



Study to support the development of implementing acts and guidance under the Directive on the reduction of the impact of certain plastic products on the environment

Work Package 6

INTERIM REPORT

LITTER CLEAN-UP COSTS

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RAMBOLL

Deloitte.

In Extenso
Innovation Croissance

prognos

wood.



Institute for
European
Environmental
Policy

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PART I. INTRODUCTION AND METHODOLOGY

1. CONTEXT OF STUDY

This report is part of the on-going “Study to support the development of implementing acts and guidance under the Directive on the reduction of the impact of certain plastic products on the environment” (hereafter “the study”). The study was launched in July 2019 by the European Commission Directorate-General Environment (hereafter “the Commission”), to support the implementation of the Directive on the reduction of the impact of certain plastics products on the environment, also referred to as the Single-Use Plastics Directive (hereafter “the SUP Directive”), which was adopted by the European Parliament and the Council on 5 June 2019¹ (see Box 1). The support study is carried out by a team of experts led by Ramboll, supported by Deloitte, IEEP, In Extenso Innovation Croissance, Prognos and Wood.

The principal objective of the study is to assist the Commission in the preparation of the guidance and implementing acts described in the SUP Directive, with the overarching aim to ensure that the Member States **apply the SUP Directive in a uniform manner and therefore setting a level playing field** for all actors concerned.

Box 1: Objectives of the EU Single-Use Plastics (SUP) Directive

Article 1: The objectives of this Directive are to prevent and reduce the impact of certain plastic products on the environment, in particular the aquatic environment, and on human health, as well as to promote the transition to a circular economy with innovative and sustainable business models, products and materials, thus also contributing to the efficient functioning of the internal market.

The SUP Directive calls for a different set of measures corresponding to the characteristics of each of the different SUP items concerned. Where alternatives are easily available and affordable, producers of these SUP products must comply with the relevant requirements on restrictions on placing on the EU market. For other products, the focus is on waste prevention measures, such as consumption reduction, marking requirements and product design requirements and on improved waste management. The SUP Directive is an essential part of a broader set of actions established under the EU’s Circular Economy Action Plan and Strategy for Plastics in a circular economy (adopted in 2018). The measures proposed under the SUP Directive aim to promote the transition to a circular economy with innovative and sustainable business models, materials and products such as re-usable products; as well as contribute to the EU’s achievement of United Nations (UN) Sustainable Development Goal (SDG) 12 to ensure sustainable consumption and production patterns and SDG 14 which calls to conserve and sustainably use the oceans, seas and marine resources for sustainable development, including preventing and significantly reducing marine litter where it undermines the attainment of good environmental status of their marine waters.

Article 8 of the SUP Directive includes agreed rules regarding Member States’ establishment of ‘Extended Producer Responsibility’ (EPR)² schemes for certain SUP products. Pursuant to Article 8(4), the Commission is tasked with the development of guidelines for criteria, in consultation with Member States, on the costs of cleaning up litter referred to in paragraphs 2 and 3 of the same Article.

The support study is undertaking the work around EPR to cover litter clean-up costs in its **Work Package 6 (WP 6)**.

¹ <https://eur-lex.europa.eu/eli/dir/2019/904/oj>.

² EPR is defined in point 21 of Article 3 of the Waste Framework Directive (2008/98/EC), as: *...a set of measures taken by Member States to ensure that producers of products bear financial responsibility or financial and organisational responsibility for the management of the waste stage of a product’s life cycle.*

2. PURPOSE OF THE INTERIM REPORT

The aim of this report is to provide the Commission with an overview of the work done so far in the WP, including findings from a stakeholder online survey, insights from existing literature and input received at a stakeholder workshop on 25th February 2020.

The interim report is divided into three sections:

- Part I – Introduction and methodology
- Part II – Preliminary findings
- Part III – Summary of progress to date and next steps

Please note: The contents of this document do not reflect the views of the European Commission.

3. METHODOLOGY FOR THE DEVELOPMENT OF GUIDELINES ON LITTER CLEAN-UP COSTS

As indicated, WP 6 of the study is dedicated to supporting the development of the guidelines envisaged in Article 8(4) of the SUP Directive:

*The costs to be covered referred to in paragraphs 2 and 3 shall not exceed the costs that are necessary to provide the services referred to therein in a **cost-efficient** way and shall be established in a **transparent** way between the actors concerned. The costs of cleaning up litter shall be **limited to activities undertaken by public authorities or on their behalf**. The calculation methodology shall be developed in a way that allows for the costs of cleaning up litter to be established in a **proportionate** way. To minimise administrative costs, Member States may determine financial contributions towards the costs of cleaning up litter by setting appropriate multiannual fixed amounts.*

The Commission shall publish guidelines for criteria, in consultation with Member States, on the costs of cleaning up litter referred to in paragraphs 2 and 3.³

WP 6 supports the establishment of EPR schemes for the relevant products, by helping to ensure that the schemes cover these costs in a transparent and proportionate manner. In terms of practices to be covered by producers⁴, the SUP Directive stipulates the following in Articles 8(2) and 8(3). The respective products referred to, and the costs to be covered for each product type, are summarised below in Table 1.

2. Member States shall ensure that the producers of the single-use plastic products listed in Section I of Part E of the Annex to this Directive cover the costs pursuant to the extended producer responsibility provisions in Directives 2008/98/EC and 94/62/EC and, **insofar as not already included**, cover the following costs:

- (a) the costs of the **awareness raising measures** referred to in Article 10 of this Directive regarding those products;
- (b) the costs of **waste collection** for those products that are discarded in public collection systems, including the infrastructure and its operation, and the subsequent transport and treatment⁵ of that waste; and
- (c) the costs of **cleaning up litter** resulting from those products and the subsequent transport and treatment of that litter.

3. Member States shall ensure that the producers of the single-use plastic products listed in Sections II and III of Part E of the Annex cover at least the following costs:

- (a) the costs of the **awareness raising measures** referred to in Article 10 regarding those products;
- (b) the costs of **cleaning up litter** resulting from those products and the subsequent transport and treatment of that litter; and
- (c) the costs of **data gathering and reporting** in accordance with point (c) of Article 8a(1) of Directive 2008/98/EC.

With regard to the single-use plastic products listed in Section III of Part E of the Annex to this Directive, Member States shall ensure that the producers cover, in addition, the **costs of waste collection** for those products that are discarded in public collection systems, including the **infrastructure and its operation, and the subsequent transport and treatment** of that waste. The costs may include the setting up of specific infrastructure for the waste collection for those products, such as appropriate waste receptacles in common litter hotspots.

³ <https://eur-lex.europa.eu/eli/dir/2019/904/oj>.

⁴ Directive 2008/98/EC (Article 8) defines producers as: "any natural or legal person who professionally develops, manufactures, processes, treats, sells or imports products".

⁵ "Treatment" as defined in point 14 of Article 3 of Directive 2008/98/EC, i.e.: "recovery or disposal operations, including preparation prior to recovery or disposal".

Table 1 Products in Part E of the Annex to the SUP Directive and the costs to be covered for these products under the SUPD

Section I	Section II	Section III
<i>SUPs to be covered by Article 8(2) on EPR</i>	<i>SUPs to be covered by Article 8(3) on EPR</i>	<i>Other SUPs to be covered by Article 8(3) on EPR</i>
Food containers Packets and wrappers Beverage containers (including caps and lids) Cups for bevarages Lightweight plastic carrier bags	Wet wipes Balloons	Tobacco products with filters and filters for use in combination with tobacco products
Costs to be covered for the respective SUPs		
<ul style="list-style-type: none"> • Costs of the awareness raising measures referred to in Article 10 regarding those products • Costs of waste collection for those products that are discarded in public collection systems, including the infrastructure and its operation, and the subsequent transport and treatment of that waste • Costs of cleaning up litter resulting from those products and the subsequent transport and treatment of that litter <p><i>The obligations in the SUP Directive for the SUPs listed in Section I of the Annex E are in addition to those already covered by existing EPR obligations in the Waste Framework Directive (2008/98/EC) and the Packaging and Packaging Waste Directive (94/62/EC).</i></p>	<ul style="list-style-type: none"> • Costs of the awareness raising measures referred to in Article 10 regarding those products • Costs of cleaning up litter resulting from those products and the subsequent transport and treatment of that litter • Costs of data gathering and reporting in accordance with point (c) of Article 8a(1) of Directive 2008/98/EC 	<ul style="list-style-type: none"> • Costs of the awareness raising measures referred to in Article 10 regarding those products • Costs of cleaning up litter resulting from those products and the subsequent transport and treatment of that litter • Costs of data gathering and reporting in accordance with point (c) of Article 8a(1) of Directive 2008/98/EC • Costs of waste collection for those products that are discarded in public collection systems, including the infrastructure and its operation, and the subsequent transport and treatment of that waste. The costs may include the setting up of specific infrastructure.

Please note that the data gathering, and reporting practices referred to in Article 8 (3) (c) above are *not* covered under WP 6 of the support study. WP 4 is considering the calculation of the financial burdens on reporting for tobacco (and tobacco products).

Regarding awareness-raising measures, Article 10 of the SUP Directive stipulates that:

Member States shall take measures to inform consumers and to incentivise responsible consumer behaviour, in order to reduce litter from products covered by this Directive, and shall take measures to inform consumers of the single-use plastic products listed in Part G of the Annex and users of fishing gear containing plastic about the following:

*(a) the **availability of re-usable alternatives, re-use systems and waste management options** for those single-use plastic products and for fishing gear containing plastic as well as best practices in sound waste management carried out in accordance with Article 13 of Directive 2008/98/EC;*

*(b) the **impact of littering and other inappropriate waste disposal** of those single-use plastic products and of fishing gear containing plastic on the environment, in particular on the marine environment; and*

*(c) the **impact of inappropriate means of waste disposal** of those single-use plastic products on the sewer network.*

WP 6 is divided into two working steps and five sub-steps. These are listed below, and their linkages illustrated in Figure 1.

6.1 Providing an overview of existing practices, developing operational definitions and scope

- A. Develop an overview of existing waste collection in public spaces, litter clean-up practices and awareness-raising measures in Member States
- B. Develop an operational definition of each practice
- C. Develop recommendations on the practices covered by the SUP Directive's scope

6.2 Identifying costs and developing options for their calculation

- A. Identify costs of waste collection and treatment, litter clean up and awareness raising
- B. Develop options for principles, procedures and methodologies to calculate costs and assign those costs to producers

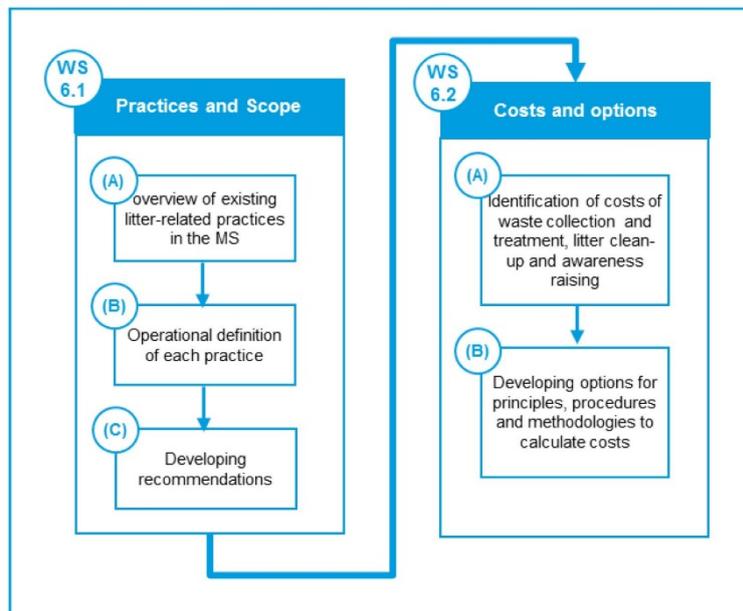


Figure 1 The working steps and sub-steps of Work Package 6

The following sections provide an overview of the methodologies used for the sub-steps in WP 6.

3.1 DEVELOPING AN OVERVIEW OF EXISTING COLLECTION AND LITTER-RELATED PRACTICES IN EU MEMBER STATES (6.1.A)

In the first sub-step of the first working step of WP 6, the study team has developed an overview and analysis of existing practices in the Member States, according to the three main categories of collection and litter-related practices named in the SUP Directive:

1. **Waste collection systems in public places** (envisaged in Article 8(2)(b)), including litter collection infrastructure in public places (e.g. litter bins), its operation, and the subsequent transport and treatment of that waste
2. **Litter clean-up practices by/for public authorities** (envisaged in Article 8(2)(c) and 8(3)(b)), including street cleansing and beach clean-ups
3. **Awareness raising measures** (as per Article 10 of the SUP Directive), including those to

inform/ incentivise responsible consumer behaviour to reduce litter, to inform on the availability of re-usable alternatives and re-use systems, and to inform on the impact of littering/inappropriate waste disposal of SUP on the environment and on the sewer network

As most collection and litter-related practices in the Member States take place at local level, it has not been possible within the scope of this study to undertake a full mapping exercise of all existing practices in the Member States. The team's focus has been on identifying the broad types of practices at different levels and their different characteristics.

Data to support the development of WP 6.1.A has been collected through a short online survey, complemented by a review of selected grey and academic literature and input from a workshop with stakeholders.

Stakeholder survey

A short online stakeholder survey was conducted from 22 November 2019 to 10 January 2020, to reach out to different groups of stakeholders (both private sector and public sector) who may have relevant information on litter practices. The survey was intended to ensure that a breadth of different types of practices were identified, including examples of local practices.

The survey questions related to WP 6 included:

- Information about existing waste collection systems in public places and how they operate
- Information about litter collection practices, who undertakes them and whether they vary by location
- Information about awareness raising measures
- Information about the costs of these practices (to support the work in 6.2 below)

The survey also encouraged respondents to submit supporting documents, to aid the literature review and analysis in WP 6.

The team has analysed the collection and litter-related practises and detail regarding their operations identified based on the stakeholder survey. We have analysed the information received in the round, i.e. to get an idea of the spread of various practices across EU Member States. Thereafter, we have extracted relevant points made and critically assessed to what extent the study team agrees or not with the points made, bringing in evidence from other sources as appropriate.

Literature review

To complete the picture established from the results of the survey, the team has begun a review of selected relevant literature. This includes a selection of national waste management plans/strategies, national waste prevention programmes, national/sub-national litter strategies, marine litter strategies (including Article 16 reports under the Marine Strategy Framework Directive (MSFD)) and (local) public authorities' websites.

Each document has been scanned for the words: 'litter', 'cost' and 'clean-up' (or national language equivalent). If nothing has been found, a more detailed scan of the document has been undertaken to identify any types of litter-related practice.

In the finalisation of WP 6, additional alternative sources may be consulted to fill any remaining information gaps. These may include Impact Assessments, JRC reports, websites, consultancy reports, academic journal articles, and a small number of representative local public authority websites.

Stakeholder workshop

The WP 6 team conducted a stakeholder workshop in Brussels on 25th February 2020.

The main objectives of the workshop were to: 1) present preliminary findings on existing collection and litter-related practices and associated costs, based mainly on a stakeholder online survey; 2) present and define key elements to factor into the operational definitions of practices and discuss these with stakeholders, as well as the scope of practices to be considered in the SUP Directive for cost coverage through EPR; and 3) discuss with stakeholders principles and key elements of methodologies to calculate costs and to allocate costs.

The aim of the workshop was to engage in constructive dialogue with stakeholders, to ensure that the EPR schemes (to be) developed to comply with the requirements of the SUP Directive, i.e. to ensure that producers cover relevant costs of litter clean up/collection and awareness raising as required in the SUPD, in a transparent and proportionate manner. The workshop was also an opportunity for stakeholders to make the study team aware of any key information that has not yet been accounted for in the preliminary findings, and to raise any concerns or perspectives on the development of the guidelines of costs for cleaning up litter.

3.2 DEVELOPING OPERATIONAL DEFINITIONS OF IDENTIFIED PRACTICES (6.1.B)

The study team has analysed the information provided through the survey, literature review and stakeholder workshop, and developed draft operational definitions of each identified practice undertaken within the three main categories of practices referred to in the SUP Directive (i.e. waste collection systems in public places, litter clean-up practices, and awareness raising measures).

The team has identified and suggests the following elements to be included in the operational definition of each practice, as appropriate, to ensure clarity and consistency of the definitions:

- Name of practice
- Aim/objective of practice
- Provider of practice
- End-user of practice
- Physical infrastructure/service provided in the practice
- Frequency of practice
- Location of practice

The final outcome of this sub-step will be a set of clear and concise operational definitions to describe the specific practices under each of the three main categories of collection and litter-related practices, and to help to identify those that should be covered by the SUP Directive and those that should not. This will ultimately help to define the costs of which practices should be covered by EPR, according to the relevant SUP Directive provisions.

3.3 DEVELOPING A RECOMMENDATION ON WHICH PRACTICES SHOULD BE INCLUDED WITHIN THE SUP DIRECTIVE'S SCOPE, AND WHICH SHOULD BE EXCLUDED (6.1.C)

The study team has analysed the information provided through the survey, literature review and stakeholder workshop, in order to develop a recommendation on the types of practices that should be covered by EPR in accordance with the SUP Directive and those that should not. A draft (non-exhaustive) recommendation is provided in this report.

We have also developed a suggested approach for how such practices can be identified in a way that complies with the proportionality principle and the principle of necessary costs. This includes a set of screening criteria for each of the three categories of practices named in the SUP Directive, based on the Directive's requirements, organised in a matrix. This is intended to help avoid adding unnecessary complexity or administrative burden for the authorities in the Member States responsible for implementing the SUP Directive.

The team's draft recommendations are based on whether or not practices meet these criteria, suggesting that those that do meet all the criteria should be considered for inclusion in the SUP Directive's scope (and therefore have their costs covered by EPR). Those that do not meet all the criteria are recommended for exclusion.

This sub-step will result in a recommendation only. The final guidance on scope, definitions and methodologies will be provided by the appropriate EU or EU-appointed bodies.

3.4 IDENTIFY COSTS OF WASTE COLLECTION AND TREATMENT, LITTER CLEAN UP AND AWARENESS RAISING (6.2.A)

The objective of working sub-step 6.2.A is to identify the costs associated with the collection of waste discarded in public collection systems, cleaning up litter and awareness raising measures in accordance with the first findings on operational definitions and scope of these practices from working step 6.1 (above).

The current findings on costs stem from key relevant data and input collected through literature review and the WP 6 stakeholder engagement elements. This section summarises how each source has been addressed so far.

Literature review

The literature review has taken into account relevant provisions of the SUP Directive, notably Article 8 and Article 10, as well as Article 8 of Directive 2008/98/EC (Directive on waste (Waste Framework Directive)).

Published information has been identified and collected on Member State costs of collection and treatment, litter clean-up activities and awareness raising measures with respect to the products covered by the SUP Directive. As such, relevant sources of cost data and estimates included studies published by DG Environment, JRC, EEA, EMODnet, NGOs and national public authorities (e.g. Dutch study on the costs of cleaning up litter at the beaches). In addition, the study team has also considered Member State-level information e.g. a biannual costing survey of Local Authorities in Belgium, and relevant input from stakeholders e.g. stakeholder position papers, input from the dedicated stakeholder survey and workshop.

Stakeholder engagement

The online stakeholder survey (described in more detail above) included questions on the costs of collection of waste discarded in public collection systems, cleaning up litter and awareness raising measures. An overview of the key findings from these questions is presented in section 5.1 of this report).

Preliminary findings on costs provided in this report have complemented with the relevant outcomes of the stakeholder workshop conducted in Brussels on the 25 February 2020 (described above) and additional review of the literature.

Workshop participants informed the project team about forthcoming events potentially relevant to the study (such as a workshop in May 2020 on the effectiveness of awareness raising measures) and published

reports (e.g. forthcoming Dutch study on litter clean-up costs). These reports and the results of these events may be consulted by the study team in the finalisation of the study.

3.5 DEVELOP OPTIONS FOR PRINCIPLES, PROCEDURES AND METHODOLOGIES TO CALCULATE COSTS (6.2.B)

The objective of sub-task 6.2.B is to develop options for:

- (1) calculating the costs of the three categories of practices included in Article 8 of the SUP Directive, including waste collection in public places, litter clean-up and litter awareness-raising; based on the principles of necessary cost and proportionality (in accordance with Article 8(4) of the SUP Directive and Article 8a(4) of Directive 2008/98/EC); and
- (2) ways that these costs can be allocated and organised amongst the producers concerned, e.g. collectively or individually.

In addition to building on the key findings from previous tasks, targeted desktop review and stakeholder consultation were also used in order to gather the necessary data and input for this sub-task.

Literature review

The following literature and legislative sources have been analysed in detail:

- Relevant definitions and provisions laid down in existing EU legislation:
 - SUP Directive: Article 8 – Extended producer responsibility; Article 10 – Awareness raising measures; Annex E; and Recital 22⁶
 - Waste Framework Directive⁷: Article 8 – Extended producer responsibility; Article 8a(4) – General minimum requirements for extended producer responsibility schemes
 - Directive 94/62/EC on packaging and packaging waste⁸ (PPWD): Article 4(1) – Prevention; Article 7(2) and (3) – Return, collection and recovery systems; and
 - Directive 2015/720/EU on reducing the consumption of lightweight plastic carrier bags⁹
- Commission reports and studies:
 - Impact Assessment on a Proposal for a Directive of the European Parliament and of the Council on the reduction of the impact of certain plastic products on the environment
 - Ongoing 'Study to support preparation of the Commission's Guidance for EPR Schemes'
 - European Commission (2014), Development of Guidance on Extended Producer Responsibility
 - Commission non-papers on the costs of collection and clean-up of litter relevant for non-packaging single use items; extended producer responsibility requirements; and links between the SUP Directive and other EU legislation
- Other relevant literature sources such as stakeholder position papers and published reports e.g. by OECD (2014), Eunomia (2018), JRC (2017).

⁶ Directive 2019/904 the reduction of the impact of certain plastic products on the environment. Legislative text available at: <https://eur-lex.europa.eu/eli/dir/2019/904/oj>.

⁷ Directive 2008/98/EC on waste. Legislative text available at: <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32008L0098>.

⁸ Directive 94/62/EC on packaging and packaging waste. Legislative text available at: <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:31994L0062>.

⁹ Directive 2015/720 on reducing the consumption of lightweight plastic carrier bags. Legislative text available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32015L0720>.

Stakeholder engagement

The online stakeholder survey included specific questions on the costs to be covered by EPR schemes, cost allocation (including roles and responsibilities within an EPR scheme), and the main principles and approaches to consider when calculating costs. The work under sub-step 6.2.B has also been supported by outcomes of the stakeholder workshop held on 25 February 2020.

PART II. PRELIMINARY FINDINGS

4. OVERVIEW OF EXISTING PRACTICES, DEVELOPING OPERATIONAL DEFINITIONS AND SCOPE OF PRACTICES COVERED (WP 6.1)

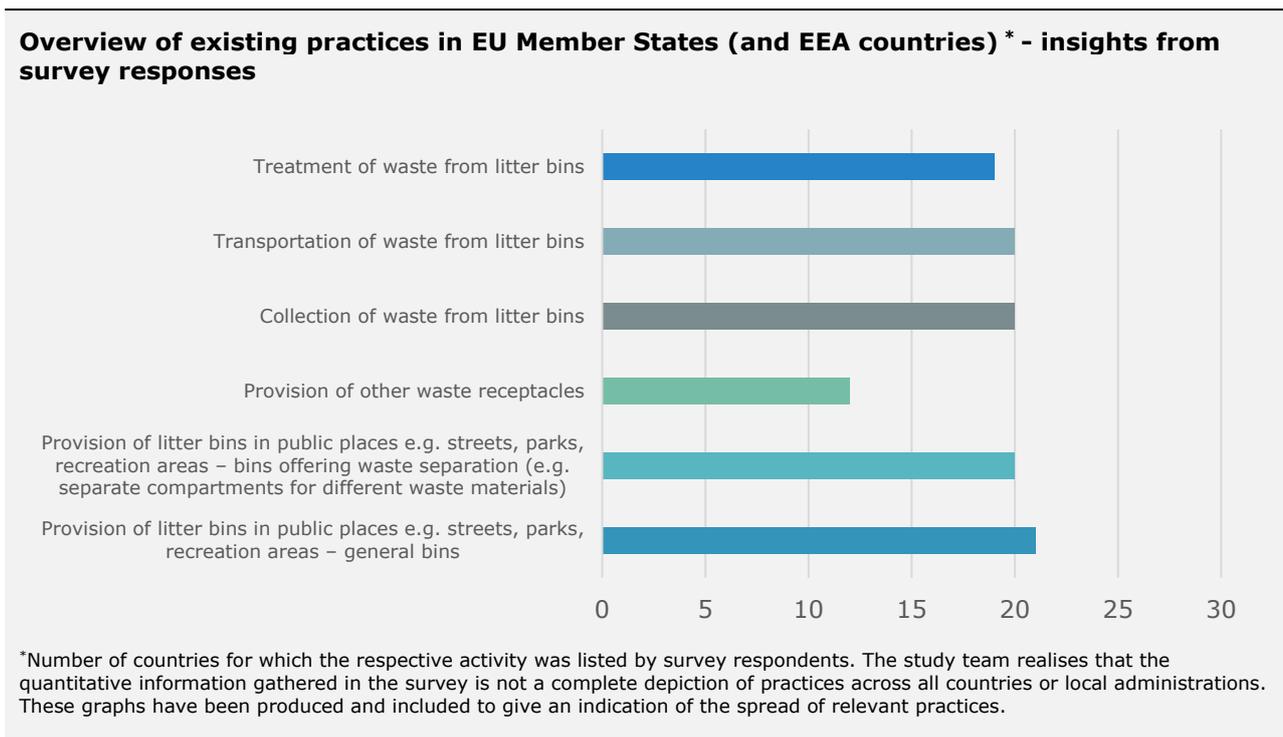
The following sections summarise the key findings to date of the review of existing practices in EU Member States, proposed operational definitions of these practices and a provisional recommendation on which practices should be considered within the scope of practices to be covered by EPR in accordance with the SUP Directive, and which should not.

The information to support the analysis has been provided through – as explained in section 3 – the online stakeholder survey, additional review of relevant literature and input received from stakeholders at the WP 6 workshop on 25th February 2020. The results in the round of the stakeholder consultations are presented in Annex to this report.

4.1 WASTE COLLECTION SYSTEMS IN PUBLIC PLACES

Relevant SUP products	
Section I Annex E	Section III Annex E
Food containers Packets and wrappers Beverage containers (including caps and lids) Cups for beverages Lightweight plastic carrier bags	Tobacco products with filters (<i>costs may include the setting up of specific infrastructure, such as appropriate waste receptacles in common litter hotspots</i>)

4.1.1 Overview of existing practices in EU Member States



Local authorities/ municipalities in EU Member States are generally responsible for waste collection systems in public spaces in accordance with local needs and conditions. This is confirmed by survey respondents. Practical collection and treatment are often carried out by sub-contracted companies (e.g. in CZ, EE, ES, SK and FI). This implies that the approaches taken to organise collection, transportation and treatment of waste from litter bins in public places differ not only between countries but between municipalities. It also implies that the costs of these practices are generally covered by public budgets.

There are nevertheless similarities between existing approaches. Many countries (e.g. NL, FI, BE and DE) have some sort of system in place offering **separate collection of waste in public places**. This is also depicted in the graph above¹⁰. However, separation in these cases is usually for specific fractions only, such as glass or cigarette butts (based on survey responses). Generally, public bins managed by municipalities *do not* offer separation, according to respondents. Bins offering separation are usually only provided in public spaces managed by private operators such as shopping centres, train stations or airports, or in specific locations such as stadiums or at large events (e.g. festivals). In these cases, public services may or may not be involved in the collection, transportation and treatment of the litter waste.

Frequency in collecting litter from public bins varies from several times per day to weekly, mainly depending on filling degree of the bins, which correlates to the location of the bins. City centres, tourist areas and coastal areas are more frequented and therefore generally collected more often than less populated/visited areas, judging from the responses. In addition, there are seasonal variations in quantity of litter collected. Frequency of collection is an important aspect for the cost-effectiveness of waste collection in public places and may therefore be relevant for the guidelines on litter clean-up costs to be covered by EPR under the SUP Directive (see further discussion on methods for calculation of costs in chapter 5.2). Research suggests that overfilled bins may in fact contribute to increased littering¹¹, suggesting that frequency of collection of waste from bins in public places is relevant to the overall aim of the SUP Directive to reduce the negative environmental impacts arising from SUP products.

In some cities, emptying of litter bins is correlated with the frequency of street sweeping (according to survey respondents). The extent to which various **practices are conducted in combination** may also be of relevance to the methodology for calculating costs to be covered by EPR.

Municipal collection rounds in public places are sometimes adapted based on electronic **monitoring of the filling degree of bins** (e.g. in NL and BE). Using electronic sensors is arguably a more efficient approach in terms of optimising collection activities, however installing and maintaining such equipment might not always be feasible (e.g. in distant locations) nor economically viable (e.g. due to limited resources). The nature of waste collection infrastructure in public places is another key factor that may influence cost efficiency of these practices to be considered in the calculation of costs to be covered by EPR in accordance with the SUP Directive (see further discussion about cost efficiency in chapter 5.2).

One participant at the stakeholder workshop argued that the existing EU waste management systems often are outdated/ designed for a different era. The extent to which investments in **extensions/ improvements of waste collection infrastructure in public places** (including in places where such infrastructure does not already exist) should be covered by EPR might need to be clarified in the context of guidance on litter clean-up costs. Increased use of digitalisation could be one option fitting a more modern approach. Participants at the workshop shared examples of this, including a Spanish PRO exploring the use of smartphone applications to allow citizens to identify the location of the nearest litter

¹⁰ The study team would like to emphasise that the graphs included in this report providing quantitative information based on the survey responses are not a complete depiction of practices across all countries or local administrations. These graphs are included mainly to give an indication of the spread of these practices across countries.

¹¹ See, e.g., research done by Robert Cialdini (2003). Available here <https://www.jstor.org/stable/20182853?seq=1>, and guidelines put together by Zero Waste Scotland, for instance: <https://www.zerowastescotland.org.uk/litter-flytipping/litter-bin-strategy>.

bin. In another example, some Dutch municipalities are experimenting with artificial intelligence to indicate when bins are full. In Stockholm, Sweden, a stationary vacuum system for waste collection has been installed, including street litter bins which empty themselves¹². While these are interesting examples, there is a question of whether such solutions are to be considered necessary and cost effective in accordance with the SUP Directive. Such a judgement may depend on what is the starting point and on local conditions. In the UK, the 2017 Litter Strategy for England¹³ included a commitment to develop national guidance to local authorities on “binrastructure” to help them reduce levels of litter, including the design, number and location of public litter bins and other items of street furniture designed to capture litter. Similar guidance is available in Scotland¹⁴.

Litter collected from public bins is often sent to incineration or landfill together with other mixed/household waste (e.g. ES, DK, FI, SE, IR, UK and NL). Although the volume of litter waste collected from public places is likely to be less than the volume of municipal solid waste, this may nevertheless have a cost impact on municipal waste treatment which may merit consideration in the cost coverage of EPR schemes.

The SUP Directive is clear that practices covered by EPR shall be provided in a cost-efficient way. In order to determine what is cost-efficient at local level, **impact indicators** might need to be defined, such as acceptable levels of cleanliness, and targets set for the level to be reached in each type of location/habitat. Both survey respondents and workshop participants urge that developing such impact indicators is key, providing examples from Member States already applying this approach. The Netherlands has an A or B ranking system, as to whether the authorities need to adopt additional measures to collect waste from public places. In the UK, Keep Britain Tidy has developed a seven-step “Local Environmental Quality (LEQ)” grading system to measure the presence of litter¹⁵. Other research on indicators for evaluating cleanliness is available¹⁶. In practice, as also emphasised by workshop participants, such indicators might need to be developed at sub-national level in order to reflect local differences. Guidance on best practice in this regard may support effective and harmonised implementation.

4.1.2 Operational definitions of identified practices

As noted in section 3.2 of this report, the study team is developing an operational definition for each identified collection and litter-related practice undertaken within the three main types of practices referred to in the SUP Directive (i.e. waste collection systems in public places, litter clean-up practices, and awareness raising measures). Draft suggestions of definitions are provided below. The aim of these operational definitions is ultimately to help to define the costs of which practices should be covered by the relevant SUP Directive provisions.

On “**waste collection systems in public places**”, the SUP Directive (Article 8.2(b)) states that the scope should cover the costs of waste collection, insofar as they are not already included in EPR implementation¹⁷, for the products referred to in Sections I and III of Annex Part E that are discarded in public collection systems. This should include the cost of provision and operation of relevant infrastructure and subsequent transport and treatment of this waste.

¹² More information about the project is available here: <https://www.envacgroup.com/casestudies/hammarby-sjostad/>.

¹³ The 2017 Litter Strategy for England, last updated in July 2018, is available here: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/630999/litter-strategy-for-england-2017-v2.pdf.

¹⁴ Guidance provided by Zero Waste Scotland, available here: <https://www.zerowastescotland.org.uk/litter-flytipping/binrastructure>.

¹⁵ The methodology is described here: https://www.keepbritaintidy.org/sites/default/files/resources/KBT_How_Clean_Is_England_LEQSE_Report_2015.pdf.

¹⁶ See, for instance, Spanish research by López I., et al. (2017).

¹⁷ This is stated because the products in Section I of Annex Part E should already be subject to packaging EPR in all Member States, whereas EPR is yet to be implemented for the products in Section III.

“Waste” is defined in point 1 of Article 3 of Directive 2008/98/EC: i.e. “any substance or object which the holder discards or intends or is required to discard”.

In the study team’s view, operational definitions including the elements in the table below would provide clarity on what each collection and litter-related practice entails, to identify which costs should be covered. The table includes draft operational definitions of the identified activities. These will be considered further and revised as needed for the draft final report, in discussion with the Commission and taking into account eventual additional stakeholder feedback as the study continues.

Table 2 Proposed elements of the operational definition of each identified practice and draft definitions – Waste collection systems in public places

Name of practice	Objective	End-user	Provision of physical infrastructure/service	Frequency	Location
Provision of litter bins in public places	X	X	X		X
<i>Draft definition: "The provision of litter bins for use by members of the public in public places managed by public authorities (e.g. streets, parks or recreation areas). These litter bins may be for general (unseparated) litter or offer separate compartments for different types of litter (e.g. plastic, paper/card, metal, food waste, liquid waste, etc.)."</i>					
Provision of other waste receptacles	X	X	X		X
<i>Draft definition: "The provision of specific waste receptacles for particular waste items which cannot be disposed of in general litter bins (e.g. cigarette butts), for use by members of the public in public places managed by public authorities (e.g. streets, parks or recreation areas)."</i>					
Collection of waste from litter bins in public places	X		X	X	X
<i>Draft definition: "The collection, at regular intervals with a set minimum frequency, of waste from litter bins in public places managed by public authorities (e.g. streets, parks or recreation areas). The collection should be carried out by operators designated by public authorities, using vehicles and/or manpower appropriate and proportionate to the quantity of waste collected and the location of the litter bins."</i>					
Transportation of waste from litter bins in public places	X		X	X	X
<i>Draft definition: "The transportation of waste, at regular intervals with a set minimum frequency, of waste from litter bins in public places managed by public authorities (e.g. streets, parks or recreation areas). The transportation should be carried out by operators designated by public authorities, using vehicles and/or manpower appropriate and proportionate to the quantity of waste collected and the location of the litter bins."</i>					
Treatment of waste from litter bins in public places	X		X		X
<i>Draft definition: "The treatment of waste from litter bins in public places managed by public authorities (e.g. streets, parks or recreation areas). The treatment should be carried out by operators designated by public authorities, using waste treatment infrastructure and processes in line with regulatory requirements in relevant national legislation and in Directive 2008/98/EC."</i>					

4.1.3 Recommendation on what practices should be covered

The matrix below is a proposed method/tool to identify which practices should be included in the SUP Directive scope with regards to the costs to be covered by EPR. For “**waste collection systems in public places**”, relevant criteria as per the requirements of the SUP Directive and Waste Framework Directive are:

- Part of the public collection system (Articles 8(2)(b) and 8(3))
- Relevant to SUPs in Sections I or III of Annex Part E (Articles 8(2) and 8(3))
- Treatment (Articles 8(2)(b) and 8(3) in line with national legislation and Directive 2008/98/EC (Articles 4, 3(9) and 3(14))
- Cost of practice not already covered by EPR implementation (Article 8(2))
- Practice is provided in a cost-efficient way and costs thereof established in a transparent way (Article 8(4))

If these criteria are met, the activity would be in scope and therefore costs should be covered by EPR. Examples are included in the matrix below (Table 3) of specific practices that the team deems should, and

should not, be considered when establishing which costs to be covered by EPR. These examples are included as an illustration of how the criteria would be used; it is not a final nor an exhaustive list of recommendations for inclusion or exclusion from scope.

Please note that a further discussion about how to ensure cost-effectiveness is provided in chapter 5.

Table 3 Overview of a possible approach to identify practices to be covered, including selection criteria and fictive examples of specific practices – Waste collection systems in public places

	Part of the public waste collection system?	Relevant to SUPs in Sections I or III of Annex Part E?	Treatment in line with national legislation and Directive 2008/98/EC ?	Cost already covered by EPR implementation?	Cost-efficient practice?	To include in scope for cost coverage?
Provision of litter bins in public places						
Specific example of an “in scope” practice: <i>The provision of general litter bins, managed by public authorities, on city streets for use by members of the public. Relevant SUPs are being discarded in these bins. The costs for providing the bins are not already covered by EPR and the practice is considered cost-effective.</i>	Y	Y	n/a	N	Y	Y
Specific example of an “out of scope” practice: <i>The provision of litter bins managed by private operators for use by members of the public. Relevant SUPs are being discarded in these bins. The costs for providing the bins are not already covered by EPR and the practice is considered cost-effective.</i>	N	Y	n/a	N	Y	N
Provision of other waste receptacles*						
Specific example of an “in scope” practice: <i>Provision of appropriate waste receptacles in common litter hotspots managed by public authorities, for the collection of post-consumption waste of tobacco products. The costs for providing the receptacles are not already covered by EPR and the practice is considered cost-effective.</i>	Y	Y	n/a	N	Y	Y
Specific example of an “out of scope” practice: <i>Provision of waste receptacles in public places, managed by public authorities that offer collection of plastic packaging waste. Relevant SUPs are being discarded in these receptacles. The costs for providing the receptacles are already covered by EPR. The practice is considered cost-effective.</i>	Y	Y	n/a	Y	Y	N
Collection** of waste from litter bins in public places						
Specific example of an “in scope” practice: <i>Collection by operators designated by public authorities of waste from litter bins in a public park. Relevant SUPs are being discarded in these bins. The costs for providing the receptacles are not already covered by EPR. The practice is considered cost-effective.</i>	Y	Y	n/a	N	Y	Y
Specific example of an “out of scope” practice: <i>Collection by operators designated by public authorities of waste glass beverage containers discarded in litter bins in public places offering separate collection for glass. The places in question may be managed either by public authorities or private companies. Relevant SUPs are not being discarded in these bins. The costs for providing the receptacles are already covered by EPR. The practice is considered cost-effective.</i>	Y	N	n/a	Y	Y	N
Transportation of waste from litter bins in public places						
Specific example of an “in scope” practice: <i>Transportation by operators designated by public authorities of waste from litter bins in public places. Relevant SUPs are being discarded in these bins. The costs for providing the receptacles are not already covered by EPR. The practice is considered cost-effective.</i>	Y	Y	n/a	N	Y	Y
Specific example of an “out of scope” practice: <i>Transportation by operators designated by public authorities of waste from litter bins in public places. Relevant SUPs are being discarded in these bins. Each bin is emptied by hand and each bag is</i>	Y	Y	n/a	N	N	N

<i>transported individually – one by one – to the public waste management centre. The costs for providing the receptacles are not already covered by EPR. The practice is not considered cost-effective.</i>						
Treatment*** of waste from litter bins in public places						
Specific example of an “in scope” practice: <i>Treatment carried out by operators designated by public authorities of waste from litter bins in public places managed either publicly or privately. Relevant SUPs are being discarded in these bins. The treatment is in accordance with the waste hierarchy. The costs for providing the receptacles are not already covered by EPR. The practice is considered cost-effective.</i>	Y	Y	Y	N	Y	Y
Specific example of an “out of scope” practice: <i>Treatment by a private waste treatment facility of waste from litter bins in public places managed by a private company. Relevant SUPs are being discarded in these bins. All collected waste is landfilled although some of the SUPs are suitable for recycling; treatment is therefore not in accordance with the waste hierarchy. The costs for providing the receptacles are not already covered by EPR. The practice is considered cost-effective.</i>	N	Y	N	N	Y	N

* It should be possible to cover the costs of the setting up of specific infrastructure for collection of post-consumption waste of tobacco products, such as appropriate waste receptacles in common litter hotspots (SUP Directive, Recital 22).

** “Collection” as defined in point 10 of Article 3 of Directive 2008/98/EC, i.e.: “the gathering of waste, including the preliminary sorting and preliminary storage of waste for the purposes of transport to a waste treatment facility”.

*** “Treatment” as defined in point 14 of Article 3 of Directive 2008/98/EC, i.e. “recovery or disposal operations, including preparation prior to recovery or disposal”.

4.2 EXISTING LITTER CLEAN-UP PRACTICES BY/FOR PUBLIC AUTHORITIES

Relevant SUP products		
Section I Annex E	Section II Annex E	Section III Annex E
Food containers Packets and wrappers Beverage containers (including caps and lids) Cups for beverages Lightweight plastic carrier bags	Wet wipes Balloons	Tobacco products with filters

4.2.1 Overview of existing practices in EU Member States



Similar to waste collection in public places, many **litter clean-up practices are the responsibility of local authorities** and funded through state funds, according to survey respondents (and would therefore fall within scope of the SUP Directive in accordance with Article 8(4)).

One frequently mentioned **exception is music festivals and other events** where the organiser is responsible for both waste management and litter clean-up (mentioned e.g. by survey respondents in FI, SE). In these cases, the distinction as to which aspects should be covered by EPR may be less clear. On the one hand, litter collected within the event perimeter by the private event organiser might then be transported and treated by public waste services – costs for which may be covered by EPR. On the other hand, the event organiser might be paying the public authorities for this service, in which case the costs would be covered twice. Further complexity is added if the private operator pays for collection,

transportation and treatment only out to a certain perimeter away from the venue (described by a workshop participant). Visitors coming and going from the event might litter more than normal also outside those perimeters, creating an additional burden and costs for public authorities. The study team has not yet arrived at a clear recommendation in this regard and will continue to consult existing literature and engage with selected stakeholders to seek greater clarity on this.

The **frequency of litter clean-up practices** seems to be largely determined by geographic location and prevalence of litter (indicated by survey respondents from e.g. NO, CZ, SE, PL, AT, NL, EE, DE, RO and FI). This reflects, for instance, population density (e.g. in NO and FI), level of tourism (e.g. EE) and the capacity at municipal level (e.g. NO, ES, EE). Most Member States seem to offer street sweeping as well as street cleansing, operated by or on behalf of public authorities, carried out on a regular basis. Beach clean-ups are common, whereas clean-ups of meadows and forests are less commonly mentioned by stakeholders engaging with the study. Frequency of clean-up practices by/for public authorities would be an important aspect for their cost-effectiveness and therefore relevant for EPR cost considerations/calculations (see further discussion in chapter 5). The discussion about defining levels of cleanliness and impact indicators is relevant also in this regard (see section 4.1.1), as well establishing guidelines for suitable methods for litter clean-up in order to ensure not only a cost-effective approach but also minimum impact on nature. In the case of beach clean-ups, the work undertaken by OSPAR on cleaning and removal activities and existing OSPAR indicators developed for monitoring marine litter on beaches¹⁸ should support the development of impact indicators. The guidance developed to support implementation of the EU Marine Strategy Framework Directive (MSFD)¹⁹ may provide similar support. Clarity from the Commission on the links between implementation of the SUP Directive, other relevant EU legislation in this regard (such as the MSFD) and the approaches put forward under the Regional Sea Conventions, would be useful²⁰.

Judging from the survey responses and relevant literature, **community/voluntary/NGO litter clean-up practices** are prevalent in several EU Member States, e.g. 'Tidy towns' or 'Keep xx Clean' groups, beach clean-ups, etc. This raises a question on how such practices are funded, and whether some EPR fees should be directed towards such organisations. In one Member State, for instance, volunteer litter-picking and beach clean-ups are already funded by a national PRO. In another, a nation-wide NGO running awareness raising campaigns on littering is funded by a private manufacturer. Respondents to the survey also mention that voluntary litter picking events might be supported by local authorities in that the public services provide materials (e.g. bags, gloves) for volunteers, and/or collect the picked litter from a collection point and transport it to appropriate treatment (in municipal waste treatment facilities). There are also examples where the public authorities set up funds from which companies and private individuals can apply for money to finance clean-up activities. Some of these funds are financed using the revenue from fees for plastic bags²¹.

Cleaning-up SUPs in municipal wastewater treatment infrastructure is also taking place in Member States, for instance unblocking of sewers and syphons from flushed wet wipes, repairing or replacing clogged pumps in the sewer network and cleaning screens at the influent of waste water treatment plants from wet wipes. Wastewater treatment plants are often also responsible for disposing of the waste (mainly wet wipes and sanitary products) retrieved in these processes. The extent to which these practices are to be covered by EPR in accordance with the SUP Directive is not immediately obvious. On the one hand, the sewer network in which these products are disposed is public infrastructure managed by public authorities

¹⁸ Available on the OSPAR website: <https://www.ospar.org/work-areas/eiha/marine-litter/regional-action-plan>.

¹⁹ See, e.g., <https://mcc.jrc.ec.europa.eu/documents/201702074014.pdf>.

²⁰ In 2014, notably before the adoption of the SUP Directive, the JRC identified that in the case of marine litter, there is a lack of standardized methodologies and coordination between RSC efforts and MSFD implementation. The JRC report is available here: <https://mcc.jrc.ec.europa.eu/documents/201409161346.pdf>.

²¹ The Danish Plastics Action Plan from 2018 includes one such example, of a funding programme where companies and private individuals can apply for money to carry out beach clean-ups (material is funded, not staff time). Those that have applied for large amounts of money are obliged to report the amount of litter they collect (in volume). The Action Plan is available at: https://mfvm.dk/fileadmin/user_upload/MFVM/Miljoe/Plastikhandlingsplan/Regeringens_plastikhandlingsplan_web_FINAL.pdf.

or on their behalf. On the other hand, the question remains whether the action of disposing the product through the toilet should be considered littering, and costs of clean up, such as unblocking sewer systems should be considered ‘litter clean up’, the costs of which should be covered by the relevant producers. **The study team has not yet arrived at a clear recommendation in this regard and will continue to consult existing literature and engage with selected stakeholders to seek greater clarity on this.**

The fact that existing **litter clean-up practices in Member States are not ‘standardised’**, which is clear from both stakeholder inputs and the literature, may complicate EPR cost considerations/ calculations at national level. The operational definitions provided below are one attempt of the study team to support greater clarity in this regard. Further, Article 8(4) of the SUP Directive stipulates that the costs of cleaning up litter shall be limited to practices undertaken “by public authorities or on their behalf”. What this entails will be further explored by the study team (see section 0).

Several examples of **litter clean-up initiatives run by private sector stakeholders** were highlighted by survey respondents. Some companies undertake their own clean-ups, e.g. in the vicinity of their premises. While these may or may not be considered as “on behalf” of public authorities (see section 0), care should be taken when designing EPR schemes not to discourage these practices or creating requirements for the same practice to be paid for twice.

4.2.2 Operational definitions of identified practices

As noted in section 3.2 of this report, the study team is developing an operational definition for each identified collection and litter-related practice undertaken within the three main types of practices referred to in the SUP Directive. Draft suggestions of definitions are provided below. The aim of these operational definitions is ultimately to help to define the costs of which practices should be covered by the relevant SUP Directive provisions.

On “**cleaning up litter**”, the SUP Directive states the scope should cover, for practices undertaken by public authorities or on their behalf:

- *The costs of cleaning up litter comprised of the products referred to in Section I of Annex Part E, insofar as they are not already included in EPR implementation, and including the cost of subsequent transport and treatment of this litter (Article 8(2)(c))*
- *The costs of cleaning up litter comprised of the products referred to in Sections II and III of Annex Part E (products for which EPR should be introduced), and including the cost of subsequent transport and treatment of this litter (Article 8(3)(b))*

In the study team’s view, operational definitions including the elements in the table below would provide clarity on what each practice entails, to help identify which costs should be covered. The table includes draft operational definitions of the identified activities. These will be considered further and revised as needed for the draft final report, in discussion with the Commission and taking into account eventual additional stakeholder feedback as the study continues.

Table 4 Proposed elements of the operational definition of each identified practice and draft definitions – Cleaning up litter

Name of practice	Objective	Service provider	Provision of physical infrastructure	Frequency	Location
Street cleansing	X	X	X	X	X
<i>Draft definition: "The undertaking of street cleansing in public places managed by public authorities (e.g. streets, parks or recreation areas), at appropriate regular intervals, by powered vehicles and manpower appropriate and proportionate to the location. The street cleansing should be carried out by or on behalf of public authorities (e.g. by operators designated by public authorities), with the purpose of removing litter."</i>					
Street sweeping	X	X	X	X	X
<i>Draft definition: "The undertaking of street sweeping in public places managed by public authorities (e.g. streets, parks or recreation areas), at appropriate regular intervals, by hand/non-powered vehicles (e.g. hand-pushed carts), using manpower"</i>					

<i>appropriate and proportionate to the location. The street sweeping should be carried out by or on behalf of public authorities (e.g. by operators designated by public authorities), with the purpose of removing litter."</i>					
Voluntary litter picking (e.g. schools/citizens)	X	X	X		X
<i>Draft definition: "The undertaking of litter picking by volunteers (e.g. citizens, employees, school children), in public places managed by public authorities (e.g. streets, parks or recreation areas). The litter picking should be organised in cooperation with public authorities (i.e. carried out on their behalf), with the purpose of removing litter."</i>					
Mandatory litter picking (e.g. offenders)	X	X	X		X
<i>Draft definition: "The undertaking of mandatory litter picking (e.g. by offenders as part of rehabilitation/community service activities), in public places managed by public authorities (e.g. streets, parks or recreation areas). The litter picking should be organised in cooperation with public authorities (i.e. carried out on their behalf), with the purpose of removing litter."</i>					
Beach clean-ups	X	X	X		X
<i>Draft definition: "The undertaking of officially organised beach clean-ups, on public beaches. The beach clean-ups should be organised in cooperation with public authorities (i.e. carried out on their behalf), with the purpose of removing and/or monitoring litter."</i>					
Transportation of collected litter	X	X	X	X	X
<i>Draft definition: "The transportation, at appropriate regular intervals, of litter collected from public places managed by public authorities (e.g. streets, parks or recreation areas) via one of the above-defined practices. The transportation should be carried out by operators designated by public authorities, using vehicles and/or manpower appropriate and proportionate to the quantity of litter and the location where it is collected."</i>					
Treatment of collected litter	X	X	X		X
<i>Draft definition: "The treatment of litter collected from public places managed by public authorities (e.g. streets, parks or recreation areas) via one of the above-defined practices. The treatment should be carried out by operators designated by public authorities, using legal waste treatment infrastructure and processes in line with regulatory requirements in relevant national legislation and in Directive 2008/98/EC."</i>					

4.2.3 Recommendation on what practices should be covered

The matrix below is a proposed method/tool to identify which practices should be included in the SUP Directive scope with regards to the costs to be covered by EPR. For **"cleaning up litter"**, relevant criteria as per the requirements of the SUP Directive and Waste Framework Directive are:

- Relevant to SUPs in Sections I, II or III of Annex Part E (Articles 8(2) and 8(3))
- Cost of practice not already covered by EPR implementation (Article 8(2))
- Treatment (Articles 8(2)(b) and 8(3) in line with national legislation and Directive 2008/98/EC (Articles 4, 3(9) and 3(14))
- (Waste Framework Directive Articles 4, 3(9) and 3(14))
- Practice is provided in a cost-efficient way (Article 8(4))
- Activity is undertaken by public authorities or on their behalf (Article 8(4))

If these criteria are met, the activity would be in scope and therefore costs should be covered by EPR. Examples are included in the matrix below (Table 5) of specific practices that the team deems should and should not be considered for cost coverage. These are included as an illustration of how the criteria would be used; it is not a final nor an exhaustive list of recommendations for inclusion or exclusion from scope.

Table 5 Overview of possible approach to identify practices to be covered, including selection criteria and fictive examples of specific practices – Cleaning up litter

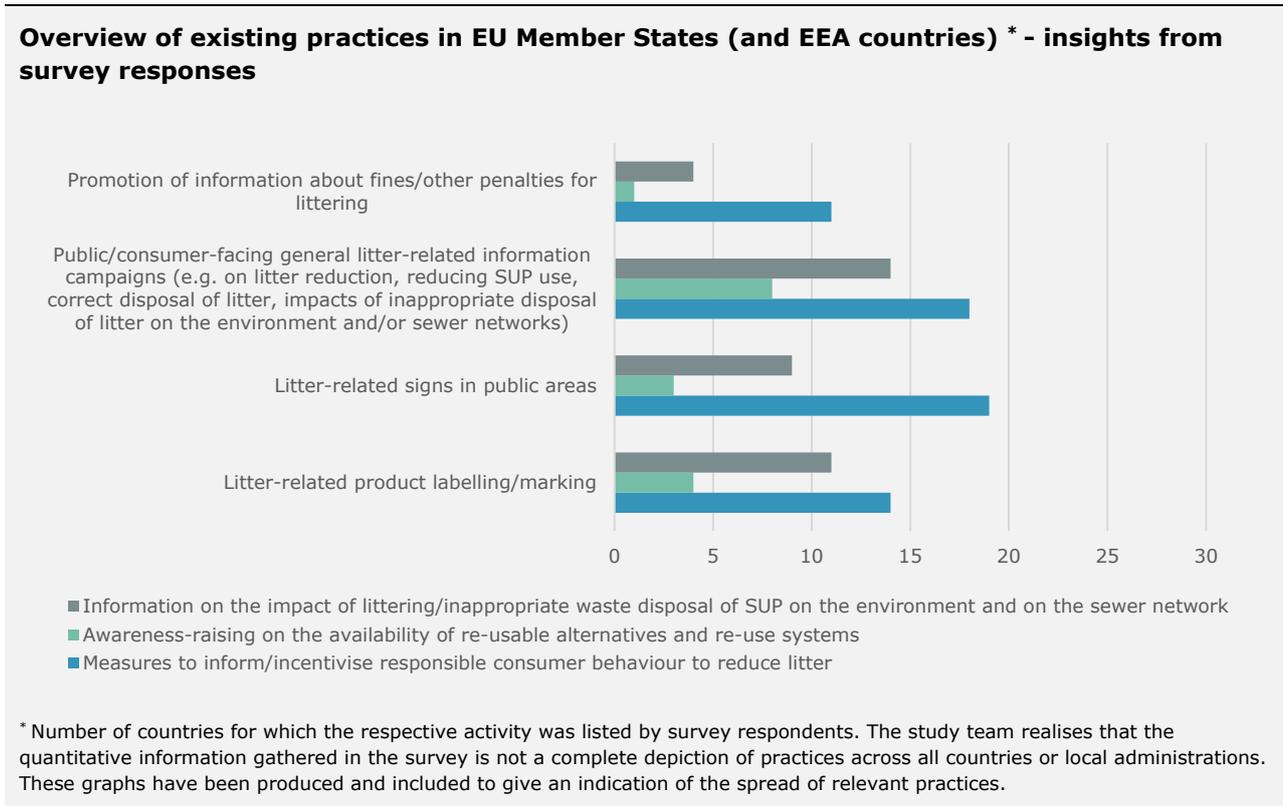
	Relevant to SUPs in Sections I, II or III of Annex Part E?	Cost already covered by EPR implementation?	Treatment in line with national legislation and Directive 2008/98/EC?	Cost-efficient practice?	By or for public authorities?	To consider for cost coverage?
Street cleansing						
Specific example of an “in scope” practice: <i>The undertaking of street cleansing on city streets, by or on behalf of public authorities, to remove litter that contains SUPs in sections I, II or III of Annex Part E of the SUP Directive. The costs of this practice are not already covered by EPR. The practice is cost-efficient.</i>	Y	N	n/a	Y	Y	Y
Specific example of an “out of scope” practice: <i>The undertaking of street cleansing, by or on behalf of public authorities, to remove litter that contains SUPs in sections I, II or III of Annex Part E of the SUP Directive. The costs of this practice are not already covered by EPR. The cleansing is carried out in a way that is not considered cost-efficient.</i>	Y	N	n/a	N	Y	N
Street sweeping						
Specific example of an “in scope” practice: <i>The undertaking of street sweeping by hand on city streets, by an operator designated by the public authorities, aimed to remove litter that contains SUPs in sections I, II or III of Annex Part E of the SUP Directive. The costs of this practice are not already covered by EPR. The practice is considered cost-efficient.</i>	Y	N	n/a	Y	Y	Y
Specific example of an “out of scope” practice: <i>The undertaking of street sweeping by hand by an operator not on behalf of public authorities, e.g. by a fast-food restaurant, aimed to remove litter that contains SUPs in sections I, II or III of Annex Part E of the SUP Directive. The costs of this practice are not already covered by EPR. The practice is considered cost-efficient.</i>	Y	N	n/a	Y	N	N
Voluntary litter picking (e.g. schools/citizens)						
Specific example of an “in scope” practice: <i>A local school coordinates a litter picking day for the children. They organise together with the local authorities that the collected waste will be transported and treated by the public waste management system. The removed litter contains SUPs in sections I, II or III of Annex Part E of the SUP Directive. The costs of this practice are not already covered by EPR. The practice is considered cost-efficient.</i>	Y	N	n/a	Y	Y	Y
Specific example of an “out of scope” practice: <i>A group of private citizens engaged in a community group coordinate a litter picking day. They each bring the litter that they collect with them back home and dispose it in their household waste bins. The removed litter contains SUPs in sections I, II or III of Annex Part E of the SUP Directive. The costs of this practice are not already covered by EPR. The practice is considered cost-efficient.</i>	Y	N	n/a	Y	N	N
Mandatory litter picking (e.g. offenders)						
Specific example of an “in scope” practice: <i>Offenders sentenced to community service activities undertake mandatory litter picking in the city parks, coordinated by the local authorities. The removed litter contains SUPs in sections I, II or III of Annex Part E</i>	Y	N	n/a	Y	Y	Y

<i>of the SUP Directive. The costs of this practice are not already covered by EPR. The practice is considered cost-efficient.</i>						
Specific example of an “out of scope” practice: <i>Offenders sentenced to community service activities undertake mandatory litter picking in the city parks, coordinated by a private company. The removed litter contains SUPs in sections I, II or III of Annex Part E of the SUP Directive. The costs of this practice are not already covered by EPR. The practice is considered cost-efficient.</i>	Y	N	n/a	Y	N	N
Beach clean-ups						
Specific example of an “in scope” practice: <i>Municipality staff pick litter on the local public beach. The removed litter contains SUPs in sections I, II or III of Annex Part E of the SUP Directive. The costs of this practice are not already covered by EPR. The practice is considered cost-efficient.</i>	Y	N	n/a	Y	Y	Y
Specific example of an “out of scope” practice: <i>A private house owner organises a group of friends to help him/her pick litter from their private beach. The removed litter contains SUPs in sections I, II or III of Annex Part E of the SUP Directive and is disposed of through the private household waste bin. The costs of this practice are not already covered by EPR. The practice is considered cost-efficient.</i>	Y	N	n/a	Y	N	N
Transportation of collected litter						
Specific example of an “in scope” practice: <i>An operator designated by the public authorities collects and transports litter picked by a local school from a public beach, in collaboration with the local authorities. The removed litter contains SUPs in sections I, II or III of Annex Part E of the SUP Directive. The costs of this practice are not already covered by EPR. The practice is considered cost-efficient.</i>	Y	N	n/a	Y	Y	Y
Specific example of an “out of scope” practice: <i>A local community group carries out litter picking in a public forest. The local authorities are not aware of the practice taking place. Each individual in the group drives the litter they have collected – using one car each – to the public waste treatment facility. The removed litter contains SUPs in sections I, II or III of Annex Part E of the SUP Directive. The costs of this practice are not already covered by EPR. The practice is not considered cost-efficient.</i>	Y	N	n/a	N	N	N
Treatment of collected litter						
Specific example of an “in scope” practice: <i>An operator designated by the public authorities treats the litter picked by municipal staff on a public beach. The removed litter contains SUPs in sections I, II or III of Annex Part E of the SUP Directive. The costs of this practice are not already covered by EPR. The practice is considered cost-efficient.</i>	Y	N		Y	Y	Y
Specific example of an “out of scope” practice: <i>An operator designated by the public authorities treats the litter picked by municipal staff on a public beach. The removed litter contains SUPs in sections I, II or III of Annex Part E of the SUP Directive. The costs of this practice are already covered by the regional EPR for plastic packaging. The practice is considered cost-efficient.</i>	Y	Y		Y	Y	N

4.3 EXISTING AWARENESS-RAISING MEASURES

Relevant SUP products		
Section I Annex E	Section II Annex E	Section III Annex E
Food containers Packets and wrappers Beverage containers (including caps and lids) Cups for beverages Lightweight plastic carrier bags	Wet wipes Balloons	Tobacco products with filters

4.3.1 Overview of existing practices in EU Member States



Litter **awareness-raising measures in Member States are initiated by a range of stakeholders**, including local or regional authorities, NGOs, individual companies and individual events. Public authorities organise, for instance, environmental education campaigns on marine litter and littering at large to be used in schools²². Large-scale ‘clean up days’ also serve as awareness-raising tools (e.g. European Clean Up Day, World Clean Up Day, Puliamo il mondo). Some “Keep xx Tidy” groups organise Eco-Schools, or Green Schools, with educational programmes for children related to litter²³. PROs and DRS schemes (e.g. in SE, DK, SK, ES, FR) may produce advertisements/ communications to accompany their schemes, according to survey responses.

²² For instance, according to the [Belgian Action Plan on Marine Litter](#), provinces and local authorities organise environmental education campaigns concerning marine litter, some intended for schools across the country. The [German Programme of Measures](#) under the EU Marine Strategy Framework Directive includes an ambition to include the topic of “marine litter” in learning goals, teaching plans and materials. The ambition is to change attitudes and behaviour to not litter.

²³ See, for instance, examples in the [UK](#), [Ireland](#) and [Sweden](#).

Some **awareness-raising on the availability of re-usable alternatives and re-use systems** takes place, according to survey respondents. Information on re-use systems is typically carried out by DRS schemes (e.g. DK, SK, DE). Provision of information on re-usable alternatives seems to be more ad-hoc and may be organised by NGOs (e.g. in IR, DK, SE), private businesses/shops (e.g. in DK and UK), specific brands (e.g. FR) or at specific events such as music festivals (e.g. in UK, DE). Such information often targets specific SUPs such as plastic bottles or cups (information on refillable alternatives/refilling locations e.g. IR, SE, UK, IT) or plastic bags (e.g. IT, ES).

Information on the **impacts of littering/inappropriate waste disposal of SUPs on the environment and on the sewer network** is mentioned by respondents as frequently provided by municipal water treatment authorities or companies operating on their behalf. Several awareness-raising campaigns specifically regarding wet wipes have also taken place (e.g. UK, IR, BE, DE, ES, DK).

The initial stakeholder consultation gives no clear indication as to the **frequency of litter awareness-raising measures**. Who is the initiator and funder of the activity and the intended coverage of campaigns may be more relevant factors than frequency, when determining which of these measures should be covered by EPR schemes in accordance with the SUP Directive, and which should not. The study team has not yet arrived at a clear recommendation in this regard and will continue to consult existing literature and engage with selected stakeholders to seek greater clarity on this. It seems relatively clear that campaigns paid for by public authorities (regardless of campaign coverage) may be covered. However, it may also be argued that other stakeholders sometimes fill this role and therefore ought to be considered for coverage, e.g. relevant nation-wide campaigns by PROs or NGOs.

There is otherwise seemingly **little overall organisation or coordination** of awareness-raising measures. Notably, structured, clear and coherent communication would help ensure that the awareness-raising measures to be covered by EPR under the SUP Directive (envisaged in Article 10) are more effective. This was explored with workshop participants. Some participants suggested that this might be a result of there not having been any consistent funding of this type of practice; that efforts so far have been ad hoc with small budgets. A different participant commented that awareness raising is not always part of EPR schemes statutes.

So far, the literature review undertaken by the study team has identified **experimental approaches for improving effectiveness** of litter-related awareness-raising, such as using nudging²⁴ techniques to encourage correct disposal of litter. In an experiment in Copenhagen, green footprints were drawn on the pavement leading up to city litter bins, resulting in 46% reduction in littering in the first trial and still a 26% reduction three months later. Part of the reasoning for the approach is that people subconsciously like to follow set paths²⁵. The method has also been trialled in some Swedish municipalities. In another example, a "Ballot Bin", a receptacle for cigarette butts, was installed near London underground stations offering a voting function. Each week, sports-related questions were asked such as "Who is the best football player in the world?" Passers-by were invited to vote with their cigarette butt²⁶.

4.3.2 Operational definitions of identified practices

As noted in section 3.2 of this report, the study team is developing an operational definition for each identified collection and litter-related practice undertaken within the three main types of practices referred to in the SUP Directive. Draft suggestions of definitions are provided below. The aim of these operational

²⁴ Nudging is explained in: Thaler, Richard & Sunstein, C. (2009) NUDGE: Improving Decisions About Health, Wealth, and Happiness.

²⁵ Thygesen, J., Thomsen, K., Bach, L., Eliassen, M., Naver Markussen, S., Stage, T., Guldborg Hansen, P. (2011) Nudge for en Ren By. Roskilde: humanistisk basisuddannelse, Roskilde Universitet. See also: <https://inudgeyou.com/en/green-nudge-nudging-litter-into-the-bin/>.

²⁶ More information at <https://ballotbin.co.uk/>.

definitions is ultimately to help to define the costs of which practices should be covered by the relevant SUP Directive provisions.

On “**awareness-raising measures**”, the SUP Directive states the scope should cover:

- *The costs of the awareness-raising measures in Article 10 regarding the products in Section I of Annex Part E, insofar as they are not already included in EPR implementation (Article 8(2)(a))*
- *The costs of the awareness-raising measures in Article 10 regarding the products in Sections II and III of Annex Part E (products for which EPR should be introduced) (Article 8(3)(b))*

In the study team’s view, operational definitions including the elements in the table below would provide clarity on what each practice entails, to identify which costs should be covered. The table includes draft operational definitions of the identified activities. These will be considered further and revised as needed for the draft final report, in discussion with the Commission and taking into account eventual additional stakeholder feedback as the study continues.

Table 6 Proposed elements of the operational definition of each identified practice and draft definitions – Awareness-raising measures

Name of practice	Objective	Service provider	End-user/ audience	Provision of physical infrastructure	Frequency	Location
Litter related product labelling/ marking	X	X	X			
<i>Draft definition: "The inclusion of labelling or marking on products within the scope of the SUP Directive Annex Part E I, II or III (with the exception of products also listed in Annex D, which are subject to the marking requirements in Article 7), with the specific aim of informing consumers and incentivising responsible consumer behaviour in order to reduce litter. The labelling or marking should be carried out by the producer of the product concerned."</i>						
Litter related signs in public areas	X	X	X	X		X
<i>Draft definition: "The provision of permanent litter related signs in public areas, relevant to products within the scope of the SUP Directive Annex Part E I, II or III, with the specific aim of informing consumers and incentivising responsible consumer behaviour in order to reduce litter. The signs should be provided by producers or public authorities."</i>						
Public/consumer-facing litter information campaigns (e.g. leaflets, advertisements)	X	X	X		X	X
<i>Draft definition: "Information campaigns (e.g. leaflets, TV/radio/online advertisements, posters, electronic billboards), relevant to products within the scope of the SUP Directive Annex Part E, II or III, with the specific aim of informing consumers and incentivising responsible consumer behaviour in order to reduce litter. The information campaigns should be provided by producers or public authorities."</i>						
Provision of information about fines/penalties for littering	X	X	X		X	X
<i>Draft definition: "The provision of information (e.g. leaflets, TV/radio/online advertisements, posters, electronic billboards) on fines/penalties for the littering of products within the scope of the SUP Directive Annex Part E, II or III, with the specific aim of informing consumers and incentivising responsible consumer behaviour in order to reduce litter. The information should be provided by producers or public authorities."</i>						

4.3.3 Recommendation on what practices should be covered

The matrix below is a proposed method/tool to identify which practices should be included in the SUP Directive scope with regards to the costs to be covered by EPR. For “**awareness-raising measures**”, relevant criteria as per the requirements of the SUP Directive are:

- *Relevant to SUPs in Sections I, II or III of Annex Part E (Articles 8(2) and 8(3))*
- *Cost of practice not already covered by EPR implementation (Article 8(2)), or other relevant requirements in the SUPD (such as marking requirements in Article 7)*
- *Practice is provided in a cost-efficient way (Article 8(4))*

- *Practice is an awareness-raising activity referred to in Article 10 (to incentivise responsible consumer behaviour/reduce litter by informing consumers about a) the availability of re-usable alternatives, re-use systems and waste management options, b) the impact of littering and other inappropriate waste disposal on the environment and marine environment, or c) the impact of inappropriate means of waste disposal on the sewer network).*

If these criteria are met, the activity would be in scope and therefore costs should be covered by EPR. Based on this reasoning, the study team has provided a draft recommendation of activities to be considered within scope. Examples are included in the matrix below (Table 7) of specific practices that the team deems should and should not be considered for cost coverage. These are included as an illustration of how the criteria would be used; it is not a final nor an exhaustive list of recommendations for inclusion or exclusion from scope.

Table 7 Overview of possible approach to identify measures to be covered, including selection criteria and fictive examples of specific practices – Awareness-raising

	Relevant to SUPs in Sections I, II or III of Annex Part E?	Cost already covered by EPR implementation ?	Cost-efficient practice?	Relevant to awareness-raising measures in Article 10?	To be considered for cost coverage?
Litter related product labelling/marketing					
Specific example of an “in scope” practice: <i>The marking, by the producer, on crisp packets with a message specifically aimed to inform consumers and incentivise responsible consumer behaviour in order to reduce litter. The costs of this measure are not already covered by EPR. It is considered a cost-efficient practice.</i>	Y	N	Y	Y	Y
Specific example of an “out of scope” practice: <i>The marking, by the producer, on beverage containers with a message aimed to encourage responsible disposal of the packaging. The costs of this measure are already covered by EPR. It is considered a cost-efficient practice.</i>	Y	Y	Y	Y	N
Litter related signs in public areas					
Specific example of an “in scope” practice: <i>The local authorities have put up permanent signs in public areas incentivising responsible consumer behaviour when it comes to discarding tobacco products with filters. The costs of these signs are not already covered by EPR. It is considered a cost-efficient practice.</i>	Y	N	Y	Y	Y
Specific example of an “out of scope” practice: <i>The local authorities have put up permanent signs in public areas incentivising responsible consumer behaviour when it comes to discarding food waste, for sanitary purposes. The costs of these signs are not already covered by EPR. It is considered a cost-efficient practice.</i>	N	N	Y	N	N
Public/consumer-facing litter information campaigns (e.g. leaflets, advertisements)					
Specific example of an “in scope” practice: <i>Public authorities provide a TV-broadcasted information campaign informing citizens about responsible behaviour in order to reduce litter of balloons. The costs of the campaign are not already covered by EPR. It is considered a cost-efficient practice.</i>	Y	N	Y	Y	Y
Specific example of an “out of scope” practice: <i>Public authorities hire 1,000 people to hand out 1,000 leaflets providing information about responsible disposal of lightweight plastic carrier bags, with the aim to reduce litter of such products. The costs of this practice are not already covered by EPR. It is not considered a cost-efficient practice.</i>	Y	N	N	Y	N
Provision of information about fines/penalties for littering					
Specific example of an “in scope” practice: <i>The municipality sets up posters on poster boards in the city parks informing citizens about fines/penalties for the littering of products within the scope of the SUP Directive Annex Part E, II or III. The aim of the posters is to encourage citizens not to litter these products. The costs of this practice are not already covered by EPR. It is considered a cost-efficient practice.</i>	Y	N	Y	Y	Y
Specific example of an “out of scope” practice: <i>The municipality publishes an information campaign on their website reminding citizens of fines/penalties for inappropriate disposal of beverage containers. The costs of this practice are already covered by EPR. It is considered a cost-efficient practice.</i>	Y	Y	Y	Y	N

4.4 DISCUSSION ON OVERARCHING DEFINITIONS

The following sections include insights and analysis to date regarding some of the overarching provisions in Article 8 of the SUP Directive. These are provisions for which several stakeholders engaging with the study have asked for clarifications, and/or that the study team deems relevant to explore further.

4.4.1 “Public collection systems”

The SUP Directive does not specify the nature of waste collection systems in public places to be covered by EPR but refers to the general minimum requirements for EPR as laid down in Article 8(a) of the Directive 2008/98/EC, which include a provision that producers are to cover the costs of separate collection. These requirements should apply to the EPR schemes established by the SUP Directive (Recital 22)²⁷.

Stakeholders both responding to the survey and in discussions at the workshop argue that the only reasonable interpretation of the SUP Directive is that costs of waste collection for those products that are discarded in public collection systems necessarily means the costs of *separate* waste collection when separate collection is in place for those products. It is argued that this would be consistent with the purpose of the overall aim of the SUP Directive and with Directives 2008/98/EC and 94/62/EC, which the SUP Directive complements. Furthermore, stakeholders are concerned that a wider interpretation of “public collection systems” would create little incentive for public authorities to invest in separate collection and thereby risks undermining separate waste collection system already established.

It can be noted that separate collection of different waste streams is generally seen as a pre-condition for fostering high quality recycling and high recycling rates²⁸. Articles 8(2)(b) and 8(3) of the SUP Directive refer to covering the costs of “treatment of that waste”. “Treatment” is defined as in Point 14 of Article 3 of Directive 2008/98/EC, i.e. “recovery or disposal operations, including preparation prior to recovery or disposal”. “Recovery” includes recycling of inorganic materials in accordance with Annex II of Directive 2008/98/EC. However, it might be that not all SUPs covered by Article 8 of the SUP Directive can be recycled using existing technologies, something that will also differ between countries and regions.

The study team has not yet arrived at a clear position and will continue to consult existing literature and engage with selected stakeholders on to what extent the guidance may help provide clarity of how the SUP Directive should be interpreted in this regard.

4.4.2 “Insofar as not already included”

For SUPs in Section I Annex E of the SUP Directive, Article 8(2)(b) states that the scope should cover the costs of waste collection, insofar as they are not already included in EPR implementation. This is stated because these products may already be subject to EPR requirements under the Packaging and Packaging Waste Directive and the Waste Framework Directive, although further clarity on this in the guidance on litter clean-up costs would be valuable.

The study team has not yet arrived at a clear position and will continue to consult existing literature and engage with selected stakeholders on to what extent the guidance may help provide clarity of how the SUP Directive should be interpreted in this regard.

²⁷ It should be noted, however, that the SUP Directive does not require separate collection for tobacco products with filters containing plastic, wet wipes or balloons, as it is not required to ensure proper treatment in line with the waste hierarchy.

²⁸ BiPRO/CRI 2015, Assessment of separate collection schemes in the 28 capitals of the EU, Final report, November 2015.

4.4.3 “By public authorities or on their behalf”

Article 8(4) of the SUP Directive stipulates that the costs of cleaning up litter shall be limited to practices undertaken “by public authorities or on their behalf”. In section 4.2.2 above, the study team has proposed ways of interpreting this requirement for individual practices (as part of the operational definitions). However, a wider, overarching definition or recommendation on how to distinguish “on behalf of” might be required in order to ensure proportionality as the SUP Directive stipulates. It may also help to encourage a more harmonised implementation approach across EU Member States.

The study team explored what “on behalf of” means in practice with stakeholders at the workshop. It was also raised by several respondents to the stakeholder survey, i.e. that further clarity is needed as to what this includes, and what not. The most evident chasm between stakeholder groups seems to be to what extent clean-up activities carried out by volunteers (community groups, schools, etc.) should be considered “on behalf” of public authorities and where to draw the line. Some argue that practices “on behalf” of public authorities should be carried out by local authority staff and be paid for by local authorities; others that also the equipment used in voluntary clean-ups (but not time spent) may be financed and therefore covered by EPR. Yet other stakeholders suggest that the distinction could be based on where the cleaning takes place, i.e. cleaning of areas that are managed by public authorities should be covered, whereas any such activities taking place on private land fall outside of scope. Lastly, some stakeholders suggest that funding from public authorities (and thereby coverage by SUP EPR) should be conditioned with compliance with certain clean-up rules, such as using standard equipment, setting an expected result in terms of cleanliness, etc.

The study team has not yet arrived at a clear position and will continue to consult existing literature and engage with selected stakeholders on to what extent the guidance may help provide clarity of how the SUP Directive should be interpreted in this regard.

5. IDENTIFYING COSTS AND DEVELOPING OPTIONS FOR THEIR CALCULATION (WP 6.2)

5.1 IDENTIFY COSTS OF WASTE COLLECTION AND TREATMENT, LITTER CLEAN UP AND AWARENESS RAISING (6.2.A)

Key findings to date on the costs of waste collection systems in public spaces, litter clean up and awareness raising measures are summarised in the following sections. The information is based on the literature review, responses to the stakeholder survey conducted from 22 November 2019 to 10 January 2020 and results of the stakeholder workshop on 25 February 2020.

The work carried out to date has concluded that there is a lack of consistent, regularly updated cost data covering relevant practices which will have a direct impact on feasibility of alternative costing approaches.

In particular, no aggregated, centrally reported data at EU level, nor any regularly updated Member State data exist on the costs of waste collection and litter clean-up. However, a range of existing studies and reports offer valuable insights on waste collection and litter clean-up costs including from DG Environment, JRC, EEA, EMODnet as well as Member State publications (e.g. a biannual costing survey of Local Authorities in Belgium).

The following sections, therefore, focus on reviewing the availability and scale of reported cost data and regularity of updates to inform the assessment of alternative costing approaches.

5.1.1 Costs of waste collection systems in public places

<i>Relevant SUP products</i>	
Annex E, Section I (Article 8(2))	Annex E, Section III (Article 8(3))
Food containers Packets and wrappers Beverage containers (including caps and lids) Cups for beverages Lightweight plastic carrier bags	Tobacco products with filters and filters marketed for use in combination with tobacco products

In the EU, the collection of waste from public collection systems, its transport and its treatment are largely carried out by local authorities/municipalities or by sub-contracted companies on their behalf. While information on the costs of waste collection systems in public places may be available from individual municipalities, no aggregated, centrally reported and regularly updated Member State data exist on the **costs of waste collection in public places**, or its subsequent transport and treatment.

Nevertheless, studies and reports identified by the study team, as well as responses to the survey, provide several examples of cost data and cost estimates at national, municipal or site/ activity level.

In Belgium (Flanders), OVAM (the Flemish Waste Agency) carries out a bi-annual, activity-based costing survey which represents the best available example of comprehensive **national scale cost data**. The survey collects available data on costs of waste collection in public spaces from all local authorities. The survey also covers costs of litter clean-up and awareness raising measures. While the survey is voluntary, it is the best identified example of regularly updated information on waste collection and processing costs across the Member States while also covering the amount and composition of the litter collected.

The latest OVAM study²⁹ (published in 2017) reported a total cost for litter in Flanders of €125 million³⁰, or about €20 per person. €117 million of this represented costs to local municipalities for public waste bin collection and litter clean-up, of which €24.6 million were costs associated with waste collection from bins.

National-level cost data are also available in Denmark, where costs to Danmarks Naturfredningsforening (NGO) are reported at about 1.3 million DKK (or €0.17 million) per year³¹.

Cost data is also available at **municipal level**, including:

- In Finland⁵:
 - In Tampere, waste collection costs from litter bins are estimated to account for 10-20% of total sanitation costs (street cleansing and sweeping, litter collection and picking, etc.) equating to €2 million per year.
 - In Helsinki, total costs of waste collection are €11.8 million; of which €3.5 million are spent on waste collection in city parks and €8.3 million in city streets.
- In Ireland, VOICE (NGO) collated information from 24 councils on street cleaning, litter and street rubbish bin collections and reported total average annual costs of €68 million per year. The data collated showed significant cost variation between municipalities; Dublin City Council alone accounted for almost half of the annual nationally reported expenditure (€30 million); whereas smaller counties spend an average of €350,000 per year.

Finally, some **cost information** is also available on **unitary basis** such as activity, weight or person. For instance:

- In Ireland, VOICE (NGO) calculated³² that taxpayers pay between €1,500 and €1,600 per tonne per year for the clean-up, transport and disposal of public waste.
- In Finland (Tampere), the cost of emptying one public litter bin was estimated at €10 per litter bin³³.
- In Italy, the city of Milan equipped its bins with sensors detecting when the bins are close to being full (to divert the nearest truck for collection and avoid the build-up of litter around the bins). The installation cost of such sensors was €100 per bin (excluding maintenance)³⁴.

Information on the costs of waste collection in public places is generally not available, according to country respondents to the stakeholder survey (e.g. ES, DK, CZ, EE, PL, RO, NO)³⁵. At the same time, most respondents noted that while no national statistics exists, cost data is (or may be) available from municipalities who are responsible for waste management (BE, FI, DK, DE, CZ, EE, ES, PL, NO). Such cost data, where available, is likely to be aggregated (i.e. part of an overall contract with waste management companies) and the **ability to disaggregate costs to specific activities is often limited**. For instance, in Finland, in many cases the costs of litter collection are included in the total regional contract with a chosen contractor without specific cost items being separated. Furthermore, significant **spatial and seasonal variation in costs of waste collection in public places** is noted (FI, IE).

Similarly, **no cost information was available from manufacturers, NGOs and other organisations** responding to the survey, across different Member States (SE, SK, DK, AT, FI, DE, FR, ES, NL, BE, EL, IT, RO)³⁶ with many respondents again highlighting that such data may be available from municipalities.

²⁹ https://ovam.be/sites/default/files/atoms/files/Zwerfvuil_Sluikstort_Studie_2017-DEF.pdf.

³⁰ The costs exclude Mooimakers budget (€9.6 million) for awareness raising.

³¹ Information provided by Ministry of the Environment (Finland).

³² <https://voiceireland.org/perch/resources/public-waste-out-of-sight-out-of-mind-1.pdf>.

³³ No details were provided on the frequency of emptying the bin (per day/ week etc.).

³⁴ Information from Citeo.

³⁵ With the exception of NL.

³⁶ With the exception of the references to OVAM studies, NL study on the cost of litter and reported costs in Denmark.

The challenges associated with identifying and reporting costs linked specifically to waste collection in public spaces, and SUPs in particular, were noted. There are only few examples where such a distinction can be made. For example, in Barcelona, it is reported that 80% of the municipality’s total waste cost goes towards the collection of waste of public spaces³⁷.

5.1.2 Costs of cleaning up litter

Relevant SUP products		
Annex E, Section I (Article 8(2))	Annex E, Section II (Article 8(3))	Annex E, Section III (Article 8(3))
Food containers Packets and wrappers Beverage containers (including caps and lids) Cups for beverages Lightweight plastic carrier bags	Wet wipes Balloons	Tobacco products with filters and filters marketed for use in combination with tobacco products

As described in section 4.2.1, many litter clean-up practices in EU Member States are responsibility of local authorities. Costs of litter clean-ups are typically very high due to manual handling and the dispersed nature of littering. A range of cost data and estimates is available at the EU, national, municipal or site/ activity level from published studies, reports and stakeholder survey responses.

Land-based litter clean-up practices

No aggregated information is available on the annual costs of **land-based litter clean-up practices** for Member State public authorities. However, a range of cost data and estimates are available.

In the EU, Eunomia (2018)³⁸ calculated total costs of ground litter clean-up in the EU at ~€7.7 billion. The Clean Europe Network³⁹ has estimated annual costs of cleaning litter at €1 billion per year, and a total cost of cleaning up litter on land throughout the EU to be in the range of €10-13 billion.

Some cost data is also available at the **national level**:

- In Belgium (Flanders), according to the latest published OVAM study⁴⁰ (2017) total costs to local municipalities for public waste bin collection and litter clean-up in Flanders were €117 million per year, of which €92.3 million were costs associated with litter clean-up (i.e. costs excluding dealing with waste that has been correctly deposited in the public waste bins).
- In the Netherlands, a study on costs of litter clean-up (2010) estimated the total costs of litter clean-up at €250 million, including €193 million in costs to municipalities to prevent, clean up and treat litter. Total costs of street cleaning amounted to 88% (€220 million), cost of treatment to 5.5% (€14 million) and cost of litter prevention to 6.5% (€16 million)⁴¹.
- In Ireland, VOICE (NGO) collated information from 24 councils on street cleaning, litter and street rubbish bin collections and reported total average annual costs of €68 million per year⁴².

³⁷ Rethink Plastic Alliance.

³⁸ Eunomia (2018). Assessment of measures to reduce marine litter from single use plastics.

³⁹ The Clean Europe Network - <https://www.cleaneuropenetwork.eu/en/facts-and-costs/aup/>.

⁴⁰ https://ovam.be/sites/default/files/atoms/files/Zwerfvuil_Sluikstort_Studie_2017-DEF.pdf.

⁴¹ https://kenniswijzerzwerfafval.nl/document/rapport-kostenonderzoek-zwerfafval-nederland?destination=/bibliotheek%3Fdoc%3D61%26facet_subjects%255B0%255D%3D202.

⁴² No details are provided on the proportion of litter clean up within these total costs (covering both litter clean-up and waste bin collections)

- In Italy, estimates of the direct costs of littering⁴³ range from €1.2 billion to €2.3 billion⁴⁴.

Some cost data is also available at **municipal level**. However, when available, reported cost estimates are rarely exclusively related to street litter and/or the SUP products listed in Annex E of the SUP Directive. Typically, reported costs also cover other practices including collecting and emptying public bins. For instance, the costs to Dublin City Council quoted above (€30 million) cover waste collection and litter clean-up.

Finally, some **cost information** is also available on **unitary basis** such as activity, weight or person. For instance:

- European Commission (2018)⁴⁵ calculated the costs of waste collection and treatment using unit costs from the EU reference model on municipal waste management. The reference unit cost was €4,000 per tonne to collect ground litter (Eunomia, 2018)⁴⁶.
- In Ireland, Dublin City Council spends around €20 million of its litter budget on clean up and bins⁴⁷. This equates to €1,166 per tonne. Calculated costs for the clean-up, transport and disposal of public waste across 24 councils were between €1,500 and €1,600 per tonne per year.
- In the UK the unit cost to local authorities of keeping streets clean was €33 per household⁴⁸ per year, whilst the unit cost of collecting litter from roads was about €1,000 per kilometre per year⁴⁹, and the unit cost of removing litter from forests was about €1,800 per tonne⁵⁰.

Beach litter clean-up practices

In the context of beach litter clean-up practices, information is available on the amount and composition of beach litter (by item count), along with existing and proposed measures, but only limited information exists on the cost of associated beach clean-up practices.

In the EU, European Commission (2018)⁵¹ reported an average cost of €410 million per year (for the EU) to clean up 50,000 kilometres of **EU coastline** (with a range of €194 to €630 million).

In the Netherlands, the total costs of removing beach litter from all Dutch beaches was estimated to cost between €3.7 million and €5.3 million per year (Ecorys, 2012). While in Romania, Mare Nostrum (NGO) is carrying out bi-annual marine litter monitoring and litter pick up and disposal covering more than 48,000 metres squared of beach. The costs are about €5,000 per year (Mare Nostrum).

Some cost data is also available at the **municipal level**. For instance:

- In the Netherlands, the total costs to 14 coastal municipalities of removing beach litter were approximately €2.5 million per year (Ecorys, 2012).
- In Sweden:
 - The Swedish EPA (Naturvårdsverket), SEPA estimated an annual cost to municipalities of 10-15 million SEK per year to keep the Bohus coastline clean from litter (equivalent to about €0.9-€1.4 million) (2012). In 2018-2019, funding to municipalities to clean their beaches reached 17 million SEK per year (most of the

⁴³ No details are provided on the proportion of litter clean up within these direct costs of littering

⁴⁴ http://www.ansa.it/canale_ambiente/notizie/focus_energia/2017/11/23/littering-quanto-ci-costi_e5b8a047-14f0-4c86-aea2-75b25e220a0c.html.

⁴⁵ European Commission (2018). Impact Assessment. Reducing Marine Litter: action on single use plastics and fishing gear. SWD(2018)254 final, May 2018.

⁴⁶ Eunomia (2018). Assessment of measures to reduce marine litter from single use plastics.

⁴⁷ <https://voiceireland.org/perch/resources/public-waste-out-of-sight-out-of-mind-1.pdf>.

⁴⁸ Costs of keeping the streets clean in 2016/2017 were £29 per household (ONS, 2018).

⁴⁹ Highways England spends at least £6 million a year on collecting litter from the roads under its responsibility. Total network is 6,920 miles equating to £867 per kilometre.

⁵⁰ In the UK, every year 250 tonnes of litter are removed from the Forest of Dean area at a cost to the taxpayer of up to £0.4 million equating to £1,600 per tonne. Defra (2018). Litter Strategy for England.

⁵¹ European Commission (2018). COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT Reducing Marine Litter: action on single use plastics and fishing gear.

- o municipalities were on the west coast) (equivalent to about €1.7 million per year).
- o Overall, SEPA is spending €10 million a year trying to reduce litter in the oceans.
- o The project Renoch Attraktiv Kust estimated the cost at about 17 million SEK per year (2016) of beach clean ups.
- o Furthermore, Keep Sweden Tidy organises yearly school clean-up events at a cost of around €0.25 million (annual costs covering materials, tools and campaign costs).

Finally, some **cost information** is also available on a **unitary basis** such as by activity, weight or person. For instance:

- European Commission (2018) reported €24,000 per tonne for beach litter collection
- Eunomia (2018)⁵² reported the average cost of beach clean-up at €8k compared to the cost of bathing beaches of €40k.
- In France, the average cost of manual beach cleaning ranges from €1,000 to €2,000 per year per beach (assuming 10-20 events per year) (Citeo).
- In Germany, the average costs of a beach clean-up are €1,500 per event.

While local authorities are usually responsible for beach clean-up and may also have responsibilities for managing littering at sea, NGOs are the main actors in the field of marine litter monitoring. For example, the Impact Assessment for the SUP Directive⁵³ highlights that the majority of beach and marine litter clean-ups are voluntary-based or funded by private entities, local authorities or the EU.

According to survey respondents, information on the costs of litter clean-up is generally **not available from country respondents** (e.g. ES, DK, CZ, EE, PL, RO, NO) or **manufacturers, NGOs and other organisations** across different Member States (SE, SK, AT, DE, FR, ES, IE, BE, EL, IT, RO)⁵⁴. Notable exceptions include Belgium, the Netherlands and Sweden. As in the case of waste collection costs, several respondents (CZ, ES, NO) noted that while no national statistics exist, cost data may be available from municipalities responsible for litter clean-up.

5.1.3 Costs of awareness raising measures

Relevant SUP products		
Annex E, Section I (Article 8(2))	Annex E, Section II (Article 8(3))	Annex E, Section III (Article 8(3))
<ul style="list-style-type: none"> - Food containers - Packets and wrappers - Beverage containers (including caps and lids) - Cups for beverages - Lightweight plastic carrier bags 	<ul style="list-style-type: none"> - Wet wipes - Balloons 	<ul style="list-style-type: none"> - Tobacco products with filters and filters marketed for use in combination with tobacco products

As described in section 4.3.1, litter awareness raising measures in the EU are carried out by a wide range of actors including local, regional and national authorities, NGOs, individual companies, EPR schemes and trade associations.

Limited information is available on the costs of **awareness raising measures**, including:

- European Commission (2018) calculated the costs of awareness raising using the unit cost

⁵² Eunomia (2018). Assessment of measures to reduce marine litter from single use plastics.

⁵³ European Commission (2018). COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT Reducing Marine Litter: action on single use plastics and fishing gear. Accompanying the document Proposal for a Directive of the European Parliament and of the Council on the reduction of the impact of certain plastic products on the environment. SWD(2018) 254 final.

⁵⁴ With the exception of the references to OVAM studies, NL study on the cost of litter and reported costs in Romania and Sweden.

- of €0.20 per inhabitant per year⁵⁵.
- The Swedish EPA is spending €2 million per year on public awareness campaigns.
 - In Belgium:
 - A considerable share of the annual budget of Mooimakers (€9.6 million) is dedicated to awareness raising measures⁵⁶. Mooimakers is the initiative against litter and illegal dumping of the OVAM, Fost Plus (EPR scheme) and the VVSG⁵⁷.
 - Fost Plus (packaging EPR scheme) is investing €17 million annually on various measures including Mooimakers and BeWaPP.
 - In France, Citeo (packaging EPR scheme) spends 1% of its annual budget on financing awareness raising measures, which all contribute to preventing litter.
 - In Spain, Ecoembes (packaging EPR scheme) invests over €30 million annually in awareness raising and prevention, including the Libera programme, and in activities aimed at promoting separate collection.
 - In Germany, the Association of the German Confectionery Industry spends about €0.14 million annually on awareness raising.

Information on the costs of awareness raising measures to inform the public about the **availability of re-usable alternatives and re-use systems is generally not available** from country respondents to the survey (e.g. ES, CZ, SE, EE, PL, RO, NO). In Spain and Czech Republic, such information could be available from individual municipalities, while in Estonia, the total cost (budget) of awareness raising measures is known.

Similarly, **no cost information was available from manufacturers, NGOs and other organisations** responding to the survey across different Member States (SE, SK, FR, ES, NL, BE, EL, IT, RO). In Denmark, information is available on the operation of its Deposit Return Scheme⁵⁸ for aluminium, glass and plastic bottles and cans including on costs. AICA (International Association on Environmental Communication) noted that often such campaigns are organised directly by the private sector, or, in the case of public authorities, costs are included in overhead costs. In Slovakia, EPR schemes are required to report quarterly and annually where they specify budget spent on the awareness campaigns.

Information on the costs of awareness raising measures to inform the public about the **impacts of littering/inappropriate waste disposal of SUP on the environment and on the sewer network is generally not available** from Member State respondents (e.g. ES, EE, PL). Several respondents (DK and RO) provided references to existing initiatives, such as Keep Denmark Clean⁵⁹ or examples of information provided by municipalities⁶⁰, but no cost data was made available.

Similarly, **no cost information was available from manufacturers, NGOs and other organisations** across different Member States (SE, DK, IE, SK, FR, ES, NL, BE, EL). EurEau noted that there are numerous campaigns across the EU developed, implemented and financed by individual wastewater treatment plants, national associations of water operators or other actors. In Germany, costs of public awareness raising campaigns (manpower costs) are covered by the waste fees to which producers of packaging contribute in accordance with the German Packaging Act. A Romanian NGO noted that such campaigns can be executed on a low budget. AICA shared several studies and publications in Italy⁶¹ about costs of littering and behavioural aspects of littering. The European Parliament & Party Council are running a central awareness raising campaign to which all members are contributing.

⁵⁵ The unit cost was calculated using UK WRAP's annual expenditures to carry out household waste information campaigns.

⁵⁶ The organisation drafts an operational plan every year which sums up all actions and estimates corresponding costs.

⁵⁷ Association of Flemish Cities and Municipalities (VVSG).

⁵⁸ <https://www.danskretursystem.dk/en/>.

⁵⁹ <https://www.holddanmarkrent.dk/>.

⁶⁰ <https://primariaclujnapoca.ro/informatii-publice/comunicate/colectarea-selectiva-a-deseurilor-conform-oug-74-2018/>.

⁶¹ http://www.ansa.it/canale_ambiente/notizie/focus_energia/2017/11/23/littering-quanto-ci-costi_e5b8a047-14f0-4c86-aea2-75b25e220a0c.html.

5.2 OPTIONS FOR PRINCIPLES, PROCEDURES AND METHODOLOGIES TO CALCULATE AND DISTRIBUTE COSTS (6.2B)

This section presents findings to date on the development of options for principles, procedures and methodologies to calculate costs, as well as ways that these costs can be distributed and organised amongst producers within the EPR schemes to be implemented in accordance with Article 8 of the SUP Directive.

The findings summarised below include key relevant outcomes of the workshop held on 25 February 2020, along with relevant information from additional literature review and updated findings from the previous tasks of WP6.

5.2.1 Approach for development of options on cost calculation

The key areas considered by the study team for the development of options for principles, procedures and methodologies to calculate costs in the context of EPR schemes are summarised below in Table 8. The key references to relevant legislative provisions are also indicated.

Table 8: Relevant legislative provisions for the calculation and distribution of costs

Elements to be considered in options		Reference to legislative text/ provisions
Principles for calculating costs	Policy coherence	Article 8(1)(2), SUP Directive
	Proportionality	Article 8(4), SUP Directive Recital 22 SUP Directive
	Necessary costs	Article 8(4), SUP Directive
	Transparency	Article 8a(4), Waste Framework Directive
Procedures and methodologies for calculating costs	Scope of cost coverage	Article 8(2)(3), SUP Directive Article 8a(4), Waste Framework Directive
	Calculation methodology	8(4), SUP Directive
Distribution of costs		Recital 23, Waste Framework Directive Recital 26, Waste Framework Directive
Organisation of producer responsibility		Article 8(5), SUP Directive Recital 14, Waste Framework Directive

5.2.2 Principles for calculating costs

The use of a clear and robust methodology for the calculation of costs is essential and relies on the application of several principles to provide an accurate, transparent and proportionate calculation of costs based on best practices, uniformly applied across the EU.

Guidance for calculating costs should comply with the principles of **necessary cost** and **proportionality** in accordance with Article 8(4) of the SUP Directive and Article 8a (4) of the WFD. Additionally, the establishment of EPR schemes should respect a number of principles and conditions including policy coherence, proportionality, cost-effectiveness and transparency, whilst also taking into

account other factors such as preserving the integrity of the EU's Internal Market, product/sector and national/local specificities e.g. regional waste infrastructure systems.

Policy coherence

As mentioned throughout section 4, the general minimum requirements for EPR schemes established in Article 8a of the WFD apply to all EPR schemes established based on EU or national legislation, including new schemes envisaged in Article 8 of the SUP Directive. These EPR requirements aim to ensure appropriate balance between ensuring harmonised implementation of EPR schemes across the EU and leaving flexibility to Member States to establish schemes for a variety of different products and taking into account national circumstances.

The SUP Directive requires the establishment of EPR schemes for the single-use plastic products listed in Annex E (see Table 9). At present, EPR schemes exist only for SUP packaging products (in accordance with the PPWD) and these currently exclude litter clean-up responsibilities.

The SUP Directive complements the minimum EPR requirements in Article 8a of the WFD with more specific EPR objectives and requirements for the single-use plastic products concerned, notably in regard to:

- Setting objectives of EPR schemes in relation to the clean-up of litter and the financial responsibility of the producers to fulfil that objective; and
- Including more specific awareness raising obligations for the EPR schemes concerned (in addition to obligations laid out in Article 8a(2) and (4)(a) second indent of the WFD⁶².

Article 8(1) of the SUP Directive requires the guidelines for criteria on litter clean-up costs to be fully aligned with existing European legislation, especially with the WFD and PPWD, to ensure:

- Legal certainty for economic operators who already started investing significant resources to implement the new EPR rules; and
- Harmonised interpretation of the net cost principle laid down in Article 8a(4a) first indent of the WFD, e.g. revenues from the sale of collected and sorted litter to recyclers should reduce the relevant producer's litter clean-up fees.

Necessary costs

Article 8(4) of the SUP Directive and Article 8a(4) of the WFD require Member States to design EPR schemes to ensure that the financial contributions paid by producers are sufficient to comply with its obligations, while not exceeding the necessary costs of doing so in a cost-efficient way.

In other words, the implementation of EPR obligations through financial instruments e.g. levies, EPR fees, etc. should be applied in a way that fulfils EPR objectives i.e. covering the full cost of relevant waste prevention and waste management operations. The financial instruments established must remain cost-effective, and correspond to the costs to be covered by the EPR scheme.

The ongoing study to support the Commission's Guidance for EPR Schemes⁶³ (hereafter referred to as the Draft guidance on EPR) describes necessary costs as the **net operational and waste management costs of an adequate and acceptable waste management system**, which includes handling, collection and treatment operations, together with the costs of supporting activities such as communications (and awareness raising) and data acquisition and management. The Draft guidance on EPR considers costs as "necessary" if they relate to expenditures that:

- Are attributable to the delivery of the relevant services;
- Reflect the delivery of a system, which is efficient within the context of a particular locale;
- Can be appropriately assigned to the products placed on the market by the producer;

⁶² Commission non-paper on links between the proposed Directive on the reduction of the impact of certain plastic products on the environment and other EU legislation.

⁶³ Eunomia (ongoing). Study to support preparation of the Commission's Guidance for Extended Producer Responsibility. Report for DG DNV.

- Reflect a system that maximises value as regards the costs of material management and the value obtained from the recyclable material; and
- Are established in a way that provides a reasonable level of transparency.

In regard to the last point listed above, to ensure the cost-effectiveness of EPR schemes, the draft guidance also recommends the consideration of the following factors:

- **Reflect the correct total amount** of financial contributions from producers to fully cover the national costs of managing their waste, and that these costs are sufficient to support activities that deliver targets; and
- **Provide a method of allocating funds** to waste collection and sorting operations, which will often be delivered by third parties such as municipalities and waste management companies, and others engaged in the transport, processing and treatment of waste⁶³.

The conclusions of the preliminary findings in section 4, which identify examples of practices to be covered by EPR in relation to waste collection, litter clean-up and awareness-raising complement the recommendations provided in the draft guidance on EPR. Necessary costs cover practices in line with the recommendations outlined in sections 4.1.3, 4.2.3 and 4.3.3. Furthermore, in accordance with the SUP Directive, when separate collection is not relevant for the EPR scheme, the minimum requirements in relation to separate collection established in Article 8a WFD are not relevant and should not be applied. This aspect is further explained in the following section 5.2.3.1 on scope of costs to be covered.

Proportionality

While the objective of the SUP Directive is to ensure that frequently littered items are collected, it is important to ensure that costs are “*established in a proportionate way*” (Article 8(4), SUP Directive). As such, it is necessary to establish a clear definition of proportionality i.e. the extent that a public space is considered clean or in need of cleaning-up. A balance must be respected in regard to the costs to be covered, the appropriate allocation of costs to responsible producers, and the reality on the ground in order to avoid additional administrative, operational and financial burdens in reporting, measurement and calculation of costs.

The conclusions of the preliminary findings in section 4, which identify the types of practices to be covered by EPR in relation to waste collection, litter clean-up and awareness-raising, complement the above-mentioned principles on proportionality. The costs to be covered should be in line with the recommendations outlined in sections 4.1.3, 4.2.3 and 4.3.3.

Transparency

It is important to ensure robustness and transparency of the data and process used to establish necessary costs, cost allocation, etc. Where factors such as availability, practicability or commercial confidentiality mean that it is not feasible to achieve complete transparency regarding data on resource use and/or costs, the Draft guidance on EPR suggests that it may be necessary to establish specific guidelines, standards, criteria etc. to allow for the availability, reliability and comparability of data⁶⁴.

5.2.3 Procedures and methodologies for calculating costs

Regarding the different procedures and methodologies for calculating costs, guidance is needed in regard to the **scope of costs covered** as well as the **calculation methodology**. Key findings from stakeholder consultation and literature on these aspects are provided in the following sections.

⁶⁴ Eunomia (ongoing). Study to support preparation of the Commission’s Guidance for Extended Producer Responsibility. Report for DG DNV.

5.2.3.1 Scope of costs to be covered

In line with the polluter pays principle, the design and implementation of EPR schemes should ensure that the **full costs** of the relevant litter related activities defined in the SUP Directive of the end of life of products are covered. Table 9 summarises the different practices to be financed by producers in relation to the different SUP products concerned. See chapter 4 of this interim report and the list of recommended types of waste collection, litter clean-up and awareness raising practices to be covered.

Table 9: Costs to be covered by EPR schemes in accordance with Article 8(2)(3) of the SUP Directive

Annex SUPD	SUP products	Waste collection	Litter clean-up	Awareness raising
Annex EI	<ul style="list-style-type: none"> - Food containers - Packets and wrappers - Beverage containers (incl. caps and lids) - Cups for beverages - Lightweight plastic carrier bags 	Yes	Yes	Yes
Annex EII	<ul style="list-style-type: none"> - Wet wipes - Balloons 	No	Yes	Yes
Annex EIII	<ul style="list-style-type: none"> - Tobacco products with filters and filters marketed for use in combination with tobacco products 	Yes	Yes	Yes

Costs to be covered by producers should be clearly defined in terms of the **geographical area** of collection, clean-up and awareness raising measures based on and consistent with the measures a Member State takes to implement its obligations to prevent, reduce and clean-up of litter under Articles 9(1)(l), 28(3)(f), 29(1) and 36(1) WFD and other relevant EU legislation, in particular, the Marine Framework Strategy Directive⁶⁵.

Moreover, the costs that producers must meet should be established in direct relationship with applicable national targets and objectives. As such, it is important that they are clearly defined. Targets and objectives should be adapted to what is relevant for the EPR schemes to implement the objectives of the SUP Directive to prevent, reduce and clean-up litter so as to reduce the impact of plastic pollution on the environment and in particular the aquatic environment. Targets and objectives may vary depending on the specific product, its littering patterns and pathways, and the most appropriate treatment for such waste. Likewise, relevant objectives in terms of ambition, scale, frequency, location, which will also differ across Member States. Therefore, the relevant targets and objectives should be based on and consistent with the measures a Member State takes to implement its obligations to prevent, reduce and clean-up of litter under Articles 9(1)(l), 28(3)(f), 29(1) and 36(1) of the WFD and other relevant EU legislation, in particular, the Marine Framework Strategy Directive⁶⁶.

It should be noted that although out-of-home collection is an important element of existing and forthcoming EPR schemes with respect to tackling litter and waste management in general, the principal objective of the SUP Directive is to reduce marine litter from the SUP products most commonly found on European beaches. As such, a more specific rule is established in the SUP Directive covering a broader notion of collection costs that allows a more tailored approach to the specific products

⁶⁵ Commission non-paper on EPR costs.

⁶⁶ Commission non-paper on EPR requirements.

considered, including separate collection where appropriate to facilitate recovery for the relevant products. This concerns in particular the following SUP products: wet wipes, tobacco filters and balloon sticks, where separate collection is not currently necessary to ensure appropriate treatment (recovery through incineration or landfilling). Therefore, EPR requirements proposed in the SUP Directive do not specifically oblige producers to ensure and pay for separate collection of such waste⁶⁶.

5.2.3.2 Calculation methodology

In regard to the establishment of EPR fees, in accordance with Article 8(4) of the SUP Directive, Member States are allowed to set **multiannual fixed amounts**. Cost estimates should be established at national level due to the significant variation in costs across Member States.

As a starting point, the costs should reflect the **share of SUP items in the total litter** at the Member State, regional or local level. The following criteria may then be considered when calculating cost estimates, differing between Member States:

- **Population density**, which may result in a cost reduction in more sparsely populated areas.
- **Labour costs**, which may vary within individual countries as well as among Member States.
- **Collection and treatment infrastructure** in place locally and the level of service provided, which may change from year to year.

In cases where these differences are significant, there may be, on the one hand, benefits in establishing costs at a local level and building up a national assessment “from the bottom up”⁶⁷. On the other hand, to address the issue of necessary costs and cost-effectiveness, the cost calculation could rely on a benchmark or reference cost reflecting an optimised performance, independent from local authorities’ waste management approaches⁶⁸. Likewise, stakeholders also raised the following concerns and suggestions to take into account for the calculation of costs:

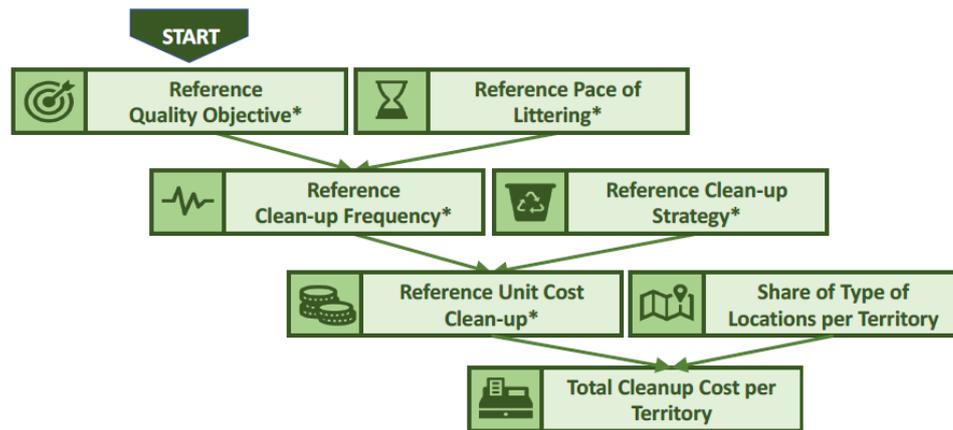
- Addressing the **challenge of obtaining accessible, reliable and comparable data** to calculate costs.
- **Adaptability of costs over time**: the calculation methodology should allow for EPR systems to adapt costs over time in correlation with litter from each item and establish review processes in that regard. Decreasing costs over time as litter decreases would provide an incentive to all actors to reach the litter reduction objectives.

Figure 2 below provides an illustrative example of the different elements that could be considered for the establishment of the calculation methodology, which is based on the geographic context e.g. targeted or ‘hot spot’ locations and includes for example aspects such as frequency of littering (see also Table 6), unit costs specific to the product group concerned as well as total clean-up costs per territory. Other aspects, such as the impact on the environment of SUP products included in the SUP Directive, could also be considered as criteria for the calculation methodology.

Figure 2: Illustrative example of an approach for the calculation methodology

⁶⁷ Eunomia (ongoing). Study to support preparation of the Commission’s Guidance for Extended Producer Responsibility. Report for DG ENV.

⁶⁸ European Commission (2014). Development of Guidance on Extended Producer Responsibility.



* To be determined by type of location or cluster of location

Box 2 summarises the main findings gathered so far on the scope and calculation of litter clean-up costs. Similar information will also be provided as the study progresses for costs of waste collection and treatment in public places and relevant awareness raising measures.

Box 2: Options for calculation of litter clean-up costs

Scope of litter clean-up costs: In light of the operational definitions and recommendations for the types of practices to be covered under litter clean-up costs (see section 4.2.3), the Commission non-paper on EPR costs recommends that litter clean-up costs should cover the contribution of litter clean-up in public spaces e.g. streets and roadsides, markets, marine and freshwater beaches, riversides, nature areas, etc. which reflect the share of concerned products in total litter. Key relevant stakeholder feedback also largely reflects the Commission non-paper as follows:

- Costs should correlate with litter quantities (decreasing costs when litter decreases) and appropriate review processes should be established that take into account progress in innovation, improved collection and recycling practices, and subsequent reductions in littering.
- EPR fees should be calculated based on the quantity of products placed on the market and on the share of publicly littered products found. Existing activities, which are organised and/or funded by the producers to reduce litter, may also be taken into account in the calculation of the fees.

Calculation methodology for litter clean-up costs: Member States are responsible for the final modalities regarding the calculation of litter clean-up costs and the share of the costs to be covered by producers (in accordance with the principles of subsidiarity and proportionality).

The Commission non-paper on EPR costs suggests that Member States could identify the share of the products concerned based on regular and representative litter samples e.g. via beach litter surveys that underpin the SUP Directive. However, it would be necessary to ensure that litter sampling approaches are not only cost-effective, but also as representative and exhaustive as possible. Similarly, the following summarises some of the key main points raised by stakeholders in regard to the calculation methodology for litter clean-up, which will be further assessed in next steps:

- As per Article 8a (4a) first indent of the WFD, the net cost principle should apply so revenues accrued from the sale of cleaned up littered items should reduce the relevant producer's litter clean-up fees.
- Costs of litter clean-up should be estimated as a percentage of the total costs of litter clean-up and distributed proportionally based on the share of the different groups of SUP items under Annex E of the SUP Directive.

5.2.4 Distribution of costs

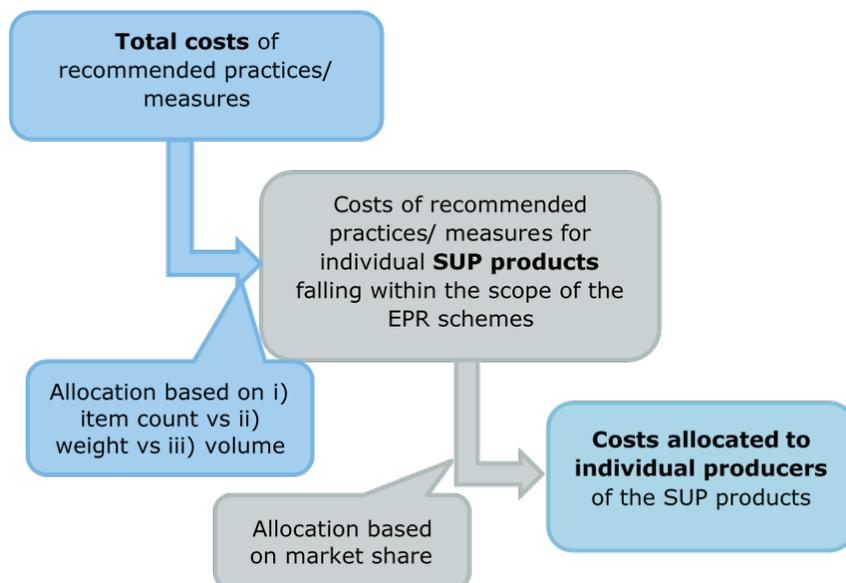
The SUP Directive requires that the costs to be covered are established in a **proportionate and transparent way between the actors concerned** (Article 8(4)). Costs of waste collection, litter clean-up practices and awareness raising measures need to be distributed across **multiple sectors** (SUP products) and **producers** based on a set of clear rules to ensure proportionality and transparency.

The different steps of the allocation of costs include the following:

1. The calculation of costs for SUP products covered by the SUP Directive among total litter collected (based on the share of SUP products in total litter) (see section 5.2.3.2)
2. The allocation of costs between different categories of SUP items among total SUP litter collected/cleaned up (see section 5.2.4.1)
3. The allocation of costs between individual producers of the SUP categories mentioned above (see section 5.2.4.2)

The overall approach to distribution of costs between SUP products and producers of SUP products proposed by the study team is illustrated in Figure 3.

Figure 3: Determining the level of costs to be borne by producers relevant to SUP products covered by Article 8 on EPR of the SUP Directive



Determining the level of costs to be borne by producers is directly linked to the identification of necessary costs. Stakeholders both responding to the survey and in discussions at the workshop argue that the allocation of costs should first of all reflect the **share of SUPs in the total litter** (having regard to the recommended practices falling within the scope of EPR schemes), sampled in targeted locations.

Only necessary costs as defined in the sections above should be used as a basis for allocation to i) SUP products and ii) individual producers.

5.2.4.1 Allocation of costs to SUP products

The first step entails **allocation of total costs** of recommended practices and measures to individual **sectors/ SUP products**.

A number of potential allocation options exist including **item or weight-based allocation** of eligible costs to SUP products. As weight and item count of different SUP products differ significantly, switching from cost allocation by litter weight to allocation by litter count significantly impacts compliance costs for some SUP products such as cigarette filters⁶⁹. Therefore, producers of relatively small and light SUP items such as balloons and tobacco products are in favour of using weight-based cost allocation rule; while producers of other SUP products tend to be in favour of item count based allocation.

Additional factors to consider when comparing these allocation options include:

- Impact of external factors such as moisture content and contamination when using weight based calculation;
- Consistency of using item count based allocation approach with existing litter monitoring;
- Consistency of using item count based allocation approach with the “Total Abundance” method used by the Joint Research Centre (JRC) and the European Commission to draw a list of the top marine beach litter items;
- Impact of counting individual pieces of (the same) SUP product on the allocation.

Overall, when considering the pros and cons of different allocation options, weight-based allocation would be more relevant to reflect disposal costs while item count/volume based allocation would be more relevant for collecting / cleaning up and logistics costs. The choice of the most appropriate cost allocation basis should be driven by the consideration of:

- Key cost factors (i.e. are the costs of recommended practices driven by number or weight of collected or littered items);
- Key drivers for environmental impact of littered SUP products; and
- Potential impact on producer behaviour and incentive to innovate.

For instance, in the context of environmental impact, litter count better reflects the potential impact on marine life, as species are more affected by the number of litter items than by weight⁷⁰.

5.2.4.2 Allocation of costs to SUP producers

The second step entails **allocating costs** of recommended practices and measures to individual **SUP producers**. Since the identification of exact product brands is generally not possible in litter, the costs may be shared among all relevant producers based on their **market share**.

Irrespective of the basis used (item count or weight), robust, **representative and transparent litter surveys** will be essential for the distribution of costs and implementation of the SUP Directive. However, a balance is needed to ensure that obtaining the data required is proportionate and does not entail significant additional administrative burden in reporting and calculating costs.

For example, litter clean-up costs should be based solely on the items related to each producer and reflect the share of the concerned item in total litter. A producer’s contribution to litter clean-up should not be used to subsidize the clean-up of other producers’ products. In practice, since identification of exact product brands is not always possible in litter, the costs could be shared among all relevant producers of a specific product category in a proportionate way and administered over a specific time period e.g. licensing period for producer responsibility organisations.

As mentioned previously in section 5.2.3.1 on scope of costs to be covered, the calculation methodology should be aligned with the specific targets and objectives established at MS level and may vary depending on the specific product concerned and national specificities. For example, EPR fees for

⁶⁹ European Commission (2018). COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT Reducing Marine Litter: action on single use plastics and fishing gear. Accompanying the document Proposal for a Directive of the European Parliament and of the Council on the reduction of the impact of certain plastic products on the environment. SWD(2018) 254 final

⁷⁰ European Commission (2018). COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT Reducing Marine Litter: action on single use plastics and fishing gear. Accompanying the document Proposal for a Directive of the European Parliament and of the Council on the reduction of the impact of certain plastic products on the environment. SWD(2018) 254 final

cigarettes and wet wipes should include a component where litter clean-up costs are based on the proportion of those items in litter counts⁷¹. Further, for certain SUP products such as cigarette filters, switching from allocation by litter count to allocation by litter weight could significantly impact compliance costs. **Error! Bookmark not defined.** The modelled impact of the EPR introduction⁷² suggests for cigarette filters a reduction in marine litter by 0.2% (weight based) versus 38.4% (count based).

5.2.5 Organisation of producer responsibility

5.2.5.1 Individual and collective fulfilment of EPR obligations

In accordance with the SUP Directive, producers would be subject to both **financial and organisational responsibility** for end-of-life treatment of the products placed on the market.

To meet EPR requirements, producers generally organise themselves through Producer Responsibility Organisations (PROs), which can be established **collectively or individually**. While EPR is an individual obligation, collective schemes can be established to mutualise responsibilities. Due to the business advantages, economies of scale and to facilitate the centralisation and exchange of data, producer obligations are often exerted through collective PRO systems⁷³.

Article 8a(5) of the WFD states that in cases where PROs implement extended producer responsibility obligations on behalf of producers, the Member State concerned shall appoint at least one body independent of private interests or entrust a public authority to oversee the implementation of extended producer responsibility obligations. Under the SUP Directive, this requirement would only be relevant where a Member State provides for implementation of EPR obligations through multiple organisations. The requirement is essential for the administration and enforcement of the producers' financial responsibility.

The specific roles and responsibilities of the key actors involved in an EPR scheme, particularly PROs, differ greatly depending on how the scheme is implemented and according to specific national regulations and conditions. In all cases, it is essential that the legal, financial and organisational roles and responsibilities of all actors involved in the EPR scheme are clearly defined to ensure not only transparency in regards to for example establishing a system of traceability and cost distribution, but also to prevent the existence of free-riders.

5.2.5.2 Financial and organisational responsibility

Financial responsibility in the context of EPR implies that producers/PROs are held financially liable for the cost of waste management operations. In other words, producers must pay corresponding EPR fees to finance collection and treatment operations. Chapter 4 summarises the different practices concerned in regard to the EPR requirements laid down in the SUP Directive for which producers would be responsible for financing.

Organisational (physical) responsibility refers to end-of-life management operations. In cases where individual producers or PROs are also responsible for organisational aspects of the EPR scheme, activities to be carried out include for example:

⁷¹ Impact Assessment on a Proposal for a Directive of the European Parliament and of the Council on the reduction of the impact of certain plastic products on the environment. Retrieved from: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018SC0254>.

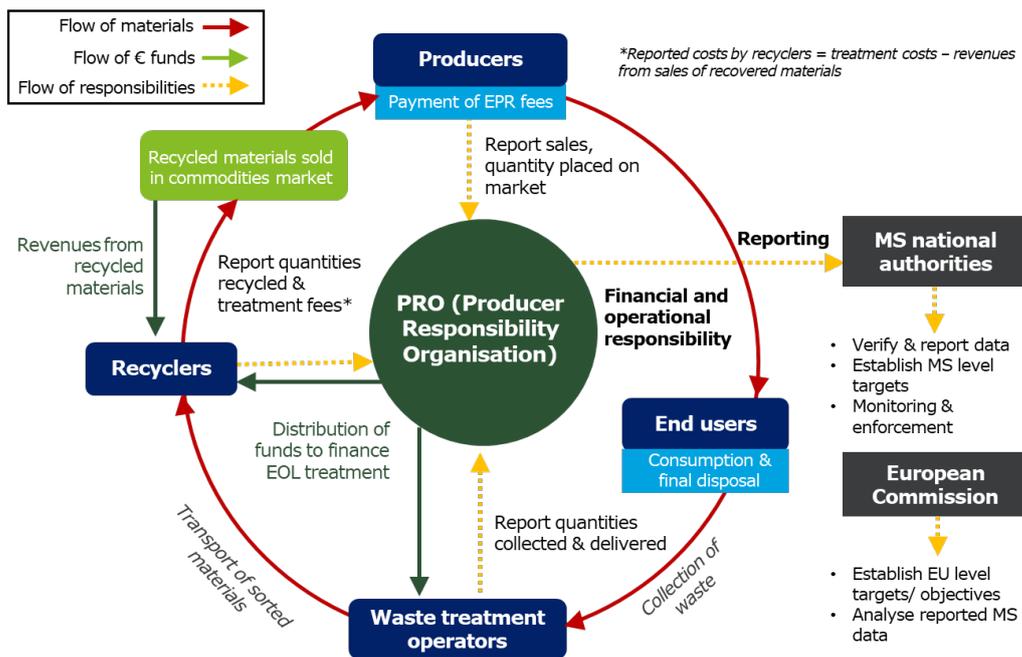
⁷² European Commission (2018). COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT Reducing Marine Litter: action on single use plastics and fishing gear. Accompanying the document Proposal for a Directive of the European Parliament and of the Council on the reduction of the impact of certain plastic products on the environment. SWD(2018) 254 final [option 2b]

⁷³ OECD (2014). The State of Play on Extended Producer Responsibility: Opportunities and Challenges. Retrieved from: www.oecd.org/environment/waste/Global%20Forum%20Tokyo%20Issues%20Paper%2030-5-2014.pdf

- **Data management:** collecting, monitoring and reporting of data e.g. volumes put on the market, quantities collected and recycled, etc.
- **Organising and/or supervising activities:** organising waste treatment operations, launching bids and contracting out with waste management operators, communication campaigns, etc.

Figure 4 below provides an illustrative example of an EPR scheme where PROs are responsible for carrying out the financial and organisational requirements on behalf of producers.

Figure 4: Illustrative example of operational system of EPR scheme



5.2.5.3 Existing EPR schemes and initiatives

Existing EPR, awareness raising schemes and voluntary commitments should also be considered in regard to the most effective way to implement the EPR requirements laid down in the SUP Directive and Waste Framework Directive. In particular, the **maturity level** of existing EPR schemes at national level provides important insights on the establishment of new EPR schemes. In general, it has been observed that countries with a long history of well-established EPR schemes also have the knowledge needed on how to continuously improve existing systems at national level. This is an important advantage and success factor for EPR, compared to countries where the development and establishment of EPR schemes is still at earlier phases, implying the need for a transition period and learning process to take place in order to catch up with more advanced EPR systems. The maturity level of existing EPR schemes established at national level can be assessed with respect to factors such as:

- **Time period or history of EPR schemes:** For example, Germany implemented first EPR scheme on packaging in 1996, whereas in Poland the EPR scheme for packaging was not established until 2001.
- **Number of EPR schemes and scope of products/ waste streams covered:** France is among the EU countries with the highest number of EPR schemes and largest scope of waste streams/ products covered.
- **Evidence of the contribution and effectiveness** of the scheme in achieving waste management goals and targets, waste prevention, etc.

In addition to the above aspects, further assessment will also be carried out on the implications of existing (potentially overlapping) EPR schemes, awareness raising initiatives and voluntary industry commitments.

PART III. SUMMARY OF PROGRESS TO DATE AND NEXT STEPS

The work undertaken in Work Package (WP) 6 has so far included:

- A targeted online stakeholder survey
- Review of relevant literature
- A dedicated workshop held in Brussels on 25 February 2020, attended by over 60 stakeholders
- Consultation with Member States e.g. 11th March 2020 Member State meeting with expert group on waste

These activities have resulted in a large amount of material that the study team is continuing to analyse. This interim report has presented the state-of-play of that analysis.

The material collected through stakeholder consultation includes useful concrete examples and available data. A significant share of the input has, however, been largely opinion-based; some has questioned aspects related to the SUP Directive that have already been decided ahead of the adoption of the Directive. The study team has made an effort to ensure that only useful and relevant points have been reflected in this interim report and will continue to make this distinction as the work continues.

Next steps of WP 6.1 will include:

- **Adding further analysis and clarity** on certain issues that still deserve attention, including:
 - If, and if so to what extent, the litter clean-up cost guidance should provide clarity on the nature of waste collection systems in public places to be covered by EPR. More specifically, whether or not separate collection of the SUPs in Annex E Sections I and III should be encouraged, and if so how.
 - How the guidance could add further clarity regarding how to interpret “insofar as not already included”, in the context of costs of waste collection of SUPs in Section I Annex E of the SUP Directive.
 - How to account for litter clean-up practices around music festivals and other large-scale public events where the organiser is responsible for waste management and litter clean-up within the event perimeter. To what extent a distinction needs to be made as to which aspects should be covered by EPR.
 - To what extent cleaning up SUPs in municipal wastewater treatment infrastructure should be covered and under what conditions.
 - What might be a useful distinction in the guidance on how to interpret “by public authorities or on their behalf”?
 - In the case of litter awareness-raising measures, the importance of who is the initiator and funder of the activity versus the intended coverage of campaigns for determining which of these measures should be covered by EPR schemes in accordance with the SUP Directive, and which should not.
 - The effectiveness of measures whose costs are to be covered by EPR – several stakeholders have asked for clarification on how effectiveness can be ensured in relation to waste collection in public places, litter clean-up practices and litter awareness-raising measures. The team will discuss with the Commission to what extent effectiveness should be taken into consideration; research into the effectiveness of measures is not within the study’s scope, but the issue is relevant since using EPR to cover the cost of ineffective measures is clearly not desirable.
- **Completing final lists of operational definitions**, in discussion with the Commission and taking into account eventual additional stakeholder feedback as the study continues (e.g. the team may consider ‘testing’ proposed definitions with a small number of targeted stakeholders).

- **Completing final lists of practices recommended to be within or outside of scope**, in discussion with the Commission and taking into account eventual additional stakeholder feedback as the study continues.

Next steps of WP 6.2 will include:

- **A review of forthcoming reports and publications** (publishing date permitting):
 - A study on costs of litter clean-up (the Netherlands)
 - A study to define reference cleaning costs for different types of area (city centre, rural road, public traffic area, etc.) (Belgium, OVAM)
 - 2020 OVAM survey on waste collection and clean-up costs (Belgium, OVAM)
 - A paper on littering (Germany, IGP/EPA) and costs (Federal Ministry for the Environment and the Association of Municipal Enterprises (VKU)), and a forthcoming study by Municipal Waste Europe looking at litter-related costs in several Member States
- **Completing the mapping of available cost data against recommended operational definitions and practices** using the following proposed template:

	Scale			
	EU	National	Municipal/ Service area	Site/ Product/ Activity
Waste collection in public places				
<i>Recommended practice 1</i>				
<i>Recommended practice 2</i>				
...				
Litter clean-up				
<i>Recommended practice 1</i>				
<i>Recommended practice 2</i>				
...				
Awareness raising				
<i>Recommended practice 1</i>				
<i>Recommended practice 2</i>				
...				

- **More in-depth analysis and investigation** on key identified areas where further information is needed, namely in regard to options for:
 - Calculating costs on waste collection in public areas and treatment;
 - Calculating costs on awareness raising activities;
 - Organisation of producer responsibility, in regard to options and recommendations on individual versus collective approaches and the implications of potentially overlapping existing initiatives at national level. This will be closely aligned with the draft EPR guidelines; and
 - Cost distribution
- **Additional literature review and targeted stakeholder interviews**, where relevant, is envisioned to gather more information on the areas listed above.

ANNEX

Stakeholder consultation – results in the round

About 60 stakeholders responded to the **survey** questions on litter clean-up costs. A break-down of their affiliation is provided in Figure 5 below.

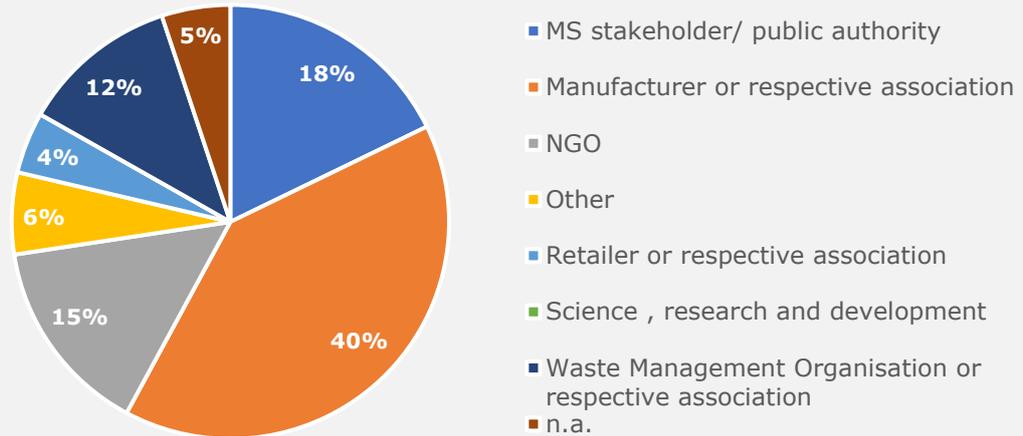


Figure 5: Contribution per stakeholder type on survey questions related to guidelines on litter clean-up costs

The **workshop** was attended by 63 stakeholders representing manufacturers or respective associations, NGOs, retailers, waste management organisation and producer responsibility organisations (PROs).

With regard to wider **literature** on the subject, the study team has identified that there is limited aggregate/ overview information on waste collection systems in public places, as this is generally the responsibility of individual municipalities. The same is true for litter clean-up practices and awareness-raising measures – there is plenty of information provided by the range of relevant individual initiatives and organisations, but limited information providing an overview, e.g. in a country or region.