries already having mandatory sorting at source)</td></tr>
<tr><td colspan="2">Robustness of the underlying information</td><td>Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire</td></tr>
</table>

[1] Based on data from Eurostat on the share of packaging materials in total packaging generated in 2018.

2.2.5 Extended producer responsibility (EPR) and similar schemes

SRF P-5.1: Coverage of EPR schemes

According to the German Packaging Act, producers of packaging that typically ends up as waste at households and similar final consumers (e.g. restaurants, hotels, hospitals, schools, …), have to join a producer responsibility organisation ('System') or, alternatively have to organise take-back and recovery of their packaging themselves or together with producers of similar packaging. All such producers must register at the Packaging Register. Producers and traders of other packaging (e.g. transport packaging, packaging that typically does not become waste at private consumers, refillable packaging) do not have to join a PRO but are obliged to take back and recover the packaging they have placed on the market free-of-charge (individual producer responsibility). These obligations apply to all packaging regardless of the packaging material.

In Germany, several PRO's are competing in the market, namely *Der Grüne Punkt – Duales System Deutschland GmbH*, *BellandVision GmbH*, *EKO-PUNKT GmbH & CO. KG, INTERSEROH Dienstleistungs GmbH, Landbell AG für Rückhol-Systeme, Noventiz Dual GmbH, PreZero Dual GmbH, Reclay Systems GmbH, Veolia Umweltservice Dual GmbH and Zentek GmbH & Co. KG* (Zentrale Stelle Verpackungsregister, Central Agency Packaging Register – ZSVR, 2021).

Summary result

All main packaging fractions([a]) are covered by EPR schemes, covering household and non-household packaging	In Germany, all main packaging fractions are covered by EPR. Producers of packaging that is typically becoming waste at households and similar establishments have to join one or several PROs. Producers of other packaging (e.g. transport packaging) are obliged to take back and recover their packaging.
Robustness of the underlying information	Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire, and legal text of the Packaging Act.

([a]) **Note:** Paper and cardboard, Ferrous metals, Aluminium, Glass, Plastic

SRF P-5.2: Fee modulation in EPR schemes for packaging

As explained in Section 2.1.5, fee modulation (or eco-modulation) is a system with different fees for different types of packaging material and designs. The assessment is the same as described in Section 2.1.5.

Summary result

There is advanced fee modulation in at least two of the main packaging fractions([a]) AND fee modulation for one packaging fraction meets three assessment criteria	In Germany there is a system of fee modulation in place including the criteria recyclability and recycled content for all types of packaging. There are also compliance checks to ensure that producers report correctly. However, the implementation of the PROs mostly focus on plastics and composites.
Robustness of the underlying information	Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire, and legal text of the Packaging Act.

([a]) **Note:** Paper and cardboard, Ferrous metals, Aluminium, Glass, Plastic

SRF P-5.3 Material specific EPR assessment

The material specific assessment is based on a combination of the coverage of the material-specific EPR schemes and the use of fee modulation for the specific packaging material. The assessment takes the different situations for different types of materials into account: Plastics packaging is the

packaging material that is the most difficult to recycle out of the packaging materials targeted by the Packaging and Packaging Waste Directive. Fee modulation therefore plays a larger role for plastic packaging than for the other materials and is therefore rated differently from paper/cardboard, ferrous metals, aluminium and glass. The methodology foresees a green score for plastics packaging only if all four fee modulation assessment criteria mentioned above are met. On the other hand, wooden packaging is mainly generated by commercial and industrial sources and fee modulation is less relevant, therefore the methodology only relies on EPR schemes for wooden packaging from commercial and industrial sources.

As described above, all packaging materials both from household and non-households are covered by EPR, and PRO's are obliged to modulate fees in a way that they incentivise sortability, recyclability and the use of recycled or renewable content for all packaging materials, and compliance is checked. There are indications that the PRO's apply such advanced fee modulation currently mainly for plastics and composite packaging.

Summary result

<table>
<tr><td>SRF P-5.3.1
EPR scheme for Paper and cardboard packaging waste</td><td>EPR scheme covering household and non-household packaging, with a fee modulation meeting at least two assessment criteria.</td><td rowspan="7">In Germany, PROs are legally obliged to modulate fees in a way that they incentivise sortability, recyclability and the use of recycled or renewable content for all packaging materials. There are also compliance checks to ensure that producers report correctly. However, the implementation of the PROs mostly focus on plastics and composites.</td></tr>
<tr><td>SRF P-5.3.2
EPR scheme for Ferrous metals packaging waste</td><td>EPR scheme covering household and non-household packaging, with a fee modulation meeting at least two assessment criteria.</td></tr>
<tr><td>SRF P-5.3.3
EPR scheme for Aluminium packaging waste</td><td>EPR scheme covering household and non-household packaging, with a fee modulation meeting at least two assessment criteria.</td></tr>
<tr><td>SRF P-5.3.4
EPR scheme for Glass packaging waste</td><td>EPR scheme covering household and non-household packaging, with a fee modulation meeting at least two assessment criteria.</td></tr>
<tr><td>SRF P-5.3.5
EPR scheme for Plastic packaging waste</td><td>EPR scheme covering household and non-household packaging, with a fee modulation meeting all four assessment criteria.</td></tr>
<tr><td>SRF P-5.3.6
EPR scheme for Wooden packaging waste</td><td>EPR scheme covering all non-household packaging</td></tr>
<tr><td colspan="2">Robustness of the underlying information</td><td>Credible information received from the German authorities through the EEA-ETC/WMGE questionnaire, and legal text of the Packaging Act. Information about the actual application of advanced fee modulation by PROs is currently limited.</td></tr>
</table>

2.3 Target on landfill of municipal waste

2.3.1 Current situation and past trends

SRF LF-1.1: Distance to target

The Landfill directive (1999/31/EC), as amended by Directive (EU) 2018/850, sets a target to reduce, by 2035, the amount of municipal waste landfilled to 10 % or less of the total amount of municipal waste generated (by weight).

Data to show the current rate of landfilling in line with the reporting rules will only be reported by mid-2022. Therefore, this analysis calculates the landfilling rate based on the current Eurostat dataset *Municipal waste by waste management operations [env_wasmun]*; by dividing the amount of landfilled waste by the total amount of waste generated. The overall landfilling rate of Germany was 0.7 % in 2020 (calculated based on Eurostat (2022a)). However, outputs from MBT plants that is landfilled is not accounted for in the data reported by Germany to Eurostat.

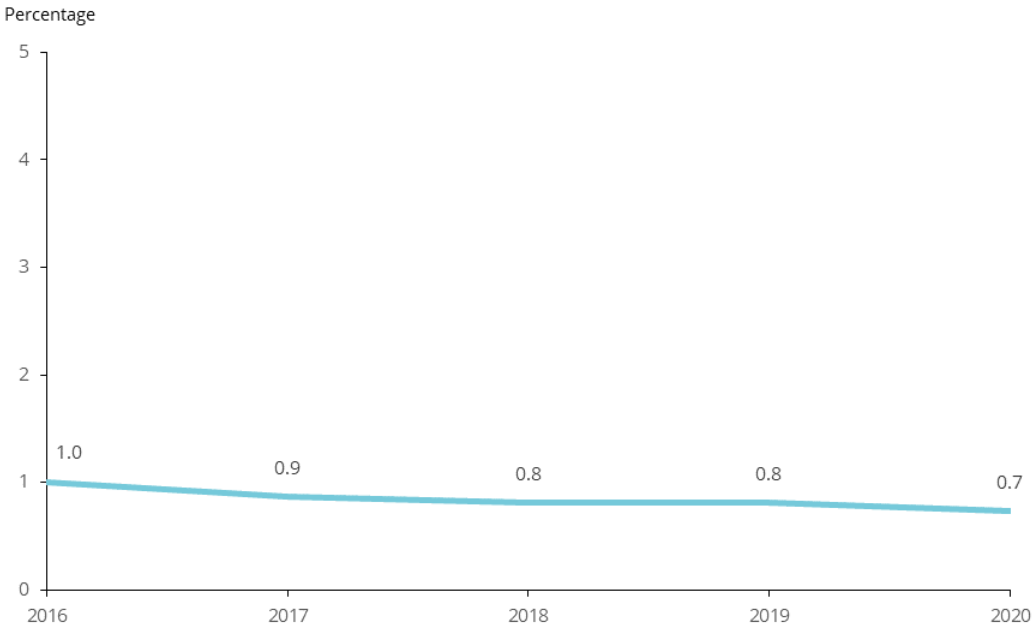
Summary result

Target exceeded	The landfilling rate of Germany was slightly below 1 % in 2020.
Robustness of the underlying information	The data is derived from Eurostat and is considered to be rather robust. However, the reported landfill rate might increase once the new calculation rules laid down in the Commission Implementing Decision (EU) 2019/1885 will be applied. Based on the available information, it is currently not possible to quantify the impact of the new calculation rules on the landfill rate.

SRF LF-1.2: Past trend in municipal solid waste landfill rate

Over the past five years, the overall landfilling rate of Germany remained slightly below 1 % (Figure 2.4).

Figure 2.4 Landfilling in Germany between 2016 and 2020, in percentage



Source: Eurostat (2022a)

Summary result

Landfill rate < 10%	The landfill rate of Germany was about 1 % throughout the period 2016 to 2020.
Robustness of the underlying information	The data is derived from Eurostat and is considered to be rather robust. There is no break in the time series data.

SRF LF-1.3: Diversion of biodegradable municipal waste from landfill

According to Art. 5(2c) of the EU Landfill Directive, Member States had to ensure that by 2016, biodegradable municipal waste going to landfills is reduced to 35 % of the total amount (by weight) of biodegradable municipal waste produced in 1995 or the latest year before 1995 for which standardised Eurostat data is available.

Germany generated about 2 million tonnes of biodegradable municipal waste in the reference year. None of this generated amount was still landfilled in 2016, since a ban has been in place since 2005. However, output material from MBT plants that is landfilled is not accounted for as it is considered to be biologically inactive.

Summary result

Target for reducing the amount of biodegradable municipal waste (BMW) landfilled to 35% of BMW generated in 1995 has been achieved in 2016	Germany has reported 0 % biodegradable waste landfilled for 2016 of the total amount (by weight) of biodegradable municipal waste produced in 1995, and therefore met the target already.
Robustness of the underlying information	Based on officially reported data which is well in line with otherwise reported statistical data on landfilling of municipal waste.

3 Conclusion

This risk assessment indicates whether Germany is at risk of not meeting the targets. The 'total risk' categorization is the result of the sum of the individual scores of each SRF as described in the previous chapter, where the assessment of each SRF results in a score of **2 points (green), 1 point (amber) or 0 points (red)**, depending on the assessment of the SRF. As some SRFs are considered to have a higher impact on meeting the target, the score of the SRF is multiplied by the defined weight of the SRF. As some SRFs might not be applicable to Germany, only the SRFs relevant to Germany are taken into account to define the maximum score. Germany is considered to be 'not at risk' if its score is more than 50 % of this maximum score, and 'at risk' if its score is less than 50 % of this maximum score.

3.1 Prospects for meeting the recycling target for municipal solid waste

81 % **of maximum score**	Based on the provided information and the analysis done, it is concluded that Germany is **not at risk for not meeting the MSW recycling target in 2025**.
Current situation and past trends:	The recycling rate was 67 % in 2020, which is 12 percentage points above the 2025 target of 55 %. Considering however the impact of the new calculation rules, we assume a reduction with 5 percentage points for this assessment, resulting in an estimated recycling rate of 62 %, still well above the target. The recycling rate has been stable over the last five years.
Legal instruments:	The amended WFD was transposed into national law with a delay of less than 12 months. Responsibilities are defined and support and enforcement mechanisms are in place. However, targets are not cascaded down to the federal states and municipalities, and they do not face any direct consequences if they do not meet the targets.
Economic instruments:	There is no tax on municipal waste incineration. Germany does not apply a landfill tax, but has a ban on waste with a TOC > 3 % (18 % for MBT output). There are Pay-as-you-throw systems in place, but covering only about 30 % of the population.
Separate collection systems:	A high share of the population is covered by high convenience collection services for paper and cardboard, glass, textiles, plastics and metals. Food and garden waste are mainly collected together via separate door-to-door collection, while garden waste is also collected at civic amenity sites. A medium share of the population is covered by high convenience collection services for wood.

	For WEEE different bring-systems are used, including take-back at retailers and civic amenity sites. There are firm plans to improve the type and coverage of collections as of 2022. For wood, there are no firm plans to improve the type and coverage of collections. For organic waste, attempts are being made at federal and state level to expand organic waste collection, but the decision must be made at the municipal level.
Extended producer responsibility:	All main packaging fractions are covered by EPR, covering household and household-similar packaging waste. Fees have to be modulated based on the criteria recyclability and recycled content and compliance checks are in place, but the degree of implementation varies between different materials.
Bio-waste treatment capacity and quality management:	The bio-waste treatment capacity is estimated to be sufficient. Mature national standards for compost/digestate quality and a quality management system is in place.

3.2 Prospects for meeting the recycling targets for packaging waste

75 % **of maximum score**	Based on the provided information and the analysis done, it is concluded that Germany is **not at risk for not meeting the 65 % recycling target for packaging waste in 2025.**	
77 % of maximum score	Paper and cardboard	Not at risk
77 % of maximum score	Ferrous metals packaging	Not at risk
78 % of maximum score	Aluminium packaging	Not at risk
78 % of maximum score	Glass packaging	Not at risk
56 % of maximum score	Plastics packaging	Not at risk
69 % of maximum score	Wooden packaging	Not at risk
Current situation and past trends:	A significant drop in the recycling rates is observed throughout all packaging waste streams in 2019, most strongly for aluminium packaging. This is due to the application of the new calculation rules. The total packaging recycling rate (applying the new calculation rules) in 2019 was 63.2 %, 1.8 percentage points below the 2025 target. The distance to target is less than 5 percentage points for the total packaging and all individual packaging waste streams, except for plastic waste, which is 6.7 percentage points below the target.	

Legal instruments:	The amended Packaging and Packaging Waste Directive was transposed into national law with a delay of less than 12 months. Responsibilities are clearly defined and support and enforcement mechanisms are in place, including direct consequences if the targets are not met.
Economic instruments:	There is no tax on municipal waste incineration and no packaging tax. There is no landfill tax, but a ban on waste with a TOC > 3 %. There is a Pay-as-you-throw system in place, which only covers about 30 % of the population. There are mandatory DRS for aluminium drink cans, plastic drink bottles and glass drink bottles with some exceptions. There are voluntary DRS for some plastic crates and for some wooden packaging.
Separate collection systems:	The coverage and convenience level for the collection of packaging waste from households is high, source separation is mandatory for commercial and industrial packaging waste. There are no plans to further improve convenience or coverage.
Extended producer responsibility:	All main packaging fractions are covered by EPR, covering household and non-household packaging waste. Fees have to be modulated based on the criteria recyclability and recycled content and compliance checks are in place, but there are indications that the degree of implementation by the PROs varies between different materials.

3.3 Prospects of meeting the landfill of municipal waste target

100 % **of maximum score**	Based on the provided information and the analysis done, it is concluded that Germany is **not at risk for not meeting the 2035 target to reduce the amount of municipal waste landfilled to 10 % or less of the total amount of municipal waste generated.**
Current situation and past trends:	The landfilling rate in 2020 was 0.7 %. Over the past five years, the overall landfilling rate of Germany has slightly decreased, but only with 0.3 percentage points.
Diversion of biodegradable municipal waste from landfill:	Germany has reported 0 % biodegradable waste landfilled for 2016 of the total amount (by weight) of biodegradable municipal waste produced in 1995, and therefore met the target.

List of abbreviations

Abbreviation	Name
BGK	Bundesgütegemeinschaft Kompost
BioAbfV	Biowaste ordinance
BMUV	Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection
DRS	Deposit Return System
EC	European Commission
EEA	European Environment Agency
EEE	Electrical and Electronic Equipment
Eionet	European Environmental Information and Observation Network
EPR	Extended producer responsibility
ETC/CE	European Topic Centre on Circular Economy and resource use
ETC/WMGE	European Topic Centre on Waste and Materials in a Green Economy
FAQ	Frequently Asked Question
KrWG	Circular Economy Act
MBT	Mechanical biological treatment
MS	Member state
MSW	Municipal solid waste
PAYT	Pay-as-you-throw
PET	Polyethylene terephthalate
PPWD	Packaging and Packaging Waste Directive
PRO	Producer Responsibility Organisation
PS	Polystyrene
R&D	Research and development
RAL	German Institute for Quality Assurance and Certification
RR	Recycling rate
SRF	Success and risk factor
SUP	Single-Use Plastic
TOC	Total Organic Carbon
UBA	Umweltbundesamt (German Environment Agency)
WEEE	Waste Electric and Electronic Equipment
WFD	Waste Framework Directive
ZSVR	Zentrale Stelle Verpackungsregister (Central Agency Packaging Register)

References

Bundesministerium der Justiz, 2021a, Gesetz über das Inverkehrbringen, die Rücknahme und die hochwertige Verwertung von Verpackungen (Verpackungsgesetz - VerpackG).

Bundesministerium der Justiz, 2021b, Gesetz über das Inverkehrbringen, die Rücknahme und die umweltverträgliche Entsorgung von Elektro- und Elektronikgeräten (Elektro- und Elektronikgerätegesetz - ElektroG).

Bundesministerium der Justiz und für Verbraucherschutz, 2009, Verordnung über Deponien und Langzeitlager (Deponieverordnung - DepV) Anhang 3 Zulässigkeits- und Zuordnungskriterien (zu § 2 Nummer 5 bis 9, 23 bis 26, 37, § 6 Absatz 2 bis 5, § 8 Absatz 1, 3, 5 und 8, § 14 Absatz 3, den §§ 15, 23, 25 Absatz 1).

Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit, 2020, Abfallvermeidungsprogramm des Bundes unter Beteiligung der Länder - Fortschreibung, (https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Abfallwirtschaft/fortschreibung_abfallvermeidungsprogramm_bund_laender_bf.pdf) accessed 6 August 2021.

Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit, 2021, 'Gesetz zur Förderung der Kreislaufwirtschaft und Sicherung der umweltverträglichen Bewirtschaftung von Abfällen (KrWG)' (https://www.bmu.de/gesetz/kreislaufwirtschaftsgesetz/) accessed 13 July 2021.

Deutsche Pfandsystem GmbH, 2021, 'Die Funktionsweise des Pfandsystems' (https://dpg-pfandsystem.de/index.php/de/) accessed 9 July 2021.

Dornbusch, H. J., et al., 2020, *Vergleichende Analyse von Siedlungsrestabfällen aus repräsentativen Regionen in Deutschland zur Bestimmung des Anteils an Problemstoffen und verwertbaren Materialien - Abschlussbericht*, UBA Texte No 113/2020, Umweltbundesamt, Deassau-Rosslau (https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/texte_113-2020_analyse_von_siedlungsrestabfaellen_abschlussbericht.pdf) accessed 6 August 2021.

EC, 2019, Commission Implementing Decision (EU) 2019/665 of 17 April 2019 amending Decision 2005/270/EC establishing the formats relating to the database system pursuant to European Parliament and Council Directive 94/62/EC on packaging and packaging waste (notified under document C(2019) 2805) (Text with EEA relevance.) (OJ L 112, 26.4.2019, p. 26–46).

EEA, 2016, *Municipal waste management - Country fact sheet, Germany. October 2016* (https://www.eionet.europa.eu/etcs/etc-wmge/products/other-products/docs/germany_msw_2016.pdf) accessed 13 July 2021.

EEA, 2020, *Bio-waste in Europe — turning challenges into opportunities*, EEA report No 4/2020, European Environment Agency (https://www.eea.europa.eu/publications/bio-waste-in-europe) accessed 20 June 2020.

ETC/CE & ETC/WMGE, 2022, *Methodology for the Early Warning assessment related to certain waste targets*, ETC/CE Report, European Topic Centre on Circular Economy and resource use (https://www.eionet.europa.eu/etcs/etc-ce/products/etc-ce-products/methodology-for-the-early-warning-assessment-related-to-certain-waste-targets).

ETC/WMGE, 2021, *Methodology for the Early warning assessment related to certain waste targets*, ETC/WMGE Working Paper, European Topic Centre on Waste and Materials in a Green Economy (https://www.eionet.europa.eu/etcs/etc-wmge/products/etc-reports/methodology-for-the-early-warning-assessment-related-to-certain-waste-targets) accessed 29 April 2021.

EU, 2018, Directive (EU) 2018/852 of the European Parliament and of the Council of 30 May 2018 amending Directive 94/62/EC on packaging and packaging waste (text with EEA relevance) (OJ L 150, 14.6.2018, p. 141-154).

Eurostat, 2021a, 'Household characteristics by degree of urbanisation (HBS_CAR_T315)' (https://ec.europa.eu/eurostat/databrowser/view/HBS_CAR_T315__custom_37301/default/table?lang=en) accessed 6 May 2021.

Eurostat, 2021b, Quality check report according to Art. 10(3b) of the Packaging and Packaging Waste Directive for Germany for the reference year 2019.

Eurostat, 2022a, 'Municipal waste by waste operations [env_wasmun]' (https://ec.europa.eu/eurostat/databrowser/view/ENV_WASMUN/default/table) accessed 14 February 2022.

Eurostat, 2022b, 'Packaging waste by waste management operations [env_waspac]' (https://ec.europa.eu/eurostat/databrowser/view/ENV_WASPAC__custom_842634/default/table?lang=en) accessed 12 March 2022.

Eurostat, 2022c, 'Recycling rates of packaging waste for monitoring compliance with policy targets, by type of packaging [env_waspacr]' (https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=env_waspacr&lang=en) accessed 12 March 2022.

Statistisches Bundesamt, 2020, Municipal waste data quality report for Germany for the reference year 2019 (as delivered to Eurostat).

Statistisches Bundesamt, 2021, 'Abfallentsorgungsanlagen 2019' (https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Umwelt/Abfallwirtschaft/Tabellen/liste-abfallentsorgungsanlagen.html) accessed 8 June 2021.

UBA, 2017, *Quality assurance of compost and digestate - Experiences from Germany*, Umweltbundesamt, Dessau-Roßlau (https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/171013_uba_fachbrosch_compost_experiences_bf.pdf) accessed 6 August 2021.

UBA, 2021, *Aufkommen und Verwertung von Verpackungsabfällen in Deutschland im Jahr 2019*, Texte 148/2021, Umweltbundesamt, Dessau-Roßlau (https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/2021-11-23_texte_148-2021_aufkommen-verwertung-verpackungsabfaelle-deutschland-2019_bf.pdf) accessed 25 March 2022.

UBA-DE, 2021, *Questionnaire to Member States for providing information into the Early Warning analysis - Germany*.

Universitätsstadt Tübingen, Fachabteilung Steuern, 2021, Verpackungssteuer ab 1. Januar 2022, (https://www.tuebingen.de/Dateien/broschuere_verpackungssteuer.pdf) accessed 25 March 2022.

Zentrale Stelle Verpackungsregister (Central Agency Packaging Register – and ZSVR), 2020, Minimum standard for determining the recyclability of packaging subject to system participation pursuant to section 21 (3) VerpackG, (https://www.verpackungsregister.org/fileadmin/files/Mindeststandard/2020-01-22_Mindeststandard_VerpackG_EN.pdf) accessed 12 July 2021.

Zentrale Stelle Verpackungsregister (Central Agency Packaging Register – ZSVR), 2021a, 'Herstellerregister - LUCID' (https://oeffentliche-register.verpackungsregister.org/Producer) accessed 12 July 2021.

Zentrale Stelle Verpackungsregister (Central Agency Packaging Register – ZSVR), 2021b, 'Systems overview' (https://www.verpackungsregister.org/en/information-orientation/instructions-further-information/systems-overview) accessed 12 July 2021.

Annex 1 Detailed scoring of success and risk factors

Assessment sheet - Recycling target for municipal waste

MS Germany

Date Jun-22

SRF		Assessment result	Weight	Score
Current situation and past trends				
MSWR-1.1	Distance to target	Distance to target < 5 percentage points, or target exceeded	5	10
MSWR-1.2	Past trends in municipal solid waste recycling rate	RR > 50% and increase in last 5 years > 5 percentage points, or RR > 45% and increase in last 5 years > 10 percentage points or RR > 55%	1	2
Legal instruments				
MSWR-2.1	Timely transposition of the revised WFD into national law	Transposition with a delay of less than 12 months	1	1
MSWR-2.2	Clearly defined responsibilities for meeting the targets and support and enforcement mechanisms	Clearly defined responsibilities and good set of support tools but weak/no enforcement mechanisms for meeting the recycling targets OR Unclear responsibilities but clearly defined enforcement mechanisms and a good set of support tools for meeting the recycling targets OR Clearly defined responsibilities and enforcement mechanisms but no/weak support tools for meeting the recycling targets	1	1
Economic instruments				
MSWR-3.1	Taxes and/or ban for landfilling residual or biodegradable waste	Ban, or landfill tax > 30 EUR/t* with escalator, or landfill tax > 45 EUR/t	1	2
MSWR-3.2	Taxes on municipal waste incineration	No incineration taxes or taxes < 7 EUR/t*	1	0
MSWR-3.3	Pay-as-you-throw (PAYT) system	No or less than 50% of the population covered by PAYT	1	0

Separate collection systems				
MSWR-4.1	Convenience and coverage of separate collection systems for the different household waste fractions			
	Paper and cardboard	A high share of the population is covered by high convenience collection services	0.46	0.92
	Metals	A high share of the population is covered by high convenience collection services	0.08	0.16
	Plastics	A high share of the population is covered by high convenience collection services	0.28	0.56
	Glass	A high share of the population is covered by high convenience collection services	0.18	0.36
	Bio-waste	A high share of the population is covered by high convenience collection services	0.84	1.68
	Wood	A medium share of the population is covered by high convenience collection services	0.06	0.06
	Textiles	A high share of the population is covered by high convenience collection services	0.06	0.12
	WEEE	Medium convenience collection services dominate	0.04	0.04
MSWR-4.2	Firm plans to improve the convenience and coverage of separate collection systems for the different household waste fractions			
	Paper and cardboard	N/A (for countries in which a very high share of the population is already covered by high convenience collection services)	0.23	0
	Metals	N/A (for countries in which a very high share of the population is already covered by high convenience collection services)	0.04	0
	Plastics	N/A (for countries in which a very high share of the population is already covered by high convenience collection services)	0.14	0
	Glass	N/A (for countries in which a very high share of the population is already covered by high convenience collection services)	0.09	0
	Bio-waste	N/A (for countries in which a very high share of the population is already covered by high convenience collection services)	0.42	0
	Wood	No firm plans to improve the convenience and coverage	0.03	0
	Textiles	N/A (for countries in which a very high share of the population is already covered by high convenience collection services)	0.03	0
	WEEE	Firm plans to improve the separate collection system, with clear responsible entities and defined targets and timeline	0.02	0.04

Extended producer responsibility (EPR) and similar schemes				
MSWR-5.1	Fee modulation in EPR schemes for packaging	There is an advanced fee modulation for at least two of the main packaging fractions* AND fee modulation for one packaging fraction meets three assessment criteria	1	2
Bio-waste treatment capacity and quality management				
MSWR-6.1	Capacity for the treatment of bio-waste	Enough bio-waste treatment capacity for 80% of generated municipal bio-waste	1	2
MSWR-6.2	Legally binding national standards and Quality Management System for compost/digistate	Legally binding national standards for compost/digestate quality in place, and quality management system in place	1	2
			Total score	**25.94**
			Maximum score	32.10
				81%

Assessment sheet - Recycling target for packaging waste

MS Germany

Date Jun-22

SRF		Assessment result	Weight	Score
Current situation and past trends				
P-1.1	Distance to target - Overall packaging	< 5 percentage points below target, or target exceeded	5	10
	Distance to target - Paper and cardboard packaging	< 5 percentage points below target, or target exceeded	5	10
	Distance to target - Ferrous metals packaging	< 5 percentage points below target, or target exceeded	5	10
	Distance to target - Aluminium packaging	< 5 percentage points below target, or target exceeded	5	10
	Distance to target - Glass packaging	< 5 percentage points below target, or target exceeded	5	10
	Distance to target - Plastics packaging	5 - 15 percentage points below target	5	5
	Distance to target - Wooden packaging	< 5 percentage points below target, or target exceeded	5	10
P-1.2	Past trends in packaging waste recycling rate	RR > 60% and increase in last 5 years < 5 percentage points, or RR > 55%, and increase in last 5 years < 10 percentage points, or RR < 55% and increase in last 5 years > 10 percentage points	1	1
	Past trends in paper and cardboard packaging recycling	RR > 70% and increase in last 5 years > 5 percentage points, or RR > 65% and increase in last 5 years > 10 %, or RR > 75%	1	2
	Past trends in ferrous metals packaging recycling	RR > 65% and increase in last 5 years > 5 percentage points, or RR > 60% and increase in last 5 years > 10 %, or RR > 70%	1	2
	Past trends in aluminium packaging recycling	RR > 45% and increase in last 5 years > 5 percentage points, or RR > 40% and increase in last 5 years > 10 %, or RR > 50%	1	2
	Past trends in glass packaging recycling	RR > 65% and increase in last 5 years > 5 percentage points, or RR > 60% and increase in last 5 years > 10 %, or RR > 70%	1	2

	Past trends in plastic packaging recycling	RR > 45% and increase in last 5 years < 5 percentage points, or RR > 40%, and increase in last 5 years < 10 percentage points, or RR < 40% and increase in last 5 years > 10 percentage points	1	1
	Past trends in wooden packaging recycling	RR > 20% and increase in last 5 years < 5 percentage points, or RR > 15%, and increase in last 5 years < 10 percentage points, or RR < 15% and increase in last 5 years > 10 percentage points	1	1
Legal instruments				
P-2.1	Timely transposition of the revised Packaging and Packaging Waste Directive into national law	Transposition with a delay of less than 12months	1	1
P-2.2	Clearly defined responsibilities for meeting the targets and support and enforcement mechanisms	Clearly defined responsibilities, enforcement and good set of support mechanisms for meeting the recycling targets	1	2
Economic instruments				
P-3.1	Taxes and/or ban for landfilling residual or biodegradable waste	Ban, or landfill tax > 30 EUR/t* with escalator	1	2
P-3.2	Taxes on municipal waste incineration	No incineration taxes or taxes < 7 EUR/t*	1	0
P-3.3	Packaging taxes	No packaging taxes	1	0
P-3.4	Pay-as-you-throw (PAYT) system	No or less than 50% of the population covered by PAYT	1	0
P-3.5	Deposit-return systems for aluminium drink cans	Mandatory DRS for nearly all drink cans	1	2
	Deposit-return systems for glass drink bottles	Mandatory DRS for nearly all drink bottles	1	2
	Deposit-return systems plastic drink bottles	Mandatory DRS for nearly all drink bottles	1	2
	Deposit-return systems for plastic crates	No or voluntary DRS for some plastic crates	1	0
	Deposit-return systems for wooden packaging	No or voluntary DRS for some wooden packaging	1	0

Separate collection systems				
P-4.1	Convenience and coverage of separate collection systems for the different packaging waste fractions			
	Paper and cardboard packaging (household)	A high share of the population is covered by high convenience collection services	1	2
	Paper and cardboard packaging (non-household)	Separation at source is mandatory for non-household paper and cardboard packaging waste	1	2
	Ferrous metals packaging (household)	A high share of the population is covered by high convenience collection services	1	2
	Ferrous metals packaging (non-household)	Separation at source is mandatory for non-household ferrous metals packaging waste	1	2
	Aluminium packaging	A high share of the population is covered by high convenience collection services	2	4
	Glass packaging (household)	A high share of population is covered by high convenience collection services	1	2
	Glass packaging (non-household)	Separation at source is mandatory for non-household glass packaging waste	1	2
	Plastics packaging (household)	A high share of the population is covered by high convenience collection services	1	2
	Plastics packaging (non-household)	Separation at source is mandatory for non-household plastic packaging waste	1	2
	Wooden packaging	Separation at source is mandatory for non-household wooden packaging waste	2	4
P-4.2	Firm plans to improve the convenience and coverage of separate collection systems for the different packaging waste fractions			
	Paper and cardboard (household)	N/A (for countries in which a high share of the population is already covered by high convenience collection services)	0.5	0
	Paper and cardboard (non-household)	N/A (for countries already having mandatory sorting at source)	0.5	0
	Ferrous metals packaging (household)	N/A (for countries in which a high share of the population is already covered by high convenience collection services)	0.5	0
	Ferrous metals packaging (non-household)	N/A (for countries already having mandatory sorting at source)	0.5	0
	Aluminium packaging	N/A (for countries in which a high share of the population is already covered by high convenience collection services)	1	0
	Glass packaging (household)	N/A (for countries in which a very high share of the population is already covered by high convenience collection services)	0.5	0
	Glass packaging (non-household)	N/A (for countries already having mandatory sorting at source)	0.5	0

	Plastics packaging (household)	N/A (for countries in which a very high share of the population is already covered by high convenience collection services)	0.5	0
	Plastics packaging (non-household)	N/A (for countries already having mandatory sorting at source)	0.5	0
	Wooden packaging	N/A (for countries already having mandatory sorting at source)	1	0
Extended producer responsibility (EPR) and similar schemes				
P-5.1	Coverage of EPR schemes	All main packaging fractions* are covered by EPR schemes, covering household and non-household packaging	1	2
P-5.2	Fee modulation in EPR schemes for packaging	There is fee modulation in at least two of the main packaging fractions* AND fee modulation for one packaging fraction meets three assessment criteria	1	2
P-5.3	Material specific EPR assessment - Paper and cardboard packaging waste	EPR scheme covering household and non-household packaging, with a fee modulation meeting at least two assessment criteria	1	2
	Material specific EPR assessment - Ferrous metals packaging waste	EPR scheme covering household and non-household packaging, with a fee modulation meeting at least two assessment criteria	1	2
	Material specific EPR assessment - Aluminium packaging waste	EPR scheme covering household and non-household packaging, with a fee modulation meeting at least two assessment criteria	1	2
	Material specific EPR assessment - Glass packaging waste	EPR scheme covering household and non-household packaging, with a fee modulation meeting at least two assessment criteria	1	2
	Material specific EPR assessment - Plastics packaging waste	EPR scheme covering household and non-household packaging, with a fee modulation meeting all four assessment criteria	1	2
	Material specific EPR assessment - Wooden packaging waste	EPR scheme covering all non-household packaging	1	2
Total packaging recycling target				**24.00**
			Maximum score	32.00
				75%

Paper and cardboard recycling target

Total score	**23.00**
Maximum score	30.00
	77%

Ferrous metals packaging recycling target

Total score	**23.00**
Maximum score	30.00
	77%

Aluminium packaging recycling target

Total score	**25.00**
Maximum score	32.00
	78%

Glass packaging recycling target

Total score	**25.00**
Maximum score	32.00
	78%

Plastics packaging recycling target

Total score	**19.00**
Maximum score	34.00
	56%

Wooden packaging recycling target

Total score	**22.00**
Maximum score	32.00
	69%

Assessment sheet - Target for landfilling of municipal waste

MS Germany

Date Jun-22

SRF		Assessment result	Weight	Score
Current situation and past trends				
LF-1.1	Distance to target	Distance to target < 10 percentage points, or target exceeded	5	10
LF-1.2	Past trends in municipal solid waste landfill rat	Landfill rate in 2020 < 20% and decrease in last 5 years > 5 percentage points, or Landfill rate in 2020 < 25% and decrease in last 5 years > 10 percentage points or Landfill rate in 2020 < or = 10%	1	2
LF-1.3	Diversion of biodegradable municipal waste from landfill	Target for reducing the amount of biodegradable municipal waste (BMW) landfilled to 35% of BMW generated in 1995 has been achieved in 2016 or in the year specified in the derogation where applicable	1	2
			Total score	**14.00**
			Maximum score	14.00
				100%