ETC CE Working paper

Methodology for the EEA's input to the 'Early warning' Assessment – Packaging waste recycling targets

Authors:
Almut Reichel (EEA), Ann Van der Linden (VITO), Tom Duhoux (VITO), Malin zu Castell-Rudenhausen (VTT)

European Environment Agency
European Topic Centre on Waste and Materials in a Green Economy

Cover design: EEA
Cover photo by Pawel Czerwinski on unsplash.com
Layout: ETC CE

Publication Date
Updated version 2022

EEA activity
Circular Economy and Resource Use

Legal notice
Preparation of this report has been funded by the European Environment Agency as part of a grant with the European Topic Centre on Circular economy and resource use (ETC CE) and expresses the views of the authors. The contents of this publication do not necessarily reflect the position or opinion of the European Commission or other institutions of the European Union. Neither the European Environment Agency nor the European Topic Centre on Circular economy and resource use is liable for any consequence stemming from the reuse of the information contained in this publication.

ETC CE coordinator: Vlaamse Instelling voor Technologisch Onderzoek (VITO)

ETC CE partners: Banson Editorial and Communications Ltd, česká informační agentura životního prostředí (CENIA), Collaborating Centre on Sustainable Consumption and Production (CSCP), Istituto Di Ricerca Sulla Crescita Economica Sostenibile, Istituto Superiore per la Protezione e Ricerca Ambiantale, IVL Swedish Environmental Research Institute, PlanMiljø, Universita Degli Studi Di Ferrara (SEEDS), Federal Environment Agency (UBA), Teknologian Tutkimuskeskus VTT oy, Wuppertal Institut für Klima, Umwelt, Energie gGmbH, World Resources Forum Association.

Copyright notice
© European Topic Centre on Circular economy and resource use, 2022
Reproduction is authorized provided the source is acknowledged. [Creative Commons Attribution 4.0 (International)]

More information on the European Union is available on the Internet (http://europa.eu).

European Topic Centre on
Circular economy and resource use
eionet.europa.eu/etcs/etc-ce

Contents

Abbreviations and explanations 4

Introduction 6

1 Current situation and past trends 8

SRF P-1.1 Distance to target 8

SRF P-1.2 Past trend in Packaging Waste Recycling 11

2 Legal instruments 13

SRF P-2.1 Timely transposition of the revised Packaging and Packaging Waste Directive into national law 13

SRF P-2.2 Clearly defined responsibilities for meeting the targets, and support and enforcement mechanisms, e.g. fines etc. 14

3 Economic instruments 15

SRF P-3.1 Taxes and/or ban for landfilling residual- or biodegradable waste 15

SRF P-3.2 Taxes on municipal waste incineration 15

SRF P-3.3 Packaging taxes 16

SRF P-3.4 Pay-as-you-throw (PAYT) system in place 16

SRF P-3.5 Deposit return systems 17

SRF P-3.5.1 Deposit-return systems for Aluminium drink cans 17

SRF P-3.5.2 Deposit-return systems for Glass drink bottles 17

SRF P-3.5.3 Deposit-return systems for Plastic drink bottles 17

SRF P-3.5.4 Deposit-return systems for Plastic crates 18

SRF P-3.5.5 Deposit-return systems for Wooden packaging 18

4 Separate collection systems 18

SRF P-4.1 Convenience and coverage of separate collection for different packaging waste fractions .. 18

SRF P-4.1.1 Convenience and coverage of the separate collection system for Paper and cardboard packaging 20

SRF P-4.1.2 Convenience and coverage of the separate collection system for Ferrous metals packaging 20

SRF P-4.1.3 Convenience and coverage of the separate collection system for Aluminium packaging21

SRF P-4.1.4 Convenience and coverage of the separate collection system for Glass packaging 21

SRF P-4.1.5 Convenience and coverage of the separate collection system for Plastic packaging 22

SRF P-4.1.6 Convenience and coverage of the separate collection system for Wooden packaging .. 22

SRF P-4.2 Firm plans to improve the convenience and coverage of separate collection for different packaging waste fractions 22

SRF P-4.2.1 Firm plans to improve the type and coverage of separate collection for Paper and cardboard packaging waste 23

SRF P-4.2.2 Firm plans to improve the type and coverage of separate collection for Ferrous metals packaging waste 23

SRF P-4.2.3 Firm plans to improve the type and coverage of separate collection for Aluminium packaging waste 24
SRF P-4.2.4 Firm plans to improve the type and coverage of separate collection for Glass packaging waste 24
SRF P-4.2.5 Firm plans to improve the type and coverage of separate collection for Plastic packaging waste 25
SRF P-4.2.6 Firm plans to improve the type and coverage of separate collection for Wooden packaging waste 25
5 Extended producer responsibility (EPR) and similar schemes 26
SRF P-5.1 Coverage of EPR schemes 26
SRF P-5.2 Fee modulation in EPR schemes for packaging 27
SRF P-5.3 Material specific EPR assessment 28
SRF P-5.3.1 EPR scheme for Paper and cardboard packaging waste 28
SRF P-5.3.2 EPR scheme for Ferrous metals packaging waste 28
SRF P-5.3.3 EPR scheme for Aluminium packaging waste 28
SRF P-5.3.4 EPR scheme for Glass packaging waste 29
SRF P-5.3.5 EPR scheme for Plastic packaging waste 29
SRF P-5.3.6 EPR scheme for Wooden packaging waste 29
6 Context parameters 30
6.1. Evolution of packaging waste generation and treatment 30
6.2. Legal framework 30
6.3. Implementation of recommendations of the previous Early Warning report (2018) 30
6.4. Waste management plan(s) aligned to requirements in Article 28 WFD and adapted to revised directives 30
6.5. Capture rates for recyclables 30

Abbreviations and explanations

EEA	European Environment Agency
EC	European Commission
EPR	Extended Producer Responsibility
ETC/WMGE	European Topic Center / Waste and Materials in a Green Economy
ETC CE	European Topic Center on Circular Economy and Resource Use
DRS	Deposit-Return Scheme
MBT	Mechanical Biological Treatment
MS	(EU) Member States (European Union)
MSW(R)	Municipal Solid Waste (Recycling)
OECD	Organisation for Economic Co-operation and Development
PAYT	Pay-as-you-throw
PET	Polyethylene terephthalate
PS	Polystyrene
QMS	Quality Management System

RR	Recycling Rate
SRF	Success/risk factor
SUP	Single-use plastics
WEEE	Waste Electric and Electronic Equipment
WFD	Waste Framework Directive
Questionnaire	One of the key sources for collecting information mentioned in the methodology is a questionnaire to MS, designed by the EEA and ETC/WMGE to collect information on a volutary basis.

Introduction

This document describes the methodology for the input of the EEA to the Early warning mechanism according to Art. 6b of the Packaging and Packaging Waste Directive with the aim to assess the 27 Member States' prospects of meeting the target to recycle 65 % of packaging waste generated by 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).

The methodology uses a set of 'success/risk factors'. A success/risk factor is assumed to influence the probability of meeting the target.

The assessment of each success/risk factor is done through threshold values or qualitative assessment categories that categorize each factor into green, yellow or red:

on track target reached favorable	additional effort needed medium uncertain	unfavorable highly uncertain no information

The risk assessment should indicate whether a country is at risk of not meeting the target. The 'total risk' categorization is the result of the sum of the individual scores of each SRF, 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. This weighting factor is included in the description of the SRF. As some SRFs might not be applicable to all MS, only the SRFs relevant to the MS are taken into account to define the maximum score. A MS is considered to be 'not at risk' if its score is more than 50 % of this maximum score. A MS is considered to be 'at risk' if its score is less than 50 % of this maximum score.

In addition, a number of contextual parameters is analysed without color-coding. Although these contextual parameters are not 'scored', they are needed to get a deeper insight into the packaging waste management in the MS. As in some cases SRFs could be too rigid and therefore require expert judgement to properly assess them, the insights from the contextual parameters complemented with the information provided by the MS, help to substantiate this expert judgement.

Some success and risk factors (SRFs) are only used to assess the overall target, while others are used to assess only material specific targets, as illustrated in Table 1.

Table 1 Success/risk factors for the assessment of the overall and the material-specific packaging waste recycling targets

SRF	Overall packaging	Paper and cardboard packaging	Ferrous metals packaging	Aluminium packaging	Glass packaging	Plastics packaging	Wooden packaging
P-1.1	x	x	x	x	x	x	x
P-1.2	x	x	x	x	x	x	x
P-2.1	x	x	x	x	x	x	x
P-2.2	x	x	x	x	x	x	x
P-3.1	x	x	x	x	x	x	x
P-3.2	x	x	x	x	x	x	x
P-3.3	x	x	x	x	x	x	x
P-3.4	x	x	x	x	x	x	x
P-3.5				x	x	x	x

P-4.1	x	x	x	x	x	x	x
P-4.2	x	x	x	x	x	x	x
P-5.1	x						
P-5.2	x						
P-5.3		x	x	x	x	x	x

1 Current situation and past trends

SRF P-1.1 Distance to target

Description and relevance

By 2025, MS will have to recycle a minimum of 65 % by weight of all packaging waste. 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 MS is to the target already, the more likely it becomes that the MS will meet the target.

Sources

Data reported according to Art. 6(g) PPWD (94/62/EC as amended by 2018/852) and Commission Implementing Decision 2019/665, and data reported by MS according to Art. 12(3) PPWD on reduction of targets due to reusable sales packaging will only become available mid-2022, after finalization of the early warning assessments. Applications for derogations might come in even later. The assessment is therefore based on the existing dataset as reported according to the PPWD so far – Dataset published by Eurostat *Packaging waste recycling rates for monitoring compliance with policy targets, by type of packaging [env_waspacr]*. Env_waspacr accounts for reuse of wooden packaging for a few countries, and some small corrections for plastics packaging for a few countries, compared to [env_waspac].

Assessment

< 5 percentage points below target, or target exceeded	5 - 15 percentage points below target	> 15 percentage points below target, or no data reported

Weight

5

Considerations for the assessment

Member States can apply for a derogation of up to five years. Furthermore, MS are allowed to reduce the target rate for recycling by up to 5 percentage points by taking into account reusable packaging. Member States may apply to postpone the deadlines for attaining the targets until 24 months before the respective deadline. As information about applications for such options and derogations are not available before the finalisation of the assessments, such options are not taken into account in the assessments.

This SRF refers to the new targets, not to the 2008 targets.

MS must report packaging waste data according to the new reporting rules as defined in the Commission Implementing Decision (EU) 2019/665 for the first time by 30 June 2022 (for reference year 2020, i.e. after the finalization of the early warning assessments). The assessment therefore uses data for reference year 2019 as published by Eurostat. In 2020/21, MS can report voluntarily for the first time using the new calculation rules (including data on reusable packaging).

For MS which have not yet applied the new reporting rules to the data for reference year 2019, the reported recycling rates will likely differ from the recycling rates to be reported according to the new calculation rules. A key difference in the new calculation rules compared to the old rules is that the amount of sorted packaging waste that is rejected by the recycling facility shall not be included in the reported amount of recycled packaging waste. As a matter of sensitivity analysis, to assess what the impact of these new calculation rules could be (change in calculation point), recycling losses found in

literature[1] are applied to the reported packaging recycling rates for MS that have not yet assessed the impact of the new calculation rules:

- Paper and cardboard packaging: decrease by 10 %;
- Metal packaging: decrease by 14 %;
- Glass packaging: decrease by 5 %;
- Plastic packaging: decrease by 21 %[2];
- Wooden packaging: decrease by 11 %;
- Total packaging: Calculated based on the amounts of each packaging material generated and recycled and estimated recycling losses.

The distance to target assessment takes into account these estimated reduced recycling rates. The same estimated loss rates are applied for aluminium and non-ferrous packaging as separate estimates are not available. If a MS indicates that the data reported for reference year 2019 already complies with the new reporting rules, the recycling loss rates are not deducted.

SRF P-1.1.1: Distance to target for Paper and cardboard packaging

Description and relevance

Target to recycle at least 75 % of Paper and cardboard packaging waste by weight by 2025

Assessment

< 5 percentage points below target, or target exceeded	5 - 15 percentage points below target	> 15 percentage points below target, or no data reported

Weight

5

SRF P-1.1.2: Distance to target for Ferrous metals packaging

Description and relevance

Target to recycle at least 70 % of Ferrous metals packaging waste by weight by 2025

Assessment

< 5 percentage points below target, or target exceeded	5 - 15 percentage points below target	> 15 percentage points below target, or no data reported

Weight

5

SRF P-1.1.3: Distance to target for Aluminium packaging

Description and relevance

Target to recycle at least 50 % of Aluminium packaging waste by weight by 2025

Assessment

< 5 percentage points below target, or target exceeded	5 - 15 percentage points below target	> 15 percentage points below target, or no data reported

[1] EXPRA, 2014, The effects of the proposed EU packaging waste policy on waste management practice: a feasibility study, (https://www.expra.eu/downloads/expra_20141004_f_UGGge.pdf).

[2] This is the weighted recycling loss taking into account the 29 % recycling loss for packaging waste from household sources (66 %) and the 5 % recycling loss for packaging waste from commercial sources (33 %).

Weight
5

SRF P-1.1.4: Distance to target for Glass packaging

Description and relevance
Target to recycle at least 70 % of glass packaging waste by weight by 2025

Assessment

< 5 percentage points below target, or target exceeded	5 - 15 percentage points below target	> 15 percentage points below target, or no data reported

Weight
5

SRF P-1.1.5: Distance to target for Plastic packaging

Description and relevance
Target to recycle at least 50 % of plastic packaging waste by weight by 2025

Assessment

< 5 percentage points below target, or target exceeded	5 - 15 percentage points below target	> 15 percentage points below target, or no data reported

Weight
5

SRF P-1.1.6: Distance to target for Wooden packaging

Description and relevance
Target to recycle at least 25 % of wood packaging waste by weight by 2025

Assessment

< 5 percentage points below target, or target exceeded	5 - 15 percentage points below target	> 15 percentage points below target, or no data reported

Weight
5

Consideration for the assessment
For wooden packaging it is specified that the amounts of wooden packaging that are repaired for reuse may be taken into account in the calculation of the targets laid down in point (f) (recycling target of 65 % by 31 December 2025), point (g)(ii) (recycling target of 25 % by 31 December 2025 for wood), point (h) (recycling target of 70 % by 31 December 2030) and point (i)(ii) (recycling target of 30 % by 31 December 2030) of Article 6(1). Repair of wooden packaging is included in the data set *Packaging waste recycling rates for monitoring compliance with policy targets, by type of packaging [env_waspacr].*

SRF P-1.2 Past trend in Packaging Waste Recycling

Description and relevance

The development of the historical trend in the recycling rate (RR, calculated as the amount of packaging waste recycled divided by the amount of packaging waste generated) indicates previous efforts towards recycling in the MS. Has the recycling performance of the MS over the past five years been stagnating or declining, and how does it relate to the current recycling rate? The closer the country is to the target, the lower the pace toward the target will probably be. This SRF will help to better understand the dynamics of the recycling rate in a MS. Also, MS with a large increase in recycling rate give valuable insights into the effectiveness of implemented measures resulting in this increase.

The trend in recycling rate is calculated based on regularly reported data to Eurostat according to the PPWD, the actual recycling rate in 2022 is taken from the reported data according to the rules of the 2018 PPWD.

Source

Historical trend: 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]*

Current situation: Recycling rate for the reference year 2020 as reported in 2022 according to the rules of the 2018 PPWD and Commission Implementing Decision 2019/665.

Assessment

RR > 60% and increase in last 5 years > 5 percentage points, or RR > 55% and increase in last 5 years > 10 %, or RR > 65%	RR > 60% and increase in last 5 years < 5 percentage points, or RR > 55%, and increase in last 5 years < 10 percentage points, or RR < 55% and increase in last 5 years > 10 percentage points	RR < 55% and increase in last 5 years < 10 percentage points

Weight

1

Considerations for the assessment

The calculation of the trend might be influenced by a possible change in calculation method during the trend period. This is taken into account in cooperation with Eurostat.

We are aware of the problem of under-reporting of packaging waste generated/put-on-the-market in some countries. However, this SRF assesses the trend only, and unless MS changed their way of reporting over the past 5 years, the trend itself should not be affected by the under-reporting of packaging waste put-on-the-market/generation data.

SRF P-1.2.1: Paper and cardboard packaging

Assessment

RR > 70% and increase in last 5 years > 5 percentage points, or RR > 65% and increase in last 5 years > 10 %, or RR > 75%	RR > 70% and increase in last 5 years < 5 percentage points, or RR > 65%, and increase in last 5 years < 10 percentage points, or	RR < 65% and increase in last 5 years < 10 percentage points

	RR < 65% and increase in last 5 years > 10 percentage points	

Weight
1

SRF P-1.2.2: Ferrous metals packaging

Assessment

RR > 65% and increase in last 5 years > 5 percentage points, or RR > 60% and increase in last 5 years > 10 %, or RR > 70%	RR > 65% and increase in last 5 years < 5 percentage points, or RR > 60%, and increase in last 5 years < 10 percentage points, or RR < 60% and increase in last 5 years > 10 percentage points	RR < 60% and increase in last 5 years < 10 percentage points

Weight
1

SRF P-1.2.3: Aluminium packaging

Assessment

RR > 45% and increase in last 5 years > 5 percentage points, or RR > 40% and increase in last 5 years > 10 %, or RR > 50%	RR > 45% and increase in last 5 years < 5 percentage points, or RR > 40%, and increase in last 5 years < 10 percentage points, or RR < 40% and increase in last 5 years > 10 percentage points	RR < 40% and increase in last 5 years < 10 percentage points

Weight
1

SRF P-1.2.4: Glass packaging

Assessment

RR > 65% and increase in last 5 years > 5 percentage points, or RR > 60% and increase in last 5 years > 10 %, or RR > 70%	RR > 65% and increase in last 5 years < 5 percentage points, or RR > 60%, and increase in last 5 years < 10 percentage points, or RR < 60% and increase in last 5 years > 10 percentage points	RR < 60% and increase in last 5 years < 10 percentage points

Weight
1

SRF P-1.2.5: Plastic packaging

Assessment

RR > 45% and increase in last 5 years > 5 percentage points, or RR > 40% and increase in last 5 years > 10 %, or RR > 50%	RR > 45% and increase in last 5 years < 5 percentage points, or RR > 40%, and increase in last 5 years < 10 percentage points, or RR < 40% and increase in last 5 years > 10 percentage points	RR < 40% and increase in last 5 years < 10 percentage points

Weight
1

SRF P-1.2.6: Wooden packaging

Assessment

RR > 20% and increase in last 5 years > 5 percentage points, or RR > 15% and increase in last 5 years > 10 %, or RR > 25%	RR > 20% and increase in last 5 years < 5 percentage points, or RR > 15%, and increase in last 5 years < 10 percentage points, or RR < 15% and increase in last 5 years > 10 percentage points	RR < 15% and increase in last 5 years < 10 percentage points

Weight
1

2 Legal instruments

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

Description and relevance
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.

-

Source
European Commission

Assessment

Transposition without delay	Transposition with a delay of less than 12 months	Transposition with delay of > 12 months, or no full transposition yet

Weight
1

SRF P-2.2 Clearly defined responsibilities for meeting the targets, and support and enforcement mechanisms, e.g. fines etc.

Description and relevance

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 relevant questions to be analysed by this SRF are: Is it clearly defined how responsibilities for meeting national recycling targets at shared across all (governance) levels that take decisions influencing the recycling rate? What are the consequences if the responsible entities do not take (enough and effective) action (e.g. fines or support mechanisms)? Is there a system at national level that provides technical support coupled with sharing of good practices that can improve efficiency and improvement in performance for the responsible entities? Is a monitoring and reporting system in place that tracks performance at the responsible governance level? Is co-operation on infrastructure planning and / or service procurement encouraged to ensure scale efficiency and sharing of financial burdens? 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.

Source

Questionnaire

Assessment

Clearly defined responsibilities, enforcement and good set of support mechanisms for meeting the recycling targets	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	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.

Weight

1

Considerations for the assessment

Business-to-business packaging also needs to be considered in this assessment.

3 Economic instruments

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

Description and relevance
Bans or taxes for the landfilling of residual municipal waste or biodegradable municipal waste and sorting residues or MBT outputs discourage landfilling and thereby create economic incentives for diversion from landfill. These incentives also affect packaging waste.

Source
EEA country profiles (last update 2016), and CEWEP 'Landfill taxes and bans overview'. Update through questionnaire and Member States review of draft assessment

Assessment

Ban, or landfill tax > 30 EUR/t* with escalator	Taxes > 30 EUR/t*	No landfill taxes or low tax (< 30 EUR/t*)

*rescaled based on purchasing power parities

Weight
1

Considerations for the assessment
To allow meaningful comparison of landfill taxes across MS, taking into account different average income levels, the tax is rescaled to the EU27 average using the 'comparative price levels' from Eurostat (TEC000120). This is done by dividing the tax by the comparative price level per MS for the year for which the tax is available and multiplying by 100 (EU27 average).

SRF P-3.2 Taxes on municipal waste incineration

Description and relevance
Taxes on incineration can help discourage strong reliance on residual waste treatment and thus support recycling. Are there taxes for incinerating of PW/ residual MSW? The assessment relates to the tax to be paid for domestic waste (i.e. not for incineration of imported waste), as only this is relevant as an incentive to divert domestic waste from incineration and influencing the recycling rate.

Source
Questionnaire

Assessment

Taxes > 7 EUR/t* with escalator, or tax > 18 EUR/t	Taxes > 7 EUR/t*	No incineration taxes or taxes < 7 EUR/t*	N/A (for countries without capacities for incineration)

*rescaled based on purchasing power parities

Weight
1

Considerations for the assessment
Exemptions from the tax for exports are considered on a case-by-case basis

SRF P-3.3 Packaging taxes

Description and relevance
Are there packaging taxes in place with the aim to reduce packaging waste generation and/or to influence the choice of packaging materials and encouraging recyclability and eco-design?

Source
OECD database on environmental taxes, Questionnaire

Assessment

Packaging taxes in place	Limited packaging tax	No packaging taxes

Weight
1

Considerations for the assessment
When a packaging tax only targets certain materials, this is considered as a 'limited packaging tax'. Taxes on plastic bags are not considered as a packaging tax as this only targets a very small share of all packaging.

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

Description and relevance
Is there a pay-as-you-throw (PAYT) system in place? A PAYT[3] system is a charging system for residual municipal waste management that is based on the polluter pays principle. This means that a household pays a fee for the collection and treatment of its residual waste based on the generated amount which is intended to provide an incentive to reduce the amount of residual waste produced. This fee can be designed in various ways, taking into account variable elements like container size, volume of sacks, frequency of collection, weight or a combination of these elements. When PAYT is applied, the fee for the residual waste per collected amount is higher than the fee(s) for the separately collected waste fractions, or these other fractions are collected free of charge. A well-designed and well-implemented PAYT system that covers the entire territory of the MS gives strong incentives to increase the recycling rate. MS without a PAYT system or with a system that does not fully cover the MS territory will have more difficulties in meeting the target.

Source
Questionnaire and Member State review of the draft assessment

Assessment

PAYT scheme fully rolled out (to at least 80% of the population) OR Implemented in some regions / municipalities (50-80% covered)	PAYT scheme implemented in some regions/ municipalities (50-80% of population covered) OR No or less than 50% of the	No or less than 50% of the population covered by PAYT

[3] Definition of PAYT is based on (BIPRO, *Assessment of separate collection schemes in the 28 capitals of the EU*, 2015), (EY, *Guidance for separate collection of municipal waste*, 2020), (ACR+, *Cross-analysis of 'Pay-As-You-Throw' schemes in selected EU municipalities*, 2016) and (JRC, *Best Environmental Management Practice for the Waste Management Sector*, 2018)

and firm plans for rolling out to at least 80% of the population	population covered by PAYT but firm plans for rolling out	

Weight
1

SRF P-3.5 Deposit return systems

Description and relevance
Deposit Return Systems (DRS) generate high capture rates for packaging covered by the system and thus contribute to increase recycling rates. Are there mandatory and/or voluntary deposit return schemes for packaging in place? And what is the coverage of the deposit return schemes?

Source
Questionnaire.

Assessment
The assessment is done only for some specific packaging materials and not used in the assessment of other materials nor for the total packaging

SRF P-3.5.1 Deposit-return systems for Aluminium drink cans

Assessment

Mandatory DRS for nearly all drink cans	Mandatory for some or voluntary DRS for nearly all drink cans	No or voluntary DRS for some drink cans

Weight
1

SRF P-3.5.2 Deposit-return systems for Glass drink bottles

Assessment

Mandatory DRS for nearly all drink bottles	Mandatory for some or voluntary DRS for nearly all drink bottles	No or voluntary DRS for some drink bottles

Weight
1

SRF P-3.5.3 Deposit-return systems for Plastic drink bottles

Assessment

Mandatory DRS for nearly all drink bottles	Mandatory for some or voluntary DRS for nearly all drink bottles	No or voluntary DRS for some drink bottles

Weight
1

SRF P-3.5.4 Deposit-return systems for Plastic crates

Assessment

Mandatory DRS for nearly all plastic crates	Mandatory for some or voluntary DRS for nearly all plastic crates	No or voluntary DRS for some plastic crates

Weight
1

SRF P-3.5.5 Deposit-return systems for Wooden packaging

Assessment

Mandatory DRS for nearly all wooden packaging	Mandatory for some or voluntary DRS for nearly all wooden packaging	No or voluntary DRS for some wooden packaging

Weight
1

4 Separate collection systems

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

Description and relevance
Which packaging waste fractions are already collected separately, in which way (convenience for citizens) and what part of the population is covered by separate collection?

Separate collection is the collection where a waste stream is kept separately by type and nature so as to facilitate recovery operations, including preparation prior to recovery. Commingled collection of different waste fractions, in such a way that it does not hamper separation and recovery afterwards, can be regarded as separate collection in this assessment if it is in line with the conditions described in Art. 10(3) WFD. Fractions that are currently often collected commingled in Europe include plastic packaging, metal packaging and beverage cartons, with or without including paper and cardboard; the commingled collection of paper and cardboard with beverage cartons; or other combinations including the already mentioned fractions.

The convenience of a separate collection system for citizens will have an influence on the amounts and quality of waste collected through that system. A study conducted by ACR+ (2019) states that “door-to-door” systems and “bring bank” systems present on average comparable performances, and it seems that both types of collection enable very high performances. It does not necessarily mean that both collection modes would give the same performance in one given territory.

The convenience or service level and coverage of separate collection systems can also be different depending on the character of an area. A remote bring point (e.g. grocery store) could be considered convenient for people living in rural areas as it is part of a regular travel routine, where for people living in cities a bring point would have to be at walking distance in order to have the same level of

convenience. In order to assess the convenience of separate collection systems in a MS, a distinction is made between various types of urbanization[4]: cities; towns and suburbs; and rural areas.

The following categorization is used here to assess the degree of convenience, depending on the degree of urbanization:

	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	H		H			H		H			H		H	
Paper and Cardboard	H	H	H			H	H	H			H	H	H	
Ferrous metals	H		H			H		H			H		H	
Aluminium	H	H	H			H	H	H			H	H	H	
Glass	H	H	H	H		H	H	H			H	H	H	
Plastic	H	H	H			H	H	H			H	H	H	
Wood	H		H			H		H			H		H	

H = high convenience

The population coverage is determined using the amount of people living in the different types of urbanized areas (Eurostat).

Source
Questionnaire
Eurostat: Household characteristics by degree of urbanization (HBS_CAR_T315)

Assessment
The material specific assessment considers packaging waste from both household and non-household sources. It is assumed that these sources are of similar size, but if the MS provides information on the shares of household/non-household waste generation, this can be used to modify the weighting factors.
The assessment is done for the specific packaging materials and summing up the scores of the different materials according to their average share in packaging waste in order to assess this SRF for total packaging.

Share(*)	Paper and cardboard	41%
	Metallic(**)	5%
	Ferrous (69%)	*3.5%*
	Aluminium (31%)	*1.5%*

[4] The degree of urbanization classifies local administrative units (LAUs) as cities, towns and suburbs or rural areas based on a combination of geographical contiguity and population density, measured by minimum population thresholds applied to 1 km² population grid cells; each LAU belongs exclusively to one of these three classes (Eurostat Glossary).

	Glass	19%
	Plastic	19%
	Wood	16%

(*) Source: Eurostat, Packaging waste by waste management operations [env_waspac], for reference year 2019

(**) To calculate the share of ferrous and aluminium packaging within the metallic packaging, an average of the data from MS providing separate data for the two fractions is being used.

SRF P-4.1.1 Convenience and coverage of the separate collection system for Paper and cardboard packaging

Assessment

1. Packaging waste from households

A high share of the population is covered by high convenience collection service	A medium share of the population is covered by high convenience collection service	A low share of the population is covered by high convenience collection service

2. Packaging waste from non-household sources

Separation at source is mandatory for non-household paper and cardboard packaging waste	Separation at source is not mandatory for non-household paper and cardboard packaging waste

Weight

This SRF gets a total weighting factor of 2 for the overall risk assessment, as separation at source is considered as the most important enabling factor for high recycling rates. The assessment of household waste stands for a weighting factor of 1 and the assessment of waste from non-household sources stands for a weighting factor of 1, giving the factor of 2 in total.

Considerations for the assessment

If the MS provides data on the shares between household and non-household packaging waste generation, these shares can also be used for modifying the weighting of the scores.

SRF P-4.1.2 Convenience and coverage of the separate collection system for Ferrous metals packaging

Assessment

1. Packaging waste from households

A high share of the population is covered by high convenience collection service	A medium share of the population is covered by high convenience collection service	A low share of the population is covered by high convenience collection service

2. Packaging waste from non-household sources

Separation at source is mandatory for non-household ferrous metals packaging waste	Separation at source is not mandatory for non-household ferrous metals packaging waste

Weight

This SRF gets a total weighting factor of 2 for the overall risk assessment, as separation at source and collection is considered as the most important enabling factor for high recycling rates. The assessment of household waste stands for a weighting factor of 1 and the assessment of waste from non-household sources stands for a weighting factor of 1, giving the factor of 2 in total.

Considerations for the assessment
If the MS provides data on the shares between household and non-household packaging waste generation, these shares can also be used for modifying the weighting factor.

SRF P-4.1.3 Convenience and coverage of the separate collection system for Aluminium packaging

Assessment

A high share of the population is covered by high convenience collection service	A medium share of the population is covered by high convenience collection service	A low share of the population is covered by high convenience collection service

Weight
This SRF gets a weighting factor of 2 for the overall risk assessment, as separation at source and collection is considered as the most important enabling factor for high recycling rates. The main source for aluminium packaging waste is drink cans from households, therefore the assessment will not consider non-household waste unless the MS indicates that non-household sources contribute considerably to aluminium packaging waste generation.

Considerations for the assessment
If the MS provides data on the shares between household and non-household packaging waste generation, these shares can also be used for the weighting of the scores, including also non-household sources to the assessment.

SRF P-4.1.4 Convenience and coverage of the separate collection system for Glass packaging

Assessment
1. Packaging waste from households

A high share of the population is covered by high convenience collection service	A medium share of the population is covered by high convenience collection service	A low share of the population is covered by high convenience collection service

2. Packaging waste from non-household sources

Separation at source is mandatory for non-household glass packaging waste	Separation at source is not mandatory for non-household glass packaging waste

Weight
This SRF gets a total weighting factor of 2 for the overall risk assessment, as separation at source and collection is considered as the most important enabling factor for high recycling rates. The assessment of household waste stands for a weighting factor of 1 and the assessment of waste from non-household sources stands for a weighting factor of 1, giving the factor of 2 in total.

Considerations for the assessment
If the MS provides data on the shares between household and non-household packaging waste generation, these shares can also be used for the weighting of the scores.

SRF P-4.1.5 Convenience and coverage of the separate collection system for Plastic packaging

Assessment

1. Packaging waste from households

A high share of the population is covered by high convenience collection service	A medium share of the population is covered by high convenience collection service	A low share of the population is covered by high convenience collection service

2. Packaging waste from non-household sources

Separation at source is mandatory for non-household plastic packaging waste	Separation at source is not mandatory for non-household plastic packaging waste

Weight

This SRF gets a total weighting factor of 2 for the overall risk assessment, as separation at source and collection is considered as the most important enabling factor for high recycling rates. The assessment of household waste stands for a weighting factor of 1 and the assessment of waste from non-household sources stands for a weighting factor of 1, giving the factor of 2 in total.

Considerations for the assessment

If the MS provides data on the shares between household and non-household packaging waste generation, these shares can also be used for the weighting of the scores.

SRF P-4.1.6 Convenience and coverage of the separate collection system for Wooden packaging

Assessment

Separation at source is mandatory for non-household wooden packaging waste	Separation at source is not mandatory for non-household wooden packaging waste

Weight

This SRF gets a weighting factor of 2 for the overall risk assessment, as separation at source and collection is considered as the most important enabling factor for high recycling rates. The main source for wooden packaging waste is non-households, therefore the assessment does not consider wooden packaging from household sources in the assessment. However, if the MS provides data on the shares between household and non-household packaging waste generation, these shares can be used for modifying the weighting of the scores, including also household sources to the assessment.

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

Description and relevance

Are there concrete plans to improve the type and coverage of separate collection for the different packaging waste fractions within the next 3 years? This SRF is only relevant for MS that do not score 'green' in SRF P-4.1, unless these MS have firm plans to even further improve their high convenience collection system.

Source
Questionnaire

Assessment
The material specific assessment considers packaging waste from both household and non-household sources. It is assumed that these sources are of similar size, but if the MS provides information on the shares of household/non-household waste generation, this can be used to modify the weighting factors. The assessment is done for the specific packaging materials and summing up the scores of the different materials according to their average share in packaging waste in order to assess this SRF for total packaging, in the same way as done in SRF P-4.2.

SRF P-4.2.1 Firm plans to improve the type and coverage of separate collection for Paper and cardboard packaging waste

Assessment
1. Packaging waste from households

Firm plans to improve the separate collection system, with clear responsible entities and defined targets and timeline	There are plans to improve the collection service but unclear plan for implementation	No firm plans to improve the convenience and coverage	N/A (for MS in which a high share of the population is already covered by high convenience collection services)

2. Packaging waste from non-household sources

Firms plans to introduce mandatory separation at source for non-household paper and cardboard packaging waste	No firm plans to introduce mandatory separation at source for non-household paper and cardboard packaging waste	N/A (for countries already having mandatory sorting at source)

Weight
This SRF gets a total weighting factor of 1 for the overall risk assessment. The assessment of household waste stands for 0.5 and the assessment of waste from non-household sources stands for 0.5, giving the factor of 1 in total.

Considerations for the assessment
If the MS provides data on the shares between household and non-household packaging waste generation, these shares can be used to modify the weighting of the scores.

SRF P-4.2.2 Firm plans to improve the type and coverage of separate collection for Ferrous metals packaging waste

Assessment
1. Packaging waste from households

Firm plans to cover > 80% of the population high convenience collection service	There are plans to improve the collection service but unclear plan for implementation	No firm plans to improve the convenience and coverage	N/A (for countries in which a high share of the population is already covered by

			high convenience collection services)

2. Packaging waste from non-household sources

Firms plans to introduce mandatory separation at source for non-household ferrous metals packaging waste	No firm plans to introduce mandatory separation at source for non-household ferrous metals packaging waste	N/A (for countries already having mandatory sorting at source)

Weight

This SRF gets a total weighting factor of 1 for the overall risk assessment. The assessment of household waste stands for 0.5 and the assessment of waste from non-household sources stands for 0.5, giving the factor of 1 in total.

Considerations for the assessment

If the MS provides data on the shares between household and non-household packaging waste generation, these shares can be used for modifying the weighting of the scores.

SRF P-4.2.3 Firm plans to improve the type and coverage of separate collection for Aluminium packaging waste

Assessment

Firm plans to improve the separate collection system, with clear responsible entities and defined targets and timeline	There are plans to improve the collection service but unclear plan for implementation	No firm plans to improve the convenience and coverage	N/A (for MS in which a high share of the population is already covered by high convenience collection services)

Weight

1

The main source for aluminium packaging waste is usually drink cans from households, therefore the assessment does not consider non-household waste unless the MS indicates this share impacts the waste generation.

Considerations for the assessment

If the MS provides data on the shares between household and non-household packaging waste generation, these shares can also be used for the weighting of the scores, including also non-household sources to the assessment.

SRF P-4.2.4 Firm plans to improve the type and coverage of separate collection for Glass packaging waste

Assessment

1. Packaging waste from households

Firm plans to improve the separate collection system, with clear	There are plans to improve the collection service but unclear	No firm plans to improve the	N/A (for MS in which a high share of the population is

responsible entities and defined targets and timeline	plan for implementation	convenience and coverage	already covered by high convenience collection services)

2. Packaging waste from non-household sources

Firms plans to introduce mandatory separation at source for non-household glass packaging waste	No firm plans to introduce mandatory separation at source for non-household glass packaging waste	N/A (for countries already having mandatory sorting at source)

Weight

This SRF gets a total weighting factor of 1 for the overall risk assessment. The assessment of household waste stands for 0.5 and the assessment of waste from non-household sources stands for 0.5, giving the factor of 1 in total.

Considerations for the assessment

If the MS provides data on the shares between household and non-household packaging waste generation, these shares can also be used for the weighting of the scores.

SRF P-4.2.5 Firm plans to improve the type and coverage of separate collection for Plastic packaging waste

Assessment

1. Packaging waste from households

Firm plans to improve the separate collection system, with clear responsible entities and defined targets and timeline	There are plans to improve the collection service but unclear plan for implementation	No firm plans to improve the convenience and coverage	N/A (for MS in which a high share of the population is already covered by high convenience collection services)

2. Packaging waste from non-household sources

Firms plans to introduce mandatory separation at source for non-household plastic packaging waste	No firm plans to introduce mandatory separation at source for non-household plastic packaging waste	N/A (for countries already having mandatory sorting at source)

Weight

This SRF gets a total weighting factor of 1 for the overall risk assessment. The assessment of household waste stands for 0.5 and the assessment of waste from non-household sources stands for 0.5, giving the factor of 1 in total.

Considerations for the assessment

If the MS provides data on the shares between household and non-household packaging waste generation, these shares can also be used for the weighting of the scores.

SRF P-4.2.6 Firm plans to improve the type and coverage of separate collection for Wooden packaging waste

Assessment

Firms plans to introduce mandatory separation at source for non-household wooden packaging waste	No firm plans to introduce mandatory separation at source for non-household wooden packaging waste	N/A (for countries already having mandatory sorting at source)

Weight
1
The main source for wooden packaging waste is non-households, therefore the assessment will not consider household sources in the assessment.

Considerations for the assessment
If the MS provides data on the shares between household and non-household packaging waste generation, these shares can also be used for the weighting of the scores, including also household sources in the assessment.

5 Extended producer responsibility (EPR) and similar schemes

Extended producer responsibility schemes aim to apply the polluter-pays principle to waste management so that the costs of waste management are borne by the original waste producer. According to the Packaging and Packaging Waste Directive, EPR schemes for all packaging will be mandatory by end December 2024. Producer responsibility schemes will have to meet the minimum requirements laid down in Art. 8(a) WFD. EPR schemes are an important means to finance and create infrastructure for collection and management of packaging waste, and their functioning and design influences the recycling rates of packaging materials.

SRF P-5.1 Coverage of EPR schemes

Description and relevance
The coverage of the EPR system determines the volume of packaging waste for which the EPR system will cover the management costs. For which packaging materials is there an EPR or other similar agreements with producers in place and do they cover both packaging waste from households, industrial and commercial sources?

Sources
- Questionnaire
- Study to Support Preparation of the Commission's Guidance for Extended Producer Responsibility Schemes (2020)

Assessment

All main packaging fractions* are covered by EPR schemes, covering both household and non-household packaging	All main packaging fractions* are covered by EPR schemes, and at least three fractions are covered by EPR schemes covering both household and non-household packaging	Not all main packaging fractions* are covered by EPR schemes OR All main packaging fractions are covered by EPR schemes but none or only one covers both household and non-household packaging

*Paper and cardboard, Ferrous metals, Aluminium, Glass, Plastic

Weight

1

Considerations for the assessment
The Single-Use Plastics (SUP) Directive is expected to have a great impact on the use of certain specific items covered by the Directive. Single-use plastic packaging is covered in the SRF on EPR for plastic packaging. However, the SUP Directive focuses on reducing environmental impacts of certain items and does not aim directly to increase recycling. The effects are captured in the existing set of SRFs.
Free-riding may need to be considered in the assessment, as it can affect data quality due to under-reporting of put-on-market packaging, leading to misrepresenting statistics on recycling. A wide-spread free-riding also reduces the coverage of the EPR system.

SRF P-5.2 Fee modulation in EPR schemes for packaging

Description and relevance
Fee modulation is a system with different fees for different packaging, based on e.g. recyclability and choice of material (metals, glass, plastics,…); but also within the material group, such as different fees for different polymers. EPR fees that depend on the recyclability of the packaging create incentives for design for recycling and thus create favourable conditions for higher recycling rates.

Does the EPR system in place apply fees that depend on the recyclability of the packaging in order to create incentives for design for recycling and choice of easily recyclable packaging, and thus create favourable conditions for higher recycling rates (fee modulation)? How far do the fees differentiate between material choices and packaging design **within** the broad packaging material categories (i.e. different types of plastics or discouraging difficult to recycle designs), and/or is recycled content incentivised through the fees?

Waste Framework Directive, Art 8a 4.b) fee modulation
Member States shall take the necessary measures to ensure that the financial contributions paid by the producer of the product to comply with its extended producer responsibility obligations: (…) in the case of collective fulfilment of extended producer responsibility obligations, are modulated, where possible, for individual products or groups of similar products, notably by taking into account their **durability, reparability, re-usability and recyclability and the presence of hazardous substances**, thereby taking a life- cycle approach and aligned with the requirements set by relevant Union law, and where available, based on harmonised criteria in order to ensure a smooth functioning of the internal market

Sources
- Questionnaire

Assessment
The assessment of advanced fee modulation is based on four criteria:
1. Is recyclability taken into account in fee modulation?
    - Since different types of material and characteristics of packaging have different recyclability, in practice this could be separation between different materials and qualities, such as
        - for plastics between PET and PS, but also for different colors of PET
        - for paper and cardboard between 100% cardboard boxes and laminated drink cartons
2. Is recycled material content taken into account in fee modulation?
3. Are sortability and disruptors for separation considered in fee modulation?
    - In practice this could be a malus for disruptors, such as for

- labels and caps of other materials, which are not fitted for the recycling technologies of the main packaging
- a surface print, which disturbs the separation process
- a sleeve made of another material than the packaging itself

4. Is there a transparent compliance check by the PRO that producers report correctly?

There is fee modulation in at least two of the main packaging fractions* AND fee modulation for one packaging fraction meets three assessment criteria	At least one packaging fraction* has a fee modulation that meets at least two assessment criteria	No fee modulation OR fee modulation meets less than two assessment criteria

*Paper and cardboard, Ferrous metals, Aluminium, Glass, Plastic, Wood

Weight
1

SRF P-5.3 Material specific EPR assessment

SRF P-5.3.1 EPR scheme for Paper and cardboard packaging waste

Assessment

EPR scheme covering household and non-household packaging, with a fee modulation meeting at least two assessment criteria	EPR scheme covering household and non-household packaging	No EPR scheme or EPR scheme covering only household, industrial OR commercial packaging

Weight
1

SRF P-5.3.2 EPR scheme for Ferrous metals packaging waste

Assessment

EPR scheme covering household and non-household packaging, with a fee modulation meeting at least two assessment criteria	EPR scheme covering household and non-household packaging	No EPR scheme or EPR scheme covering only household OR non-household packaging

Weight
1

SRF P-5.3.3 EPR scheme for Aluminium packaging waste

Assessment

EPR scheme covering household and non-household packaging, with a fee modulation meeting at least two assessment criteria	EPR scheme covering household and non-household packaging	No EPR scheme or EPR scheme covering only household OR non-household packaging

Weight
1

SRF P-5.3.4 EPR scheme for Glass packaging waste

Assessment

EPR scheme covering household and non-household packaging, with a fee modulation meeting at least two assessment criteria	EPR scheme covering household and non-household packaging	No EPR scheme or EPR scheme covering only household OR non-household packaging

Weight
1

SRF P-5.3.5 EPR scheme for Plastic packaging waste

Description and relevance
Recycling of plastic packaging waste struggles with hinders related to e.g. material solutions and the presence of disruptors for recycling. For plastic packaging waste, fee modulation is emphasized as a key to better recyclability and recycling rates, therefore the SRF for the EPR scheme for plastic packaging waste requires all four fee modulation assessment criteria for a green score.

Assessment

EPR scheme covering household and non-household packaging, with a fee modulation meeting all four assessment criteria	EPR scheme covering household and non-household packaging, with a fee modulation meeting at least two assessment criteria	No EPR scheme or EPR scheme covering only household, industrial OR commercial packaging but without fee modulation

Weight
1

SRF P-5.3.6 EPR scheme for Wooden packaging waste

Description and relevance
Wooden packaging waste originates foremost from non-household sources. Thus, this SRF only considers the EPR schemes for non-household sources of wooden packaging waste.

Assessment

EPR scheme covering all non-household packaging		No EPR scheme or EPR scheme covering only industrial OR commercial packaging

Weight
1

6 Context parameters

These parameters are not considered to be success and risk factors and are not color-coded, but are used as context in the overall assessment.

6.1. Evolution of packaging waste generation and treatment

An increase in packaging waste generation puts additional pressure on the waste management system and might require extension of the waste management infrastructure. The trend in packaging waste generation is analysed as a context parameter.

6.2. Legal framework

An overview of the most relevant waste related legislation (on national and/or regional level) that impacts (packaging) waste management performance.

6.3. Implementation of recommendations of the previous Early Warning report (2018)

14 MS were identified in 2018 of being at risk to not meet the 2020 recycling target for household and similar waste as defined in the 2008 Waste Framework Directive, and received a number of policy recommendations from the European Commission. As recycling of packaging waste from municipal sources is relevant for meeting the new packaging waste recycling targets, MS that properly followed up on the recommended priority actions are more likely to meet the packaging waste recycling targets. The assessment contains a self-assessment by the MS authorities on the implementation of the policy recommendations issues in 2018.

6.4. Waste management plan(s)

A waste management plan is one of the key tools for authorities to implement the requirements of EU waste legislation to the national, regional and local level within the MS. The context section includes therefore a short description of the waste management plan.

6.5. 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. The total weight of the material in municipal waste is calculated based on waste composition data and data on separately collected waste.