Country profile

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

Estonia

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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 Estonian Ministry of the Environment in April 2021 to a questionnaire developed by the EEA and ETC/WMGE. The EEA and ETC/CE would like to thank the Estonian authorities for the information provided and for the kind review of drafts of this 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 Estonia. 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 Estonia 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 Estonia 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 Estonia to achieve the overall packaging waste and specific packaging materials' recycling targets for 2025. Chapter 2.3 examines the prospects for Estonia 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

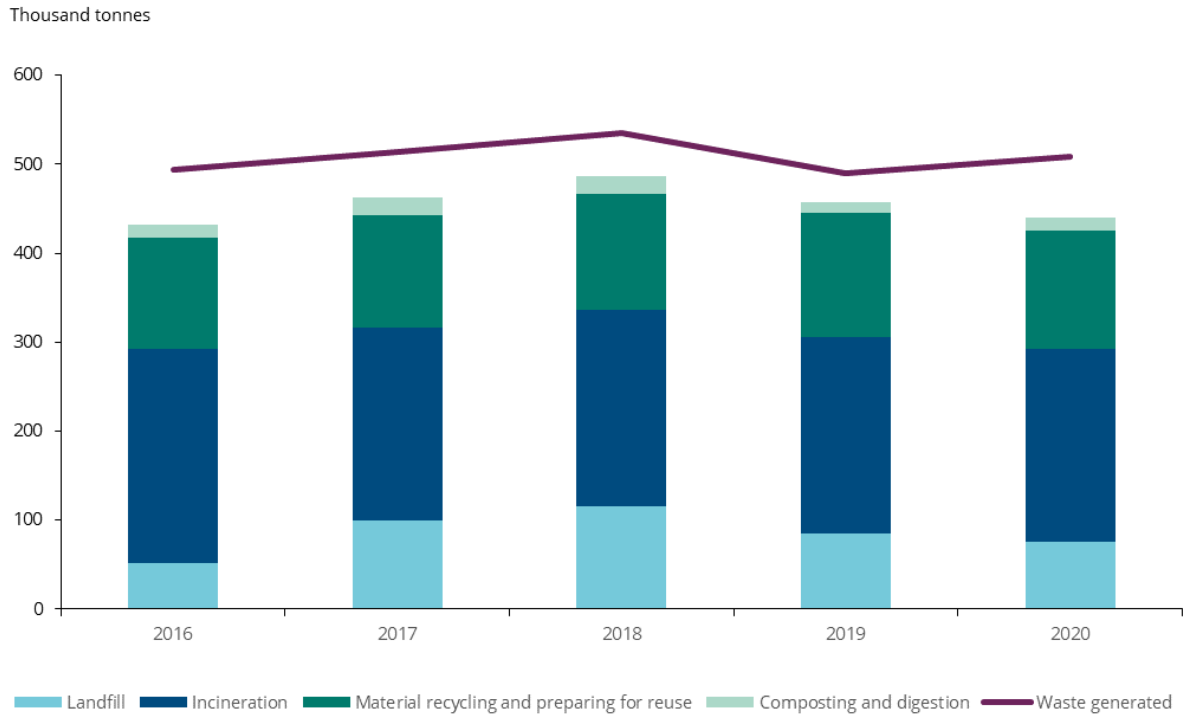
Estonia generates around 500 thousand tonnes of municipal waste annually, and the waste generation has been increasing over the past five years, except in 2019 (Figure 1.1). This corresponds to 383 kg/cap in 2020, which is below the (estimated) EU average of 505 kg/cap. The country relies on waste incineration for treatment of MSW; its share has fluctuated from 49 % in 2016 to 42.8 % in 2020 (Eurostat, 2022a). The share of landfilling has fluctuated over time, with around 10 % in 2015 and 2016, then increasing from 2017 to 2019 up to close to 20 %, and eventually slightly decreasing again in 2020 to a level of 14.7 % of generated waste being landfilled. It seems that the combined share of landfilling and incineration has remained rather stable in the period of five years, at around 60 %. The difference between waste generated and treated has decreased from 13 % in 2016 to 7 % in 2019. In 2020 however it has gone up again to 14%. This difference is caused by temporary storage of waste generated to be treated in the following year (OECD/ECLAC, 2017). E.g. in 2018, the generation of glass waste decreased by 16 % but its recycling increased by 60 % at the same time. This increase was caused by the recycling of glass waste from stock (Estonian Environment Agency, 2021) .

In 2020, there were three mechanical biological treatment (MBT) plants located in Estonia that produce refuse-derived fuel (RDF) (Ministry of the Environment of Estonia, 2021). Estonia extracts 7 193 tonnes of recyclables annually from mixed/residual municipal waste for recycling, of which around 60 % is plastics. According to the Ministry of the Environment of Estonia (2021), the extraction of recyclables is not in the strategic focus, instead Estonia emphasises increasing the efficiency of separate collection and reduction of the generation of mixed municipal waste. At the moment, the *Procedure for sorting municipal waste and basis for classification of sorted waste* includes an exception to the sorting of residual municipal waste, in case local governments have organised the separate collection. As a result of this, a lot of unsorted mixed municipal waste is being landfilled. The section of the Procedure enabling this is currently under review and the desire is to abolish the existing exception. In addition, from the beginning of 2021 the control over landfill operators has been improved by the Environmental Board and it is setting stricter requirements for the pre-disposal treatment of residual municipal waste. (Ministry of the Environment of Estonia, 2021) In addition, Estonia has one municipal waste incineration plant located in Iru, near Tallinn (EEA, 2016). The Estonian authorities reported that the maximum annual capacity of the plant is 260 thousand tonnes (calculated by the operator), which corresponds to approximately half of the municipal waste generated. According to the estimate by the Environmental Board, around 13 % of the MSW was burned as RDF in 2020. (Ministry of the Environment of Estonia, 2021) The OECD/ECLAC (2017) reports that there is an overcapacity issue concerning MSW treatment facilities in Estonia, which, in combination with a high incineration rate and low separate collection, make it difficult to reach the recycling target set. Thus, investments in both separate collection and recycling capacity are needed (EC, 2019b).

The total recycling rate for Estonia remained rather stable just below 30 % between 2015 and 2020, except for the slightly higher 30.8 % in 2019. Despite the focus of the NWMP, composting and digestion has remained at a low level. In Estonia, around 29 thousand tonnes of bio-waste were separately collected in 2019 (Ministry of the Environment of Estonia, 2021), but only 12 thousand tonnes was reported as recycled, which leads to the composting/digestion rate of only 2.4 % in 2019 (Eurostat, 2022a). According to the Ministry of the Environment of Estonia (2021), the difference between separately collected and recycled amounts is caused by different reasons. One of the reasons is that Estonia has end-of-waste (EoW) criteria for biodegradable waste, which is related to accounting of recycling. Compost and digestate ceases to be waste and is accounted as recycled only when the requirements of these criteria are met, and it is certified. Non-certified compost or digestate is still defined as waste and is not included in the reported recycled amount. Meeting the EoW criteria is not,

however, mandatory and thus not all treatment facilities do certify their compost and digestate. In some cases, the certificates have also been suspended. In addition, the Environmental Agency deducts sorting residues from the amounts of bio-waste generated and recycled in case the secondary materials (e.g. foreign materials) generated during the sorting phase have not been recycled.

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



Source: Eurostat (2022a)

The World Bank, with the support of European Commission DG REFORM and the Ministry of Environment in Estonia, conducted a baseline assessment of Estonia's municipal solid waste management that was finalised in 2021 (The World Bank, 2021a) and analysed options for the Estonian solid waste management system (The World Bank, 2021b). According to the study, waste reporting lacks in consistency as there is a variety of waste tonnage data collected from various national data sources, and packaging data values vary significantly among these sources of information. Also, the significant inconsistencies in data about waste at local level show huge variations in generation rate per capita between municipalities. The study shows the data about municipal and packaging waste calculated based on data at local level are considerably overestimated and exceed quantities reported to EUROSTAT at national level. (The World Bank, 2021b)

The 2021 World Bank study further provides evidence that EPR schemes for packaging are not sufficiently integrated with municipal collection services, there are not sufficient incentives for households to separate waste, and the present system for separate collection of household waste does not guarantee the achievement of mandated reuse and recycling targets. (The World Bank, 2021b)

Legal Framework

Overall, the Estonian waste legislation follows the EU waste legislation. The main acts and regulations regarding municipal waste and packaging waste are listed below:

- Waste Act (Riigikogu, 2004b)
- Packaging Act (Riigikogu, 2004a)
- Local Government Organisation Act (Riigikogu, 1993)
- The Regulation of the Minister of the Environment *Olmejäätmete sortimise kord ning sorditud jäätmete liigitamise alused* (Procedure for sorting municipal waste and basis for classification of sorted waste) (Minister of the Environment, 2007)
- Packaging Excise Duty Act (Riigikogu, 1997)
- Environmental Supervision Act (Riigikogu, 2001)
- Environmental Charges Act (Riigikogu, 2005)
- The Regulation of the Minister of the Environment *Olmejäätmete korduskasutuseks ettevalmistatud, ringlusse võetud ja ladestatud koguste arvutamise metoodika* (Methodology for calculating quantities of municipal waste prepared for re-use, recycled and disposed of) (Minister for the Environment, 2021b)
- The Regulation of the Minister of the Environment *Pakendi korduskasutuse ja pakendijäätmete taaskasutamise ja ringlussevõtu arvutamise metoodika* (Methodology for calculating the reuse of packaging and the recovery and recycling of packaging waste) (Minister for the Environment, 2021a)
- The Regulation of the Government of the Republic *Pakendiregistri põhimäärus* (Statute of the Packaging register) (Vabariigi Valitsus, 2018)

A comprehensive list of regulations under the Waste Act (Riigikogu, 2004b) and the Packaging Act (Riigikogu, 2004a) can be found on the webpage of Riigi Teataja. In addition, Estonia has set national EoW criteria for compost from biodegradable waste (Minister for the Environment, 2013) and bio-gas digestate generated from biodegradable waste. (Minister for the Environment, 2016)

Related to the revised waste legislation in the EU, the Act on Amendments to the Waste Act and the Packaging Act (190 SE) and therefore amendments in the Waste Act and Packaging Act entered into force on 15 May 2021. The new waste legislation transposes and implements the obligations arising from the relevant EU directives. It involves the requirements and measures related to separate collection, waste prevention, enhanced recycling, extended producer responsibility (EPR), and waste management plans of municipal and state level, in order to obtain better results in preparing for reuse and recycling. Also the wording of liability provisions and the level of penalties have been clarified. By 2030, the landfilling of municipal waste must be reduced to at least 10 % of the amount of waste generated. In addition, new targets were set for the preparation and recycling of municipal waste for reuse and for the recycling of packaging waste. From 2025, at least 55 % of municipal waste must be prepared for reuse or recycled, after five years it will already be 60 %, and by 2035 recycling must have increased to 65 %. Recycling of packaging waste has to reach 65 % by 2025 and 70 % by 2030. In addition, it sets separate recycling targets for different packaging materials. (Parliament of Estonia, 2021)

Waste management plan(s)

Estonia had a national waste management plan (NWMP) for the period 2014 to 2020 (Government of Estonia, 2014). In February 2021, the Government of Estonia adopted a decision to extend the NWMP 2014–2020 until the end of 2022. The extension was needed to meet the obligation of MSs under the WFD to establish a NWMP and to set a strategic approach for waste management in line with the transition to a circular economy (CE). (Ministry of the Environment of Estonia, 2021). The plan is based on the waste hierarchy especially focusing on waste prevention and recycling or recovery. The

increased recycling of biodegradable waste is the most important challenge identified in the plan. The means to achieve this were to add the needed treatment capacity and to organise a national collection and treatment network for bio-waste. Another important aspect is to improve and increase the coverage of the collection network for recyclables (BiPRO, 2014, cited by EEA, 2016). A new NWMP is currently under preparation. Its main objectives are *sustainable and conscious production and consumption, prevention of waste generation and promotion of re-use, increasing the safe circulation of materials,* and *taking into account the effects of waste management on the human and natural environment as a whole*. Based on studies carried out in 2021 on waste management, a strategic direction for further planning of national waste policy will be provided, and the basis of the new NWMP is set. Furthermore, a plan for prevention of food waste has already been prepared. The new NWMP, including the execution of the strategic environmental assessment, is scheduled to be adopted at latest by the end of 2022. (Ministry of the Environment of Estonia, 2021).

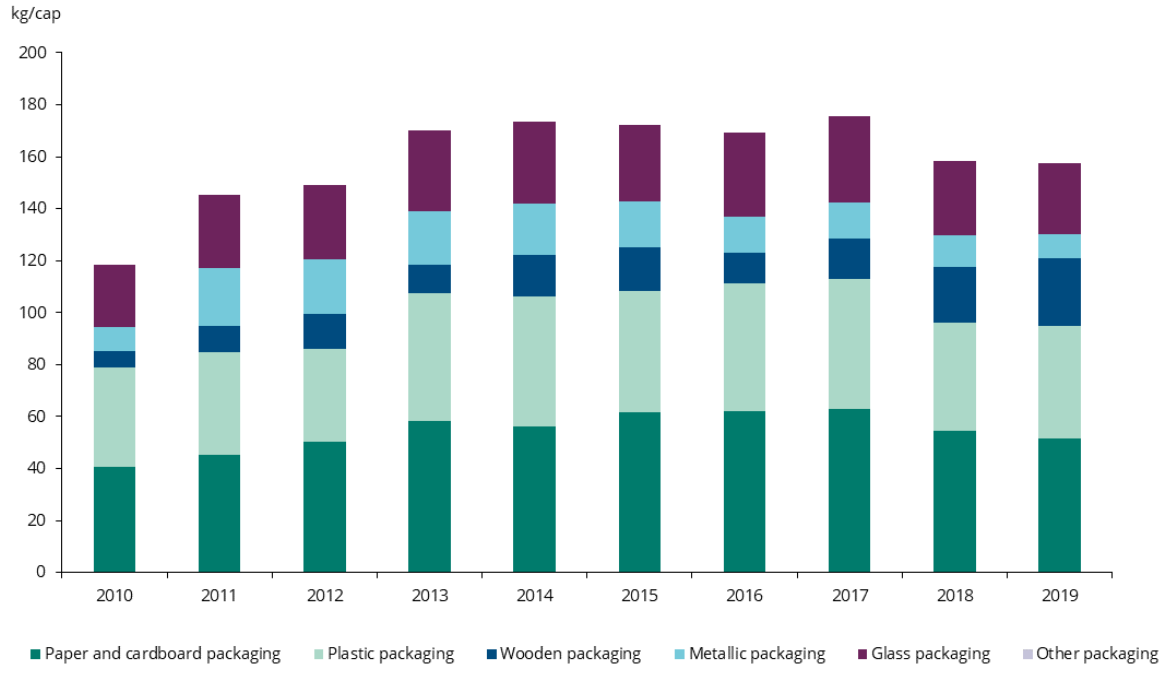
Implementation of previous early warning recommendations

Estonia had been considered of at risk of missing the 2020 target of 50 % preparation for re-use / recycling for municipal waste by the European Commission (EC, 2018b) and it received a set of policy recommendations (EC, 2018a). Annex 1 lists the recommendations and a self-assessment of Estonia on the status of taking them into account.

Packaging waste generation and treatment

In Estonia, 0.21 million tonnes (158 kg/cap) of packaging waste were generated in 2019, which is below the (estimated) EU average of 177 kg/cap. Packaging waste generation increased rapidly between 2010 and 2013, from 119 kg/cap to 170 kg/cap. From 2013 onwards, the waste generation remained rather stable for five years, but in 2018, the waste generation decreased with around 10 % from the previous year (Figure 1.2). Between 2010 and 2019 the recycling rate for packaging waste has varied from 53.5 % in 2017, to 66.2 % in 2019.

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



Source: Eurostat (2022b)

According to the World Bank (2021a) (2021b), data about waste at local level displays significant variations in generated MSW per capita across municipalities. The quantities of generated/collected similar/other waste exceed significantly the quantities of household waste. Possible reasons include:

- reporting of nonmunicipal waste;
- double counting; and/or
- reporting of household waste as other/similar waste.

Estimated packaging waste quantities based on municipal waste data exceed significantly the statistical estimates (>50 %), and estimated packaging waste quantities per capita are higher in comparison to other EU countries with similar quantities of waste.

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 Estonia, the calculated capture rates for different waste fractions currently are presented in Table 1.1.

Table 1.1 Capture rates for different waste fractions in Estonia

	Residual waste composition (%)([b])	Residual waste composition (tonnes)([a])	Separately collected amounts (tonnes) ([b])	Materials in total MSW (tonnes)	Capture rates (%)
Reference year	2020	2019	2019		
Mixed municipal waste, total		292 357			
Paper and cardboard	17 %	49 730	63 915	113 645	56 %
Metals	2 %	6 812	10 013	16 825	60 %
Glass	6 %	18 799	24 735	43 534	57 %
Plastic	18 %	52 127	23 498	75 625	31 %
Bio-waste	32 %	92 794	29 262	122 056	24 %
Textiles	6 %	16 986	1 845	18 831	10 %
Wood	1 %	3 742	5 833	9 575	61 %

([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 Ministry of the Environment of Estonia, 2021

([b]) Source: As reported in the EEA-ETC/WMGE questionnaire by the Ministry of the Environment of Estonia, 2021

This indicates that there is especially room for improvement to capture higher shares of the generated bio-waste, plastics and textiles waste, but also to some extent all other fractions.

2 Success and risk factors likely to influence future performance

2.1 Target for preparing for reuse and recycling of municipal waste

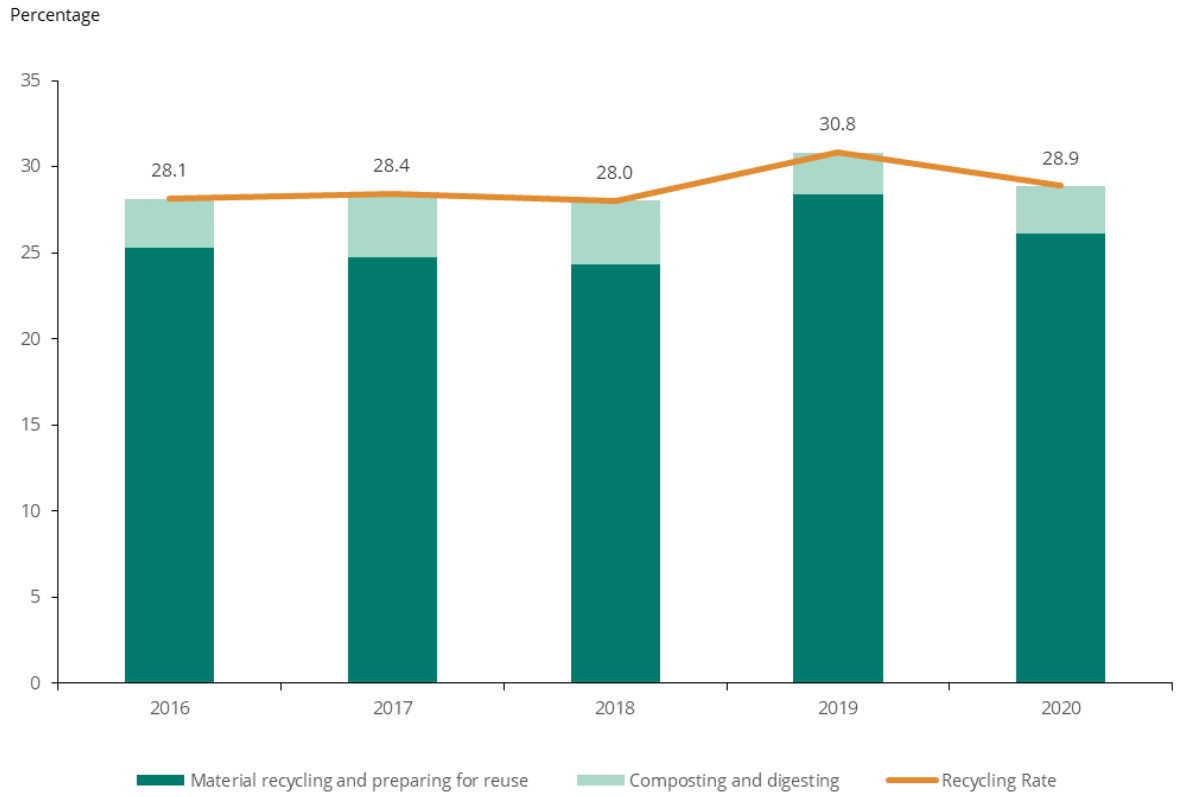
This chapter aims at assessing the prospects of Estonia to achieve the **55 % preparing for reuse and recycling target** for municipal waste in 2025. For a detailed description of the methodology followed, the development of success/risk factors and their impact on recycling, please consult the methodology 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 Estonia remained quite stable between 2015 and 2020, reaching 28.9 % in 2020, with a decrease of 1.9 percentage points from 30.8 % in 2019 (Figure 2.1). According to the Estonian Environment Agency (2021)**,** the increase in 2019 was influenced by recycling of glass waste stocks from previous years (Ministry of the Environment of Estonia, 2021). 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 Estonia between 2016 and 2020, in percentage



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 it becomes that the target will be met. For Estonia, the recycling rate is 28.9 % in 2020, which is 26.1 percentage points below the target for 2025.

Meeting the target will require an average increase of four percentage points annually in the period between 2020 and 2025, requiring a significant stepping up in pace compared to the average 0.2 percentage point annual increase in the previous five-year period (2016-2020).

The Estonian Environment Agency has already assessed the new calculation rules and will perform further analyses during 2021 and 2022. The authorities report that Estonia has already applied the new calculation rules in the municipal waste report for the year 2019 submitted to Eurostat, except for the data sections *Preparation for reuse* and *Separate collection and recycling of biowaste at source - e.g. home composting* According to the initial results of the assessment, the recycling rate for municipal waste will remain similar to the reporting according to the earlier method (IV), because Estonia was implementing most of the new rules already (Estonian Environment Agency, 2021; Ministry of the Environment of Estonia, 2021).

Summary result

Distance to target > 15 percentage points	Based on currently available data Estonia's recycling rate lies at 28.9 %, so the distance to the 2025 target is 26.1 percentage points.
Robustness of the underlying information	The Estonian authorities report that Estonia has already mostly applied the new calculation rules for 2019 and 2020 reporting.

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

The recycling rate over the last five years shows only a small rise with 0.8 percentage points, indicating that the efforts made over the last years to increase recycling in Estonia have not been effective enough. After a stagnant period between 2016 and 2018, a significant increase of 2.8 percentage points occurred between 2018 and 2019, however decreasing again in 2020 (Figure 2.1). The material recycling rate increased from 25.3 % in 2016 to 26.1 % in 2020, when at the same time the share of composting and digestion remained stable at 2.8 %.

The Estonian authorities report that the Environmental Investment Centre has support measures in place for municipalities and waste management companies regarding the separate collection and recycling. For example, in 2018, 11 municipalities were supported with EUR 1.2 million for setting up municipal civic amenity sites. In addition, a biogas facility with annual capacity of 20 thousand tonnes was supported; in 2020, ten municipalities were supported for separate collection and civic amenity sites with EUR 1.4 million. In 2021-2022, the bio-waste collection infrastructure and recycling of waste was supported (EUR 3 million). The EU has granted a fund for the circular economy (CE), including waste management, of EUR 111 million for Estonia for the period of 2021 to 2027. (Ministry of the Environment of Estonia, 2021) More support measures are described in Section 2.1.2.

Summary result

RR < 45 % and increase in last 5 years < 10 percentage points	The recycling rate has increased by 0.8 percentage points over the past five years, resulting in a recycling rate of 28.9%
Robustness of the underlying information	There is no break in the time series data. Estonia already reported according to the new calculation rules.

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.

Estonia has transposed the amended Waste Framework Directive into national law on 15 May 2021, 10 months after the deadline of 5 July 2020 (Ministry of the Environment of Estonia, 2021).

Summary result

Transposition with delay of < 12 months	The WFD has been transposed into national legislation in May 2021.
Robustness of the underlying information	Reliable information provided by the Ministry of the Environment of Estonia and 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 the questionnaire, the Estonian authorities stated that the recycling policy for MSW is the responsibility of the following authorities:

- The Ministry of the Environment (MoE) is responsible for developing and implementing the waste management policies and regulatory framework. It can affect the recycling rate by creating legislation enabling recycling, via awareness raising as well as targeting support measures;
- Municipalities (local governments) are in charge to organise waste collection, transport, and treatment to enable maximum waste recovery, including recycling;
- The drafts of the municipal waste management plan and handling rules need to be submitted for comments to the national Environmental Board before their approval. In addition, before commencement of the public procurement, the public procurement source documents for a concession contract for organised waste transport are to be presented to the Environmental Board for obtaining an opinion. The Environmental Board also issues permits and registrations for waste management. (Ministry of the Environment of Estonia, 2021)

The responsibilities for fulfilling the municipal waste recycling targets are defined in the Local Government Organisation Act (Riigikogu, 1993) and the Waste Act (Riigikogu, 2004b).

According to the Local Government organisation Act (Riigikogu, 1993), municipalities shall organise the waste management within their territory, unless this function has been transferred to other persons by law. In addition, the municipal council shall adopt and update waste management plans, compile the waste management rules, and establish the procedure for determination of the time and frequency of the waste transports, their areas, and the amounts of transport fees for the waste types subjected to organised waste transports. (Ministry of the Environment of Estonia, 2021)

The Waste Act obliges municipalities to organise the development of waste handling within their area. In addition, rules for municipalities concerning for example separate collection, waste handling, waste management plans, and procuring waste transports are given in the Waste Act. It is in the responsibility of a municipality to organise treatment (i.e. recovery or disposal) of the waste that is subjected to organised waste transport. Municipalities may also organise treatment of other wastes. The new waste legislation supplements that the aim of the recovery organised in the case of waste covered by organised waste transport is, amongst other things, to fulfil the recycling target of municipal waste. The Environmental Board and municipalities or their agencies oversee compliance with the provisions of the Waste Act by the state. In addition, municipalities shall constantly oversee that the municipal waste management rules are complied with within the municipality. (Ministry of the Environment of Estonia, 2021)

In addition, a Procedure for sorting municipal waste and bases for classification of sorted waste needs to be followed. For example, this regulation states that a municipality is responsible for organising the source separation and separate collection of municipal waste in accordance with the provisions laid down in section 31 of the Waste Act and subsection 15 (1) of the Packaging Act. The following methods may be used either individually or in combination: source separation and separate collection combined with waste transport organised by a municipality, separate collection of source separated waste from bring points or waste stations, and a regular separate collection of source separated waste by vehicles in the vicinity of the source (collection circles). The regulation considers at least the source separation and separate collection of paper and board, plastics, metals, glass, and biodegradable food and garden waste, and separate collection of paper and cardboard packaging, plastic packaging, metal packaging, and glass packaging waste. Sorting and separate collection is to be organised by the municipality itself or in collaboration with packaging recovery organisations, producer responsibility organisations (PROs) and other waste handlers. The regulation states that the aforementioned orders

shall ensure the compliance with the recovery targets specified in the Waste Act in the area of municipality. In addition, the regulation states that if a municipality has organised source separation and separate collection of municipal waste, which has led to significantly decreased proportion of such waste in mixed municipal waste and increased waste recovery, and mixed municipal waste has undergone the pre-disposal treatment (i.e. mechanical, thermal or biological waste treatment, including source separation), the remaining waste from source separation and separate collection shall be deemed to have been treated, and is not subject to the landfill ban established in subsections 35 (1) and 36 (2) of the Waste Act. At the moment, this regulation is under review, and these provisions will probably be removed. Exceptions from the landfill ban of unsorted and untreated waste will likely not be the case anymore. (Ministry of the Environment of Estonia, 2021)

In Estonia, municipalities can operate waste services either by using the 'free market' approach or tendering for the market, which means that households can either choose the waste collection company themself or one private contractor selected via tendering process operates the waste collection within a municipality. In the previous early warning report (EC, 2018a) it was stated that this approach has caused legal uncertainty and slowed down investments in the sector. The removal of this uncertainty would help in achieving the recycling targets. However, as described in Annex 1, Estonia has not implemented this recommendation. According to the Ministry of the Environment of Estonia (2021)the 'free market' approach is an exception as the Waste Act obliges municipalities to arrange waste transport and find a service provider for waste transport with a public procurement procedure. However, sometimes there are review procedures and litigations that do not enable signing a concession contract and meanwhile there is a free market. The obligation to arrange organised waste transport does not apply to a municipality with a population less than 1 500 inhabitants. The situations where the 'free market' approach applies are rather temporary, and there are not very many municipalities having such situation.

In the Waste Act liability provisions for non-compliance of the provisions laid down in the Waste Act are described. Fines up to EUR 1 200 for private persons and up to EUR 400 000 for legal persons can be imposed. Furthermore, in the Environmental Supervision Act provisions on Environmental Board's supervision competence over activities of local authority are described. (Ministry of the Environment of Estonia, 2021) There is no information on whether the enforcement mechanisms are being used in practice. However, there are no mandatory recycling targets at municipal level with direct consequences (fines) for municipalities failing to meet the targets, although this was recommended for Estonia in the previous early warning report (see Annex 1 for more information).

The support mechanisms in place described by the Estonian authorities focus on consultation, guidance, training and financial support. For example, municipalities can get consultation from the Environmental Board concerning tendering documents for waste collection, local waste management plans and waste handling rules. In addition, the Environmental Board provides guidance documents to municipalities on their website, and the MoE sends an electronic guidance letter to municipalities on important topics. In addition, experts from the MoE visit municipalities regularly, and trainings to municipalities have been organised annually since 2014 by the Environmental Board. Since 2020, a competition to find the most environmentally friendly municipality has been organised. The Environmental Investment Centre has financial support measures in place for municipalities and waste management companies regarding to separate collection and recycling. The EU has granted a fund for Estonia for the period 2021-2027 for CE, including waste management. In addition, the MoE budgets funds annually for increasing knowledge on waste management and the CE. (Ministry of the Environment of Estonia, 2021) The financial support mechanisms in place are further described in Section 2.1.1 *(Past trend in municipal solid waste recycling rate).*

In summary, responsibilities are defined and they are based on the legislation, but the possibility of municipalities to choose either the 'free market' approach or tendering for the market can be seen to cause legal uncertainty, although the 'free market' approach is a rather uncommon situation based on the information available. Support mechanisms are in place, however, no mandatory recycling targets at municipal level with direct consequences (fines) for municipalities failing to meet the targets exist. An attempt by the Ministry of the Environment to introduce such targets and fines for municipalities has not been successful so far due to concerns of stakeholders, and an impact assessment is currently developed to provide better evidence for these measures (see Annex 1 for more details). Therefore, it can be argued that the municipal waste management governance functions in a somewhat suboptimal manner.

Summary result

Unclear responsibilities and weak/no enforcement mechanisms for meeting the recycling targets, but good set of support tools.	Responsibilities are defined though partly fragmented, and support mechanisms for municipalities are in place, but there are no mandatory recycling targets at municipal level with direct consequences for the municipalities if the targets are not met.
Robustness of the underlying information	Credible information received from the Estonian 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 2019, Estonia landfilled 17 % of the municipal waste generated. Estonia has collected a landfill tax since 1991. According to Environmental Charges Act a tax for hazardous and non-hazardous waste is currently 29.84 EUR/t. The Ministry of the Environment of Estonia (2021) reports that they have proposed the increase of the tax but it has remained at the same level in the recent years. In addition, Estonia has the following waste disposal non-compliance fees:

- For hazardous and non-hazardous waste, landfilled quantities larger than permitted: fee 5times higher than the usual fee, i.e. 149.2 EUR/t;
- Hazardous and non-hazardous waste, landfilled without permit: fee ten times higher than the usual fee, i.e. 298.4 EUR/t. (Ministry of the Environment of Estonia, 2021)

A ban on landfilling unsorted mixed municipal waste has been in place since 2004. However, due to an existing regulatory exception that has enabled landfilling of unsorted or treated MSW described in section 1.3, a large amount of unsorted mixed municipal waste is still being landfilled. In addition, Estonia has a partial landfill ban on biodegradable waste. Since July 2020, the share of biodegradable waste in municipal waste landfilled shall not exceed 20 % by weight. The allowed percentage has been gradually decreasing, as it was < 45 % since 2010, < 30 % since 2013 and currently being < 20 %. The stabilisation of waste containing less than 20 % of biodegradable waste is still necessary (Ministry of the Environment of Estonia, 2021)

The landfilling of waste is regulated in the Waste Act. The amended waste legislation specifies the waste disposal requirements in accordance to the Landfill Directive, e.g. landfilling of separately collected waste is banned. In addition, the Section 5 of the *Procedure for sorting municipal waste and basis for classification of sorted waste* is also currently under review. The aim is to lose the opportunity for source separation to be considered as pre-treatment for recovery or landfilling, that has enabled

landfills not to be obligated to perform further sorting or treatment of MSW prior to its recovery or disposal to landfill. (Ministry of the Environment of Estonia, 2021)

Summary result

Ban in place for landfilling residual or biodegradable waste	A ban on landfilling unsorted mixed municipal waste is in place since 2004. Since July 2020, the share of biodegradable waste in municipal waste landfilled shall not exceed 20 %. In addition, Estonia has a landfill tax of almost 30 EUR/t (corresponding to 35.7 EUR/t([a])). The landfill tax increased in several steps between 1996-2015 but has remained unchanged since.
Robustness of the underlying information	Credible information received from the Estonian authorities in response to the questionnaire by the EEA and ETC/WMGE.

([a])**Note**: rescaled based on purchasing power parities (Eurostat, 2020a)

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.

Estonia relies on waste incineration and almost half of the municipal waste generated is currently being incinerated. The Estonian authorities report that it has no incineration tax in place, neither is there a tax on waste exported for incineration. Estonia has considered a charge on incineration for waste handlers, but so far this has not been implemented. Estonia aims to discuss about the changes in taxation and different charges after the analysis performed by the World Bank concerning the Estonian waste system that was finalised in 2021. (Ministry of the Environment of Estonia, 2021)

Summary result

No incineration taxes	Estonia has no tax on waste incineration.
Robustness of the underlying information	Credible information received from the Estonian authorities through the EEA-ETC/WMGE questionnaire.

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

PAYT systems are designed to incentivise 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 the questionnaire the Ministry of the Environment of Estonia (2021) reported that Estonia has varying PAYT systems in use. Municipalities use varying charging systems, but none of them have a weight-based system. A municipality specifies the pricing model either in the tender or public procurement source documents for organising waste collection. Examples of the volume-based systems used in different municipalities are given below (the first two examples being the most used ones):

- Fee for separately collected fractions (kitchen waste, paper and cardboard) is EUR 0.01 per lift per container regardless of its size;
- Fee calculated for residual waste on equal basis regardless the container size, e.g. emptying of 240 litre container is proportional to 1 $m^{3;}$
- Fee for residual waste only;

- Fee for separately collected fractions (kitchen waste, paper and cardboard) up to 10 % of the fee for residual waste;
- Emptying a smaller container (e.g. 240 litres) is more expensive than emptying a bigger one (e.g. 1 m^3). In this model private properties use 240 containers that are emptied once a month, whereas bigger containers are used by blocks of flats or companies, and they are emptied once or twice a week. Municipalities justify this kind of approach by resource savings achieved when emptying bigger containers and more waste can be collected at a time. This option is not supported by the Estonian authorities, as this approach is unequal for customers. (Ministry of the Environment of Estonia, 2021).

Generally, volume-based systems can be described as a weak type of PAYT. According to the estimate by the Ministry of the Environment of Estonia (2021) the coverage of the systems exceeds 50 % of the population, if all of the above-mentioned solutions are considered as volume-based PAYT. No uniform methodology to determine waste management fees however exists, and the systems and fees vary substantially. Commonly, the fee is defined per container volume and charged by the service providers, but it is difficult to assess whether and how much of the population is covered by systems that actually represent PAYT.

In summary, it remains unclear whether all of the examples presented above can be described as actual PAYT systems. Based on the information available, the coverage of actual PAYT systems remains still unclear.

Summary result

PAYT scheme implemented in some regions/ municipalities (50-80% of the population covered)of the population	Only volume based PAYT systems are in use, and the coverage of the systems exceeds 50 % of the population.
Robustness of the underlying information	More information on the coverage of the system is needed.

2.1.4 Separate collection system

SRF MSWR-4.1: Convenience and coverage of separate collection systems for the different MSW 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).

In Estonia, separate collection of paper and cardboard, packaging waste, biodegradable garden and kitchen waste, combustible waste (incl. wood and plastic), bulky waste, metals, products of concern (e.g. WEEE, batteries and accumulators) and hazardous waste from households, trade sector and industry is mandatory (Ministry of the Environment of Estonia, 2021). There are many civic amenity sites, for example for recyclables, garden waste, hazardous household waste and large-volume

recyclable MSW across Estonia organised by municipalities, which has resulted in steadily increased separate collection, especially in urban areas. (OECD/ECLAC, 2017) The previous early warning report (EC, 2018a) stated that due to the lack of focus on door-to-door collection, and slow and limited implementation of the legal obligation to collect food waste separately from blocks of flats with at least ten apartments and paper waste from blocks of flats with at least five apartments, limits the efficiency of the separate collection and overall performance of the system. According to the Ministry of the Environment of Estonia (2021), in fact this has not been a legal obligation, but municipalities themselves have determined such thresholds, which are varying between the municipalities.

The required density of the public collection sites for packaging waste is laid down in the Packaging Act (Riigikogu, 2004a). In case door-to-door collection is used, the density of collection sites as well as the number and capacity of the containers can be reduced. The collection frequency for municipal waste is laid down in the Waste Act. According to OECD/ECLAC (2017) there is a high variation in the collection frequencies between different municipalities. In some rural areas, the frequency can be once every 12 weeks, whereas in the largest cities waste is collected more than once a week. According to their report, waste collection in Estonia has improved significantly during the 21st century, and by 2015 more than 95 % of households were covered by waste collection. (OECD/ECLAC 2017) The minimum collection frequency of municipal waste from high density areas is once in every four weeks for private houses and once or twice a week for block of flats and companies, and if bio-waste composting at source is ensured, once every 12 weeks. (Ministry of the Environment of Estonia, 2021)

The Environmental Board (2020) has analysed the separate collection practices in different municipalities in Estonia. In 2020, 34.6 % of the municipalities organised door-to-door waste collection of mixed municipal waste, paper and cardboard, bio-waste, bulky waste and/or packaging waste (Ministry of the Environment of Estonia, 2021). In 2021 the assessment was repeated and 15 municipalities out of 79 in Estonia collected only mixed municipal waste, 49 municipalities collected food waste separately (varying practices, door-to-door collection e.g. if a household property exceeds certain number of apartments, or if a certain number of seats is exceeded in restaurants), 61 collected paper and cardboard door-to-door, 21 collected packaging waste door-to-door co-mingled (Ministry of the Environment of Estonia, 2022). In 2020, 28 collected bulky waste door-to-door (service provided on request) (Ministry of the Environment of Estonia, 2021). Table 2.1 gives an overview of the collection system in Estonia.

According the study by the World Bank (2021a) , the majority of Estonian municipalities are too small to independently organise efficient separate waste collection of recyclable waste on their territory. Therefore, it is recommended that several PROs should have contracts with each municipality.

Table 2.1 Characterisation of the collection system in Estonia

	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	xx		x	x			xx	x	x		x	xx
Ferrous metals		x	xx		x				xx	x			xx	x
Aluminium		x	xx		x				xx	x			xx	x
Glass		x	xx		x				xx	x			xx	x
Plastic		x	xx		x				xx	x			xx	x
Bio-waste														
food	x					x								
garden	x				xx					xx				xx
Textiles			xx		x			x		xx				x
Wood					x					x				x
WEEE				x	xx				x	xx				x
Composite packaging		x	xx		x				xx	x			xx	x
Other: Hazardous household waste					x					x				x

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

Source: Ministry of the Environment of Estonia, 2021

According to the Estonian authorities, varying collection practices are used in different municipalities. Furthermore, a difference between collection of packaging materials and non-packaging materials exist. Paper and cardboard, metal, glass, plastic as well as composite packaging wastes are collected mostly from bring points, but in bigger cities and some towns also door-to door co-mingled collection systems for plastic, metal, glass, paper and cardboard packaging wastes are used to some extent. For paper and cardboard packaging waste, bring points and increasingly door-to-door collection are the dominant system while non-packaging paper is mainly collected via civic amenity sites but more and more municipalities start to collect it door-to-door as well. Wood packaging waste is mostly either collected directly from the companies or at civic amenity sites. Civic amenity sites are also the most common way to collect non-packaging metal, glass and plastic wastes, whereas the collection method of non-packaging paper and cardboard vary depending on the municipality in question.

For food waste, door-to-door separate collection is available in some cities, towns and suburbs, although not as a dominant system, but the door-to-door collection is developing due to the 2023 separate door-to-door collection obligation. Garden waste is mostly collected at civic amenity sites, but according to Estonian authorities, some municipalities also organise collection rounds for garden waste in the spring and autumn. Home composting is a common practice in rural areas and private houses. The analysis of the Environmental Board showed that in the autumn of 2021, 49 municipalities

out of 79 were collecting food waste door-to-door. There still are some exceptions (for example collection is only organised from apartment buildings with more than five or ten apartments), but there is an increasing trend of door-to-door collection of bio-waste.

Textile waste is collected prevailingly at high convenience bring points only in cities. For WEEE, only lower service level collection points are marked to be in place. WEEE can be returned free of charge to the collection points and retail shops of distributors (at least on a one-to-one basis). The retailer take-back systems are classified as low convenience bring points in this assessment. The population density has been taken into account in locating the collection points for WEEE. Producers are required to establish WEEE collection points in each Estonian county, and at least one collection point is required per 3 500 inhabitants. Municipalities organise at least one (door-to-door) collection round annually in sparsely populated areas. Door-to-door collection is the dominant way to collect residual waste throughout Estonia. In addition, Estonia reports to collect hazardous household waste at civic amenity sites, and some municipalities organise collection rounds for hazardous waste. (Ministry of the Environment of Estonia, 2021)

Examining capture rates gives an overview of the effectiveness of the whole collection system for the different materials (See Section 1.3). The modest capture rates for plastics (31 %) and bio-waste (24 %) clearly show that their separate collection is not efficient enough. For metals, wood, paper and cardboard, and glass the capture rates lie also at a rather low level (for metals 60 %, wood 61 %, paper and cardboard 56 %, glass 57 %) probably because other wastes than packaging are not separately collected.

The assessment is done on a material basis, and taking into account the different materials according to their average share in municipal waste (see ETC/WMGE (2021) for details).

Summary result

Paper and cardboard	A high share of the population is covered by high convenience collection services	For paper and cardboard packaging waste, bring points and increasingly door-to-door collection are the dominant system while non-packaging paper is mainly collected via civic amenity sites but more and more municipalities start to collect it door-to-door as well.
Metals	A high share of the population is covered by high convenience collection services	Door-to-door or high-convenience collection points are the dominant systems for metal packaging waste in cities and rural areas. However, according to the Estonian authorities, only around 40 % of the separately collected metals are packaging. Non-packaging wastes are only collected at low convenience collection points.
Plastics	A high share of the population is covered by high convenience collection services	Door-to-door or high-convenience collection points are the dominant systems for plastic packaging waste in cities and rural areas. However, non-packaging wastes are only collected at low convenience collection points.
Glass	A high share of the population is covered by high convenience collection services	Door-to-door or high-convenience collection points are the dominant systems for glass packaging waste. Although other glass waste than packaging is only collected at low convenience level, the share of non-packaging glass in municipal waste is small.

Bio-waste	A low share of the population is covered by high convenience collection services	For food waste, there is no dominant system in place, but door-to-door collection is available in some cities, town and suburbs. Garden waste is dominantly collected at civic amenity sites.
Wood	A low share of the population is covered by high convenience collection services	Only lower service level collection systems exist.
Textiles	A low share of the population is covered by high convenience collection services	High convenience collection service is dominant only in cities.
WEEE	Medium convenience collection services dominate	WEEE is collected at civic amenity sites over the whole country, via take-back at retailers and through a network of bring points. Population density is taken into account for the density of the bring point network.
Robustness of the underlying information		Credible information received from the Estonian authorities through the EEA-ETC/WMGE questionnaire. The share of the population served by high-convenience collection of paper and cardboard might be higher in reality.

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

The Estonian Waste Act foresees door-to-door collection of bio-waste (kitchen food waste), or alternatively home composting to become mandatory for all residents at the latest by 31 December 2023 (Parliament of Estonia, 2021). According to the Ministry of the Environment of Estonia (2021) the coverage of the planned separate collection system is expected to exceed half of the population. Estonia has also support measures in place for the municipalities for bio-waste containers and home-composters to promote the transition. From 2025 onwards, the separate collection of textile waste shall be organised by local authorities on their territory. Exemptions from the separate collection will become possible only when certain conditions are met and will be set out in the waste management plan and the local waste management regulations, together with the reasons for the exemptions. (Parliament of Estonia, 2021)

The Estonian authorities report that they have an intention to further develop the separate collection and introduce changes to the current system. There are studies related to the subject, e.g. the analysis performed by the World Bank (The World Bank, 2021b). An initial indication is to increase the door-to-door collection of packaging and non-packaging paper and cardboard wastes, the door-to-door collection of other packaging materials, and the bring point collection of paper and cardboard, metals, glass, plastics, composite packaging, and textiles. Although discussions concerning the further changes to the separate collection systems is yet to be held, Estonia probably continues to distinguish the systems between packaging and non-packaging wastes. (Ministry of the Environment of Estonia, 2021) However, as there are no targets and timeline defined for these plans yet, they cannot be considered as firm plans.

Summary result

Paper and cardboard	N/A (for countries in which a 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 systems
Metals	N/A (for countries in which a 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 systems.
Plastics	N/A (for countries in which a 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 systems.
Glass	N/A (for countries in which a 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 systems.
Bio-waste	Firm plans to improve the separate collection system, with clear responsible entities and defined targets and timeline.	A mandatory door-to-door collection of bio-waste (kitchen food waste) or alternatively home composting, will become mandatory for all residents by the end of 2023. The coverage of the planned separate collection system is expected to exceed half of the population.
Wood	No firm plans to improve the type and coverage	No changes planned.
Textiles	There are plans to improve the collection service but unclear plan for implementation	There is a plan to increase the separate collection, but not within the next three years.
WEEE	No firm plans to improve the type and coverage	No changes planned.
Robustness of the underlying information		Credible information received from the Estonian 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 PRO that producers report correctly.

In Estonia, EPR applies to all packaging. According to the Packaging Act, packaging producers are responsible to meet the recycling targets. They can either fulfil the obligations themselves or transfer them to the packaging recovery organisations on the basis of a written contract. The Packaging Act lays down the requirements for packaging producers and packaging recovery organisations. A packaging producer, or a recovery organisation in case the producer has transferred the obligations to the recovery organisation, is responsible for collection and recovery of packaging and packaging waste, meeting the recovery targets set in the Act, and, bearing the costs resulting from these actions. (Ministry of the Environment of Estonia, 2021)

The service fee depends on the type (sales packaging or transport and group packaging) and material of the packaging. There are four recovery organisations in Estonia for packaging waste: Eesti Taaskasutusorganisatsioon (ETO), Eesti Pakendiringlus, and Tootjavastutusorganisatsioon (TVO) are PROs for packaging in addition, Eesti Pandipakend runs the deposit-based return system for plastic, glass and metal beverage packaging. According to OECD/ECLAC (2017), the effect of the packaging PROs to packaging waste collection and recycling has been very positive. Some of the packaging waste collected by PROs is exported for recycling due to lack of national treatment capacity (Ministry of the Environment of Estonia, 2021).

The Estonian Tax and Customs Board and the Environmental Board work in collaboration to ensure compliance with the obligation to recover packaging waste and the Packaging Excise Duty Act. They, for example, inspect packaging companies to prevent free riding of EPR obligations. (Maksu- ja Tolliamet, 2011) In addition, contacts from European WEEE registers network (EWRN) are useful. Although EWRN mostly tracks free-riding with regards to WEEE directive, also exchange of information relating to packaging free-riding is possible. For example, there is possibility to submit complaints to the national enforcement authority from their webpage. However, the Estonian authorities see that free riding from the countries outside the EU poses a bigger problem, and state that an integrated approach across Europe is needed to tackle this problem, but so far no good solutions exist. (Ministry of the Environment of Estonia, 2021)

With regards to fee modulation, the Estonian authorities report that the recyclability has been taken into account to some extent in determining the price level of the service fee, e.g. the service fee for sales packaging is higher compared to transport and group packaging. In addition, a service fee for plastic packaging is higher compared to other sales packaging material types. However, currently the pricing is similar to different plastic types (e.g. PET or PS) as recovery organisations do not collect information concerning the different plastic types. In addition, a mandatory third-party audit of the data submitted to the packaging register, enforced on all packaging producers, has been used for several years. (Ministry of the Environment of Estonia, 2021)

The new waste legislation that entered into force on 15 May 2021 specifies the requirements for service fee eco-modulation in accordance with the WFD (Ministry of the Environment of Estonia, 2021).

According to the World Bank assessment (The World Bank, 2021a, 2021b), existing PRO tariffs are sufficient to implement a more advanced collection system. However, it is noted that the operation of one PRO responsible for all packaging will have lower costs than several PROs operating at national level. In addition, the study finds that EPR schemes for packaging are not sufficiently integrated with municipal collection services, and there are not sufficient incentives for households to separate waste.

Summary result

No advanced fee modulation	The Estonian authorities report that only recyclability is taken into account to some extent.
Robustness of the underlying information	Credible information received from the Estonian authorities through the EEA-ETC/WMGE questionnaire.

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.

As reported by the Estonian authorities, the country's separately collected bio-waste amounted to 29 000 tonnes in 2019 (Ministry of the Environment of Estonia, 2021), the volume of recycled bio-waste reported as reported to Eurostat was 12 000 tonnes in that same year (Eurostat, 2022a). The total generation of bio-waste within total municipal waste, including separately collected bio-waste and bio-waste present in the residual waste fraction was 122 thousand tonnes. As reported by the Ministry of Environment (2021) the bio-waste treatment capacity amounted to 94 500 tonnes in 2019 (37 500 tonnes for household biodegradable kitchen and canteen waste, and 57 000 tonnes for biodegradable garden waste). Since 2022 there is a certified composting plant in southwestern Estonia for garden waste (3 000 tonnes) (Ministry of the Environment of Estonia, 2022). Adding the new composting plant, the total capacity as of 2022 is 97 500 tonnes.

A new biogas station with an annual capacity of 20 000 tonnes for household biodegradable kitchen and canteen waste will be built in Harjumaa. The capacity is dedicated to MSW only. The capacity is estimated based on the waste permits, and therefore the real capacity is lower as there is a margin in the permit. (Ministry of the Environment of Estonia, 2021)

The estimated treatment capacity only includes the quantities of producing certified compost or digestate that meet the EoW criteria. Composting or anaerobic digestion where the compost or digestate does not meet the EoW criteria (i.e. recovery) is not included in the capacity. Home composting is not included in the estimated capacity either. (Ministry of the Environment of Estonia, 2021)

According to the Environmental Board, in 2018 eight waste management companies composted 16 500 tonnes of bio-waste in total, biogas was produced from 5 500 tonnes of bio-waste, and 600 tonnes of bio-waste was used for soil treatment (Ministry of the Environment of Estonia, 2021).

The Ministry of the Environment of Estonia (2021) stated that the most important issues hampering the treatment of separately collected municipal bio-waste are related to a lack of separate collection and regionally unbalanced treatment capacities. For example, in western and southwestern Estonia, there is currently no capacity to produce certified products from bio-waste. The new plant that will be built in Harjumaa will help to improve this situation. Estonia also has other plans to increase capacity, including support measures for recycling and increasing amounts of separately collected waste (Ministry of the Environment of Estonia, 2021)

Summary result

Enough bio-waste treatment capacity for 80% of generated municipal bio-waste	The current maximum capacity is sufficient to treat around 80 % of the municipal bio-waste generated. After the new plant built in Harjumaa is in operation, the treatment capacity will exceed 80 %.
Robustness of the underlying information	The bio-waste treatment capacity is estimated based on the waste permits. The real capacity is lower as there are some backup amounts in the permits or more general waste codes used in them.

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.

Estonia has a strong focus on the quality of the collected bio-waste, due to strict requirements on the quality of the compost. Estonia has a national standard for compost quality (being also the EoW criteria), complemented with a quality management system for the production of compost. (EEA, 2020)

Summary result

Legally binding national standards for compost/digestate quality in place, and quality management system in place	A legally binding national standard and a quality management system are in place in Estonia.
Robustness of the underlying information	Based on information provided by the Estonian authorities to the EEA in 2019 as contribution to the EEA's work on bio-waste.

2.2 Target for the recycling of packaging waste

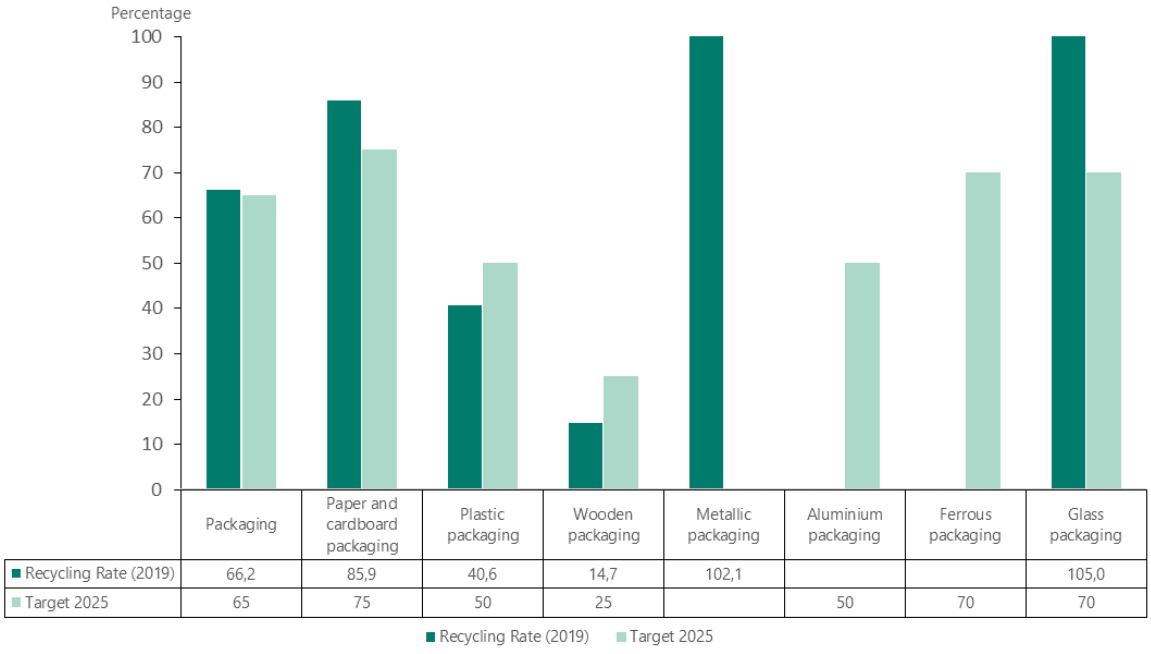
This chapter aims at assessing the prospects of Estonia to achieve the **65 % recycling target for packaging waste** in 2025 as well as the **material specific packaging waste recycling targets** (50 % of plastic; 25 % of wood; 70 % of ferrous metals; 50 % of aluminium; 70 % of glass; 75 % of paper and 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 Estonia to Eurostat in accordance with Commission Decision 2005/270/EC as last amended by the Commission Implementing Decision 2019/665 (EC, 2019a), published in the dataset *Recycling rates of packaging waste for monitoring compliance with policy targets, by type of packaging [env_waspacr].* The latest available data refer to 2019. The performance of Estonia in 2019 is illustrated in Figure 2.2.

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



	Packaging	Paper and cardboard packaging	Plastic packaging	Wooden packaging	Metallic packaging	Aluminium packaging	Ferrous packaging	Glass packaging
Recycling Rate (2019)	66,2	85,9	40,6	14,7	102,1			105,0
Target 2025	65	75	50	25		50	70	70

Note: No data are available for ferrous metals and aluminium, only for total metallic packaging.
Source: Eurostat (2022c), EU (2018)

For Estonia the reported total recycling rate for packaging waste is 1.2 percentage points above the 2025 target of 65 %. The current recycling rate is driven by paper and cardboard, glass, and metals packaging recycling. The recycling rates for paper and cardboard exceed the target by 10.9 percentage points. For metals, the reported rates do not make a distinction between ferrous metals and aluminium, but the total recycling rate for metals (102.1 %) still exceeds the higher recycling requirements (70 % for ferrous metals).

Also for glass the target is exceeded and the recycling rate is reported to be 105% in 2019. Recycling rates >100 % are explained by stocks of metals and glass from previous years being recycled in 2019 (Eurostat, 2021). For plastic waste, the recycling target of 50 % was missed by 9.4 percentage points in 2019. Similarly, the recycling rate for wooden packaging waste was only 14.7 % in 2019 and thus the recycling target 25 % was not yet reached. The recycling rate of wooden packaging decreased from 20.3 % in 2018 to 14.7% in 2019. At the same time energy recovery of wooden packaging rose in 2019 (compared to 2018) due to the increase in the amount of biomass (including wood waste) burned and also due to the replacement of oil shale with biomass as much as possible.(Eurostat, 2021).

In 2018, Estonia 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. Data on packaging waste generated is estimated based on waste analysis that was performed quarterly by taking samples from the waste trucks. In addition, data from packaging waste treatment operators is used to improve data coverage. Cross-checks with packaging register and time-series checks are performed to validate the data accuracy (Eurostat, 2021).

The significant increase of total recovery of glass packaging in 2019 (compared to 2018) is again due to the decrease of temporarily stored glass waste (Eurostat, 2021).

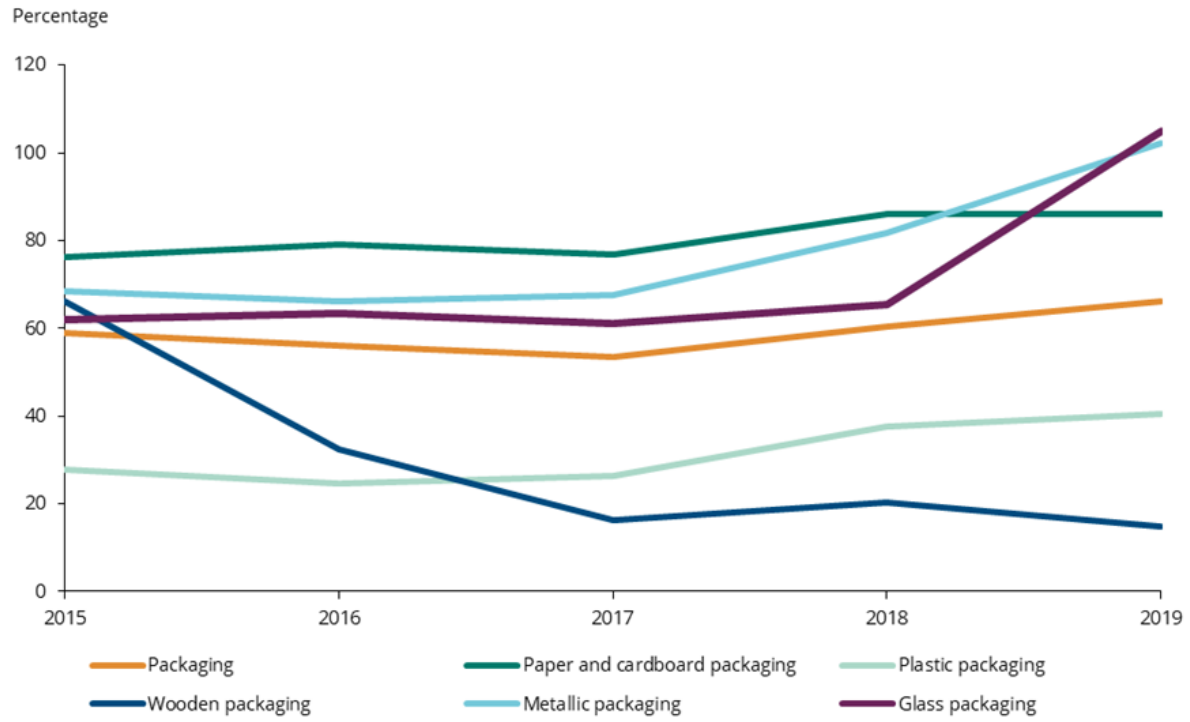
Summary result

Total packaging	Target exceeded	Estonia reports a recycling rate of 66.2%, 1.2 percentage point above the 2025 target.
Paper and cardboard packaging	Target exceeded	Estonia already reports a recycling rate of 85.9 %, 10.9 percentage points above the 2025 target.
Ferrous metals packaging	Target exceeded	Estonia only provides recycling rates for metallic packaging and no individual recycling rates for aluminium and ferrous metals. In 2019, the reported recycling rate for total metals packaging was > 100%. Issues related to stock (Estonia claims that metal packaging waste contained in the bottom ash from the temporary storage was also partially recycled) may explain such high recycling rates. Regardless, it may be assumed that Estonia exceeds the recycling targets for both aluminium and ferrous metals at a large margin.
Aluminium packaging	Target exceeded	
Glass packaging	Target exceeded	Estonia reports a recycling rate 105%, 35 percentage points above the 2025 target. Also for glass, of temporary storage glass packaging waste has been claimed to be recovered in 2019
Plastics packaging	5 - 15 percentage points below target	Estonia reports a recycling rate of 40.6%, 9.4 percentage points below the 2025 target.
Wooden packaging	5 - 15 percentage points below target	Estonia reports a recycling rate of 14.7%, 10.3 percentage points below the 2025 target.
Robustness of the underlying information		Estonia reports data to Eurostat according to the new calculation rules. The data may be considered robust. Distance to the target assessment for ferrous metals and aluminium packaging is missing, but given the high recycling rate for metallic packaging, it appears unlikely that either recycling rate is at risk of not being reached.

SRF P-1.2: Past trend in Packaging Waste Recycling

The development of the historical trend in the recycling rate indicates previous efforts towards 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 Estonia are illustrated in Figure 2.3.

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



Note: There is a break in time series data in 2019

Source: Eurostat (2022c)

The overall packaging recycling rate has remained rather stable in Estonia over the past five years. In 2015 the recycling rate was 59 %, and again in 2018 it reached 60.4 %, after the slight decrease in 2016-2017. Since 2017, the recycling rates for all packaging waste categories have increased, except for wooden packaging. For example, the recycling rate for paper and cardboard packaging increased with 9.8 percentage points, and for plastic packaging the increase was 9.9 percentage points. According to Eurostat (2020), this was not caused by methodological changes but by the opportunities of increased recycling, new operators entering the market, and the start of full-time operation of Estonia's largest plastics recycling plant in 2018. The recycling rate of glass packaging has increased by 3.3 percentage points during the period 2015-2018, and stands at 105 % in 2019. The recycling rate for glass packaging waste was >100 % in 2019 due to stocks from the previous year.

As outlined before, also the recycling rate for waste wood has been decreasing as waste wood is increasingly diverted to energy recovery. According to Eurostat (2020), the power plants have been expanding their capacity to recover wood waste, which has led to an increase in energy recovery at recycling's expense. The slight increase in the wooden packaging recycling rate in 2018 is due to a new company that started to utilise packaging waste in the particle board production, and increased recycling volumes by other wooden packaging recyclers. (Eurostat, 2020b)

Summary result

Total packaging	RR > 65%	The recycling rate has increased by 7.2 percentage points during the period 2015-2019, and is estimated at 66.2 % in 2019.
Paper and cardboard packaging	RR > 75 %	The recycling rate has increased by 9.6 percentage points during the period 2015-2019, and stands at 85.9 % in 2019.
Ferrous metals	RR > 70 %	The recycling rate has increased by 33.7 percentage points during the period 2015-2019, and stands at 102.1 % in 2019.
Aluminium	RR > 50 %	
Glass packaging	RR > 70%	The recycling rate has increased by 42.9 percentage points during the period 2015-2019, and stands at 105 % in 2019. The recycling rate for glass packaging waste was >100% in 2019 due to stocks from the previous year. If this aspect is not taken into consideration it is to be assumed that this SRF is overestimated.
Plastics packaging	RR > 40% and increase in last 5 years > 10 %	The recycling rate has increased by 12.8 percentage points during the period 2015-2019, and stands at 40.6 % in 2019.
Wooden packaging	RR < 15% and increase in last 5 years < 10 percentage points	The recycling rate has decreased by 51.4 percentage points during the period 2015-2019, and stands at 14.7 % in 2019.
Robustness of the underlying information		The assessment for ferrous metals and aluminium is uncertain as data only refers to total metals packaging

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.

Estonia has transposed the amended PPWD into national law in May 2021, 10 months after the deadline of 5 July 2020 (Ministry of the Environment of Estonia, 2021).

Summary result

Transposition with delay of < 12 months	The PPWD has been transposed into national legislation.
Robustness of the underlying information	The result of this SRF is based on timely transposition only. Proper transposition to be confirmed later. 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.

The Estonian authorities stated that the recycling policy for packaging wastes is the responsibility of the following parties:

- Packaging producers (undertakings) are responsible to meet the recycling targets laid down in the Packaging Act. They can either fulfil the obligations themselves or transfer them to the packaging recovery organisations based on a written contract;
- Municipalities also have an effect on the recycling rates of packaging waste, as according to the Packaging Act, the packaging recovery organisation together with the municipality shall decide the locations of the collection sites, the minimum number and capacity of the containers at each site, as well as the emptying frequency of the containers in collaboration;
- The Ministry of the Environment (MoE) as a national policy maker can influence the recycling rate by creating a legal space that enables recycling, via awareness raising as well as targeting support measures. (Ministry of the Environment of Estonia, 2021)

The Packaging Act lays down the requirements for packaging producers and packaging recovery organisations. A packaging producer, or a recovery organisation in case the producer has transferred the obligations to the recovery organisation, is responsible for collection and recovery of packaging and packaging waste, meeting the recovery targets set in the Act, and, bearing the costs resulting from these actions. The detailed obligations of the recovery organisations are set in the Packaging Act. (Ministry of the Environment of Estonia, 2021)

In the Packaging Act, liability provisions for non-compliance of the provisions laid down in the Packaging Act are described. Fines up to EUR 1 200 for private persons and up to EUR 200 000 for legal persons can be imposed. If a packaging producer cannot meet the recovery targets set in the Packaging Act, the Packaging Excise Duty Act applies and packaging producers have to pay an excise duty. (Ministry of the Environment of Estonia, 2021)

A mandatory third-party audit of the data to be submitted to the packaging register, enforced on all packaging producers has been used for several years to support enforcement. In addition, Estonia has an active application round to support recycling, for which projects related to packaging waste recycling are allowed as well. Together with Latvia, Estonia has an awareness-raising campaign considering packaging wastes and especially deposit systems. (Ministry of the Environment of Estonia, 2021).

In summary, responsibilities are defined and they are based on the legislation. However, in the previous early warning report the distribution of responsibilities between municipalities and PROs was questioned (see Annex 1 for more information). Although the Estonian authorities see that also municipalities have an effect on the recycling rates of packaging waste, an integration of packaging waste collection into municipal services would enhance recycling, increase service level, and reduce costs. (EC, 2018a) Therefore, it can be argued that the packaging waste management governance functions in a somewhat suboptimal manner.

The World Bank study (The World Bank, 2021a, 2021b) confirms that responsibilities for the management of packaging waste is scattered between municipalities and PROs.

Summary result

Unclear responsibilities but clearly defined enforcement mechanisms and a good set of support tools for meeting the recycling targets	Responsibilities are sub-optimally defined between municipalities and PROs but there are financial consequences in place if the recycling targets are not met. In addition, there are support tools in place to improve the recycling performance.
Robustness of the underlying information	Credible information received from the Estonian authorities in response to the questionnaire by the EEA and ETC/WMGE.

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.

See Section 2.1.3 for more detailed information.

Summary result

Ban in place for landfilling residual or biodegradable waste	A ban on landfilling unsorted mixed municipal waste is in place since 2004. Since July 2020, the share of biodegradable waste in municipal waste landfilled shall not exceed 20 %. In addition, Estonia has a landfill tax of almost 30 EUR/t (corresponding to 35.7 EUR/t rescaled based on purchasing power parities). The landfill tax increased in several steps between 1996-2015 but has remained unchanged since.
Robustness of the underlying information	Credible information received from the Estonian 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 in more detail, Estonia does not have a waste incineration tax.

Summary result

No incineration taxes	Estonia has no tax on waste incineration.
Robustness of the underlying information	Credible information received from the Estonian 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, Estonia has an excise duty concerning all packaging placed on the Estonian market, acquired in or imported from another MS of the EU. (Tax and Customs Board, 2016)

The amount of excise duty in Estonia is EUR 0.60 per kg for glass, EUR 2.50 per kg for metal and plastic, EUR 1.20 per g for wood and paper and cardboard. Exemption from excise duty on packaging is applied to, for example, packaging included in the deposit-return systems, except metal packaging of beverages, and from which >85 % of each class of packaging material is recovered; metal packaging of

beverages from which >50 % is recovered; and other packaging, which are recovered to the rate provided in the Packaging Act (Section 36). (Tax and Customs Board, 2016)

Regarding to the planned changes, the Estonian authorities reported in the questionnaire that the Ministry of the Finance has an intention to open discussions about the packaging excise duties, but currently there is no further information on that issue. (Ministry of the Environment of Estonia, 2021)

Summary result

Packaging taxes in place	There is an excise duty for all packaging placed on the Estonian market, acquired in or imported from another MS of the EU.
Robustness of the underlying information	Credible information received from the Estonian 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.

As described in Section 2.1.3 in more detail, PAYT systems are in use in different municipalities, but the coverage of the actual PAYT systems is unclear.

Summary result

PAYT scheme implemented in some regions/ municipalities (50-80% of the population covered) of the population	Only volume based PAYT systems are in use, and the coverage of the systems exceeds 50% of the population.
Robustness of the underlying information	More precise information on the coverage of the system is needed.

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 Estonia, a mandatory scheme covering most of the products is in place for aluminium drink cans, and plastic drink bottles. In addition, there is a mandatory scheme for glass drink bottles covering only some specific packaging. For plastic crates and wooden packaging there are no DRS in place. (Ministry of the Environment of Estonia, 2021)

The participation in the DSR system is mandatory to all packaging companies that place on the market packaging that needs to be covered with deposit. These packaging types are described in the Packaging Act. A deposit is obligatory for reusable and non-reusable glass and plastic packaging, as well as the non-reusable metal packaging of beer, alcoholic beverages with low ethanol content, cider, perry and soft drinks. Since May 2021, the deposit system can be voluntarily expanded to include reusable and non-reusable packaging of strong alcoholic beverages, low-alcoholic beverages and syrups. (Ministry of the Environment of Estonia, 2021)

Summary result

Aluminium drink cans	Mandatory DRS for nearly all drink cans	A mandatory DRS covering most of the aluminium drink cans.
Glass drink bottles	Mandatory DRS for some drink bottles	A mandatory DRS covering some glass drink bottles.
Plastic drink bottles	Mandatory DRS for nearly all drink bottles	A mandatory DRS covering most of the plastic drink bottles.
Plastic crates	No DRS for plastic crates	No DRS in place for plastic crates.
Wooden packaging	No DRS for wooden packaging	No DRS in place for wooden packaging.
Robustness of the underlying information		Credible information received from the Estonian authorities through the EEA-ETC/WMGE questionnaire

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 required density of the public collection sites for packaging waste in Estonia is laid down in the Packaging Act. In case door-to-door collection is used, the density of collection sites as well as the number and capacity of the containers can be reduced.

The separate collection of waste from business and companies is mandatory in Estonia, but the collection systems vary between the municipalities. Supervision and liability provisions are set in the municipal waste handling rules to enforce the separate collection from non-households. (Ministry of the Environment of Estonia, 2021)

Taking this into account, high convenience bring points are the dominant systems for metal, glass, plastics and composite packaging in Estonia. For paper and cardboard packaging waste, in cities, door-to-door separate collection and high convenience bring points are the prevailing collection systems. In other areas, lower service level collection points are the prevailing ones for paper and cardboard waste. Wood is mostly collected at civic amenity sites. (Ministry of the Environment of Estonia, 2021)

According to the World Bank (2021a), there are two collection systems organised by PROs and municipalities which are functioning in parallel:

- Door-to-door collection of waste paper and container bring system for packaging paper; and
- Door-to-door collection of packaging waste organised by municipality considered service of convenience.

Summary result

Paper and cardboard packaging	**1. Packaging waste from households** A high share of the population is covered by high convenience collection services	Door-to-door or high convenience collection points constitute the dominant collection systems for paper and cardboard packaging.
	2. Packaging waste from non-household sources Separation at source is mandatory for non-household paper and cardboard packaging waste	Separate collection is mandatory for households and non-households.
Ferrous metals packaging	**1. Packaging waste from households** A high share of the population is covered by high convenience collection services	Around 40 % of separately collected metals were packaging in 2019 (Ministry of the Environment of Estonia, 2021). High convenience collection points constitute the dominant system in cities and rural areas.
	2. Packaging waste from non-household sources Separation at source is mandatory for non-household ferrous metals packaging waste	Separate collection is mandatory for households and non-households.
Aluminium packaging	**Packaging waste from households** A high share of the population is covered by high convenience collection services	Around 40 % of separately collected metals were packaging in 2019 (Ministry of the Environment of Estonia, 2021). High convenience collection points constitute the dominant system in cities and rural areas. In addition, there is a mandatory DRS covering most of the aluminium drink cans.
Glass packaging	**1. Packaging waste from households** A high share of the population is covered by high convenience collection services	High convenience collection points constitute the dominant system. In addition, there is a mandatory DRS covering some glass drink bottles.
	2. Packaging waste from non-household sources Separation at source is mandatory for non-household glass packaging waste	Separate collection is mandatory for households and non-households.
Plastics packaging	**1. Packaging waste from households** A high share of the population is covered by high convenience collection services	High convenience collection points constitute the dominant system in cities and rural areas. In addition, there is a mandatory DRS covering most of the plastic drink bottles.
	2. Packaging waste from non-household sources Separation at source is mandatory for non-household plastic packaging waste	Separate collection is mandatory for households and non-households.
Wooden packaging	**Packaging waste from non-household sources** Separation at source is mandatory for non-household wooden packaging waste	Separate collection is mandatory for households and non-households.
Robustness of the underlying information		High convenience collection points constitute the dominant collection system for metals, plastics and glass packaging waste. However, the capture rates for these fractions (60 % metals, 31 % for plastics, and 57 % for glass) show that the collection system is not efficient.

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 the 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.

The Estonian authorities report that they have an intention to further develop the separate collection and introduce changes to the current system. There are studies related to the subject, e.g. the analysis performed by the World Bank (The World Bank, 2021a, 2021b). An initial indication is to increase the door-to-door collection of packaging wastes other than wood. (Ministry of the Environment of Estonia, 2021) However, as there are no defined targets yet nor a timeline for these plans, they cannot be considered as firm plans.

Summary result

Paper and cardboard packaging	**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)	Although there is an intention to further develop the separate collection and introduce relevant changes, no firm plans, i.e. plans that have clear responsible entities and defined targets and timeline, are not yet in place.
	2. Packaging waste from non-household sources N/A (for countries already having mandatory separation at source)	Separation at source is mandatory for households and non-households.
Ferrous metals packaging	**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)	A high share of the population is already covered by high convenience collection service.
	2. Packaging waste from non-household sources N/A (for countries already having mandatory separation at source)	Separation at source is mandatory for households and non-households.
Aluminium packaging	**Packaging waste from households** N/A (for countries in which a 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 service.
Glass packaging	**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)	A high share of the population is already covered by high convenience collection service.
	2. Packaging waste from non-household sources N/A (for countries already having mandatory separation at source)	Separation at source is mandatory for households and non-households.

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

Plastics packaging	**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)	A high share of the population is already covered by high convenience collection service.
	2. Packaging waste from non-household sources N/A (for countries already having mandatory separation at source)	Separation at source is mandatory for households and non-households.
Wooden packaging	**Packaging waste from non-household sources** N/A (for countries already having mandatory separation at source)	Separation at source is mandatory for households and non-households.
Robustness of the underlying information		Credible information received from the Estonian authorities through the EEA-ETC/WMGE questionnaire

2.2.5 Extended producer responsibility (EPR) and similar schemes

SRF P-5.1: Coverage of EPR schemes

In Estonia, EPR applies to all packaging. There are four recovery organisations in Estonia for packaging waste: Eesti Taaskasutusorganisatsioon (ETO), Eesti Pakendiringlus, and Tootjavastutusorganisatsioon (TVO) are PROs for packaging, and Eesti Pandipakend runs the deposit-based return system for plastic, glass and metal beverage packaging. Details are described under Section 2.1.5.

Summary result

All main packaging fractions([a]) are covered by EPR schemes, covering household and non-household packaging	Estonia has EPR schemes in place covering household, industrial and commercial packaging for all packaging fractions.
Robustness of the underlying information	Credible information received from the Estonian authorities through the EEA-ETC/WMGE questionnaire

([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

No advanced fee modulation	The Estonian authorities report that only recyclability is taken into account to some extent.
Robustness of the underlying information	Credible information received from the Estonian authorities through the EEA-ETC/WMGE questionnaire

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.

Estonia has an EPR scheme covering both household and non-household sources and all packaging types.

Summary result

SRF P-5.3.1 EPR scheme for paper and cardboard packaging waste	EPR scheme covering household and non-household packaging	Estonia has an EPR scheme in place covering household, industrial and commercial packaging for paper and cardboard packaging waste, but no advanced fee modulation meeting at least two assessment criteria.
SRF P-5.3.2 EPR scheme for ferrous metals packaging waste	EPR scheme covering household and non-household packaging	Estonia has an EPR scheme in place covering household, industrial and commercial packaging for ferrous metals packaging waste, but no advanced fee modulation meeting at least two assessment criteria.
SRF P-5.3.3 EPR scheme for aluminium packaging waste	EPR scheme covering household and non-household packaging	Estonia has an EPR scheme in place covering household, industrial and commercial packaging for aluminium packaging waste, but no advanced fee modulation meeting at least two assessment criteria.
SRF P-5.3.4 EPR scheme for glass packaging waste	EPR scheme covering household and non-household packaging	Estonia has an EPR scheme in place covering household, industrial and commercial packaging for glass packaging waste but no advanced fee modulation meeting at least two assessment criteria.
SRF P-5.3.5 EPR scheme for plastic packaging waste	EPR scheme covering household, industrial and commercial packaging but no or only basic fee modulation is applied.	Estonia has an EPR scheme in place covering household, industrial and commercial packaging for plastic packaging waste.
SRF P-5.3.6 EPR scheme for wooden packaging waste	EPR scheme covering all non-household packaging	Estonia has an EPR scheme in place covering household, industrial and commercial packaging for wood packaging waste.
Robustness of the underlying information	Credible information received from the Estonian authorities through the EEA-ETC/WMGE questionnaire	

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 landfilling rate of Estonia was 14.7 % in 2020 (Eurostat, 2022a).

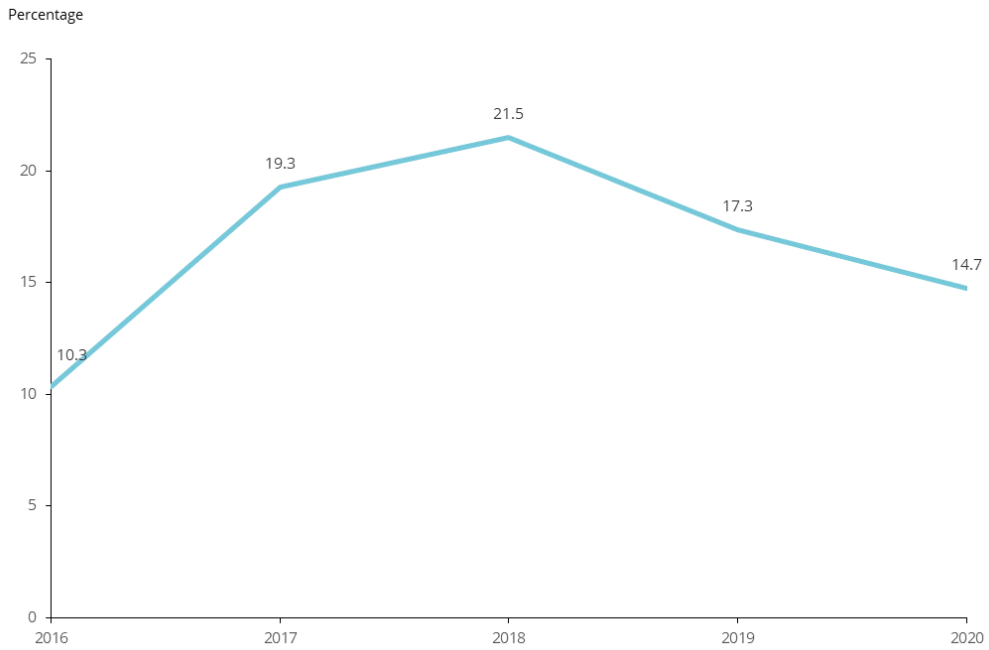
Summary result

Distance to target < 10 percentage points	Estonia is 4.7 percentage points from reaching the target, with a landfilling rate of 14.7 % in 2020.
Robustness of the underlying information	The data are derived from Eurostat and are 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 Estonia increased from 10.3 % to 21.5 % between 2016 and 2018, and then decreased again to 14.7 % in 2020 (Figure 2.4). It seems that the combined share of landfilling and incineration has remained rather stable in the five-year period, at around 60 %. Although the distance to target is 4.7 percentage points, the trend for landfilling has increased by 4.4 percentage points. To meet the target, Estonia has to speed up the pace of reducing landfilling.

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



Source: Eurostat (2022a).

Summary result

Landfill rate in 2020 < 20 % and decrease in last 5 years < 5 percentage points	The landfill rate is 14.7 %, and increased by 4.4 percentage points over the past five years.
Robustness of the underlying information	There are no breaks in the time series data. 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-1.3: 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. However, Estonia benefits from a 4-year derogation period and thus has to meet the target by 2020.

According to the Waste Act, since July 2020 the share of biodegradable waste in municipal waste landfilled shall not exceed 20 % by weight in Estonia, and previously, limit values were set at 45 % since 2010 and 30 % since 2013. (Ministry of the Environment of Estonia, 2021)

In 2019, Estonia landfilled 9 % (29 071 tonnes) of biodegradable municipal waste as share of the biodegradable municipal waste generated in the reference year 1995 (317 000 tonnes) (Ministry of the Environment of Estonia, 2021) (EC, 2022).

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 or in the year specified in the derogation where applicable	For 2019, Estonia has reported that 9 % biodegradable municipal waste related to the amount generated in the reference year 1995 waste landfilled, well exceeding the 2016 target.
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 Estonia 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 Estonia, only the SRFs relevant to Estonia are taken into account to define the maximum score. Estonia 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

33 % **of maximum score**	Based on the provided information and the analysis done, it is concluded that Estonia is **at risk for not meeting the MSW recycling target in 2025**.
Current situation and past trends:	The recycling rate is 28.9 % in 2020, which is below the target for 2025. The distance to the target of 55 % is 26.1 percentage points. The share of composting/digestion is at the level of 2.8 %. The recycling rate has increased only by 0.8 percentage points over the past five years, resulting in a recycling rate of 28.9%.
Legal instruments:	The amended WFD has been transposed into national law in May 2021, i.e., 10 months after the deadline of 5 July 2020. Responsibilities are defined though partly fragmented, and support mechanisms for municipalities are in place, but there are no mandatory recycling targets at municipal level with direct consequences for the municipalities if the targets are not met.
Economic instruments:	Estonia has banned landfilling of unsorted mixed municipal waste in 2004. Since July 2020, the share of biodegradable waste in municipal waste landfilled shall not exceed 20 %. In addition, Estonia has a landfill tax of almost 30 EUR/t (corresponding to 35.7 EUR/t rescaled based on purchasing power parities). The landfill tax has remained unchanged since 2015. Estonia has no tax on waste incineration. Only volume based PAYT systems are in use, and the coverage of the systems exceeds 50% of the population.

Separate collection systems:	Door-to-door or high-convenience collection points are the dominant systems for glass packaging waste. Door-to-door or high-convenience collection points are the dominant systems also for packaging of paper/cardboard, metals and plastic, however, non-packaging wastes are only collected at low convenience collection points or at civic amenity sites. For food waste, there is no dominant system in place. Garden waste is dominantly collected at civic amenity sites. For wood waste, only lower service level collection systems exist, while WEEE is collected through bring points and at retailers (take-back). High convenience collection service is dominant for textiles only in cities. Although there is an intention to further develop the separate collection and introduce relevant changes, no firm plans, i.e. plans that have clear responsible entities and defined targets and timeline, are not yet in place, except for kitchen waste, for which door-to-door separate collection (or home composting) will become mandatory by the end of 2023 and textiles for which there is a plan to increase the separate collection, but not within the next three years.
Extended producer responsibility:	EPR schemes are in place for all packaging materials from households and non-households. There is currently no advanced fee modulation applied to incentivise design for recycling.
Bio-waste treatment capacity and quality management:	The current maximum capacity is sufficient to treat around 80 % of the municipal bio-waste generated. However, the estimated capacity only includes facilities producing certified compost or digestate that meet the EoW criteria. Facilities not meeting the criteria are not included in the capacity. After the new additional capacity is available, the maximum treatment capacity will exceed 80 %. A legally binding national standard and a quality management system for compost and digestate are in place.

3.2 Prospects for meeting the recycling targets for packaging waste

78 % **of maximum score**	Based on the provided information and the analysis done, it is concluded that Estonia is **not at risk for not meeting the 65 % recycling target for total packaging waste in 2025**	
80 % of maximum score	Paper and cardboard packaging	Not at risk
80 % of maximum score	Ferrous metals packaging	Not at risk
81 % of maximum score	Aluminium packaging	Not at risk
78 % of maximum score	Glass packaging	Not at risk
59 % of maximum score	Plastics packaging	Not at risk
56 % of maximum score	Wooden packaging	Not a risk
Current situation and past trends:	The total packaging recycling rate is estimated to be 66.2 %, 1.2 percentage points above the 2025 target. Only for plastic packaging and wooden packaging, the target is not yet reached, with a distance to target of respectively 9.4 and 10.3 percentage points. For wooden packaging, the recycling rate has decreased over the last five years. The total packaging recycling rate has increased by 7.2 percentage points during the period 2015 – 2019.	
Legal instruments:	The amended Packaging and Packaging Waste Directive has been transposed into national law in May 2021, 10 months after the deadline of 5 July 2020. Responsibilities are partly defined between municipalities and PROs but there are financial consequences in place if the recycling targets are not met. In addition, there are support tools in place to improve the recycling performance.	
Economic instruments:	Estonia has banned landfilling unsorted mixed municipal waste in 2004. Since July 2020, the share of biodegradable waste in municipal waste landfilled shall not exceed 20 %. In addition, Estonia has a landfill tax of almost 30 EUR/t (corresponding to 35.7 EUR/t rescaled based on purchasing power parities). The landfill tax has remained unchanged since 2015. Estonia has no tax on waste incineration. There is an excise duty for all packaging placed on the Estonian market, acquired in or imported from another MS of the EU. Only volume based PAYT systems are in use, and the coverage of the systems exceeds 50% of the population. There is a mandatory deposit-return scheme covering most of the aluminium drink cans and plastic drink bottles, as well some glass drink bottles. No DRS in place for plastic crates or wooden packaging.	

Separate collection systems:	Door-to-door or high-convenience collection points are the dominant systems for all packaging waste. Separation at source is mandatory for households and non-household packaging waste.
Extended producer responsibility:	EPR schemes are in place and they cover household, industrial and commercial packaging for all packaging fractions, but no advanced fee modulation is implemented.

3.3 Prospects of meeting the landfill of municipal waste target

93 % **of maximum score**	Based on the provided information and the analysis done, it is concluded that Estonia 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 for municipal waste was 14.7 % in 2020, indicating a distance to target of 4.7 percentage points. Over the past five years, the trend for landfilling has been mostly increasing.
Diversion of biodegradable municipal waste from landfill	Estonia has reported 9 % biodegradable waste landfilled for 2019, of the total amount (by weight) of biodegradable municipal waste generated in 1995, well exceeding the 2016 target.

List of abbreviations

Abbreviation	Name
CE	Circular economy
DRS	Deposit Return System
EC	European Commission
EEA	European Environment Agency
EoW	End-of-Waste
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
EWRN	European WEEE registers network
MBT	Mechanical biological treatment
MoE	The Ministry of the Environment
MS	Member state
MSW	Municipal solid waste
NWMP	The National Waste Management Plan
PAYT	Pay-as-you-throw
PET	Polyethylene terephthalate
PPWD	Packaging and Packaging Waste Directive
PRO	Producer Responsibility Organisation
PS	Polystyrene
RDF	refuse-derived fuel
SRF	Success and risk factor
SUP	Single-use plastics
WEEE	Waste Electric and Electronic Equipment
WFD	Waste Framework Directive

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Annex 1 Implementation of previous early warning recommendations

In 2018, the European Commission assessed that Estonia would be at risk of not meeting the Waste Framework Directive's target to prepare for re-use and recycle at least 50 % of municipal waste, and provided a set of policy recommendations to improve the situation (EC, 2018a). This annex lists the recommendations and a self-assessment of the Estonian authorities on the status of taking them into account.

Recommendations on economic incentives

1) Setting mandatory targets at municipal level either for recycling or potentially for residual waste (depending on the availability of data) with financial penalties for municipalities that fail to meet the targets.

The Estonian authorities report that the recommendation has been addressed, but not yet implemented. The Ministry of the Environment introduced a plan in spring 2019 consisting of proposals to improve the municipal waste recycling in Estonia. The implementation of the early warning recommendations was also included in the plan, including mandatory targets at municipal level with financial penalties for municipalities that fail to meet the targets. However, due to the dissenting opinions given by the stakeholders on the outline of the proposal, as well as the tight timeframe, Estonia decided to focus on the transposition of the EU's "Waste Package" directives. Due to the stakeholders' request on thorough impact assessments, Estonia decided to apply for a support from the EC's Structural Reform Support Programme, and as a consequence, the World Bank performed an analysis concerning the Estonian waste system that gives an input to solve the issues raised in the early warning report. In addition, a study to develop a new NWMP was prepared on the future visions of the Estonian waste sector. (Ministry of the Environment of Estonia, 2021).

The Estonian authorities intend to address this recommendation again once the World Bank's analysis is completed and amendments to the legislation are prepared, and the authorities are now preparing a legislative intent for a draft Act addressing this recommendation as well.

2) Removing regulatory uncertainty around the potential ways in which municipalities can operate waste services. This would help the municipalities implement waste recycling targets. Different solutions will be required in the 'free market' approach where households can choose the waste collection company, and in the 'tender-based' approach where all households within one municipality are served by one contractor selected via tender.

Based on the estimate given by the Ministry of the Environment the legal uncertainty concerning the possibilities of municipalities to provide waste services will stay unclear. Even though the provisions of in-house transaction and collaboration between contracting authorities laid down in the Public Procurement Act do not apply for organised waste transport, this does not concern the designation of waste handling sites or recycling centres. (Ministry of the Environment of Estonia, 2021).

The Estonian authorities consider this recommendation not implemented (Ministry of the Environment of Estonia, 2021).

3) Implementation of a residual waste tax to increase costs of disposal and provide a clear economic incentive to introduce recycling services. The tax should include landfill, incineration and any other mixed waste treatment activity in order to support re-use, preparation for re-use, recycling and composting of separately collected bio-waste.

Estonia has considered certain additional economic measures, e.g. charges for incineration (for waste handlers), mixed municipal waste (for waste holders), and municipal waste removal from recycling (for primary waste recipient), but so far these have not been implemented. Estonia aims to discuss about the changes in taxation and different charges after the analysis performend by the World Bank is competed. (Ministry of the Environment of Estonia, 2021).

The Estonian authorities consider this recommendation not implemented (Ministry of the Environment of Estonia, 2021).

Recommendations on extended producer responsibility

4) Clear distribution of responsibilities for the management of packaging waste between municipalities and producer responsibility organisations (PROs). The contractual arrangements between them should allow the municipalities to influence decisions regarding the packaging collection systems' performance (which is the responsibility of the PROs).

According to the Packaging Act, packaging producers are responsible to meet the recycling targets. They can either fulfil the obligations themselves or transfer them to the packaging recovery organisations on the basis of a written contract. The Packaging Act lays down the requirements for packaging producers and packaging recovery organisations. A packaging producer, or a recovery organisation in case the producer has transferred the obligations to the recovery organisation, is responsible for collection and recovery of packaging and packaging waste, meeting the recovery targets set in the Act, and, bearing the costs resulting from these actions. (Ministry of the Environment of Estonia, 2021)

In addition, the Packaging Act defines the requirements for waste collections sites. The packaging recovery organisation and the municipality shall decide the site locations, the minimum number and capacity of the containers at each site, as well as the emptying frequency of the containers in collaboration. (Ministry of the Environment of Estonia, 2021)

The Estonian authorities consider this recommendation implemented (Ministry of the Environment of Estonia, 2021).

5) Ensuring the fees paid by producers cover the full cost of collection of packaging waste. This will provide the price signal to those running the collection service to increase recycling performance, and thus avoid taxes on residual waste (implemented in line with action 3).

The packaging recovery organisations operate the waste collection in the collection sites and cover the full costs of collection and recycling. Certain exceptions may occur in cases where door-to-door collection is provided (e.g. a charge for container rental, or convenience service fee), as door-to-door collection service is not mandatory for the PROs. However, the use of this service is voluntary for the properties. (Ministry of the Environment of Estonia, 2021)

The Estonian authorities consider this recommendation partly implemented (Ministry of the Environment of Estonia, 2021).

Recommendations on separate collection

6) Further implementation of pay-as-you-throw through national legislation. Research studies and trials should be carried out to ensure the most effective schemes are designed and operated.

The analysis performed by the World Bank will address this issue. Estonia considers this recommendation not implemented yet. (Ministry of the Environment of Estonia, 2021). The Ministry of the Environment intends to address this now in the legislative intent of the draft Act that is a follow-up to the World Bank analysis.

7) Development of national minimum service standards for waste collection to specify, for example, the type and volume of containers, frequency of collection and type of vehicle used, taking into account the type of housing stock, how rural the area is, typical climate, etc.

According to the Ministry of the Environment of Estonia (2021) color codings are used in waste containers or their labels to simplify the separate collection:

- Yellow for plastic, metal, and mixed packaging
- Blue for paper and cardboard packaging and other paper and cardboard
- Green for glass
- Brown for bio-waste; and
- Gray and black for mixed municipal waste. (Ministry of the Environment of Estonia, 2021)

For example, several municipalities and waste handlers, all packaging recovery organisations, kuhuviia.ee, universities, and administrative companies already use the color coding, and Estonia aims to include the coding also in the regulation. (Ministry of the Environment of Estonia, 2021)

The waste handling rules established by the municipalities include requirements on the container size and type, and also the special characteristics of the area are taken into consideration. (Ministry of the Environment of Estonia, 2021)

A guideline for the preparation of the public procurement source documents for a concession contract for organised waste transport was published in 2020 collaboration with the Environmental Board (Ministry of the Environment of Estonia, 2021).

The Estonian authorities consider this recommendation partly implemented (Ministry of the Environment of Estonia, 2021).

8) Setting up civic amenity sites (using national/EU funds), starting in municipalities where the collection service is most advanced (for example, where door-to-door separate collection is becoming well established) to maximise the likely effectiveness of the sites. This would also allow best practices to be identified and used as a model for other municipalities.

Estonia has supported setting up municipal civic amenity sites via the national Environmental Investment Centre. In 2018, 11 municipalities were supported with EUR 1.2 million. In 2020, 10

municipalities were supported for separate collection and civic amenity sites with EUR 1.4 million. In 2021, the separate collection of bio-waste was be supported with EUR 1.5 million. (Ministry of the Environment of Estonia, 2021).

The Estonian authorities consider this recommendation partly implemented (Ministry of the Environment of Estonia, 2021).

Recommendations on communication and awareness-raising programmes

9) Development of a set of national communications materials addressed to the public for use at local level, with clear and consistent messages. These materials should be used as part of awareness-raising campaigns, in leaflets, and at civic amenity sites.

Guidelines for separate collection are available on the web page of the Ministry of the Environment. The Ministry of the Environment points out the need for consistent communication in order to achieve persistent positive behavioral changes. To ensure this, the MoE budgets funds annually for increasing knowledge on waste management and the circular economy (CE), as well as shares prepared communication materials with municipalities. Some examples of the actions taken include an annual waste reduction week, and information provided e.g. on separate collection and the risks and dangers of open waste burning. Municipalities can apply for a support from the Environmental Investment Centre in order to print and distribute communication materials prepared by the MoE and its subdivisions. (Ministry of the Environment of Estonia, 2021).

In addition, municipalities, packaging recovery organisations, as well as several other non-governmental organisations (e.g. kuhuviia.ee) distribute information and organise information campaigns. Together with Latvia, Estonia has an awareness-raising campaign considering packaging wastes and especially deposit systems. (Ministry of the Environment of Estonia, 2021)

The Estonian authorities consider this recommendation partly implemented (Ministry of the Environment of Estonia, 2021).

Recommendations on technical support to municipalities

10) Development of a system at national level that provides technical support for municipalities, specifically in the following areas:

a. choosing collection services;
b. service procurement;
c. service management;
d. communication campaigns;

coupled with active sharing of good ideas and practices that can improve efficiency in terms of cost reduction and improvement in performance.

Several municipalities belong to non-profit organisations that provide consultation regarding different issues concerning waste management. The MoE sends an electronic guidance letter on important topics to municipalities, including e.g. answers to common questions, suggestions on organising the waste management and fulfilling the requirements laid down in the Waste Act, as well as best practices. In addition, experts from the MoE visit in municipalities regularly, and also communication

materials have been shared with them. A guideline for the preparation of the public procurement source documents for a concession contract for organised waste transport was published in 2020. In addition, Estonia has a pre-defined project from EEA grants (funded by Iceland, Liechtenstein and Norway) on support to the circular economy, aiming at capacity building for all Estonian municipalities, i.e. experts are sent to municipalities to map potential improvements in the area of circular economy. (Ministry of the Environment of Estonia, 2021)

The Estonian authorities consider this recommendation partly implemented (Ministry of the Environment of Estonia, 2021).

Annex 2 Detailed scoring of success and risk factors

Assessment sheet - Recycling target for municipal waste

MS Estonia

Date Jun-22

SRF		Assessment result	Weight	Score
Current situation and past trends				
MSWR-1.1	Distance to target	Distance to target > 15 percentage points or no data reported	5	0
MSWR-1.2	Past trends in municipal solid waste recycling rate	RR < 45% and increase in last 5 years < 10 percentage points	1	0
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	Unclear responsibilities and weak/no enforcement mechanisms for meeting the recycling targets, but good set of support tools. OR Unclear responsibilities and no/weak support tools for meeting the recycling targets, but clearly defined enforcement mechanisms. OR Clearly defined responsibilities but weak/no enforcement mechanisms for meeting the recycling targets, and no/weak support tools. OR Unclear responsibilities, weak/no enforcement mechanisms and lack of support tools for meeting the recycling targets.	1	0
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	PAYT scheme implemented in some regions/ municipalities (50-80% of population covered) OR No or less than 50% of the population covered by PAYT but firm plans for rolling out	1	1

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 low share of the population is covered by high convenience collection services	0.84	0
	Wood	A low share of the population is covered by high convenience collection services	0.06	0
	Textiles	A low share of the population is covered by high convenience collection services	0.06	0
	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	Firm plans to improve the separate collection system, with clear responsible entities and defined targets and timeline	0.42	0.84
	Wood	No firm plans to improve the convenience and coverage	0.03	0
	Textiles	There are plans to improve the collection service but unclear plan for implementation	0.03	0.03
	WEEE	No firm plans to improve the convenience and coverage	0.02	0

Extended producer responsibility (EPR) and similar schemes				
MSWR-5.1	Fee modulation in EPR schemes for packaging	No advanced fee modulation OR fee modulation meets less than two assessment criteria	1	0
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	**10.91**
			Maximum score	33.00
				33%

Assessment sheet - Recycling target for packaging waste

MS Estonia

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 - 15 percentage points below target	5	5
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 %, or RR > 65%	1	2
	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 %, or RR > 50%	1	2
	Past trends in wooden packaging recycling	RR < 15% and increase in last 5 years < 10 percentage points	1	0
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 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				
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	Packaging taxes in place	1	2
P-3.4	Pay-as-you-throw (PAYT) system	PAYT scheme implemented in some regions/ municipalities (50-80% of population covered) OR No or less than 50% of the population covered by PAYT but firm plans for rolling out	1	1
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 for some or voluntary DRS for nearly all drink bottles	1	1
	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	No fee modulation OR fee modulation meets less than two assessment criteria	1	0
P-5.3	Material specific EPR assessment - Paper and cardboard packaging waste	EPR scheme covering household and non-household packaging	1	1
	Material specific EPR assessment - Ferrous metals packaging waste	EPR scheme covering household and non-household packaging	1	1
	Material specific EPR assessment - Aluminium packaging waste	EPR scheme covering household and non-household packaging	1	1
	Material specific EPR assessment - Glass packaging waste	EPR scheme covering household and non-household packaging	1	1
	Material specific EPR assessment - Plastics packaging waste	No EPR scheme or EPR scheme covering only household, industrial OR commercial packaging OR EPR scheme but without fee modulation	1	0
	Material specific EPR assessment - Wooden packaging waste	EPR scheme covering all non-household packaging	1	2
Total packaging recycling target				**25.00**
			Maximum score	32.00
				78%

Paper and cardboard recycling target

Total score	**24.00**
Maximum score	30.00
	80%

Ferrous metals packaging recycling target

Total score	**24.00**
Maximum score	30.00
	80%

Aluminium packaging recycling target

Total score	**26.00**
Maximum score	32.00
	81%

Glass packaging recycling target

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

Plastics packaging recycling target

Total score	**20.00**
Maximum score	34.00
	59%

Wooden packaging recycling target

Total score	**18.00**
Maximum score	32.00
	56%

Assessment sheet - Target for landfilling of municipal waste

MS Estonia

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 > 25% and decrease in last 5 years > 15 percentage points	1	1
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	**13.00**
			Maximum score	14.00
				93%