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PART 1/2

COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT

Accompanying the document

**Proposal for a regulation of the European Parliament and of the Council
on shipments of waste and amending Regulations (EU) No 1257/2013 and (EU) No
2020/1056**

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Table of contents

GLOSSARY	3
1. INTRODUCTION	6
1.1 Policy context	9
1.2 Legal context	10
1.2.1 The international legal framework: the Basel Convention and the OECD Decision	10
1.2.2 The EU legal framework	11
1.2.3 Links with other EU legislation	15
1.3 Evaluation of the WSR	15
2. PROBLEM DEFINITION	17
2.1 What are the main problems that the review of the WSR seeks to address?	18
2.2 What are the problem drivers?	21
2.3 Who is affected and how?	24
2.4 How will the problem evolve?	26
3. WHY SHOULD THE EU ACT?	26
3.1 Legal basis	26
3.2 Subsidiarity: Necessity and added-value of EU action	27
4. OBJECTIVES: WHAT IS TO BE ACHIEVED?	27
5. BASELINE	28
6. WHAT ARE THE AVAILABLE POLICY OPTIONS FOR THE REVIEW OF THE WSR?	32
6.1 Description and screening of the measures	32
6.1.1 Description of potential measures to address the objectives of the review of the WSR	32
6.1.2 Screening	38
6.2 Measures that were discarded	41
6.3 Policy options	43
7. WHAT ARE THE IMPACTS OF THE POLICY OPTIONS?	48
7.1 Impacts of the proposed measures	48
7.1.1 Objective 1: Facilitate shipments within the EU, in particular to align the WSR with circular economy objectives	48
7.1.2 Objective 2: Guarantee that waste exported outside the EU is managed in an environmentally sound manner	64
7.1.3 Objective 3: Better address illegal shipments of waste within the EU as well as illegal exports to third countries.	85
7.2 How the options compare	89

8.	PREFERRED OPTION	96
8.1	Conclusions based on the analysis of the impacts.....	96
8.2	Overall impact of the preferred option	100
8.3	REFIT (simplification and improved efficiency)	101
9.	HOW WILL IMPACTS BE MONITORED AND EVALUATED?.....	103

GLOSSARY

Term or acronym	Meaning or definition
Animal By-products Regulation	Regulation (EC) No 1069/2009 of the European Parliament and of the Council of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No 1774/2002.
Basel Convention	Basel Convention of 22 March 1989 on the control of transboundary movements of hazardous wastes and their disposal.
Batteries Directive	Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC (OJ 266, 26.9.2006).
Combined Nomenclatures, CN codes	The Combined Nomenclature (CN) is a tool for classifying goods, set up to meet the requirements both of the Common Customs Tariff and of the EU's external trade statistics. The CN is also used in intra-EU trade statistics.
Competent authority	Competent authority as established under art. 2.18 of the Waste Shipment Regulation
Correspondents	Art. 54 of the WSR establishes for Member States and the Commission to each designate one or more correspondents responsible for informing or advising persons or undertakings making enquiries.
Disposal	Any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy. Annex I of Directive 2008/98/EC on waste sets out a non-exhaustive list of disposal operations.
EFTA	The European Free Trade Association (EFTA) is the intergovernmental organization of Iceland, Liechtenstein, Norway and Switzerland.
ELV Directive	Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles (OJ L 269, 21.10.2000).
Environmental Crime Directive	Directive 2008/99/EC of the European Parliament and of the Council of 19 November 2008 on the protection of the environment through criminal law (OJ L 328, 6.12.2008)
Environmentally sound management (“ESM”)	Environmentally sound management as defined by the Basel Convention means taking all practicable steps to ensure that [...]wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes;
EPR	Extended producer responsibility.
Eurostat	Eurostat is the statistical office of the European Union situated in Luxembourg. Its mission is to provide high quality statistics for Europe.

Green-listed waste	Green listed wastes (presenting low risk for human health and the environment ¹), are not subject to any other controls than those normally applied in commercial transactions; (Amber listed wastes on the other hand are largely those regulated under the Basel Convention (listed in its Annexes II ² and VIII ³))
IMPEL	European Union Network for the Implementation and Enforcement of Environmental Law
IMPEL-TFS	Working Group on transboundary shipments of waste under IMPEL
EDI	Electronic data interchange
EU List of Waste	Commission Decision of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste (2000/532/EC). OJ L 226, 6.9.2000.
Export	Export is defined by the WSR as “the action of waste leaving the Community but excluding transit through the Community ”
Exporter	“natural or legal person arranging for the export of the waste”
OECD Decision	Decision of the Council on the Control of Transboundary Movements of Wastes Destined for Recovery Operations (OECD/LEGAL/0266).
OLAF	The European Anti-Fraud Office
Packaging and Packaging Waste Directive	European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste. OJ L 365, 31.12.1994, as amended by Directive 2018/852.
Port Reception Facilities Directive	Directive 95/21/EC, which was amended by Directive 2001/106/EC concerning the enforcement, in respect of shipping using Community ports and sailing in the waters under the jurisdiction of the Member States, of international standards for ship safety, pollution prevention and shipboard living and working conditions (port State control). OJ L 157, 7.7.1995.
Proximity principle	Wastes should be disposed of as close to the source as possible.
REACH, REACH Regulation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and

¹ A typical example is clean and well sorted paper waste. Annex III and IIIA of the WSR provides the list of these wastes.

² This Annex includes mixed household wastes and unsorted hard to recycle plastic waste.

³ This Annex contains waste like waste oils and waste asbestos.

	repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.
Recovery	Any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Annex II of Directive 2008/98/EC on waste sets out a non-exhaustive list of recovery operations.
Recycling	Any operation which reprocesses waste materials into useful products, materials or substances.
REFIT platform	The REFIT Platform brings together the Commission, national authorities and other stakeholders in regular meetings to improve existing EU legislation.
Regulation (EC) 1418/2007	Commission Regulation (EC) No 1418/2007 of 29 November 2007 concerning the export for recovery of certain waste listed in Annex III or IIIA to Regulation (EC) No 1013/2006 of the European Parliament and of the Council to certain countries to which the OECD Decision on the control of transboundary movements of wastes does not apply.
Self-sufficiency principle	At Community and, if possible, at Member State level. Member States need to establish, in co-operation with other Member States, an integrated and adequate network of waste disposal facilities ⁴ .
Ship Recycling Regulation	Regulation (EU) No 1257/2013 of the European Parliament and of the Council of 20 November 2013 on ship recycling and amending Regulation (EC) No 1013/2006 and Directive 2009/16/EC.
WEEE	Waste electric and electronic equipment
WEEE Directive	WEEE Directive: Directive 2012/19/EU on waste electrical and electronic equipment (WEEE).
WFD, Waste Framework Directive	Waste Framework Directive: Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (OJ L 312, 22.11.2008).

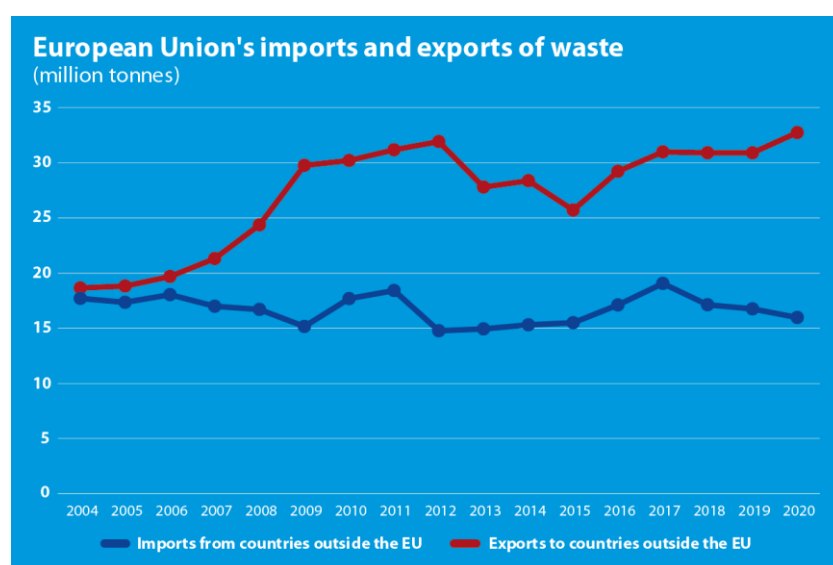
⁴ One related provision would be art. 16 of the Waste Framework Directive.

1. INTRODUCTION

Global trade in waste reached 182 million tonnes with a value of around 80.5 billion euro in 2018⁵. Such trade has increased considerably in the last decades, with a peak at nearly 250 million tonnes in 2011.

The EU generated 2400 million tonnes of waste in 2018 corresponding to a 5.1% increase since 2010⁶. In 2020, the EU exported to non-EU countries around 32.7 million tonnes of waste, an increase of 75% since 2004 (see Figure 1). This is only 1.4% of the total waste generated in the EU. However, for some waste streams, exports represent a large proportion of the waste generated in the EU. Ferrous and non-ferrous metal scrap, paper waste, plastic waste, textile waste and glass waste represent the majority of waste exported outside the EU. The 32.7 million tonnes of exported waste have a value of 13.0 billion euro and the EU also imported approximately 16 million tonnes, with a value of 13.5 billion euro.

Figure 1 – EU import and export of waste



ec.europa.eu/eurostat 

The export of waste to OECD member countries represents around 50% of the overall volume and value of waste exported outside the EU. This is notably due to the fact that Turkey is by far the biggest importer of waste from the EU. Again, there are significant differences between different waste streams. Ferrous metal scrap and glass waste exported from the EU are mostly destined to OECD member countries, while non-ferrous scrap, paper waste, plastic waste and textile waste are mostly exported to non OECD member countries.

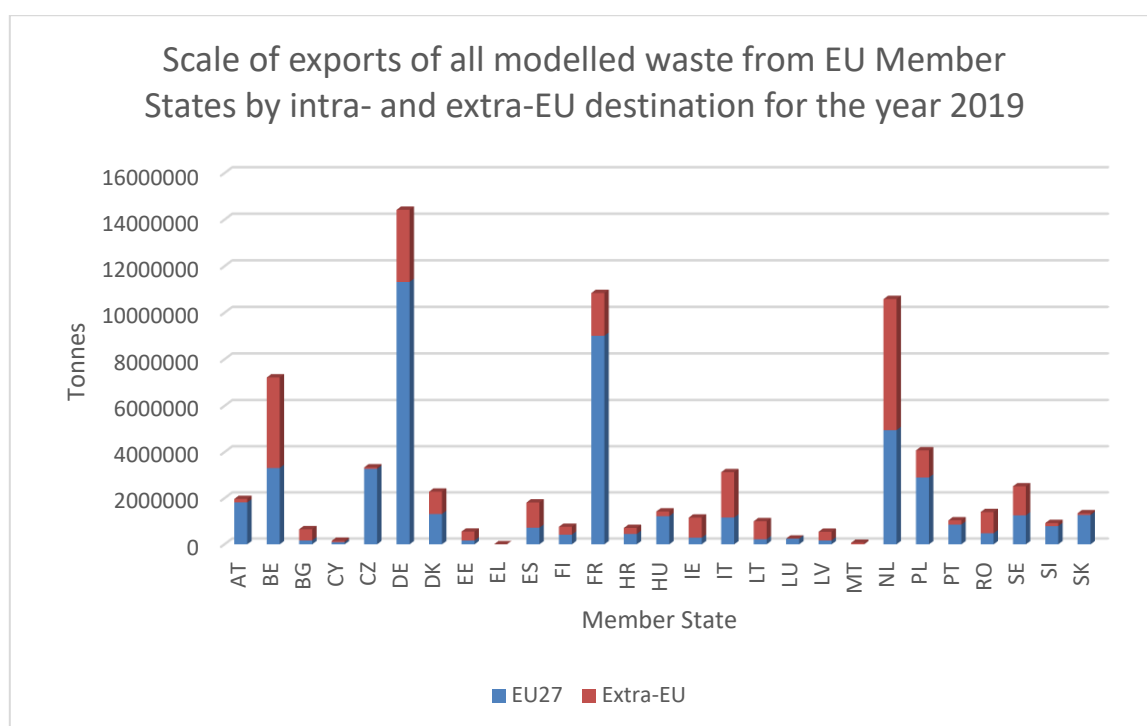
⁵ Yamaguchi, S (2021, forthcoming), “International trade and circular economy – policy alignment”, *OECD Trade and Environment Working Papers*, OECD Publishing, Paris, [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=COM/TAD/ENV/JWPTE\(2020\)2/FINAL&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=COM/TAD/ENV/JWPTE(2020)2/FINAL&docLanguage=En). - <https://doi.org/10.1787/18166881>

⁶ This data is updated in even years. The 2020 data will be published in 2022.

In addition, around 67 million tonnes of waste per year are shipped between EU Member States⁷ (intra-EU shipments of waste).

The economic profile and geographical position of a Member State influence the volume of waste shipped to and from that Member State. Some Member States rely more on the shipments of waste out of their territory than others, mostly due to their location and/or due to insufficient domestic capacity. In general, the more industrialised countries are important actors in the shipment of waste. Also, more shipments of waste occur from, to and via countries with significant port infrastructure. For instance, Germany, Belgium and the Netherlands received 40% of all plastic waste shipped from other Member States in 2019. These Member States are also the largest exporters of waste outside the EU. Figure 2 below shows the share of the intra- and extra-EU shipments of waste by weight for the most important waste streams traded within and outside the EU - ferrous metals, non-ferrous metal, paper and cardboard, textiles, plastics and glass.

Figure 2 - Share of the intra- and extra-EU shipments of waste by weight



As indicated above, the EU exported 32.7 million tonnes of waste in 2020. The export of hazardous waste is either prohibited (to non-OECD countries) or subject to the notification procedure. The amount of waste exported outside the EU subject to the notification procedure amounted to 1.9 million tonnes in 2017. Of these, 0.72 million tonnes, or 2.32% of the overall volume of waste exported outside the EU, concern hazardous waste. The figures below provide an overview of the main categories of waste imported into and exported from the EU.

⁷ Source: Comext. The scope of 'waste' is measured in terms of relevant product codes from the [Combined Nomenclature](#) used in International Trade in Goods Statistics - see list of codes in the Appendix to Annex 5 of this report.

Figure 3 – Exports and imports of the main categories of waste from/to the European Union

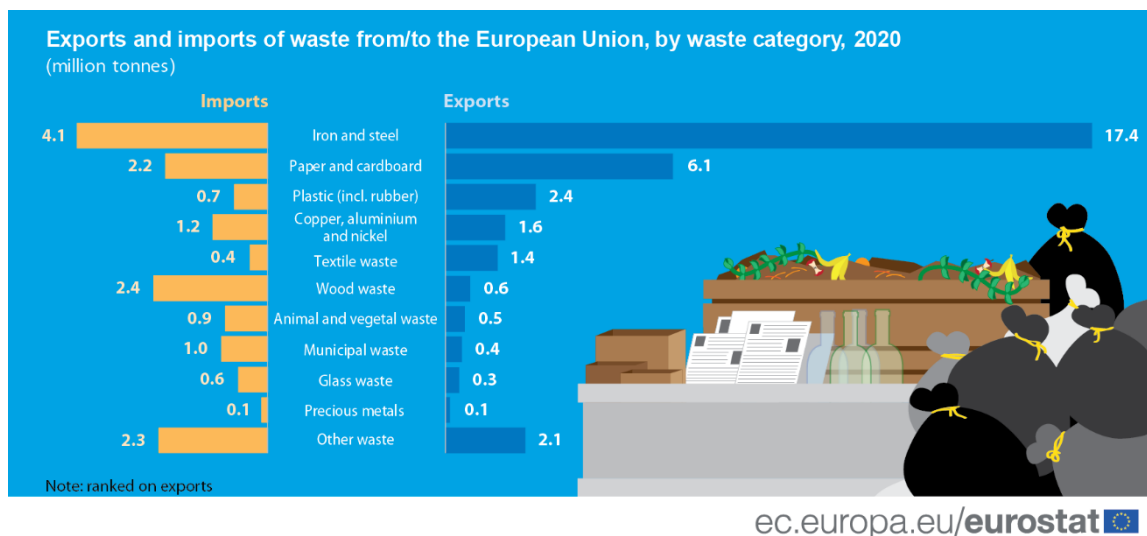
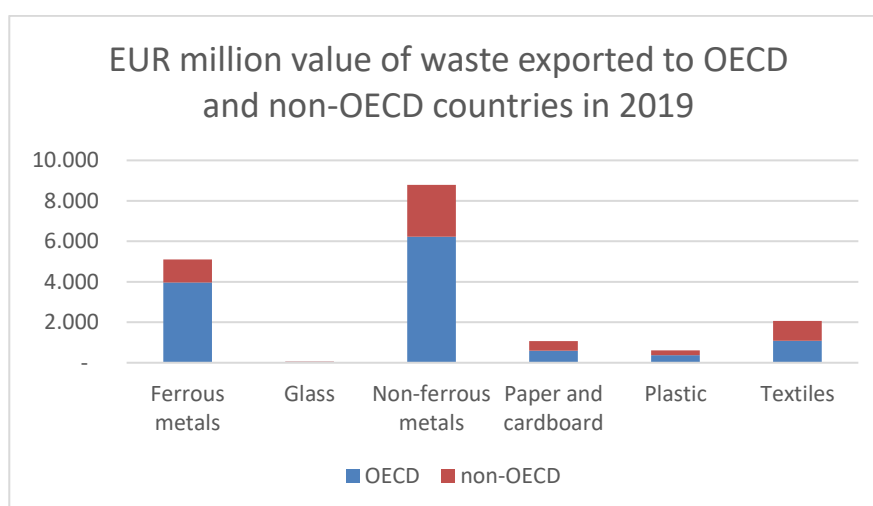


Figure 4 – Exports of waste from the EU to OECD and non-OECD countries



The export of “green-listed” waste represents by far the largest share of these overall exports. Metal scraps account for about 50% of all waste exported from the EU and paper, plastic and textile wastes represent the other most important types of waste. Statistics and further details on the trends for the export of these wastes outside the EU (volume, value, main countries of destination) are presented in Annex 7.

Waste shipped across borders can generate risks for human health and the environment, especially when not controlled properly. At the same time, these wastes often have a positive economic value, notably as secondary raw materials that can replace virgin materials and thereby contribute to a more circular economy.

Measures on the supervision and control of shipments of waste have been in place in the EU since 1984. In 1989, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (‘the Basel Convention’) was adopted to address serious problems linked to deposits of toxic wastes imported from abroad to various parts of the developing world. In 1992, the OECD adopted a legally

binding Decision⁸ on the control of transboundary movements of wastes destined for recovery operations ('the OECD Decision').

Regulation (EC) No 1013/2006⁹ (Waste Shipment Regulation (WSR)) implements the provisions of the Basel Convention and of the OECD Decision into EU law. The WSR sets out control mechanisms for the export and import of waste from the EU to third countries, as well as for shipments between EU Member States. In certain instances, the WSR contains stricter control measures than the Basel Convention.

1.1 Policy context

In December 2019, the European Commission adopted the **Communication on a European Green Deal**, which sets out an ambitious roadmap to transform the EU into a sustainable economy. It indicates that the European Commission should revisit the rules on waste shipments and that the EU should stop exporting its waste outside the EU. The 2020 Communication on the **new Circular Economy Action Plan** further stresses the need for action to ensure that (i) shipments of waste for re-use and recycling in the EU are facilitated, (ii) the EU does not export its waste challenges to third countries and (iii) illegal waste shipments are better addressed. Both **the Council and European Parliament** have also called for a revision of the WSR^{10 11}. It also stresses that the European Union cannot deliver alone to tackle the global waste challenges and that it should enhance its global leadership in this regard.

These calls for changes arise in a situation where **the global waste market is undergoing major changes**, which have important repercussions for the EU. In the 1990's and 2000's, the export of waste outside the EU steadily increased, with more waste destined to countries outside the OECD. In recent years, a number of countries which were previously importing considerable quantities of waste from the EU have restricted imports. The most significant is China, which used to be by far the largest importer of plastic and paper waste from the EU. Since 2018, it has taken a series of drastic import restrictions for most waste streams. Following this decision, important waste flows were re-routed from the EU to other Asian countries. Some of these also adopted waste import restrictions¹², especially for plastic waste, as a response. The exposure to negative environmental impacts linked to the growing volume of plastic waste exported from OECD countries to developing countries, also led the 187 Parties to the Basel Convention to adopt new global rules governing the trade in plastic waste in 2019. These new rules entered into force in the EU in 2021 and mean that large categories of plastic waste can no longer be exported from the EU to non OECD member countries.

This resulted in a decrease of export from the EU of some types of waste (mostly plastic and paper waste) since 2017, with large quantities staying in the EU instead. Exports of

⁸ Council Decision C(92)39/FINAL on the control of transboundary movements of wastes destined for recovery operations (this Decision was amended and the last version is Decision of the Council on the Control of Transboundary Movements of Wastes Destined for Recovery Operations (OECD/LEGAL/0266)

⁹ <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32006R1013>

¹⁰ https://www.europarl.europa.eu/doceo/document/TA-9-2021-0040_EN.html

¹¹ <https://data.consilium.europa.eu/doc/document/ST-13852-2020-INIT/en/pdf>

¹² Malaysia, Thailand and Vietnam for example have in the last years enacted new, stricter provisions on the import of a number of waste streams (notably, plastic waste, metal waste, e-waste)

other waste streams (metal scraps, textile and glass waste) have remained stable or continued to increase.

The import restrictions from some countries have exposed the fragility of a business model/supply chain where the export of waste was a common way of dealing with some waste streams generated in the EU. Broadly, the EU is exporting its waste challenges to third countries, where it might create serious environmental and human health problems, as well as security issues in case of illegal waste trafficking. The export of this waste also means that it is not used in the EU. This contributes to maintaining the dependence of the EU industry to virgin materials, which has important environmental consequences¹³ and result in the fact that only 12% of raw materials used by EU's industry come from recycling. These externalities could be substantially reduced if larger volumes of waste were recycled and re-enter the economy as secondary materials in the EU. In that context, increased opportunities for reuse and recycling can be seen as an opportunity to support the aim of the Circular Economy Action plan for increased use of secondary raw materials and the promotion of “recycled in the EU” as a benchmark for these materials.

1.2 Legal context

1.2.1 The international legal framework: the Basel Convention and the OECD Decision

The **Basel Convention** entered into force on 5 May 1992. Its 187 Parties include the EU and all EU Member States. It covers hazardous wastes, as well as “other wastes” (which currently include household waste, residues arising from the incineration of household waste and - since 2021 - hazardous and hard-to-recycle plastic wastes).

The main purpose of the Basel Convention is to provide a global legal framework on the transboundary movements of hazardous waste and reduce them globally. It aims to minimize the negative environment and human health impact of such wastes and ensure their environmentally sound management. To do so, the Basel Convention sets up a procedure of prior informed consent (PIC), according to which the exporting and importing countries need to give their authorization for any shipment to take place legally.

In December 2019, an important amendment to the Convention entered into force (the “Basel ban amendment”), which prohibits the export of hazardous waste from OECD and EU countries to non-EU, non-OECD countries. The EU and its Member States have ratified and are bound by this amendment, but many other OECD countries are not.

Article 11 of the Basel Convention allows Parties to enter into bilateral, multilateral, regional agreements or arrangements on the transboundary movement of waste, which might derogate from the Convention, provided that these agreements or arrangements contain provisions which are not less environmentally sound than the Convention. These instruments need to be notified to the Secretariat of the Basel Convention. On this basis,

¹³ The extraction and processing of virgin materials generate high environmental externalities in terms of greenhouse gas emissions and other environmental factors (for more information this, see <https://www.euric-aisbl.eu/position-papers/item/335-uric-unveils-metal-recycling-brochure>)

the EU submitted in 2020 a notification¹⁴, covering shipments of waste within the Union, providing the EU with the possibility to maintain a specific regime for intra-EU shipments of waste, which might differ from the provisions of the Convention.

The OECD Decision provides a simplified and more detailed framework to facilitate and control transboundary movements of waste destined for recovery operations between OECD member countries¹⁵. It also distinguishes between green-listed and amber-listed waste, which are subject to different procedures:

- Green listed wastes (presenting low risk for human health and the environment¹⁶), are not subject to any other controls than those normally applied in commercial transactions;
- Amber listed wastes (presenting sufficient risk to justify their control) are largely those regulated under the Basel Convention (listed in its Annexes II¹⁷ and VIII¹⁸), supplemented with a number of specific wastes. They are subject to control procedures similar to the PIC procedure.

1.2.2 The EU legal framework

Waste is defined in the Waste Framework Directive (WFD) as “any substance or object which the holder discards or intends or is required to discard”¹⁹. To address the challenges linked to the treatment of this waste, and ensures that it is managed without endangering human health and harming the environment, the EU has developed comprehensive policies and legislation. The five-step “waste hierarchy”, established in the WFD, is a cornerstone of this EU waste management policy. It establishes the following priority order for waste prevention and management policies: prevention; reuse; recycling; other recovery operations (such as energy recovery); and finally disposal (such as incineration without energy recovery and landfilling). The EU waste management policy contributes to the circular economy by extracting high-quality resources from waste as much as possible.

The WFD provides criteria to distinguish when waste ceases to be waste and becomes a secondary raw material, and how to distinguish between waste and products. It also sets out specific rules on the management of “hazardous” waste, which poses a greater risk to the environment and human health than non-hazardous waste and therefore require a stricter control regime. The classification into hazardous and non-hazardous waste is based on the system for the classification and labelling of dangerous substances and preparations²⁰.

¹⁴Notification by the EU and its Member States in accordance with Article 11 of the Basel Convention: <https://data.consilium.europa.eu/doc/document/ST-11066-2020-INIT/en/pdf>

¹⁵ The OECD Decision also allows trade with OECD member countries which, like the United States of America, are not a Party to the Basel Convention.

¹⁶ A typical example is clean and well sorted paper waste.

¹⁷ This Annex includes mixed household wastes and unsorted hard to recycle plastic waste.

¹⁸ This Annex contains waste like waste oils and waste asbestos.

¹⁹ Directive 2008/98/EC, *OJ L 312 22.11.2008*, p. 3

²⁰ For more information on the classification of all types of waste (including hazardous), see the [European List of Waste](#).

The WSR implements the international obligations of the EU deriving from the Basel Convention and OECD Decision into EU law, but also contains stricter provisions. The WSR sets out control mechanisms for the export and import of waste from the EU to third countries, as well as for shipments between EU Member States (“intra-EU shipments”). The types of controls under the WSR depend on the characteristics of the waste (for example hazardous, non-hazardous), its destination and if its treatment is recovery (for example recycling) or disposal (for example landfilling) operations and aim to control the movement of hazardous and problematic waste, with the objective to protect the environment. The WSR also lays down export prohibitions for certain categories of waste and certain destinations: the most important examples are the prohibition to export hazardous waste from the EU to non-OECD countries and to export waste for disposal outside the European Economic Area (EEA) member countries.

The WSR establishes two types of control procedure for the shipment of waste across borders (applying both to intra-EU and extra-EU trade):

- The procedure of **prior written notification and consent (“notification procedure”)** applies to waste meant for disposal between EU countries or that belongs to certain categories (hazardous, household or residues from its incineration, hard-to-recycle plastics, and “unlisted waste”). The competent authorities of the dispatch, destination and transit countries have to give their consent to the shipment, within a given delay, before this shipment can take place. A general notification can cover multiple shipments. The WSR also contains specific provisions to simplify the notification procedure for the shipment within the EU of waste destined for recovery in facilities to which a “preconsent” has been issued by the competent authorities (so-called “pre-consented” facilities). In this simplified notification procedure, the various deadlines for the instruction of the procedure are considerably shorter.
- An operator wishing to ship **non-hazardous waste (“green listed waste”)** for recovery in another country has to fulfil the **general information requirements** (Article 18) and make sure the shipment is accompanied by relevant documentation (Annex VII), but no prior consent is required.

All actors involved in shipments must ensure that waste is managed in an environmentally sound manner, respecting EU and international rules throughout the shipment process and during recovery or disposal. Therefore, the exporter or the country of destination must demonstrate that the facility receiving the waste will operate in accordance with human health and environmental protection standards that are broadly equivalent to the ones established in EU legislation (see Article 49 of the WSR). In addition, competent authorities in the EU Member State of export are required to ensure that the waste is managed in “*an environmentally sound manner throughout the period of shipment, (and...) in the third country of destination*”²¹ They should also prohibit such export if “*it has reason to believe that the waste will not be managed in accordance with the requirements*”²². These provisions are particularly important to ensure ESM of green-listed waste. The EU has adopted a unique regime in which each non-OECD country has

²¹ Article 49 of the WSR

²² See article 49(2) of the WSR

to provide information to the Commission to determine whether green-listed waste may be imported for recovery from the EU to its territory and under which control procedure. The Commission compiles this information in a dedicated Regulation (EC) 1418/2007²³. Neither this Regulation, nor the WSR itself contain precise provisions to verify ESM at destination. EU exporters are required to follow the control procedure of each country included in Regulation (EC) 1418/2007. In the absence of a confirmation from a specific country on the controls it requires, export of green-listed waste is subject to the notification procedure by default.

The WSR²⁴ includes provisions to address illegal shipments of waste, both within the EU and exported outside from the EU. For waste subject to the notification procedure, the exporter has a duty to take back waste shipments that are found to be illegal or cannot be treated as intended (including the recovery or disposal of waste). For this purpose, all shipments requiring a notification also require a financial guarantee or equivalent insurance for the period that waste is shipped under the responsibility of the notifier, including the period needed for the final treatment of the waste.

The provisions of the WSR on enforcement were strengthened in 2014²⁵ and require Member States to establish inspection plans including a minimum set of elements, such as information on human, financial and other resources for inspections. The 2014 amendments provided enhanced powers to the authorities involved in inspections to reverse the burden-of-proof on exporters in order to determine whether a shipment can be considered illegal. Enforcement authorities in some Member States have indicated that this reversal of the burden of proof proved very helpful to facilitate inspections and investigations.

The WSR further requires Member States to lay down rules on penalties applicable for infringements of the WSR, which shall be effective, proportionate and dissuasive.

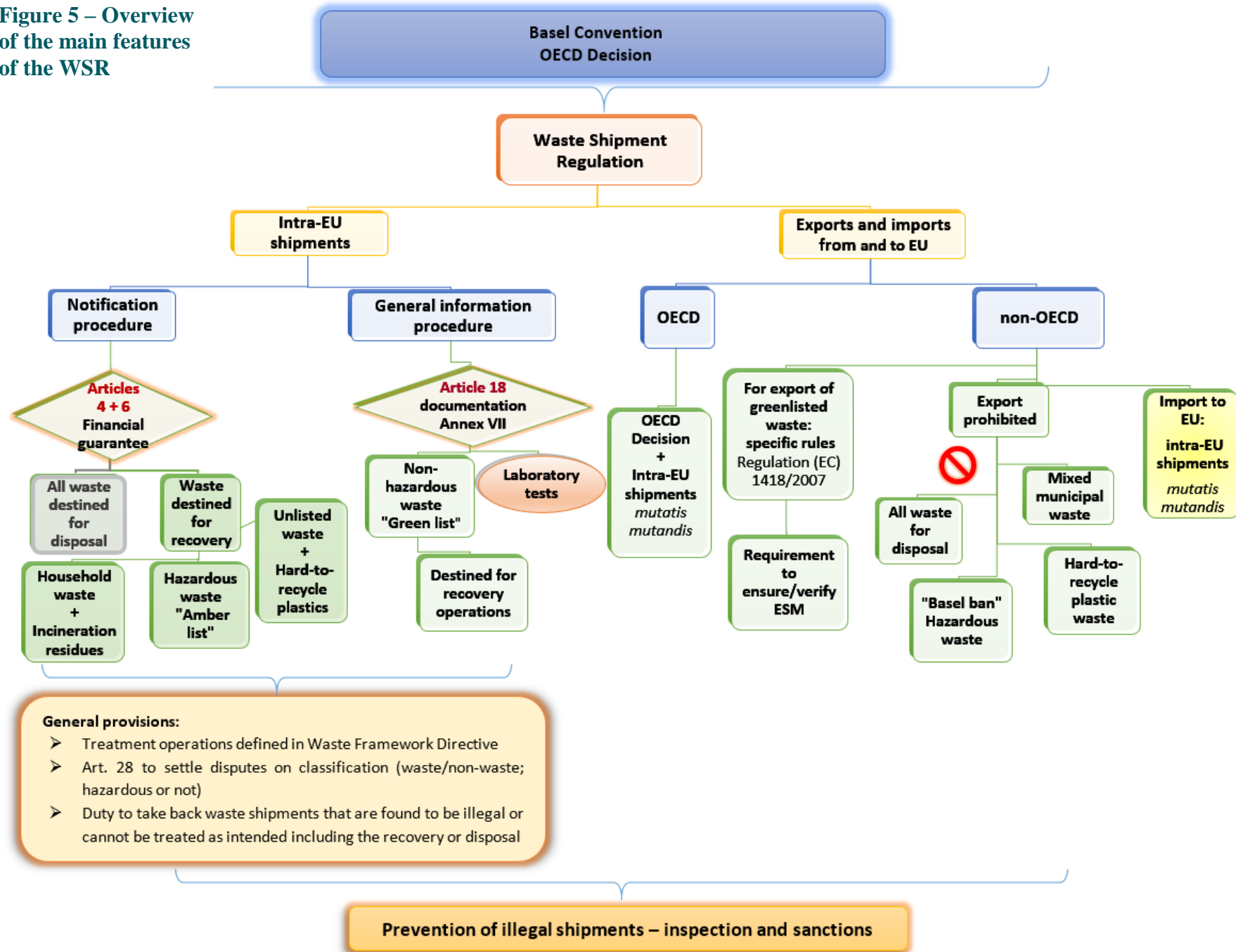
Figure 5 below provides an overview of the main features of the WSR.

²³ Commission Regulation (EC) No 1418/2007 of 29 November 2007 concerning the export for recovery of certain waste listed in Annex III or IIIA to Regulation (EC) No 1013/2006 of the European Parliament and of the Council to certain countries to which the OECD Decision on the control of transboundary movements of wastes does not apply (see <https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32007R1418>)

²⁴ Article 50

²⁵ Regulation (EU) No 660/2014 of 15 May 2014 amending Regulation (EC) No 1013/2006 regarding the strengthening of Member States' inspection systems

Figure 5 – Overview of the main features of the WSR



1.2.3 Links with other EU legislation

There are important links between the WSR, the WFD and Directives governing specific waste streams. The ELV Directive, the Batteries Directive, the Packaging and Packaging Waste Directive and the WEEE Directive²⁶ all contain reference to the WSR when it comes to regulating the transboundary shipments of the waste they regulate. The EU waste legislation contains ambitious and binding provisions for the attainment of high levels of recycling and the reduction of landfilling. In some instances, the Directives contain additional provisions designed to facilitate the implementation of the WSR for specific waste streams (for example Annex VI of the WEEE Directive on the distinction between used equipment and waste).

The overall purpose of these directives is to ensure sustainable management of the waste within their scope. As important volumes of these waste are shipped across borders, in order to reach the objectives of these directives, it is key that the provisions of the WSR are properly implemented. In particular, for the recycling targets in the WFD, waste can only be accounted for in the calculation of the recycling rates, if it was treated in broadly equivalent conditions in the country of destination. In the 2018 amendment of the WFD, the recycling calculation method has been specified and now requires additional monitoring and reporting on the environmentally sound treatment of exported wastes by exporting companies and competent authorities of exporting EU Member States. This issue is addressed in the Commission implementing decision on reporting requirements adopted in June 2019²⁷. Similar rules are applicable for disposal targets: municipal waste shipped to another Member State or exported from the Union for the purpose of landfilling, is counted towards the amount of waste landfilled by the Member State in which that waste was collected²⁸.

In addition to the rules on penalties laid down in the WSR, the Environmental Crime Directive²⁹ requires Member States to criminalise the shipment of waste, where this activity constitutes an ‘illegal shipment’ as defined in the Waste Shipment Regulation, and is undertaken in a non-negligible quantity. The Environmental Crime Directive requires Member States to penalise such offences with effective, proportionate and dissuasive criminal sanctions. However, neither the WSR nor the Environmental Crime Directive prescribe the specific sanctions Member States are to incorporate into their national legislation.

1.3 Evaluation of the WSR

The Commission carried out an **evaluation** of the WSR, which was finalised in January 2020³⁰. It found that the regulation has several **achievements**. It provides legal clarity, minimises the negative impacts of hazardous waste shipments and contributes to the environmentally sound management of non-hazardous waste. It also creates a level

²⁶ See glossary for full references to these Directives

²⁷ COMMISSION IMPLEMENTING DECISION (EU) 2019/1004 of 7 June 2019

²⁸ Article 5a (3) of Directive.

²⁹ Directive 2008/99/EC of the European Parliament and of the Council of 19 November 2008 on the protection of the environment through criminal law, OJ L 328, 6.12.2008

³⁰ https://ec.europa.eu/environment/waste/shipments/pdf/SWD_2020_26_F1_SWD_EVALUATION_EN_V4_P1_1064541.pdf

playing field for waste shipments across the EU and provides useful information on the type of hazardous waste shipped, their routes and treatment methods.

The evaluation also identified the following **main problems** with regard to the implementation of the WSR:

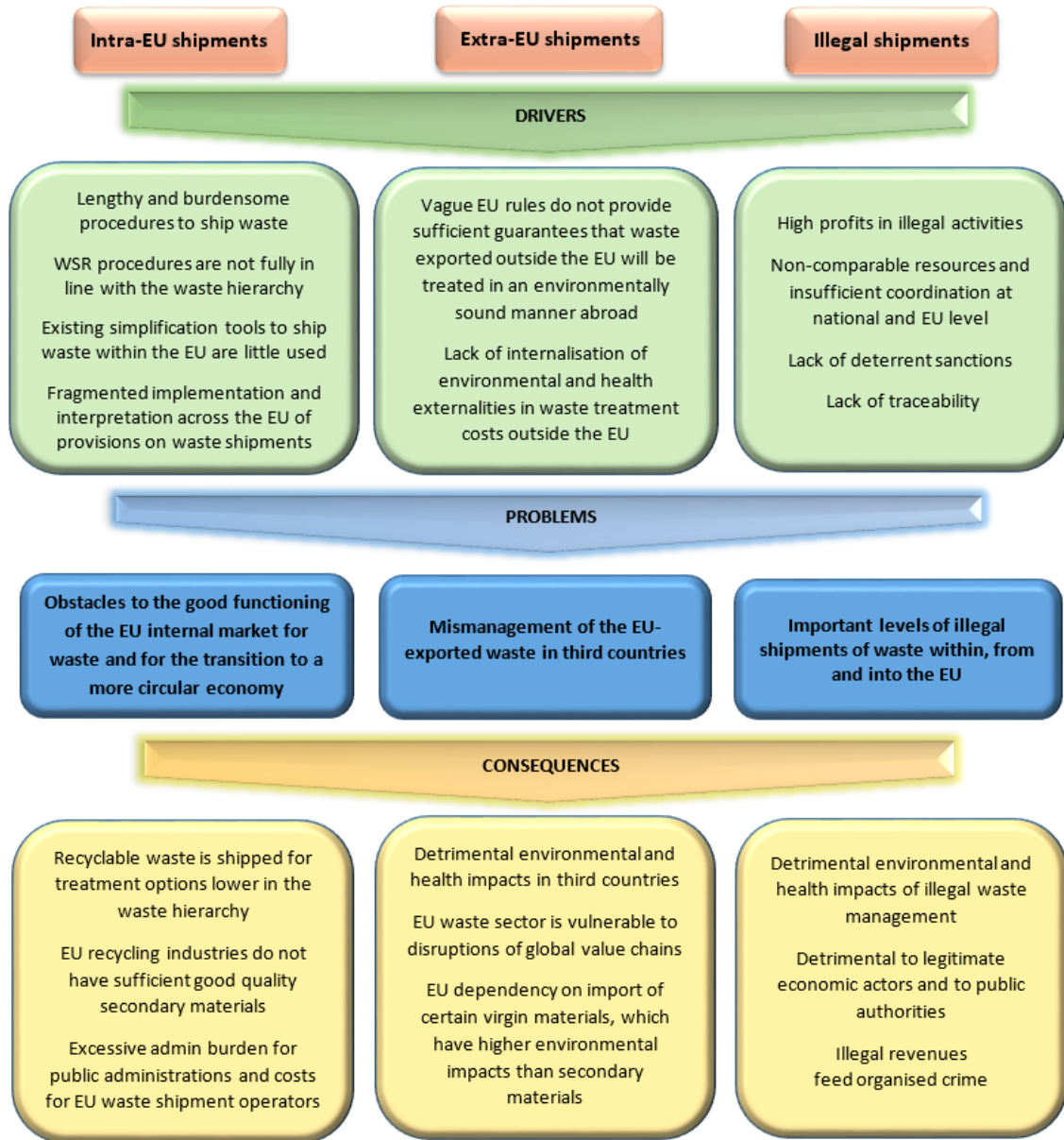
- The WSR does not effectively support the transition to a circular economy within the EU, as some of its procedures are burdensome and are inconsistently implemented by the Member States, with the result that waste circulating within the EU fails to be properly and timely recycled.
- Important volumes of waste are exported outside the EU, often without sufficient control of the conditions under which these waste are managed in the destination countries, especially in developing countries. This can harm the environment and public health in destination countries. The provisions of the WSR do not appear sufficient to address this situation, and their implementation is uneven across the EU.
- The enforcement of the WSR is also insufficient, which results in high amount of illegal shipments of waste occurring within the EU, as well as from the EU to third countries.

The conclusions of the WSR evaluation can be found more in detail in Annex 6. The development of this impact assessment is based on the evaluation. More information on the procedural aspects can be found in Annex 1. A synopsis report of these consultations can be found in Annex 2, and a more detailed analysis of the responses to the public consultations can be found in Annex 3.

2. PROBLEM DEFINITION

Figure 5 below reproduces the main problems linked to the implementation of the Waste Shipment Regulation, as well as its drivers and consequences. To address each of these problems, this impact assessment defines objectives, which are described in section 4.

Figure 6 – Problem tree for the WSR review



2.1 What are the main problems that the review of the WSR seeks to address?

Problem 1: Waste shipped not always treated in line with the circular economy objectives in the EU

The most important issue is the complex, costly and time-consuming (mainly paper-based) procedures for shipping waste subject to the notification procedure. To avoid this procedure's delays and potential costs, waste of good quality that would have been suitable to send to recycling facilities in another Member State might instead be sent for disposal in the country where it was generated. This hinders the transition towards a circular economy model, as waste is not being treated as high up the waste hierarchy as possible.

This problem is compounded by the fact that the WSR does not favour recycling (and preparation for re-use) over other recovery operations (like incineration for energy production). Around 60% of notified waste currently shipped between Member States is not destined for recycling. This has raised concerns in some countries as waste treatment facilities (e.g. waste to energy and cement kilns) prefer to treat imported waste (often of better specifications for their process) over the domestic one. This reduces the incentives to separately collect and sort domestic waste, as it will not be treated in appropriate treatment facilities.

Currently, there is no data on the final destination of "green-listed" waste. However, one can assume that also for green-listed waste some recyclable waste is being sent for other waste management operations. Whilst in 2018 a substantial part of the EU waste legislation was amended to enhance its contribution to a circular economy (e.g. notably via the setting of targets to increase recycling rates and reduce landfilling), no amendment was made to the WSR.

There are currently 331 pre-consented facilities in 15 Member States. This limited number compared to the large number of recycling facilities in the EU is due to the fact that the WSR does not set the criteria to grant the pre-consented status to a facility. Therefore, Member States have their own criteria and often do not recognise a pre-consented facility authorised in other Member States. Therefore, this simplified and faster procedure is not used as much as it could be and waste shipment companies are subject to the full, more cumbersome procedure for more of their shipments.

Finally, there are different interpretations in EU Member States of what constitutes a waste or not, on what is considered a hazardous or non-hazardous waste and on the thresholds for impurities that determines whether a waste is considered a mixed waste. This leads to inconsistent approaches of national authorities in terms of whether the notification procedure is necessary and hampers legal clarity for economic operators active on the EU market. In turn these lead to delays in shipments of waste, with additional costs to waste shipment companies, mainly due to waste storage costs before

transport. As regards to what constitutes a waste or not, in 2015, the Commission provided guidance on the correlation between waste codes and customs codes³¹, but both private and public stakeholders have indicated that this guidance is of limited added-value to them.

Problem 2: mismanagement of the EU exported waste in third countries

Despite the obligation in the WSR to ensure that waste is treated in third countries in an environmentally sound manner, large amounts of waste exported from the EU are not. There is evidence³² that the export of waste streams from the EU to countries where their treatment is not environmentally sound, can generate important negative externalities on environment and public health, such as air, soil, water and marine pollution. They can exacerbate global environmental problems (for example oceans affected by pollution due to discharge of plastic waste, or increase in greenhouse gas emissions due to the treatment/processing practices for these wastes).

An important driver for the mismanagement of waste exported from the EU is the difficulty to verify that this waste is managed in an environmentally sound manner in the countries of destination. As indicated above, the WSR requires that the Member State of export, as well as the companies exporting the waste from the EU, ensure that the waste is managed without endangering human health and in an environmentally sound manner during the shipment and the treatment stages³³. In practice, the implementation of these provisions has proved to be a very difficult task³⁴ as there are no clear criteria defining the environmental sound management of waste.

Overall, the legal framework set up by the WSR to ensure the sound management of waste exported from the EU does not function properly, especially for non-OECD countries³⁵.

³¹ See COMMISSION IMPLEMENTING REGULATION (EU) 2016/1245 of 28 July 2016 (available at <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32016R1245>)

³² This has been documented in the evaluation of the WSR (see https://ec.europa.eu/environment/waste/shipments/pdf/SWD_2020_26_F1_SWD_EVALUATION_EN_V4_P1_1064541.pdf) and additional information on this issue can also be found in numerous publications by civil society and the media, such as for example: <https://www.sciencedirect.com/science/article/pii/S0160412020318481#s0125> ; <https://www.nrc.nl/nieuws/2020/10/18/tweede-kamer-wil-opheldering-van-staatssecretaris-over-gedumpt-plastic-a4016425>; <https://www.nrc.nl/nieuws/2020/10/16/nederlands-plastic-illegaal-gestort-in-turkije-a4016257>

³³ Article 49 of the WSR

³⁴ For information on the challenges linked to the implementation of the provisions in Article 49 referring to environmental sustainable management of waste, as well as attempts to address them, see this 2019 study: <https://op.europa.eu/en/publication-detail/-/publication/3d72ef00-bcac-11e9-9d0101aa75ed71a1/language-en/format-PDF/source-102642024>

³⁵ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6466021/>: this article provides examples of mismanagement of waste, including imported in developing countries, and not always linked to illegal activities.

Problem 3: illegal shipments of waste

The policy against organised crime for the period 2018-2021³⁶ identifies illegal shipment of waste as one of the most serious forms of environmental crime and hence as a priority. Furthermore, the EU Strategy to tackle Organised Crime 2021-2025³⁷ also mentions that environmental crime, including illegal waste shipments, deserves particular attention.

Illegal waste shipments undermine the legitimate waste treatment and recycling industries. Estimates by a recent study³⁸ suggest that the annual revenues derived from the illicit waste market in the EU range between 4 and 15 billion euro (mid-point figure of 9.5 billion euro).

Illegal shipments occur both between EU countries and between the EU and third countries. Illegal shipments of waste within the EU occur when waste, instead of being sent to a proper treatment facility, is shipped to another Member State to be stored for an indefinite amount of time, landfilled illegally, dumped or even burned³⁹. Also, significant amounts of waste leave the EU illegally to end up in third countries that often cannot treat the waste in a sustainable manner. Examples of illegal export of waste from the EU include export of plastic waste to South East Asia, e-waste or end-of-life vehicles to West Africa⁴⁰, or household waste to North Africa⁴¹. It is difficult to obtain reliable data on the extent of this illegal activity due to its very nature and gaps in reporting. The European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL) reports that of 30.8% of inspected waste shipments were in violation of the WSR in 2016 and 33.4% in 2017⁴². These numbers are higher than those previously reported by IMPEL. Also, these cases do not reflect the overall number of inspections and violations in the EU, as they were reported as part of joint activities carried out over six inspection periods under the umbrella of IMPEL. The figure below provides an overview of the main international illegal waste trade routes.

It is uncertain to which extent all the provisions in the WSR on enforcement have been applied by all Member States as there is little information to assess their implementation and it is difficult to assess the precise evolution of numbers of illegal shipments. Despite the legal framework in the WSR, there is no indication that illegal shipments have

³⁶ <https://data.consilium.europa.eu/doc/document/ST-9450-2017-INIT/en/pdf>

³⁷ https://ec.europa.eu/home-affairs/sites/default/files/pdf/14042021_eu_strategy_to_tackle_organised_crime_2021-2025_com-2021-170-1_en.pdf

³⁸ <https://data.europa.eu/doi/10.2837/64101>

³⁹ See for example problems with illegal shipments of waste to Poland, which resulted in important fires after the waste were being stored improperly or dumped:

<https://vsquare.org/poland-burning-landfills-the-wasteland-on-fire/>

<https://www.euronews.com/2018/06/07/how-europe-s-rubbish-is-helping-to-fuel-a-fires-crisis-in-poland>

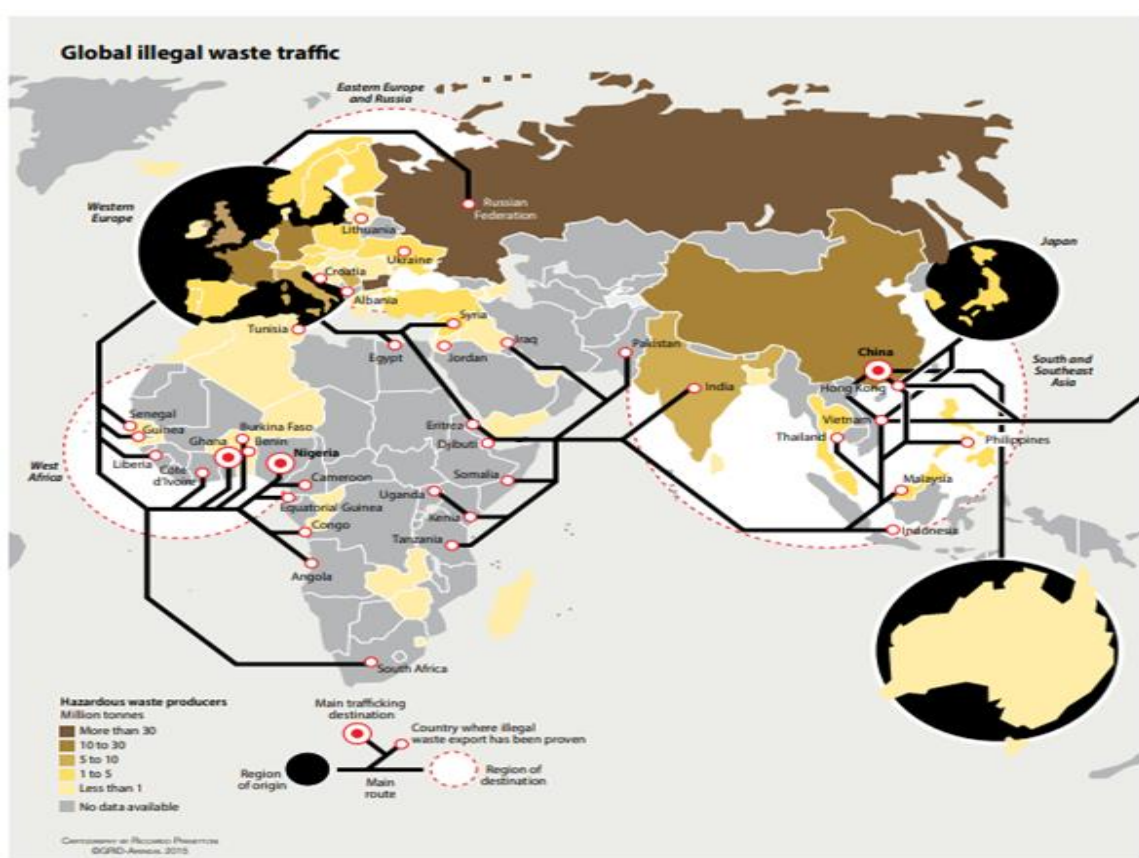
⁴⁰ <https://wasteorceproject.eu/wp-content/uploads/2019/02/WasteForce-Waste-Crime-Alert-1.pdf>

⁴¹ <https://www.theguardian.com/global-development/2020/dec/24/tunisia-minister-sacked-and-arrested-in-scandal-over-waste-from-italy-mustapha-aroui>; <http://www.theindependentbd.com/post/257505>

⁴² <https://www.impel.eu/wp-content/uploads/2019/01/FR-2018-04-Enforcement-Actions-project-2016-2017.pdf>

decreased recently. The restrictions linked to the export of plastic waste established by some importing countries have on the contrary led to a steep increase in illegal shipments of plastic waste⁴³.

Figure 7 – Global illegal waste traffic



Source: Rucevska et al. 2015; Nellemann et al., 2016

2.2 What are the problem drivers?

The most important drivers for each of the three problems are presented below. Some of these drivers are common to more than just one problem, but are mentioned in relation to the problem for which they are more prevalent. More detailed explanations on the problem drivers can be found in Annex 8 to this report.

⁴³ See 2020 Interpol report on this issue: <https://www.interpol.int/News-and-Events/News/2020/INTERPOL-report-alerts-to-sharp-rise-in-plastic-waste-crime>

Problem 1: obstacles to the good functioning of the EU internal waste market in support of the transition to a circular economy

Around 20 million tonnes of waste per year are shipped under the notification procedure. Competent authorities in Member States were consulted on the notification procedure and based on the 16 responses received, the extrapolated EU-27 number of notifications is around 21500 each year. This targeted consultation also provided some data to better identify the administrative burden linked to this procedure. The main burden stems from the handling of these notifications. From data provided by national or regional competent authorities, it appears that handling these procedures with electronic systems saves almost 50% of staff time compared to handling them in paper format. The handling of this extensive paper work complicated the shipment of waste and can result in long delays as the various documents required to authorise a shipments are requested and sent by post. Waste shipment companies have voiced their concerns as these delays increase their costs while waiting for the shipment, mainly in terms of storage costs.

Stakeholders have raised a number of concerns on the financial guarantees. Stakeholders criticise that the amounts of such guarantees are excessively high, rarely used and that the levels applied in the different Member States for these guarantees vary widely⁴⁴. Indeed, from the document compiled by the European Commission in 2016⁴⁵, it is apparent that some countries do not indicate how they will calculate the necessary financial guarantee. Some waste shipment companies call for the Commission to abolish the regime for these guarantees altogether. A second point raised by stakeholders and competent authorities is that in some rare cases the amount provided through the guarantee was not sufficient to cover the actual costs. Or in cases of illegal shipments that have not been notified, no guarantee has been set-up in the first place. In these cases, the national authorities bear the costs of the dealing with the illegal shipment. The third concern brought forward by many are the different approaches in different Member States to calculate the amount for the financial guarantee. The proposed measures aims to address this problem, which actually can be addressed on EU level and would enhance the harmonisation and predictability for companies to budget the obligation to provide a financial guarantee in case they want to ship waste under a notification procedure.

Problem 2: mismanagement of EU generated waste in third countries

Regulation (EC) 1418/2007 is an important source of information on the various legal frameworks in place in non-OECD third countries on the import of waste from the EU. Its purpose is mainly to inform traders of the applicable rules in importing countries. It does not have provisions to help verifying that the exported waste is managed in a sustainable manner. In addition, many third countries do not respond to the Commission

⁴⁴ Member States have reported that total amounts of 6 million up to 237 million Euros in a given Member State are blocked on bank accounts in order to provide for this guarantee for all valid notification consents. Furthermore, in practice, the financial guarantee is used in less than 0.1% of occurring shipments.

⁴⁵ <https://ec.europa.eu/environment/waste/shipments/pdf/Calculation%20of%20financial%20guarantee.pdf>

requests, many responses are not sufficiently clear and the domestic rules change regularly, which means that the Regulation quickly becomes outdated. As explained in section 1.4.2, the WSR foresees that exporting companies and competent authorities should verify that waste exported from the EU are managed in an environmentally sound manner. However, there are no clear provisions in the WSR on how this should be done, which is an important driver for the mismanagement of waste exported from the EU in the countries of destination⁴⁶.

Waste is exported outside as it is more profitable for exporters to ship waste for treatment outside the EU. In many third countries, treatment will be cheaper due to lower operating costs. This is linked to lower labour costs and to provisions governing waste management activities and the industrial processing of waste into secondary materials that are less developed and detailed than EU legislation⁴⁷. About half of the exported waste is destined to non-OECD countries, which often have lower environmental and public health rules and thus do not fully take into account the environmental and health externalities of waste treatment. Therefore, there is a serious risk that the waste exported from the EU to these countries is not managed in a sustainable manner.

There is an important demand in third countries for waste from the EU, which is reprocessed by the local manufacturing (paper, plastics, and textile) or metal industries. The lack of corresponding demand in the EU for such wastes or the recycled materials after their treatment, is mentioned by exporters as the reason for the substantial volume of export to third countries.

Finally, a specific driver for the problems posed by the export of waste outside the EU is the difficulty to distinguish between waste and used goods or equipment. This is particular problematic for some waste streams like e-waste, end-of-life vehicles, batteries or tyres. This issue is also relevant for the question of illegal shipment presented below.

Problem 3: illegal shipments of waste

The main drivers for the high levels of illegal shipment of waste are (i) their economic profitability, (ii) non comparable resources and insufficient coordination at national and

⁴⁶ For information on the challenges linked to the implementation of the provisions in Article 49 referring to environmental sustainable management of waste, as well as attempts to address them, see this 2019 study: <https://op.europa.eu/en/publication-detail/-/publication/3d72ef00-bcac-11e9-9d0101aa75ed71a1/language-en/format-PDF/source-102642024>

⁴⁷ Data and information on waste management across various countries in the world have been compiled in a number of publications, including the following:

What a Waste 2.0. A Global Snapshot of Solid Waste Management to 2050. World Bank (2018)

The Global Waste Management Outlook by UNEP and ISWA (2015);

Waste Management Outlook for Asia, United Nations Environment Programme (2017);

Waste Management Outlook for Africa, United Nations Environment Programme (2018);

Waste Management Outlook for West Asia United, Nations Environment Programme (2019)

Waste Mismanagement in Developing Countries: A Review of Global Issues. Int. J. Environ. Res. Public Health 2019, 16, 1060 (<https://www.mdpi.com/1660-4601/16/6/1060>)

EU level, (iii) the lack of deterrent sanctions, and (iv) the lack of traceability of some waste shipments.

The first driver is related to the profits some actors can make by disregarding the waste shipment rules by reducing or avoiding the costs linked to the proper transport and management of waste. It is estimated that profits up to 9.5 billion euro per year are made by criminal networks in this context. With more countries imposing import bans, illicit waste trade is expected to remain an issue and it might even grow if no coordinated actions are taken to address this problem.

The insufficient priority given to address illegal shipments of waste is the second important driver for its prevalence. This results in a lack of resources in Member States to prevent, control and investigate illegal waste trade activities.

The third driver is related to the effectiveness of penalties/sanctions to discourage actors from engaging into the illegal shipments. Highly variable practices in different Member States and often limited amounts of financial penalties are the main issues here. While this problem is common to other forms of environmental crime, it is of particular acuity for illegal shipments of waste, which does not seem to be treated as seriously as other forms of criminality.

The fourth driver is the limited traceability of waste streams, especially green-listed waste. Also, by trading waste via a multitude of intermediate actors, traders and dealers, the trace of where waste originated and/or is sent to, is often lost or very difficult to retrieve.

2.3 Who is affected and how?

Society as a whole (general public): An effective and efficient legal and procedural framework to control and monitor waste shipment ensures that waste is shipped and treated under environmentally sound conditions. This contributes significantly to the overall environmental and public health protection of citizens in the EU and in third countries importing waste from the EU.

Waste producers: the companies generating waste are responsible for their sustainable management, in accordance with the polluter-pays principle. While most of these companies are generally not directly involved in the management of waste, they often contribute financially to this activity. This is especially the case for those placing products (like packaging) on the EU market, which are subject to “Extended Producer Responsibility” schemes. When products become waste, which is shipped to another country, the waste producers need to ensure that it is managed properly. Some producer responsibility organisations (PRO) have set up criteria to check that this is the case. The WSR provisions on the verification of the environmentally sound management of waste in third countries are of direct relevance for these actors.

Companies involved in waste management (collection, sorting and treatment of waste): Based on the statistical classification of economic activities⁴⁸, there is a large heterogeneity of the economic actors involved in the EU waste sector which is dominated by micro and small companies in terms of number of companies but by medium and large companies in terms of turnover. These larger companies are the ones likely to be most involved in the shipment of waste outside the EU. The companies active in the whole waste management supply chain are affected by the WSR, in view of the integrated nature of the waste markets in the EU and since some waste (e.g. metal scrap, paper waste, and plastic waste) are internationally-traded commodities. The decision to ship or receive waste to or from another country depends on commercial factors, but also on the provisions of the WSR and its impact on these transactions. The first companies (or municipalities) concerned are those collecting waste, which they will typically send to sorting facilities; in many cases these facilities are located in the country where the waste is collected, but they can also be abroad. Collected waste can also be sent directly to treatment facilities (in the country where it was collected or abroad), when the waste does not require prior sorting. A second category are the sorting companies, which are important players in the shipping of waste to third countries: first, because a number of them rely on the arrival of unsorted waste from other EU Member States for their supply and, second, because, once sorted, these waste are further sent to treatment facilities. For some waste streams, these treatment facilities are often located outside the EU. Finally, companies that treat or process waste into secondary materials located in one EU Member State also rely on feedstock which comes from other countries. It should also be noted that a number of companies across the EU perform all types of waste management activities (collection, sorting, treatment) and have developed international activities relying on the shipments of waste from different countries, as part of their overall integrated waste management strategies. The WSR has a direct impact on the activities of all these companies as it sets common rules, which ensure a level playing field. This brings benefits in terms of legal clarity and avoid unfair competition, as all companies are subject to the same rules across the EU. It can also generate costs, especially when the WSR is not implemented in a harmonised manner between the different Member States, or when companies consider that the costs linked to the procedures in the WSR are disproportionate to the aims that it seeks to achieve. Companies involved in waste treatment in third countries, notably in countries importing large volumes of waste from the EU, are also affected by the WSR.

Waste traders: companies specialised in trading activities are also be affected by the WSR. They do not perform activities related to waste management, but are dealing with shipments of waste. Their main activity consists in purchasing, shipping and selling waste, which is considered as a tradable commodity like many others.

⁴⁸ NACE code 38 covering collection, treatment, recovery, and disposal of waste (Eurostat, 2018)

Public authorities: The implementation and enforcement of the WSR is a responsibility of the competent authorities in the EU Member States. They are therefore key actors for the good functioning of the WSR and will be affected by future changes to it. Public authorities in third countries in charge of import and export of waste, as well of the management of imported waste, are also affected by the WSR, as its provisions require that the rules and practices of third countries for import and waste management are taken into consideration.

Member States: The economic profile and geographical position of a Member State influence its exposure on waste export, both for intra- and extra-EU shipments. Some Member States are generally relying more than others on shipments of wastes either to other EU Member States or outside the EU. Germany is by far the largest exporter of waste by volume, reflecting that industrialised countries are important actors in the shipment of waste. Belgium and Netherlands are among the largest exporters of waste to third countries, largely due to their port infrastructure. Together with Germany, these countries receive considerable amounts of waste from other Member States, and then export it outside the EU. For instance, these three countries received 40% of all plastic waste shipped from other Member States in 2019. Due to their geographical conditions and limited treatment capacity, Member States such as Ireland, Cyprus, Malta are dependent on exports outside the EU. Italy and France also rely more than other Member States on exports due to more limited domestic capacity.

2.4 How will the problem evolve?

If no action is taken, the most likely scenario is that the problems set out in section 2 will continue to undermine the efficiency, effectiveness and added-value of the WSR. More information on these points is provided in section 5 of this report.

3. WHY SHOULD THE EU ACT?

3.1 Legal basis

The existing legal basis of the WSR is Article 192 of the Treaty on the Functioning of the European Union that effectively sets the manner in which Article 191 of the Treaty should be implemented. Article 191 addresses EU policy on the environment that must contribute to pursue the following objectives:

- preserving, protecting and improving the quality of the environment,
- protecting human health,
- utilising natural resources prudently and rationally,
- promoting measures at international level to deal with regional or worldwide environmental problems, and in particular to combat climate change.

The WSR pursues all these objectives. In addition, the rules governing the shipments of waste within the EU are also of relevance for the functioning of the internal market,

while the rules governing shipments of waste outside the EU are relevant for the EU common commercial policy.

3.2 Subsidiarity: Necessity and added-value of EU action

As provided in Article 5 of the TFEU, the Union shall act only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States, but can rather, by reason of the scale or effects of the proposed action, be better achieved at Union level.

The WSR ensures that the EU comprehensive waste legislation is not circumvented by shipping waste to third countries, where waste management standards and performance greatly differ from the EU ones. It is important that common rules on the control of transboundary movements of waste are set out at the EU level, to avoid a situation where illegal operators would chose to ship their waste through EU countries with less strict domestic rules than others, to export this waste outside the EU (port-hopping scenario). EU rules are also justified for intra-EU shipments of waste, in view of the fact that the EU waste industry is highly integrated and in order to ensure equal treatment and legal clarity to all economic actors in this sector.

The added-value of an EU approach to waste shipment is also that it ensures consistency in the implementation of the Basel Convention and the OECD Decision by each Member States. The detailed provisions contained in the WSR avoid that Member States develop different interpretations of these provisions, which would hamper the shipments of waste within the EU. As indicated earlier, stakeholders often complain that the EU rules on the shipments of waste are actually not sufficiently detailed in some aspects, which result in diverging national approaches and impede the good functioning of the EU single market. In addition, the EU approach to waste shipment is stricter than the Basel Convention when it comes to export of waste, as it prohibits the export of waste for disposal outside EFTA countries and the export of some non-hazardous waste⁴⁹ outside the OECD. The EU approach has a clear environmental added-value compared to each Member State individually relying on the Basel Convention. Indeed, the EU is one of the only Parties to the Basel Convention to apply such strict rules (as an example, the United Kingdom will not apply a prohibition of the export of plastic waste which became listed in Annex II of the Basel Convention in 2021, while they would have had to do it if they had remained in the EU).

4. OBJECTIVES: WHAT IS TO BE ACHIEVED?

The overall objective of the review of the WSR is to increase the level of protection of the environment and public health from the impacts of unsound transboundary shipments of waste. It pursues the ambitious approach laid down in the Green Deal and the Circular Economy Action Plan to ensure higher levels of recycling of waste and the creation of a dynamic market for secondary raw materials in the EU. It also promotes this ambition at the international level, through concrete measures in favour of the sustainable

⁴⁹ The « other waste » listed in Annex II of the Basel Convention

management of waste exported to third countries. The table below described the three general objectives, as well as associated specific objectives.

There are synergies between the specific objectives. For example, the reduction of administrative burdens by moving from a paper based procedural framework to a model of electronic interchange of documents and data, will reduce costs related to shipments of waste, but will also enhance the ability of competent authorities to monitor these shipments (within the EU, but also beyond), better organise enforcement actions and allow for an improved and quicker reporting.

Table 1 – Objectives for the review of the WSR

General objectives	Specific objectives
Facilitate shipments within the EU, in particular to align the WSR with circular economy objectives	1.1 Reduce administrative burden for intra-EU shipments of waste
	1.2 Increase the amount of waste shipped for treatment higher up the waste hierarchy
	1.3 Harmonise the interpretation and the application of the WSR across Member States
Guarantee that waste exported outside the EU is managed in an environmentally sound manner	2.1 Stop the export of the waste from the EU where it will not be managed in an environmentally sound manner
	2.2 Improve waste management in third countries
Better address illegal shipments of waste within and outside the EU	3.1 Further strengthen the WSR’s provisions on enforcement and inspections
	3.2 Strengthen cooperation within the Member States, across the EU and with international partners

5. BASELINE

The baseline scenario considers that the Basel Convention and the OECD Decision will remain largely unchanged until at least 2030. In addition, the current WSR, including its delegated Regulation, will continue to be applicable. Its current implementation will continue and harmonisation across Member States would be further pursued through existing efforts, notably the development of guidance and ad hoc exchanges between Member States, mostly via the Waste Shipment Correspondents. The EU will also continue to promote global measures to improve the control of transboundary movements of waste and waste management in international organisations, especially the Basel Convention and the OECD. The baseline scenario also takes account of the COVID-19 pandemic presented in the box below.

The EU initiatives in support of a circular economy and the recent changes in the EU waste legislation should lead to improvements in the separate collection of waste, higher recycling rates and higher uptake of recycled materials in products put on the EU market. It is also expected that additional capacity for recycling will be made available in the EU in the coming years. These factors should help fostering recycling and re-use of waste in the EU.

However, they will not solve all the problems described in section 2.1. The EU market for recycling will continue to be hampered by burdensome procedures, leading to the export of waste outside the EU in sometimes unsustainable conditions without clear means to avoid it, and to illegal shipments that continue to create serious environmental harm. More specifically, with regard to intra-EU shipments of waste, stakeholders in the context of the EEA work on intra-EU shipments of waste indicated that the current procedures for shipping hazardous and other waste subject to the notification procedure poses significant obstacles to the optimal functioning of the EU market. In particular the delays while waiting for a consent during the notification procedure often cause large volumes of waste not to be directed to recycling, but to in-country destinations where they will be treated to generate energy, be incinerated or landfilled.

Guidance on various topics has been developed since the WSR was adopted in 2006, and in a baseline scenario more guidance can be expected to come. Experience has shown that, partly because of its non-binding nature, guidance will not completely discontinue the disharmonised implementation of the provisions of the WSR, and for some of the issues that were identified, it is doubtful that the Commission would find the support with Member States to even start developing guidance, such as for many issues related to enforcement.

With regard to the export of waste outside the EU, it should be acknowledged that any projection into future trends is challenging. Future exports will depend on many factors, including the generation of waste in the EU, the impact of the EU and international rules on the management and shipment of waste, the prices of waste commodities and virgin materials on the international market, and third countries' decisions on imports of waste from the EU. Such reluctance of some third countries to import waste is one important factor but it will not necessarily lead to a downwards trend of exports from the EU. It might impact more some waste streams (plastics and paper notably) than others, and is also likely to lead to shifts of exports to other countries. For instance, the exports of plastic waste from the EU have considerably changed since 2018, with South East Asian countries first becoming major importers after the closure of the Chinese market, after then restricting themselves such imports, which led to exports being re-routed to Turkey which became in 2019-2020 one of the main importers of plastic waste. In 2021 though, Turkey itself decided to restrict their import of plastic waste. The international regulatory context on waste shipment is therefore quite volatile and projections of future trends need to be treated with caution.

In this context, the report has used a linear regression model based on the trends in the export of waste from the EU observed in the last 15 years, in order to project the levels of waste expected to be exported from the EU until 2030. The regression model was applied to the most traded wastes (ferrous, non-ferrous, paper, plastic, textile, glass). On this basis, the baseline shows that the overall export of waste from the EU will continue to increase until 2030 even though the European Commission aims at a reduction of waste generated, while import of waste are expected to decline. The table below provides an overview of these results. Recently published data indicates that the 2020 projection is underestimated with the real figure being nearly 33 million tonnes⁵⁰. In view of the challenges described above to predict correctly future projections, the report usually uses

⁵⁰ <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20210420-1?redirect=%2Feurostat%2Fweb%2Fmain%2Fhome>

the data on export from 2019 to assess future changes in policies and the impact of the various measures presented in this report.

More information on these trends, on the most commonly exported waste streams, can be found in Annex 7. These figures were used to assess the impacts of the different measures. This increase in exports will mean an increase in the problems linked to their possible mismanagement in third countries.

Table 2 – Forecast of amounts of waste (tonnes) exported from the EU to third countries under the baseline scenario

Waste type	Year											
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Ferrous metal	15,322,565	15,821,740	16,320,890	16,820,040	17,319,190	17,818,340	18,317,490	18,816,640	19,315,789	19,814,939	20,314,089	20,813,239
Glass	353,029	336,523	348,810	361,097	373,384	385,671	397,958	410,245	422,532	434,819	447,106	459,393
Non-ferrous metals	1,864,790	1,899,551	1,934,312	1,969,073	2,003,834	2,038,595	2,073,356	2,108,117	2,142,879	2,177,640	2,212,401	2,247,162
Paper and cardboard	5,830,906	6,195,050	6,255,466	6,315,882	6,376,298	6,436,714	6,497,130	6,557,546	6,617,961	6,678,377	6,738,793	6,799,209
Plastic	1,521,971	1,556,763	1,591,555	1,626,347	1,661,139	1,695,932	1,730,724	1,765,516	1,800,308	1,835,100	1,869,892	1,904,685
Textiles	1,476,075	1,532,074	1,588,160	1,644,245	1,700,331	1,756,417	1,812,503	1,868,589	1,924,675	1,980,761	2,036,847	2,092,933
Total	26,369,335	27,341,701	28,039,193	28,736,685	29,434,177	30,131,669	30,829,161	31,526,652	32,224,144	32,921,636	33,619,128	34,316,620

The challenges linked to illegal shipment of waste are also expected to grow in the future. The EU waste management rules have set stricter conditions for waste treatment in the coming years, with requirements to increase recycling and decrease landfilling. In line with the orientations set out in the Circular Economy Action Plan on environmental taxation, an increase in landfill and incineration taxes can also be expected in the coming years in the EU Member States. International rules on the shipment of plastic waste which apply from 2020 will also be stricter. All of these changes will represent additional costs for some waste operators, notably those dealing with waste currently destined to other treatments than recycling, as they would have to change their practices (to ensure better sorting of their waste for example) or pay higher taxes. It is likely that criminal groups will seek opportunities to take advantage of this situation, with the aim to offer alternative and cheaper solutions to waste operators (for example offer them to deal with their waste at a price lower than the cost linked to their proper treatment, and subsequently transport them in an illegal site). The perspective of making important economic gains, coupled with limited control over transboundary shipments of waste, limited coordination between Member States and low levels of sanctions, means that a continuation of illegal shipments of waste is very likely, in the absence of a stronger response from the EU and its Member States.

Indeed, the 2021 EU Serious and Organised Crime Threat Assessment (EU SOCTA)⁵¹, produced by Europol on the basis of extensive contributions from Member States and other stakeholders, highlights that waste crime are likely to increase in the foreseeable future. The growing waste management industry will continue to present novel opportunities for criminal exploitation in those jurisdictions where legislation and controls remain weak. Criminal networks operating globally are able to shift their activities swiftly in reaction to legal changes or to emerging opportunities. The Covid19

⁵¹ Europol (2021), European Union serious and organised crime threat assessment, A corrupting influence: the infiltration and undermining of Europe's economy and society by organised crime, Publications Office of the European Union, Luxembourg. See <https://www.europol.europa.eu/european-union-serious-and-organised-crime-threat-assessment-2021>

pandemic has increased the risks of criminal infiltration of sanitary waste management business. Sanitary waste may be illegally stored, dumped or trafficked relying on document counterfeiting.

BOX 1: The impact of the COVID-19 pandemic on waste shipments

The crisis linked to the COVID-19 pandemic has exposed the importance of waste shipments across the EU.

Indeed, as a first response to the crisis, individual Member States took measures to restrict the cross-border movements of commodities (including waste). These measures created difficulties for operators in different Member States who could no longer transfer their waste to the intended treatment facility. Some waste shipments had to be suspended and the waste stored, pending confirmation that the shipments could be completed. In some cases this waste was landfilled as there was no possibility to ship it to a treatment facility in another Member State. Hence, the waste could not be treated in the most effective manner according to the waste hierarchy and the performant waste collection and treatment in various parts of the Union was jeopardised.

The Commission provided advice on how to ensure a continuation of waste shipment within the EU in this context in a specific guidance document⁵² and the initial difficulties were alleviated after a few weeks. However, the situation effectively demonstrated that the EU waste market is subject to a high level of integration– i.e. that the EU is generally the right scale for waste operations.

The COVID-19 also impacted the procedures linked to the WSR. The production and exchange of paper-based documents became more challenging or impossible, which prompted the use of electronic means as the most common and practical way of dealing with the notification and general information procedures. This illustrated the potential of electronic systems to significantly increase the efficiency of the Regulation's implementation. It also showed the readiness and willingness of a large majority of involved actors' to shift to such electronic systems. In fact many Member States' competent authorities have indicated they intend to continue the practices introduced to avoid the use of paper when handling notification request.

The crisis also strongly affected plastic recycling⁵³. The drop in crude oil value lead to a decline in virgin polymer prices resulting in turn in a drop in prices and demand for recycled plastics. This undermined the economic viability of many plastics recyclers across Europe. If this situation persists this will reduce the incentives to invest in additional recycling facilities which the industry says are needed to achieve the objectives of the Green Deal and the CEAP. The demand and prices for waste from PET plastic bottles have remained stable thanks to recycled content targets set by the Single-Use Plastics Directive, demonstrating the relevance of pull measures on the demand side.

The other impacts of the pandemic, concerning volumes of health-care waste and their crossing of borders, are likely to remain relevant for the remainder of the COVID-19 crisis while it is expected that these issues will diminish in magnitude as the crisis is more effectively managed.

Some problems were also reported concerning shipments of waste to or from non-EU countries due to the COVID-19 crisis. The export of textile waste to third countries was raised as an issue with some third countries putting in place bans on the import of textile wastes from the EU, or strengthening already existing import restrictions for such waste.

⁵² https://ec.europa.eu/environment/waste/shipments/pdf/waste_shipment_and_COVID19.pdf

⁵³ <https://www.euric-aisbl.eu/position-papers/download/695/393/32>

6. WHAT ARE THE AVAILABLE POLICY OPTIONS FOR THE REVIEW OF THE WSR?

6.1 Description and screening of the measures

This section presents potential measures for each of the specific objectives of the review. These measures were identified as a result of the comprehensive assessment of the implementation of the WSR, its evaluation and the wide consultation carried out in support of this impact assessment. A more detailed description of the measures can be found in Annex 9 to this report.

6.1.1 Description of potential measures to address the objectives of the review of the WSR

Objective 1: Facilitate shipments within the EU, in particular to align the WSR with circular economy objectives

Specific objective 1.1: Simplification and reduction of administrative burden for intra-EU shipments of waste

Improve the regime of “pre-consented facilities” by establishing harmonised conditions/requirements that need to be fulfilled in order for a recovery facility to be preconsented by a Member State. Mutual recognition would be required for facilities that were pre-consented based on the harmonised criteria (i.e. all Member States involved in a shipment will be required to follow Article 14 procedure if the shipment is destined to a facility pre-consented by any Member State). The measure would also set a default three year consent period for shipments to pre-consented facilities, while preserving the prerogative for competent authorities to limit any consent in time or by attaching specific conditions to it.

Adapt the Regulation to remove the financial guarantee regime and no longer require such guarantees.

Allow the financial guarantee system via a national fund or via an EU fund. The WSR would introduce the possibility for Member States to set up a national fund or alternatively, to set up such a fund on the EU level.

The fund would collect fees from notifiers for each notification request or shipment, possibly taking into account certain criteria to determine the value of the fee (e.g. amount and nature of waste or risk assessment).

Streamline the financial guarantee system by harmonising the calculation method of the amount required for these guarantees. The WSR would empower the Commission to adopt secondary legislation to harmonise the calculation method for the amount required under the financial guarantee or equivalent insurance. This measure could build

on existing transparency efforts where the Commission compiled the different calculation methods of different countries⁵⁴.

Streamline the notification procedures and related administrative elements. These include the destination and amount of waste exempted from the notification procedure when the shipment is meant for laboratory test and trials of research and development activities or. In addition, English would be established as an additional language to the national ones of the countries concerned by the shipment. Other changes aimed at rationalising some of the procedural delays are proposed under the assumption that EDI will be in place and that information will be digitally and immediately available of uploaded information.

Clarify the scope of the WSR with regard to waste that is covered by other legislation. This includes the following waste streams: animal-byproducts, demilitarized ammunition, and end-of-life vessels.

Introduce an additional new procedure for certain shipments of certain hazardous waste destined to certified facilities. This measure would introduce an additional procedure that would not require a prior consent for certain waste streams that are currently subject to the prior notification and consent procedure, like hazardous waste, that move from and to certified facilities. This certification would be based on applicable standards or certification schemes and would require a regular audit of the involved companies. Currently, only WEEE as a waste stream and certain treatment facilities, possibly certified in the near future, seem to be eligible for such a procedure. This would not be coherent with the rest of the provisions of the WSR that are based on the distinction between hazardous and non-hazardous waste rather than on different waste streams.

Set up a mandatory EU-wide electronic data interchange (EDI) to issue and share documents and information linked to the implementation of the procedures under the WSR. The WSR would set out the conditions or empower the Commission to adopt detailed provisions on the functioning of the EDI via delegated or implementing acts (e.g. interconnectivity, architecture, security) that would allow competent authorities and economic actors to use the system. This obligation would apply 24 months from the entry into force of the revised WSR. More specific information on this measure is provided in Annexes 9 and 10.

Ensure mutual recognition at EU level of carriers of waste registered in one Member State. When a company is duly registered in one Member State to carry out the transportation of waste, it would automatically be authorised to transport waste across borders in all EU Member States.

⁵⁴ See

<https://ec.europa.eu/environment/waste/shipments/pdf/Calculation%20of%20financial%20guarantee.pdf>

Specific objective 1.2: Better align the rules on waste shipment with the waste hierarchy

Align the WSR provisions with the waste hierarchy. Shipments of waste destined for disposal operations, such as landfills or incineration without energy recovery, would be prohibited except in limited and well-justified circumstances (for example for outermost regions or islands or for shipments to landfills in a neighbouring country where this is the nearest-by option). The possibilities for Member States to limit shipments destined to other forms of recovery, like energy recovery, to their territory would be clarified. Finally, the WSR would limit the grounds for a Member State to object to shipment of waste destined for reuse or recycling from/into another Member State.

Apply stricter rules to shipments destined to recovery operations other than reuse and recycling. This measure would subject shipments of all waste destined for incineration with energy recovery (R1) and other non-recycling recovery (like backfilling) to the prior notification and consent procedure.

Specific objective 1.3: harmonisation of interpretation, application and enforcement across Member States

Issue guidance on current problematic issues. The development of guidance is typically part of a baseline scenario. However, to underline the importance of specific issues that need harmonisation or simplification, this measure would include in the WSR an explicit delegation to the Commission to issue guidance documents on the alignment with the waste hierarchy, the application of common contamination thresholds linked to the classification of waste, and on the classification of waste under various coding systems according to different pieces of legislation.

Ensure alignment with the provision on end-of-waste and byproducts in the Waste Framework Directive. This measure would amend Article 28(1) of the WSR, to add an explicit reference to the relevant provisions in the Waste Framework Directive on criteria for the definition of byproducts and end of waste.

Task the Commission to set thresholds for contamination of wastes to determine if they should be subject to the notification procedure or not through delegated/implementing acts. This measure would empower the Commission to adopt delegated or implementing acts to determine, for certain wastes, acceptable levels of contamination or impurities to classify that waste as “green-listed” under Annex III or IIIA of the WSR.

Establish mutual recognition of national end-of-waste criteria for the purpose of waste shipments. Under this measure, the WSR would set out the principle that, if a Member State has defined criteria for the determination of end-of-waste status for a specific commodity, and, on that basis, has classified a specific commodity as non-waste for the purpose of shipping this commodity to another Member State, the commodity in question would have to be recognised as non-waste by all EU Member States involved in its shipment. The criteria used by the Member State to classify a commodity as end-of-waste would have to comply with the EU end-of-waste criteria in the waste framework

Directive. This measure would be different from the current regime in the WSR⁵⁵, whereby in case of dispute over waste classification between Member States, the solution is always that the commodity in question will be classified as a waste. The measure could foresee that it could be either the view of the country of dispatch which prevails, or the view of the country of destination.

Establish mutual recognition of national decision in relation to the hazardousness/contaminated nature of wastes for the purpose of waste shipments.

Under this measure, the WSR would set out the principle that, if a Member State has classified a specific waste as not being subject to the notification procedure (because this waste is not hazardous or does not meet other conditions for notified waste, for example is contaminated), this decision should be recognised by all EU Member States involved in the shipment of this waste. This measure would reverse the current current logic in the WSR⁵⁶, whereby in case of dispute over waste classification between Member States on whether the waste should be notified or not, the solution is that the commodity in question will be classified as a notified waste. The measure could foresee that it could be either the view of the country of dispatch which prevails, or the view of the country of destination.

Objective 2: Guarantee that waste exported outside the EU is managed in an environmentally sound manner

Specific objectives

2.1: Stop the export of the waste from the EU where it will not be managed in an environmentally sound manner

2.2: Improve waste management in third countries

Specify obligations for exporters and public authorities to ensure and verify that waste exported to third countries are managed in an environmentally sound manner.

This measure would introduce provisions in the WSR to require that companies exporting waste outside the EU set out and implement independent auditing/traceability schemes to ensure that exported waste is sustainably managed in the receiving facilities in third countries. These schemes would apply to the whole supply chain of these exports (i.e. transport of waste; treatment in facilities located in the destination countries, including treatment of residual waste from recycling facilities). The schemes would be based on criteria designed to ensure that the waste in question is managed in environmentally sound manner, according to rules/standards which are broadly equivalent to EU standards. These criteria would be defined in an Annex to the WSR, which could be modified through delegated or implementing acts. This measure would also include a requirement for national competent authorities in the EU Member States to check that EU exporting companies comply with their obligations to verify that waste are dealt with according to ESM principles in destination countries and for the Commission to assist and oversee the EU Member States in this task.

Task the Commission, via implementing or delegated acts, to set out criteria to differentiate between used goods and waste, for specific waste streams for which export to third countries raises particular challenges. This measure would allow to define legally-binding and enforceable criteria to differentiate between used goods and waste, for the purpose of the shipments of waste. The decisions by the Commission would be taken for specific commodities, with a selection based on specific problems experienced in the distinction between waste and used goods. This procedure would not impact existing EU legal acts which already lay out criteria for such distinction for specific waste streams (like waste electronic and electrical equipment (WEEE), for which such criteria are defined in Annex VI of Directive 2012/19/EU).

Ban all exports of waste from the EU to third countries. This measure would involve the establishment of a complete ban on all export of waste from the EU without any exemption, including to OECD member countries.

Ban export of all waste to non-OECD countries. Under this measure, the Regulation would prohibit the export of waste to countries that are not members of the OECD, without any exemption.

Establish a new framework for the export of green-listed waste from the EU to a non-OECD country, according to which such export is only authorised to those countries that notify the EU of their willingness to import green-listed waste and demonstrate their ability to treat it sustainably, in accordance with criteria set out in the WSR. Under this measure, the WSR would establish a procedure that provides that export of waste to non-OECD countries would only be authorised to those countries that notify the Commission that they wish to import one or more green-listed waste from the EU and demonstrate their overall ability as a country to deal with them sustainably based on criteria set in the WSR. This measure would build on and complement the obligation currently laid down in the WSR⁵⁷ to verify that waste exported to third countries is managed in an environmentally sound manner (i.e. in accordance with human health and environmental protection standards broadly equivalent to EU legislation). The Commission would assess this information and then decide whether the criteria for sustainable management of the waste are met. If the Commission comes to the conclusion that these countries comply with the criteria, the Commission would include them in a list of countries authorised to import waste from the EU, which would be regularly updated through a delegated/implementing act.

Require that the export of green-listed waste outside the OECD is subject to the notification procedure

Under this measure, all export of green-listed waste outside the OECD would be subject to the notification procedure, which implies that the competent authorities of the

⁵⁷ Article 49

countries of export, transit and destination would have to give their consent to the shipments of waste, before the shipments can take place.

Set up a specific procedure to monitor export of waste to OECD countries and mitigate environmental problems that might be caused by such exports. Under this measure, the Commission would be tasked to monitor the levels of export of waste from the EU to OECD countries, and the Commission would be empowered to launch a process towards a given country to evaluate if export can still occur there, which could ultimately lead to banning the export of some waste to the country concerned if it can not be demonstrated that the waste in question is not managed in an environmentally sound manner.

Establish a new mechanism governing the export of waste outside the EU, which would operate a distinction between processed and unprocessed waste. Under this measure, the WSR would introduce new control mechanisms for the export of waste outside the EU, which would be different depending on whether the waste concerned is processed or unprocessed.

Task a dedicated Agency (or similar body) at the EU level to monitor export of waste as well as their treatment in third countries. This measure would entrust a dedicated Agency or similar EU level body with specific tasks to monitor waste shipments and the treatment at destination.

Objective 3: Better address illegal shipments of waste within and outside the EU

Specific objective 3.1: Further strengthen the WSR's provisions on enforcement and inspections

Complement existing provisions on inspection plans. This measure would complement the existing provisions of the WSR by requiring Member States to notify their inspection plans to the Commission, which would be tasked to assess these plans, with a view to providing further support to Member States and facilitating the development of a harmonised approach for inspections across the EU.

Issue guidance on efficient inspections and enforcement practices. As for the guidance mentioned above, the development thereof is typically part of a baseline scenario. However, to underline the importance of specific issues related to enforcement of the WSR, this measure would provide a delegation to the Commission to adopt guidance related to enforcement practices, and inspection prioritisation and cooperation.

Empower the Commission (through OLAF) to carry out transnational investigative and coordinating actions against waste trafficking in the EU. This measure would entitle the Commission (through its anti fraud office, OLAF) to carry out investigative and coordinating actions in respect of illegal waste shipments within the EU (intra-EU) and towards third countries to assist the Member States in enforcing the provisions of the WSR. OLAF's actions would complement, not replace, the powers of the national competent authorities to initiate and conduct their own investigations.

Reinforce existing provisions on penalties by introducing a list of common, non-exhaustive and indicative criteria for determining the types and levels of penalties to be imposed in case of infringements, including also a non-exhaustive list of the main types of sanctions.

Improve traceability of shipments of green-listed waste by introducing in the WSR an obligation to use the EDI system for the documentation accompanying the shipments of “green-listed” waste (form in Annex VII). This will include notably the obligation to keep record of these forms, which could be made available to the competent authorities, even after the shipment is completed. In addition, the WSR would, as a new measure, require that all brokers/intermediaries who want to ship waste within or from the EU are specifically registered in all of the EU Member States where they carry out commercial activities linked to the shipment of waste.

Specific Objective 3.2: Strengthen cooperation within the Member States, across the EU and with international partners

Facilitate cooperation between enforcement authorities at the national level. This measure would introduce a provision in the WSR for all competent authorities involved in implementation of the WSR to ensure that they have effective mechanisms to enable them to cooperate and coordinate domestically concerning the development and implementation of enforcement policies and activities to combat illegal shipments of waste.

Creation of a dedicated group at the EU level with the task to facilitate and improve cooperation on enforcement of the WSR. Under this measure, the WSR would establish a “waste shipment enforcement group”, with the mandate to facilitate and improve cooperation and coordination on enforcement policy and practice in the Member States, focusing in particular on issues relating to illegal shipments of waste within the EU as well as illegal shipments outside the EU, in particular exports to third countries. It would guide the Member States’ authorities in their actions to enforce the WSR, by sharing best practices, intelligence, and ongoing activities and facilitate joint actions between EU Member States.

6.1.2 Screening

In line with better regulation guidelines, the potential measures presented in section 6.1.1. have been screened against the criteria of legal feasibility, coherence (with other EU legislation and between each other), proportionality and effectiveness. The screening of these measures is presented below, per objective. When they are alternatives or when they were suggested as a solution to the same problem, they are grouped into one box, for example all the measures relating to financial guarantees.

Any measure that has a “no” in any of the criteria was discarded in order to have a proportionate assessment in this report. A brief description of why certain measures were discarded is provided in section 6.2 and a more extensive version in Annex 9. On the other hand, some of these measures are strongly supported by the public or certain

stakeholders. In these cases, DG ENV decided to run a fuller analysis (to be found in Annex 9) than would normally be the case in an impact assessment for discarded measures, in order to have a well substantiated proposal for decision makers.

For the EU-wide electronic data interchange system, a specific technical description is provided in Annex 10.

Objective 1: Facilitate shipments within the EU, in particular to align the WSR with circular economy objectives

Measures	Legal feasibility	Coherence	Proportionality	Effectiveness
Improve the “pre-consented facilities” regime	Yes	Yes	Yes	Yes
Remove the financial guarantee system OR	No	No	Yes	No
Allow the financial guarantee system via a national fund OR	Yes	Yes	Yes	No
via an EU fund	Yes	Yes	No	No
Streamline the financial guarantee system via a harmonised calculation of the amount required	Yes	Yes	Yes	Yes
Streamline the notification procedures	Yes	Yes	Yes	Yes
Clarify the scope of the Regulation	Yes	Yes	Yes	Yes
Introduce an additional procedure for certain shipments of hazardous waste destined to certified facilities	No	No	No	Yes
Set up a mandatory EU-wide electronic data interchange	Yes	Yes	Yes	Yes
Ensure mutual recognition at EU level of carriers of hazardous waste registered in one Member State	Yes	Yes	Yes	Yes
Align the WSR provisions with the waste hierarchy	Yes	Yes	Yes	Yes
Apply stricter rules to shipments destined to recovery operations other than reuse and recycling	No	Yes	Yes	Yes
Issue guidance on current problematic issues	Yes	Yes	Yes	Yes
Ensure alignment with the provisions on end-of-waste and byproducts in the Waste Framework Directive	Yes	Yes	Yes	Yes
Task the Commission to set thresholds for contamination_of wastes through delegated /implementing acts	Yes	Yes	Yes	Yes
Establish mutual recognition of national end-of-waste criteria for the purpose of waste shipments	Yes	Yes	Yes	Yes
Establish mutual recognition of national decision in relation to the hazardousness nature of wastes for the purposes of waste shipments	Yes	Yes	Yes	Yes

Objective 2: Guarantee that waste exported outside the EU is managed in an environmentally sound manner

Measures	Legal feasibility	Coherence	Proportionality	Effectiveness
Specify obligations for exporters and public authorities to ensure and verify that waste exported to third countries is managed in an environmentally sound manner.	Yes	Yes	Yes	Yes
Task the Commission, via implementing or delegated acts, to set out criteria to differentiate between used goods and waste, for specific waste streams for which export to third countries raises particular challenges	Yes	Yes	Yes	Yes
Ban export of all waste outside the EU OR Ban all exports of waste from the EU to non-OECD countries OR Establish a new framework for the export of green-listed waste from the EU to a non-OECD country, according to which such export is only authorised to those countries that notify the EU of their willingness to import green-listed waste and demonstrate their ability to treat it sustainably, in accordance with criteria set out in the WSR OR Require that the export of green-listed waste to non-OECD countries is subject to the notification procedure	No No Yes Yes	No No Yes Yes	No Yes Yes Yes	Yes Yes Yes Yes
Set up a specific procedure to monitor export of waste to OECD countries and mitigate environmental problems that might be caused by such exports	Yes	Yes	Yes	Yes
Establish a new mechanism governing the export of waste outside the EU, which would operate a distinction between processed and unprocessed waste	Yes	No	Yes	No
Task a dedicated Agency (or similar body) at the EU level to monitor export of waste as well as their treatment in third countries	Yes	Yes	No	Yes

Objective 3: Better address illegal shipments of waste within the EU as well as illegal exports to third countries.

Measures	Legal feasibility	Coherence	Proportionality	Effectiveness
Complement existing provisions on inspection plans	Yes	Yes	Yes	Yes
Issue guidance on efficient inspections and enforcement practice	Yes	Yes	Yes	Yes
Empower the Commission (through OLAF) to carry out transnational investigative and coordinating actions against waste trafficking in the EU	Yes	Yes	Yes	Yes
Reinforce existing provisions on penalties	Yes	Yes	Yes	Yes
Facilitate cooperation between enforcement authorities at the national level	Yes	Yes	Yes	Yes
Improve traceability of shipments of green-listed waste	Yes	Yes	Yes	Yes
Creation of a dedicated group at the EU level with the task to facilitate and improve cooperation on enforcement of the WSR	Yes	Yes	Yes	Yes

6.2 Measures that were discarded

As indicated in section 6.1, the measures presented below are not analysed further in the body of this impact assessment. More information on them, including a limited analysis of their impacts, can however be found in Annex 9.

Financial guarantees

The possibility to abolish the regime for the financial guarantees was discarded as this is required by the international legal framework on waste shipments. The regime is also based on the principle that cost incurred by illegal or irregular operations should be borne by the notifier.

Adding the possibility of a national or EU-level fund were also discarded. These measures do not resolve the problem of the high financial burden to shipment companies and of the diverging levels of guarantees set by different competent authorities. A fund could address the rare cases where the guarantee is insufficient or not set-up only if the contributions were not reimbursed to notifiers. A growing fund could cover costs based on past experience and contributions could be reduced to maintain the fund level. However, certain waste management treatment companies were against this solution because their contributions would benefit actors that do not comply with the rules, and in particular or with free-riders not notifying waste shipments.

Additional procedure for certain shipments of hazardous waste destined to certified facilities

This measure was discarded because the notification procedure for hazardous waste shipments is required by the Basel Convention. Derogating from this procedure would have to be duly justified (for example via the use of the specific procedure for this

purpose laid down in Article 11 of the Basel Convention) since it will present risks for the protection of the environment.

Apply stricter rules to shipments destined to recovery operations other than reuse and recycling

This measure was discarded as it is likely that it would not be compatible with the OECD Decision, which provides for the international framework for shipments to recovery between OECD members and does not distinguish between recovery operations.

Ban all exports of waste from the EU to third countries

This measure was discarded as it is likely that it would be incompatible with the EU's international obligations. In addition, the environmental objectives can be achieved through other less restrictive remedies, e.g. a system certifying that the third country importing the waste has the capacity to receive and treat the waste in a sustainable manner.

Nevertheless, this measure was assessed because it reflects in the strictest sense the language used in the Green Deal on the export of waste and correspond to expectations by certain stakeholders and the public opinion (as shown in the results of the public consultation). It is possible that these proposals will resurface during the discussions on the legislative proposal with the co-legislators. DG ENV therefore believes a full assessment will support the decision-making process.

Ban export of all waste to non-OECD countries

This measure was discarded as it likely that it would be incompatible with the EU's international obligations. In addition, the environmental objectives can be achieved through other less restrictive remedies, e.g. a system certifying that the third country importing the waste has the capacity to receive and treat the waste in a sustainable manner (see measure 2c).

Establish a new mechanism governing the export of waste outside the EU, which would operate a distinction between processed and unprocessed waste

This measure is not assessed in details as it is not coherent with the current legal regime in the Basel Convention and the WSR which operate two fundamental distinctions:

- Between waste and non-waste, with the consequence that any commodity classified as waste should be subject to a particular regime when shipped across borders, as well as;
- between notified waste (hazardous waste or waste which present particular challenges for their treatment) and green-listed waste.

The proposed measure does not fit with this distinction, but adds new categories of waste which risk rendering the legal framework applying to the shipment of waste more complex and confusing. In addition, there is no agreed criterion which would allow to draw a clear line between “processed” and “unprocessed” waste. The proposed measure also does not take into account the fact that even “processed” waste remains waste and would be subject to further processing operations in the countries of destination. These operations can generate negative environmental externalities and would therefore also

need controls and monitoring. Finally, the current legal framework already makes it clear that waste, when processed into a commodity which complies with “end-of-waste” criteria, becomes a product and is not subject any longer to the WSR. That solution should address the issue that this proposed measure seeks to solve.

Task a dedicated Agency (or similar body) at the EU level to monitor export of waste as well as their treatment in third countries

Pursuing the creation of a dedicated body at the EU level, would require considerable financial and human resources. Allocating these tasks to an existing body/agency appears difficult as well, as there is currently no EU body with a relevant mandate and appropriate expertise. Creating an entirely new one to centralise monitoring of waste export and treatment in destination countries would contribute to ensuring the environmentally sound management of waste in third countries. Nevertheless, this measure is considered disproportionate as similar objectives could be achieved with measures 2a and 2c, which together establish a framework for the export of green-listed waste and specify obligations for exporters and public authorities to ensure and verify that waste exported to third countries is managed in an environmentally sound manner.

6.3 Policy options

This section presents 4 policy options. These options aim to address the problems identified in section 2 and to achieve the policy objectives defined in section 4. The baseline (policy option 1) is not repeated for each objective.

Different groups and combinations of the measures presented in section 6.1 underly the options 2, 3 and 4. The complete set of measures under each option is listed in the chart in Figure 7.

Option 1: Baseline scenario

The **first option** is the baseline where no change would be made to the Regulation but the challenges linked to the implementation of the Regulation would be addressed through a continuation of the current approach, as well as soft law initiatives and legally non-binding instruments, such as guidance.

Option 2: Improving the implementation of the regulation via targeted amendments (“Targeted changes”)

The **second option** consists in introducing targeted changes to the WSR, corresponding to each of the three objectives of the review, while maintaining the overall approach contained in the current version of the WSR. The current provisions would be complemented and improved to facilitate the shipments of waste within the EU in line with the waste hierarchy (notably through the harmonisation of the regime for pre-consented facilities (measure 1a) and a reduction of delays applicable for the notification procedure (measure 1b)), reduce burden for economic operators (notably through the use of national funds instead of financial guarantees) and clarify the scope of the WSR (measure 1c). Additional provisions (measure 1g) would be added to allow Member States to object to shipments of waste for recovery other than recycling and to tighten the

conditions under which shipments destined for disposal operations (landfilling, incineration) could be authorised. Alignment of the provisions on end-of-waste and by-products with the Waste Framework Directive (measure 1i) and issuing of guidance on current problematic issues (measure 1h) would help to better harmonise the interpretation and the application of the Regulation.

With regard to waste shipped outside the EU, this option would create an obligation for exporters to demonstrate, via audit schemes, that waste exported outside the EU is treated in an environmentally sound manner (measure 2a), thereby making the current provisions of the WSR on this point more operational. It will also empower the Commission to set out criteria to distinguish between second-hand goods and waste, for waste whose exports create particular challenges (measure 2b).

Finally, this option would complement the existing provisions on enforcement, notably on the inspection plans (measure 3a) and the penalties (measure 3d) applicable for breaches of the WSR. Additional guidance on inspections and enforcement (measure 3b) and set up of mechanisms to improve the domestic cooperation (measure 3f) would boost the capacities of Member States to react and prevent/neutralise the consequences of the illegal shipment. It will also empower the Commission, via its anti-fraud office OLAF, to carry out investigative and coordinating actions against transnational waste trafficking activities in the EU (measure 3c).

Option 3: Overhaul of the regulation with simplified rules on intra-EU shipments of waste and new mechanisms for the export of waste and to address illegal shipments (“Structural changes”)

The **third option** consists in operating structural changes to the current Regulation. This option would include measures which depart from the current approach underpinning the Regulation.

It would first greatly simplify the implementation of rules on the intra-EU shipments of waste, via a full digitalisation of the exchange of data for the notification procedure (measure 1d), the harmonised calculation of financial guarantees (measure 1e) and address problems linked to various interpretations by the Member States of some provisions of the WSR via EU-wide harmonisation, for example on contamination levels (measure 1j) or mutual recognition, such as relating to the distinction between waste and non-waste (measure 1k), or hazardous and non-hazardous waste (measure 1l)), and on the registration of carriers (measure 1f).

This option would also establish new mechanisms, in order to ensure that waste exported outside the EU is managed in an environmentally sound manner in the countries of destination. With respect to the export of green-listed waste outside the OECD, this option would set out that export is only authorised to those countries that notify the EU of their willingness to import green-listed waste and demonstrate their ability to treat it sustainably, in accordance with criteria set out in the WSR (measure 2c). Alternatively, this option could include a requirement that all export of green-listed waste outside the

OECD become subject to the notification procedure (measure 2d). With regard to export to OECD countries, a specific procedure would be set up, whereby the Commission would monitor export levels and be able to take specific action to mitigate environmental problems that might be caused by such exports (measure 2e).

Finally, in order to reduce illegal shipments of waste, this option would ensure a better traceability for green-listed waste (measure 3e) and set out a new group at EU level to increase enforcement cooperation between the Member States and with EU and international relevant partners (measure 3g).

Option 4: Overhaul of the regulation in support of circular economy with modernisation and digitalisation of procedures, establishment of a new framework to ensure that waste exported outside the EU are managed sustainably and strengthened enforcement (“Far-reaching changes”)

The **fourth option** consists in developing a new Regulation, replacing the current WSR, which would improve a number of existing provisions of the current Regulation, which are still relevant but would be adjusted and complemented (as in option 2), together with some structural changes that set out new approaches (as in option 3), based notably on digitalisation, modernisation and a new framework on the export of green-listed waste. This blend of elements from options 2 and 3 would ensure that the WSR facilitates intra EU shipments of waste in line with the circular economy objectives, supports the EU’s objective to stop exporting its waste challenges to third countries and contributes to better address illegal shipments of waste.

With respect to **the first objective on intra-EU shipments of waste**, this option will include, similarly to option 2, new provisions to harmonise the regime for pre-consented facilities (measure 1a), reduce the delays applicable for the notification procedure (measure 1b), reduce burden for economic operators through harmonised rules to set the amounts for financial guarantees (measure 1e), and clarify the scope of the WSR (measure 1c). In addition, the Commission would have an explicit mandate to adopt secondary legislation on thresholds for contaminated waste (measure 1j). The option would also include an explicit reference in the WSR to the provisions in the Waste Framework Directive on end-of-waste and by-products to clarify the status of commodities (waste or non-waste) shipped between EU Member States (measure 1i).

Additional provisions (measure 1g) would be added to allow Member States to object to shipment of waste for recovery other than recycling and to tighten the conditions under which shipments destined for disposal operations (landfilling, incineration) could be authorised. Further, as in option 3, the interchange of data via electronic means (measure 1d) would be made mandatory to modernise the procedures governing intra-EU shipments of waste. This digital system is a tool that would promote the success of a number of other measures to simplify procedures and reduce administrative burden. It will also be designed to improve the monitoring and traceability of waste.

With respect to **the second objective on waste exports**, this option would also build around measures presented both in option 2 and in option 3.

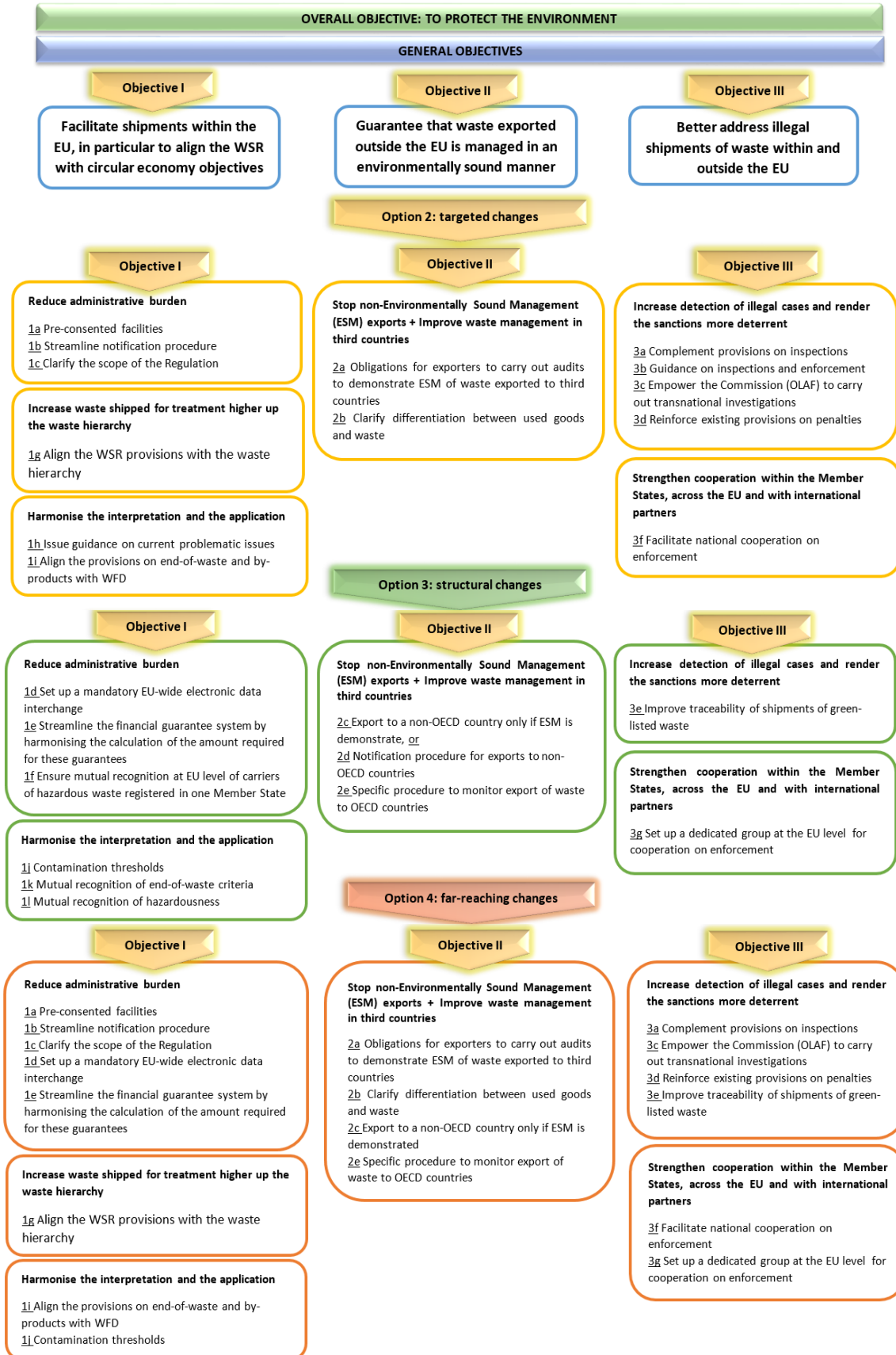
It will first, as in option 3, establish new mechanisms, in order to ensure that waste exported outside the EU is managed in an environmentally sound manner in the countries of destination. With respect to the export of green-listed waste outside the OECD, this option would set out that export is only authorised to those countries that notify the EU of their willingness to import green-listed waste and demonstrate their ability to treat it sustainably, in accordance with criteria set out in the WSR (measure 2c). A list of countries authorised to import such waste would be set up by the Commission. This would replace Commission Regulation (EC) 1418/2007, which would be repealed. With regard to export to OECD countries, a specific procedure would be set up (measure 2e), whereby the Commission would monitor export levels and be able to take specific action to mitigate environmental problems that might be caused by such exports.

In addition to these mechanisms (which are based on a general assessment of the ability of countries to deal with waste exported by the EU), this option would, similarly as in option 2, include the following measures:

- companies exporting waste outside the EU would have the duty to audit facilities where they are sending this waste, to verify that they are managed in an environmentally sound manner (measure 2a). The Member States and the Commission would be tasked to ensure that the exporting companies properly fulfil their duties in that respect;
- finally, in order to address the serious problem linked to the export of waste falsely presented as “used goods”, the Commission would be tasked to develop specific binding criteria to differentiate between waste and used goods, for specific commodities for which this is a particular problem (measure 2b).

Finally, to better address the third objective on **illegal shipments of waste**, this option would focus on legally binding tools. It would not pursue the development of guidance but complement the current provisions of the WSR relating to inspections (measure 3a) and penalties (measure 3d). This would be supplemented by measures designed to improve cooperation against illegal shipments at national, EU and international levels. To this end, the Commission (through its anti-fraud office OLAF) would be empowered to carry out transnational investigative and coordinating actions against waste trafficking in the EU (measure 3c), thereby helping Member States working together on these problems. The WSR would also require that Member States set up mechanisms to ensure domestic internal coordination against illegal shipments of waste (measure 3f), as is the case for other areas of EU legislation. Finally, a dedicated group at the EU level will be created (measure 3g) which would gather enforcement agencies from the Member States, EU and international bodies, with the task of facilitating and improving enforcement cooperation at the EU and international levels.

Figure 8 - Measures proposed under option 2, 3 and 4 for each of the three objectives



7. WHAT ARE THE IMPACTS OF THE POLICY OPTIONS?

The economic, environmental and social impacts of the proposed measures as well as the effectiveness and efficiency of the options to meet the specific objectives and coherence with existing EU policy objectives were assessed in line with the better regulation guidelines. Each measure is presented with its title and its expected impacts are quantified whenever possible. Otherwise a qualitative assessment was performed. The impacts were assessed by taking into consideration the costs and benefits linked to each measure, and possible synergies with other measures. The measures were assessed over the same time horizon as the baseline, i.e. up to 2030. A quantification of the impact for each measure is presented.

The analytical methods used to determine the impacts are described in detail in Annex 5 and a brief overview is provided for each of the three main objectives in their respective section. A number of measures presented require new resources in the Commission. An overview of these impacts is provided in Annex 12 to this report.

7.1 Impacts of the proposed measures

7.1.1 Objective 1: Facilitate shipments within the EU, in particular to align the WSR with circular economy objectives

For measures on intra-EU shipments of waste, the report uses standard cost model to estimate the administrative costs or savings of some of the measures. It also estimates the potential costs savings to notifiers due to reduced delays to obtain a consent from a competent authority. The analysis is based on the information provided by competent authorities and operators.

The environmental impacts are based on a qualitative assessment which focuses notably on the potential for the proposed measures to increase the recycling of waste in the EU, as well as the impacts on other forms of waste treatment (incineration with and without energy recovery, landfilling, etc.). There is a correlation between recycling rates and other environmental indicators (notably emissions of GHG, use of virgin resources etc.) so that increased recycling levels can be considered as a good proxy for environmental impacts linked to the measures proposed with respect to intra-EU shipments of waste.

Where relevant, the social impacts are assessed in terms of the likely EU job creation. For some measures, social impacts are not provided because none are expected.

Specific objective 1.1: Simplification and reduction of administrative burden for intra-EU shipments of waste

1a) Improve the regime of “pre-consented” facilities

Economic impacts

Setting common conditions in order to identify a pre-consented facility would ensure that all competent authorities have certainty about the criteria considered and would allow for mutual recognition of facilities pre-consented throughout the EU.

In addition, competent authorities would have clarity on which shipments should follow the simplified pre-consent procedure and which should not. This will lead to fewer disputes with other competent authorities or companies, and fewer requests for additional

information to be provided, thus minimizing delays to issue consent. Delays in handling of notification requests and during transport often bring significant costs for the companies involved in the shipment.

It is not possible to estimate the precise impact as it is not possible to know precisely how many facilities would be granted pre-consented status in the future. At the moment 331 facilities are pre-consented in 15 Member States. Mainstreaming this facilitated regime and the related waste shipment procedure, is expected to result in more facilities being pre-consented in all Member States overall.

Further, by extending the validity of the notification request to 3 years as a standard⁵⁸, notifiers shipping to pre-consented facilities will only need to submit a notification request once every three years and competent authorities will only have to handle and issue such request once every three years. This will reduce these administrative costs by a factor of three for both companies and competent authorities. Unfortunately, there is no comprehensive overview of what share of the total amount of notification dossiers submitted concern pre-consented facilities. Therefore, it is not possible to calculate the monetised benefit of this measure.

In addition, companies would save notification fees. It is difficult to quantify these costs as they can vary between Member States and there is no comprehensive overview of the fee imposed by each competent authority. What we can say is that if the validity is extended to 3 years as a standard, the cost for notification under this procedure should be divided by about 3 as the typical validity of a notification is currently one year. Taking the example of Brandenburg in Germany,⁵⁹ and the Flemish and Walloon Regions in Belgium⁶⁰, companies would save 832, 266 and 166 euro per notification respectively. Based on the annual notifications handled by these three competent authorities, this would amount to annual savings of 112, 372 and 116 thousand euro for the companies submitting these notifications.

Costs would include the workload for companies to prepare and substantiate the request to be pre-consented, and for competent authorities to handle these request. However, stakeholders claim that these costs would be outweighed by the benefits of saving time and resources due to the reduced number of notifications.

In general, feedback from stakeholders on a potential improvement of the regime of pre-consented facilities in the WSR showed strong support and point to the benefits that would come with it.

Environmental impacts:

If certain facilities are pre-consented according to harmonised and solid criteria, waste shipments to pre-consented facilities would become a secure yet swift path for waste

⁵⁸ Currently a consent can be given *up to* three years, but often companies submit the request for only one year which actually increases the burden on competent authorities to handle requests under great time pressure annually, instead of triennially.

⁵⁹ The notification fee is set at 1250 euro (<https://www.sbb-mbh.de/aufgaben-der-sbb/grenzueberschreitende-abfallverbringung/gebuehren-einer-notifizierung.html>)

⁶⁰ The notification fee is set at 400 euro in Flanders (<https://publicaties.vlaanderen.be/download-file/11074>) and 250 in Wallonia (<https://wallex.wallonie.be/de/contents/acts/20/20160/1.html?doc=4832&rev=4129-2295>)

producers to find a solution for their waste. As a result, this waste will more easily find its way to the optimal treatment option across the EU. More waste will be recovered and re-enter the circular economy. This will facilitate the attainment of the targets for waste recycling and reduction of landfilling set out by the EU legislation.

Social impacts

Incentives to recycle waste will result in the expansion of the waste recycling sector, and in turn extra jobs are created. Annex 5 provides an overview of full time equivalent (FTE) employment related to waste management within the EU for certain categories of waste.

Stakeholders' opinions

This measure was broadly and largely supported by stakeholders, while some of them stressed it should only be applied for regularly audited and high-quality certified recovery facilities.

1b) Streamline the notification procedures:

Economic impacts

Increasing the amount of waste exempted from control if it is being sent for laboratory/testing purposes would facilitate the companies involved and hence speed up the development of innovative technologies and their upscale at economically viable volumes. In turn, innovative and improved technologies will bring new businesses to the EU and contributes to more effective and efficient recycling.

Setting up and operating an EU-wide EDI (measure 1g) allows to reduce the delays foreseen in the WSR for some aspects of the notification procedure that were designed with a paper-based approach. This would reduce costs linked to such delays.

English is proposed as a common language for documents, complementary to any translated version in national languages, since this is the most widely spoken foreign language in the EU. This is confirmed by the data submitted by competent authorities in the Basel Convention national reports. Of the 25 Member States that submitted a national report in 2018 or 2019, 24 reported English as an accepted language for shipments in transit and all of those but one also accepted English for shipments arriving⁶¹. A common language would again contribute to a potential reduction on delays.

Many other measures are designed to simplify and clarify procedures in order to achieve the benefits of these reduced delays. In the evaluation of the WSR, business operators indicated that although it is difficult to quantify number of delays per annum or waiting times of delays, on average, costs linked to delays per shipment can be up to 150 000 euro. It will in particular have a positive affect on SMEs which dominate the waste management sector in terms of number of companies.

⁶¹ <http://www.basel.int/Countries/NationalReporting/NationalReports/BC2019Reports/tabid/8645/Default.aspx>
<http://www.basel.int/Countries/NationalReporting/NationalReports/BC2018Reports/tabid/8202/Default.aspx>

Environmental impacts

This measure ensures a swifter handling of shipment procedures and better monitoring of where waste is intended to be treated. This should accelerate shipment procedures in order to direct waste to optimal treatment with all the associated environmental benefits. It further motivates to develop innovative solutions that would contribute to a more effective and efficient treatment of waste and a transition to a circular economy.

Stakeholders' opinions

Stakeholders across the board expressed strong support for streamlining the procedural framework of the WSR.

1c) Clarify the scope of the Regulation:

Economic impacts

A clear understanding of the scope of this Regulation, in relation to other legal frameworks on the transport of goods across borders, minimizes the room for interpretation in each Member State of the controls and procedures to apply. This reduces the chance that disputes delay shipments of these materials on the ground. Delays in shipping goods, including waste, come with a considerable cost, as also explained under measure 1c above.

Environmental impacts

A clear understanding of the scope of this Regulation, in relation to other legal frameworks on the transport of goods across borders, ensures that the rules and procedures are properly followed, which should ensure the most optimal environmental protection.

Stakeholders' opinions

Stakeholders across the board pleaded for clarifying as much as possible what would be covered by the WSR and what would be covered under other relevant legislation or controls.

1d) Set up a mandatory EU-wide electronic data interchange (EDI)

Economic impacts

Setting up and operating an EU-wide EDI that allows for both interconnecting national electronic notification systems and directly connecting to an EU-level operated system, would be in line with the EU Digital Strategy⁶². An EU-wide EDI will generate costs both in terms of establishment and in terms of maintenance of the system. These costs would be shared between the EU and its Member States. The central component is being developed on EU budget while Member States will fund the replacement of their national system or its adaptation to make it interoperable if they wish to maintain their own system. Depending on the required functionalities and consequent complexity, the Commission estimated that the cost of a system interconnecting national systems would

⁶² <https://ec.europa.eu/digital-single-market/en/content/european-digital-strategy>

be approximately €900 000 over 5 years; this includes set-up costs and subsequent maintenance costs. Based on DG ENV's experience with other policies (like FLEGT), maintenance costs are estimated between 50 000 and 80 000 euro for the first year but should drop up to about 20 000 euro per year once the system has been refined. Relevant extra staff would also be needed at the EU level to set up the centralised system or component and at national level to adapt the national system and maintain it over time. The cost for Member States currently maintaining their own system is estimated to be approximately 50 000 euro per year. This cost will continue for Member States that decide to keep their own national system. Given about half of the Member States that responded have an electronic system, this is equivalent to an annual cost of about 675 thousand year for all the Member States concerned. Most Member States that currently operate their own system, have indicated they will most probably continue to do so, for reasons of business continuity and to benefit from investments already made. For Member States that have no national system or decide to replace their current system and would fully rely on the EU one⁶³, no additional significant costs are expected. Once established, the EDI will bring benefits to Member States linked to the digitalisation of the procedure. The Commission Staff Working Document accompanying the Commission Communication on EU Regulatory Fitness in 2012⁶⁴ estimated these cost savings to be around €44 million per year. This figure was based on the existence and development of Member State electronic systems at the time of that report. It is expected these overall savings are an overestimation, since this assessment is nearly a decade old and electronic systems have further developed.

This report is based on more recent estimates based on competent authorities' input on the staff time spent on notifications and whether these are paper-based or electronic (or partially electronic). Based on the 21500 annual notifications, the time savings of working with an electronic system and assuming a staff cost of 20 euro/hour, the use of EDI systems in all Member States could bring competent authorities savings between 0.95 and 3.2 million euro per year, compared to the current situation. Similarly, if all notifications were managed electronically, EU notifiers could save between 450 and 950 thousand euro per year.

Both Member States and the EU would also benefit from the availability of this data in an electronic system to monitor waste flows more swiftly and with much greater analytical capability and accuracy (due to increased consistency in the data). This would moreover also apply to green listed waste, as the required information to accompany these shipments is also foreseen to be included in the EDI.

Businesses involved in waste shipments would benefit from the EDI as the digital notifications would similarly take less time than paper ones for their staff. An EDI is likely to also reduce errors or losses in the completion of the consent forms compared to a paper version.

In addition, notification dossiers and any supplementary information requested during the consent procedure, would be delivered and be processed more swiftly as the logistics of the paper notification could be avoided. This would mean that consents would be issued

⁶³ https://ec.europa.eu/environment/waste/shipments/pdf/1a_Project_Charter_EDI_for_WSR.pdf

⁶⁴ SWD(2012) 423 final

in a shorter time delay, resulting in gained time and money for businesses since the waste can be shipped faster with reduced storage costs while waiting for consent for transport.

Environmental impacts:

No overall negative impacts on the environment are foreseen as a result of the introduction of EDI. As broadly expressed by stakeholders during the consultations for this impact assessment, the shift from a paper-based system to EDI is expected to create transparency and increase the efficiency of implementing the WSR's obligations and help to create a single market for secondary raw materials. However, no qualitative data were available to support these expectations. Benefits are foreseen in terms of reduced direct and indirect costs of using paper for administrative purposes and the lower generation of paper waste. Also, the use of EDI could positively contribute to the implementation of EMAS (Eco-Management Audit Scheme). Positive environmental impacts are also envisaged for private sector and national administrations in terms of spending significantly less resources for printing, filing, storing, and retrieving paper documents. It was suggested by some stakeholders that the time saved as a result of the introduction of EDI could be dedicated to conducting more on the ground inspections of shipments or treatment facilities by Competent Authorities. EDI would ensure better data traceability and potentially reduce non-compliance with the Regulation, i.e. risks of illegal shipments⁶⁵.

Social impacts

There are no significant social impacts expected from this measure. The staff in Competent Authorities and businesses would have to be trained to move from a paper-based to an electronic system. Based on the information collected through the targeted interviews, introduction of the electronic data interchange could have an impact on employment levels for staff at Competent Authorities. The impacts could be positive as well as negative. With regards to understaffed Competent Authorities, their staff could be less overloaded given that introduction of the EDI would, on annual basis, save 35% of their time, based on the time saving estimates also used in assessing the economic impacts for this measure⁶⁶.

Stakeholders' opinions

Stakeholders have been pleading for years for the digitalisation of the notification procedure and have expressed strong support for this digitalisation to be made mandatory through EU legislation. They see it as a key enabler to facilitate and speed up the procedure and, with it, the shipments of waste within the EU.

⁶⁵ Some estimates suggest that the overall non-compliance rate with the Regulation could be around 25 %)

⁶⁶ Based on data provided by Member States' Competent Authorities the time saved when processing a notification as a result of an electronic system compared to the paper-based system is on average 5.7 hours per notification, which means a saving of almost 35%.

1e) Streamline the financial guarantee system by harmonising the calculation of the amount required under the guarantee

Economic impacts:

The financial guarantee was set up in the context of the Basel Convention to insure risk associated with unexpected costs due to a waste shipment. This is because waste is shipped from one destination to another and travels potentially through different countries/seas. It is hence a transnational problem with spill-over effects between the different countries. Efforts to provide global harmonisation on the issue of financial guarantees have been made in the framework of the Basel Convention, but have proven to be a complex and lengthy process. The next best solution, to strive for harmonisation at the EU level, is a more realistic approach.

Efforts have been made over time to exchange information between Member States on the methodology they use to calculate the financial guarantee⁶⁷. This however has had no significant effect on the harmonisation of the calculation methodologies. By harmonising the calculation method for the guarantee, notifiers would have better predictability of the financial guarantee required for the shipment of notified waste, which would allow them to better budget the expected costs related to their waste shipment activities. This would streamline the process and avoid that very different levels are set in different Member States.

Moreover, administrative burden for public authorities to handle the financial guarantee process would be reduced – particularly for countries that require specific offers for transport and storage to be presented for every shipment. The application of the harmonised calculation method would be easier and predictable for all actors. This may have a positive impact on the delay to obtain consent for shipment with time and costs saved for notifiers as already explained under measure 1c above.

A report from the Flemish waste agency OVAM⁶⁸ goes into details about the current functioning of the bank guarantee. It concludes that alternatives to the current system are difficult to devise and that the best way forward may be to harmonise the calculations rules across all competent authorities.

Environmental impacts:

During the consultation with stakeholders, it was commonly agreed that a harmonisation of the financial guarantee system would ensure the same level of protection as the current system.

Stakeholders' opinions

Mostly private actors, involved in shipments of waste under the notification procedure pleaded for a reform of the regime on financial guarantees. One important concern was relating to the level of these guarantees, which they see as too high and also very variable depending on the Member States. A number of stakeholders supported the idea to have EU-wide criteria on the methodology to calculate the guarantees.

⁶⁷ The most recent overview is from 2016 and can be found here:

<https://ec.europa.eu/environment/waste/shipments/pdf/Calculation%20of%20financial%20guarantee.pdf>

⁶⁸ <https://publicaties.vlaanderen.be/download-file/11074>

1f) Ensure mutual recognition at EU level of carriers of hazardous waste registered in one Member State

Economic impacts

The measure would reduce the delays linked to the issuing of consent for a notification, which occur because the carriers that are indicated in the notification dossier lack a registration in one of the countries involved in the shipment, and have then to complete these administrative steps for this registration, or include alternative eligible carriers in the notification request dossier. The measure would also lead to reductions of delays occurring during the transport, including of green listed waste. Such delays occur when consignments are being blocked due to the lack of registration of an involved carrier in a given country of transit or final destination of the shipment of waste. The costs linked to such delays (see also measure 1a) would then be reduced for the transport companies and other companies involved in the shipment of waste.

However, the problem seems to be specific to some Member States and of relatively limited magnitude, as many Member States' competent authorities at the moment already recognise registrations in other Member States⁶⁹.

Environmental impacts

No environmental impacts are expected, relating to this measure.

Coherence

This registration obligation is actually applicable both for carriers performing their activities within national boundaries and those shipping waste across borders. The Waste Framework Directive 2008/98/EC regulates this, together with other obligations for economic operators involved in waste management. No single changes in the WSR alone can bring change to this regime and rather the upcoming review of the Waste Framework Directive could be benefited from to address this issue of mutual recognition of registrations in Member States.

Stakeholders' opinions

During the consultation process, stakeholders raised the problem that carriers of waste often need to be registered in the countries where they operate, and comply with sometimes strict obligations in that regard (for example demonstrating specialised training or speaking the language of the country).

Therefore, actors involved in the actual transport of waste showed support for such a mutual recognition.

⁶⁹ See compilation of such information here:

https://ec.europa.eu/environment/waste/shipments/pdf/Summary_on_waste_carriers_update_2020.xlsx

Specific objective 1.2: Better align the rules on waste shipment with the waste hierarchy

1g) Align the WSR provisions with the waste hierarchy

Economic impacts:

- *Impact linked to the limitation of possibility to object to waste shipments for recycling*

Limiting the possibility for Member States to object to waste shipments for recycling would mean that waste management operators would be free to ship waste to their chosen facility. This would limit the risk that waste that is suitable for recycling ends up being treated in a way which is not as environmentally sound in its country of generation, due to objections by the country of destination to receiving the waste for recycling in its territory. Therefore, the measure could contribute to increase recycling in the EU with benefits for recycling companies which would see their activities expand. Increased recycling would ensure an increased – and predictable – supply in recycled material to be used in manufacturing of new products. It is important to note that the Commission is considering mandating recycled content targets in different products. These have already been set for PET bottles in the Single Use Plastics Directive⁷⁰ and proposed for batteries and accumulators in the Commission proposal⁷¹. These measures will drive demand in synchronisation with increased supply, resulting in better pricing for secondary materials. It is difficult to quantify the impact of this measure accurately. Based on available data dating from 2015, the amount of waste shipped for recycling for which an objection was made by another Member State represented around 12 000 tonnes. This is a limited quantity compared to overall waste flows, but it is expected that recycling activities have increased since 2015 and will continue to do so in the future, so that the proposed measure will have a potential to avoid that restrictions for shipments of waste for recycling reach higher volumes and ensure a smoother market for recycling in the EU altogether.

- *Impact linked to the measure allowing one Member State to object to shipments destined for recovery other than recycling when this jeopardizes its waste management strategy*

In case Member States can restrict the import of certain wastes from other Member States in accordance with their national waste management planning, their domestic waste management system will struggle less to find solutions for domestically collected waste to be treated in the most optimal treatment option, and a more stable investment climate would occur for developing the recycling and recovery sector in these countries, to move away from landfilling. Better sorting should result in acceptance of the waste in energy-from-waste plants, and investments in better sorting techniques would be encouraged as foreign waste no longer disrupt their national market. Member States that send waste abroad would still have many other options for the concerned waste, the first being to opt

⁷⁰ <https://eur-lex.europa.eu/eli/dir/2019/904/oj>

⁷¹

https://ec.europa.eu/environment/waste/batteries/pdf/Proposal_for_a_Regulation_on_batteries_and_waste_batteries.pdf

for better sorting and recycling, the second to ship the waste to another Member State that does not object to the import.

A positive impact, economically, but also for the environment and as regards the creation of extra jobs in the recycling industry in those countries (see below) can be expected from clarifying the grounds for destination countries to plan and limit imports in order to implement their national waste management plans and strategies. Energy-from-waste plants in the countries concerned, may face higher costs due to the fact they may have to purchase domestic waste at higher prices compared to imported waste.

Data from 2017 show that only 40% of waste subject to the notification procedure is shipped for recycling in the EU. Some waste which could be sorted for recycling is shipped to other Member States for energy recovery instead, as this is a more profitable option. Hence measures that address shipments for recovery, would have an impact on recycling.

- *Impact linked to the prohibition to ship to disposal operations, with limited exemptions*

The shipments of hazardous waste destined for disposal in another EU Member State amounted to 1.7 million tonnes⁷². A total ban on shipment of such waste would therefore potentially affect large quantities of waste. The measure proposed however foresees that, in well justified cases, such shipments could still take place between Member States. The exact definition of the exemptions will be very important in that regard. Exemptions which would allow such shipments to take place will include situations where, in accordance with the proximity principle, disposal facilities are located in a neighbouring country and are the closest option for treating the waste in question, as well as for islands which do not have sufficient infrastructure and capacity to deal with waste which needs to be disposed of.

This measure would affect in bigger proportion those EU Member States (like Italy and Luxembourg) which are currently shipping large volumes of waste to disposal to other Member States. It will also impact Member States (like Portugal) which are receiving such waste from other Member States.

The companies involved in the shipment and treatment of this waste in disposal facilities (incinerators or landfills) will also be affected. Many of these companies are however also active in recovery operations (waste for energy facilities; recycling plants) and would benefit from a surplus of waste diverted from disposal operations.

Environmental impacts:

- *Impact linked to the limitation of possibility to object to waste shipments for recycling*

As indicated above, limiting the grounds to object in Art. 12 would not lead to significant amounts of waste diverted to recycling, thus not resulting in substantial benefits to the environment.

⁷² https://ec.europa.eu/eurostat/statistics-explained/index.php/Waste_shipment_statistics#Export_of_all_notified_waste.2C_in_tonnes

However, as explained in the subsection above, environmental benefits can be expected from clarifying the grounds for destination countries to plan and limit imports in order to implement their national waste management plans and strategies, because of increasing the possibilities for the domestic recycling sector to mature. This will result in less landfilled waste and more material retained in the circular economy.

- *Impact linked to the measure allowing one Member State to object to shipments destined for recovery other than recycling when this jeopardizes its waste management strategy*

This measure would help some Member States to implement their domestic waste management plans, by making sure that domestic waste collected and sorted can find an appropriate treatment destination, and is not refused due to the fact that existing facilities prefer to receive waste from other Member States. This will be a factor supporting the Member States concerned to meet their obligations for waste treatment (notably diverting waste from landfills) under the EU waste legislation.

This concerns rather specific cases of importing Member States and the EU regions for which imported waste streams (most often refuse derived fuels (RDF) or sewage sludge) negatively influence their domestic waste collection and management system. Exporting Member States would still have many other options for the concerned waste, the first being to opt for better sorting and recycling, the second to ship the waste to another Member State that does not object to the import.

- *Impact linked to the prohibition to ship to disposal operations, with limited exemptions*

This measure would be complementary to the landfill reduction targets set out in the EU waste legislation, which aims at reducing the quantity of municipal waste landfilled in order to reduce its associated greenhouse gas impacts. Under this legislation, the maximum amount of total municipal waste that can be landfilled should be 10% in 2035 (or 2040 in case of derogations). Waste shipped to another country for landfill counts towards the target of the country where it was generated. On the other hand, landfill sites are not subject to any limitations and they can therefore be used to dispose of waste coming from other countries. The proposed measure would make it impossible for operators to ship their waste for disposal to another Member State, except in well-defined circumstances, which should contribute to redirecting waste currently shipped for disposal to recovery operations with the associated environmental benefits.

The access to existing significant landfill capacity in some Member States is often an incentive for operators from other Member States to ship their waste there, while a large share of this waste could be treated higher up in the waste hierarchy. Concentration of landfilling of waste in one area would constitute adverse impact on the environment in the area where the landfilling takes place. Moreover, the negative impact of transport has to be additionally taken into account. Stricter conditions on the shipment of waste for disposal would therefore positively affect the environment in the destination Member States, as it would decrease their landfilling quantities as a result of reduced imports of waste for disposal. Member States having high net-outflow of waste for disposal, in particular, landfilling, to other Member States would be required to recover or dispose of this waste domestically. This should provide an incentive for their treatment under better environmental conditions than disposal, even if it create pressures to the environment and

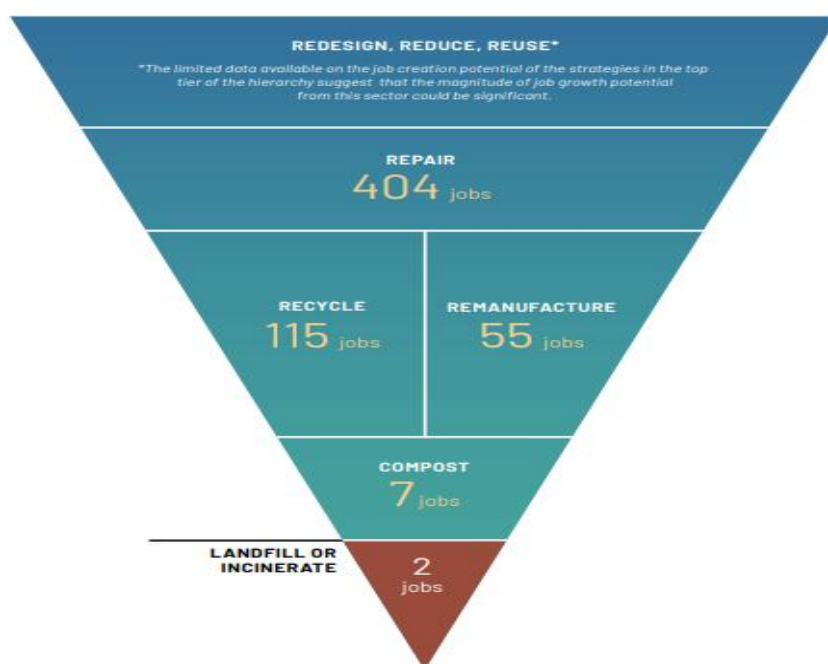
human health on the short term in there is no capacity available for dealing with this waste domestically. Moreover, it could potentially increase the risk of illegal shipments.

In the medium to long term this measure is expected to contribute to expanding waste recycling, which provides a broader range of environmental benefits. The French environment and energy management agency (ADEME) and the recycling industry association FEDEREC have conducted a study on the positive effects of recycling, based on life cycle analyses. The study revealed that recycling saves 124 TWh of energy and avoids 22.5 million tonnes of carbon dioxide emissions annually. In 2014, recycling processes also helped to save 250 million cubic metres of water⁷³.

Social impacts:

This measure is expected to increase investments in waste treatment facilities in line with the waste hierarchy. Recovery operations require higher capacities of intensive collection and sorting, which in turn require greater numbers of labour intensity, notably via the additional workforce required for material recovery collection and sorting. This is confirmed by a recent study assessing the job creation potential of zero waste solutions⁷⁴, which estimates that the job potential is related to the waste hierarchy as illustrated in Figure 9 below.

Figure 9 – Job potential related to the waste hierarchy



Additional data on job creation in waste treatment are provided in Annex 5 of this report.

Stakeholders' opinions

Diverging views were expressed on this measure by stakeholders. A number of stakeholders (mostly from the waste management sector, and especially the energy-from-

⁷³ <https://www.economiecirculaire.org/articles/h/environmental-impact-of-recycling-in-france.html>

⁷⁴ <https://zerowasteworld.org/wp-content/uploads/Jobs-Report-ENGLISH-2.pdf>

waste subsector) indicated that, as a matter of principle, the WSR should be limited to procedural rules and not contain any provisions of substance distinguishing between the types of treatment operations. They indicated that EU waste management rules are sufficient to reflect the EU overall objectives and priorities for waste management and the transition to a circular economy. This view was however not shared by other stakeholders (notably NGOs and some Member States).

More specifically, some stakeholders indicated that, for some non-recyclable waste, the only available solution to avoid their landfilling was to ship them to another Member State where they would be incinerated to produce energy, in the absence of sufficient capacity for such operations in the country where the waste was generated.

Some stakeholders also emphasized that in some cases it is justified to ship waste for disposal to another Member State (for example for hazardous waste for which there is no capacity in the Member State where the waste was generated). Some Member States stressed that the current rules already allow for a country to object to imports of waste for disposal from another Member State, and that therefore no change on this point would seem warranted. NGOs were supportive of the idea to set out stricter rules for such shipments, notably that they should only occur when it can be demonstrated that the waste in question cannot be subject to a treatment operation higher up in the waste hierarchy.

Specific objective 1.3: Harmonisation of interpretation, application and enforcement across Member States

1h) Issue guidance on current problematic issues

Economic impacts:

Providing guidance on how to apply Art. 11 and Art. 12, on how to apply contamination rules and on how to classify waste under the different codes would contribute to a common basis of interpretation and implementation of the WSR. A study from IMPEL⁷⁵, also noted that guidance documents are positive measures to counter implementation challenges (such as the UK government and IMPEL's separate guidance documents). It is assumed therefore that guidance would have a positive economic effect for waste shipment practitioners.

Setting a contamination threshold would reduce the possible contamination. The lower is the set value, the purer the waste stream with a positive impact on the recycling process: the waste should be easier to treat, leaving a lower amount of residue and resulting in a better quality secondary material which can claim higher value on the market. However, practically speaking, some level of contamination is always likely to occur. The chosen value should set a threshold that prevents deliberate or careless contamination whilst allowing an achievable level of contamination in practice.

A lower level of contamination will facilitate recycling and provide a higher and more stable flow of waste to recycling facilities. Many recycling technologies are currently

⁷⁵ IMPEL (2017) "[A survey of practitioners' views about the implementation challenges with EU environmental legislation, their underlying reasons and ways to improvement: 2017](#)".

being explored in the EU and are still immature. Larger scale separate and uncontaminated waste stream can provide more experience and economies of scale.

In addition, there would be added clarity for competent authorities and a likely reduction in delays due to such issues. As already explained, delays before or during waste shipments often bring significant costs for the companies involved in the shipment (see also measure 1a), which could be reduced.

Environmental impacts:

The environmental benefits related to the issuing of guidance is considered to be limited due to its non-legally binding nature. However, clarification of WSR procedures, notably on the alignment of waste shipments with the waste hierarchy, would still incentivise and prioritize recycling over other treatment operations of waste and boost the retention of secondary raw materials in the circular economy. With clear guidance on how to assess contamination levels in waste, the sorting quality would improve as well as the quality of recyclates for the supply chain. Clear guidelines on coding would facilitate the overall circulation of waste in the EU and would potentially have a positive impact.

However, for a number of important issues – such as contamination thresholds for specific waste – it would be more effective to clarify and strengthen the legal rules, rather than proposing guidance on a wider range of topics: the scope of such guidance might not be sufficiently clear and their non-binding nature means that there would a risk that they are not implemented properly.

Stakeholders' opinions

Defining contamination thresholds was supported by stakeholders from the waste management sector as a means to overcome the fragmentation of the EU single market resulting from different interpretations by the Member States. Some recognised though that this task can be challenging. During the workshop, stakeholders which supported guidance stated the main benefits would be to aid with enforcement and interpretation.

1i) Ensure alignment with the provisions on end-of-waste and byproducts in the Waste Framework Directive

Economic impacts:

This measure is expected to positively affect the economy, as it would minimize the risks of market distortions which could emerge as a result of existing unequal policy conditions for end-of-waste between Member States. As it was noted in the EU waste markets study⁷⁶, these conditions have an impact on transnational markets in which the Member States with less demanding policies attract wastes from more demanding Member States. While this may prevent market distortions by Member States offering more lenient environmental conditions to attract a market, but it could also result in an inappropriate application of the more stringent provisions for protectionist reasons⁷⁷. Therefore, linking corresponding provisions of WSR and WFD would not only help to

⁷⁶ https://ec.europa.eu/environment/waste/studies/pdf/waste_market_study.pdf

⁷⁷ The efficient functioning of waste markets in the European Union - Legislative and Policy options (2015) https://ec.europa.eu/environment/waste/studies/pdf/waste_market_study.pdf

ensure that EoW/by-product criteria are also respected with regard to the definition on waste vs. non-waste, but it would also contribute to a smoother functioning of the internal market.

Environmental impacts:

Cross-reference with Article 6 of WFD would help to clarify whether an item in question is waste or not through fulfilment of essential conditions determining the end-of-waste status.

Article 28 serves as an “inspection” mechanism which main task is to foresee negative environmental implications and suspend the shipment through imposing stricter provisions in favour of classifying the suspicious/questionable commodities to be shipped as “waste”. As it was revealed in the study on waste markets in the EU⁷⁸, there is a large discrepancy between the environmental performances between the Member States, which also justifies the strict waste shipment procedure. Better legal clarity in Article 28 on application of the stringent provisions of WSR in conjunction with the Article 6 of WFD would eliminate ambiguities between national authorities and would allow preventing environmental and health safety risks linked with further use of shipped materials in the manufacturing process of new products, notably in the cases when one of the Member States concerned applies no EoW criteria but those already established at the EU level⁷⁹. Emphasizing the interconnection of Article 28 of WSR and Article 6 of WFD would lead to a more accurate application of the EU rules on EoW, which would accelerate the formation of sustainable market of secondary materials.

Stakeholders’ opinions:

Many economic operators highlighted during the consultation the challenges with diverging interpretations on the waste status of the material they wish to ship and asked for clarification as regards the issue of end-of-waste and by products as regards shipments of waste. Member States competent authorities on the other hand were rather clear in their support for the current provisions and mechanisms in Article 28 of the WSR.

1j) Task the Commission to set thresholds for contamination of wastes through delegated/implementing acts to determine if they should be subject to the notification procedure or not

Economic impacts:

The increased clarity on the acceptable levels of contamination will reduce the disputes on whether waste should be subject to the notification procedure or not.

As mentioned above, there is less agreement on what the level of the threshold should be. It is therefore not possible to propose a threshold level to be included in the WSR without additional preparatory and consultation work. Therefore, the development of thresholds through implementing acts or through guidance on the matter are considered to be most

⁷⁸ Ibid.

⁷⁹ More information is available here:

https://ec.europa.eu/environment/waste/framework/end_of_waste.htm

effective approaches to harmonising this matter across the EU. The advantage of providing this delegation explicitly in the WSR is that the Commission would then be clearly mandated to further investigate for which specific waste stream it is relevant and needed to set a threshold to determine contamination to an extent that it renders the waste to no longer be green-listed.

Environmental impacts:

With clear thresholds to assess contamination levels in waste, the sorting quality would improve as well as the quality of recyclates for the supply chain. It would allow choosing the most optimal treatment method for the contaminated waste, leaving a lower amount of residue. Clear threshold levels would ensure a more accurate application of procedural requirements and would minimize the risks of environmental damage related to storage, transportation and handling of waste and the illegal shipment.

Stakeholders' opinions

During the stakeholder workshop, 69% of stakeholders favoured the use of legally binding instruments (such as delegated acts by the Commission) over guidance documents or other means on such issues. Regulatory changes would ensure higher probability they will be implemented properly.

1k) Establish mutual recognition of national end-of-waste criteria for the purpose of waste shipments.

Economic impacts:

With a short term increase in legal clarity, less disputes on classification could be expected and thus reduction of costs due to delays in shipment. On the other hand the level playing field may be unbalanced as the Member States that act fastest on developing their detailed national end-of-waste criteria would determine the classification of certain materials as end-of-waste for all other Member States on their own terms, including economic, which could cause a disadvantage for businesses in other Member States.

Environmental impacts:

Limited delivery of environmental benefits is expected, as unilateral nationally developed end-of-waste criteria are not necessarily sufficient to ensure the highest environmental protection standards on EU level. Although setting a principle of mutual recognition would provide a legal clarity for the waste shipment purposes, the long-term effectiveness of this measure would be questionable as the WSR is not able to address the specifics of all waste streams and materials in detail.

Stakeholders' opinions:

Similar as for measure 1i, many economic operators highlighted during the consultation the challenges with diverging interpretations on the waste status of the material they wish to ship and asked for clarification as regards the issue of end-of-waste and by products as regards shipments of waste. Member States competent authorities on the other hand were rather clear in their support for the current provisions and mechanisms in Article 28 of

the WSR and their reluctance to be obliged to mutually recognize national decisions on end-of-waste in other Member States.

11) Establish mutual recognition of national decisions in relation to the hazardousness nature of wastes for the purpose of waste shipments

Economic impacts:

With a short term increase in legal clarity, less disputes on classification could be expected and thus reduction of costs due to delays in shipment. On the other hand the extent to which legal clarity would be increased is to be seen, as over time Member States' specific positions on the classification of certain waste as hazardous or not, may change and uncertainties would still remain. Further, an uneven level playing field may appear as the classification of certain waste as hazardous or non-hazardous may be based on local terms, including economic, which could cause a disadvantage for businesses in other Member States.

Environmental impacts:

Limited delivery of environmental benefits is expected, as unilateral nationally developed criteria are not able to ensure the highest environmental protection standards on an EU level. Although setting a principle of mutual recognition would provide legal clarity for the waste shipment purposes, the long-term effectiveness of this measure would be questionable as it would not be able to prevent the undesirable flow of improperly classified hazardous waste to the areas where the lowest standards might be applied.

Stakeholders' opinions:

Many economic operators expressed their support for a mechanism that obliges competent authorities to mutually recognize each other's classification of a given waste. Member States competent authorities on the other hand were rather clear in their support for the current provisions and mechanisms in Article 28 of the WSR and their reluctance to be obliged to mutually recognize national decisions on classification of a given waste in other Member States.

7.1.2 Objective 2: Guarantee that waste exported outside the EU is managed in an environmentally sound manner

The proposed measures support both specific objectives that were identified for the general objective 2: "stop the export of the waste from the EU where it will not be managed in an environmentally sound manner", and "improve waste management in third countries".

The proposed measures on the export of waste have an impact on the amount of the waste currently exported. To assess this impact, the report estimates the volume and value of waste that would stay and be processed in the EU compared to what would be exported from the EU in the baseline scenario. This is done for a selected number of wastes representing the largest proportion of recoverable and recyclable wastes, i.e. plastics, glass, paper and cardboard, textiles, non-ferrous metals and ferrous metals. The model then factors in the value of the currently exported waste as declared in Comext,

the costs of treating this waste in the EU, the expected revenues from the sale of the resulting secondary materials, the differences in transport costs and the value of energy produced in the EU by incinerating recycling rejects of paper and cardboard, plastics and textiles (see Annex 5 for more details on these calculations). These calculations allow to present overall values for the differences between the value created by the export of waste outside the EU and the value created by the treatment of the corresponding waste in the EU.

Projecting future levels of export is challenging, because it depends on a large number of factors which cannot be predicted accurately with a ten years horizon. The value and tonnage of waste exported was projected with linear regression from the Comext data of for the period 2004-2019. The value of the waste retained in the EU was calculated based on the projected quantities factored with the current prices of secondary materials (or high quality waste) across the entire timeline. The impact of each measures is first calculated on the basis of the actual figures for export for 2019 and then on the basis of the projected amounts until 2030.

- *International legal considerations*

When assessing possible measures linked to the export of waste, it is important to take the relevant international legal framework into account, i.e. the Basel Convention, the OECD Decision and the GATT agreement under the World Trade Organisation (WTO). More information on this point is presented in Annex 11.

- *Common features linked to the economic impacts of the measures affecting export of waste*

This section considers the impacts of the measures pertaining to the export of waste outside the EU on the waste management sector within the EU (mostly SMEs, but also large companies which represent the highest share of the turnover of the sector). The amounts of the different waste streams retained in the EU would vary significantly depending on whether the measures focus on countries outside the OECD or cover all third countries.

To properly understand the impact of the retention of the amounts of waste in the EU presented above, it is necessary to describe the value chain linked to the export and management of waste, which would be affected by these changes.

Under the baseline scenario, the collection and sorting of waste take place in the EU, after which the waste in question is sold for export outside the EU. This would change with the measures assessed in this section, where some of the waste collected and sorted in the EU would be sold for treatment/recycling in the EU instead of being exported.

The measures would first impact the companies which currently export the waste outside the EU (sorting companies in most of the cases, as well as those specialised in trading waste). It is likely that these companies would sell their waste to a recycling company in the EU at a lower price compared to the prices that they would obtain for exporting their waste. This is linked to the difference between treatments costs in the EU and the equivalent treatment costs outside the EU. This gap cannot be precisely quantified (notably as it varies depending on the waste streams and from country to country). The methodology used to calculate the impacts of the measures versus the baseline is based on the difference between the prices of secondary materials that can be sold on the EU

market versus the price declared by exporters in Comext, which provides an indication of the value which would be generated in the EU for the whole supply chain. It should also be underlined that the lower prices that would be paid for their waste to the companies currently exporting it outside the EU can be mitigated for collecting and sorting companies for waste that is (like packaging or WEEE) subject to “extended producer responsibility schemes”, as these schemes may provide a balancing support in case of decreases of market prices for the waste concerned⁸⁰.

The companies purchasing the waste and processing/recycling them in the EU would also be affected by the measures. It is anticipated that they will be able to acquire additional quantities of waste for processing into secondary raw materials (i.e. transforming bales of plastic waste into plastic pellets, or processing ferrous scrap into steel). With a larger supply of waste as feedstock for their secondary materials, this sector would be able to produce a larger volume of secondary materials, which might allow them to lower their prices on the EU and international markets. The price of secondary raw materials is currently one of the biggest obstacles for their uptake into production processes, as they compete with cheaper virgin materials. However, the ability of the recycling industry to offer cheaper prices for their secondary materials, while still making a profit, also depends on the costs for waste treatment.

An important point in this analysis relates to the availability of the infrastructure to deal with additional waste in the EU, as well as of the corresponding demand for this waste in the EU. The most important industries in this regard include the industries recycling or processing ferrous metal, non-ferrous metal, paper, plastic and textile waste.

For some waste (paper and metal scrap for example), there are well established international supply chains for waste going to industries in Asia, which process them for manufacturing new commodities in that same region. EU-based companies exporting these wastes question the readiness of the EU paper and steel industries to absorb this waste and use it as feedstock. On the other hand, in the last years, the manufacturing industries have increased their uptake of waste as feedstock and have indicated in the context of this initiative that they are ready to use more of this waste in the future and have already programmed investments in this regard.

Ferrous metal scrap is the largest category of waste exported outside the EU. At the same time, the European steel industry is the second largest producer of steel in the world after China. It has 500 production sites located in 23 EU countries. Their output is over 177 million tonnes of steel a year, accounting for 11% of global output⁸¹, providing over 320,000 direct jobs and 1.5 million indirect jobs⁸². The European steel industry has been using around 80 to 90 million tonnes of steel scrap/year in the last 5 years, the large majority of which is processed in electric arc furnaces into new steel products. The use of scrap is a key factor for the transition of the steel sector to a decarbonised and circular economy, as steel scrap replaces iron ore and coal and are used in electric arc furnaces which produce far less CO₂ emissions than blast furnaces. The proportion of steel scrap used in relation to crude steel production in the EU is 56%. The use of steel scrap also

⁸⁰ See Article 8a of the Waste Framework Directive on the general minimum requirements for EPR schemes, and in particular its paragraph 4(a)

⁸¹ [The EU steel industry | Internal Market, Industry, Entrepreneurship and SMEs \(europa.eu\)](#)

⁸² European vision on steel-related skills and supporting actions to solve the skills gap today and tomorrow in Europe, ESTEP report (2020) <https://www.estep.eu/assets/Uploads/FINAL-REPORT.en.pdf>

represents economic savings as it lowers the costs linked to CO₂ emissions paid under the EU emissions trading system (ETS) by the steel industry. The uptake of additional steel scrap is an integral part of the EU steel industry strategy.

The pulp and paper industry has a turnover of 90 billion EUR and provides more than 180 000 jobs in Europe directly⁸³. This industry has steadily increased its uptake of paper waste (“paper for recycling”) for the production of paper in the EU, so that 49 million tonnes of “paper for recycling” were used by the industry in 2019, representing 55% of the overall paper and board production⁸⁴. A study on investment needs in the waste sector published in 2019⁸⁵ identified paper and cardboard among waste materials where the recycling capacity is sufficient to meet the municipal and packaging waste targets, as recovered paper materials can directly substitute for primary materials in existing production facilities. Additionally, the paper industry plans investments in 2021-2023 for increasing their production from “paper for recycling” in the EU for an amount of 2 million tonnes. This is driven by the expansion of the paper/cardboard packaging sector (to replace plastic packaging), which uses more recycled materials than the traditional “paper for publication” sector.

With respect to non-ferrous metals, this report focuses on scrap from aluminium and copper, which represent the highest share of non-ferrous metal scrap exported outside the EU. There are about 220 aluminium recycling plants in Europe, many of which are SMEs and family-owned businesses. There are also large companies, such as Norsk Hydro, Hindalco’s subsidiary Novelis, AMAG Austria Metall, and TRIMET Aluminium, operating aluminium recycling facilities⁸⁶. Meanwhile, Europe’s copper industry comprises three sectors: miners, producers and semi-fabricators. There are around 500 companies with an estimated turnover of about 45 billion euro and around 50 000 people employed⁸⁷.

The EU aluminum industry produces currently about 4 million tonnes of aluminium through the processing of scrap. This represents twice the volume of aluminium produced from raw materials sourced in the EU. It is also important to note that the EU industry also relies heavily on the import of raw materials (bauxite) for its production: the EU is a net importer of raw materials with 4.6 million tonnes, originating mostly from Russia, the Middle East or Africa. According to the information provided by the European Aluminium industry, current recycling capacity in Europe is 12 million tonnes. The recycling of aluminium lowers by 95% the use of the energy needed for primary production⁸⁸ and, just as for the steel industry, is part of the strategy for the future of this industry in the EU. In 2018, the EU28 industry used approximately 2 million tonnes of scrap for its production of copper. This represents around 50% of the feedstock used, the rest being supplied by domestic mining and import of primary copper. This is higher than share of copper scrap used for the overall production at the global level, which is of 32%.

⁸³ Based on <https://www.cepi.org/wp-content/uploads/2020/07/Final-Key-Statistics-2019.pdf>

⁸⁴ See <https://www.cepi.org/wp-content/uploads/2020/07/Final-Key-Statistics-2019.pdf>

⁸⁵ Eunomia, COWI (2019), the study is available at: <https://op.europa.eu/s/oSEb>

⁸⁶ <https://face-aluminium.com/wp-content/uploads/2019/06/2019-LUISS-Study.pdf>

⁸⁷ <https://copperalliance.eu/about-us/europes-copper-industry/>

⁸⁸ Primary production of aluminium is a highly electro-intensive process with 14-16 MWh electricity use per tonne primary aluminium produced. This process requires a steady, uninterrupted supply of baseload electricity. For secondary aluminium the electricity use per tonne aluminium produced is 0.12-0.34 MWh/t

Compared to these traditional industrial sectors, the plastics recycling industry is a relatively new sector, which is expected to grow steadily in the coming years. In 2019, 9.4 million tonnes of plastic waste were collected for recycling in the EU, out of which around 2 million tonnes were exported outside the EU. This suggests that around 7.5 million tonnes of waste were recycled in the EU. The study on investment needs in the waste sector mentioned above, estimates that an additional capacity of around 3 million tonnes would need to be established at the EU level to recycle all waste generated on its territory and stop exporting it. These figures include the UK, which exported 0.5 million tonnes of plastic waste in 2019 and was, together with Germany, the top exporter of plastic waste among EU Member States. Therefore, the figure of 3 million tonnes of additional capacity needed to treat all plastic waste produced in the EU should be lower for EU27. The same study indicates that stakeholders suggest that the tendency to export plastic waste prevents the expansion of domestic capacity, as new recycling facilities would face uncertainty about having enough plastic waste to process. However, since 2016, exports of plastic waste outside the EU have gone down considerably. According to more recent data, plastics recycling in Europe⁸⁹ represents 8.5 million tonnes of installed recycling capacity, with a turnover of 3 billion EUR, 600 companies and 20000 employees⁹⁰. In a 2019 report⁹¹, the Bureau of International Recycling observes new trends as large European waste collectors have been taking over many recycling companies in order to process their own collected plastic waste. In addition, these companies have been looking to collaborate with the plastics industry to bring new circular products into the market. Meanwhile, the European recycling companies have been investing heavily in washing and extrusion lines. Higher recycling targets set under EU law (notably for packaging) at the 2025 and 2030 horizons, as well as other regulatory and non-regulatory initiatives to boost the use of recycled plastics in different economic sectors, are likely to continue supporting the EU plastics recycling industry. Higher retention of plastic waste inside the EU would further incentivise these changes.

In the textile sector, the EU currently extensively relies on export of textile waste as more almost half of this waste by volume is destined to third countries due to the limited volume of it recycled in the EU⁹². The EU second-hand market represents an important outlet for used textile, including materials which are prepared for reuse and placed back on the market. There is limited information the current capacity for treating textile waste in the EU. This is largely because there is no requirement at the EU level for reporting on the separate collection and treatment of all post-consumer textiles⁹³. Important changes are expected in the sector starting with the introduction of the new obligation for Member States to set up separate collection for textile waste from 2025⁹⁴. New measures to improve the treatment of textile waste are expected to be put in place, in line with the

⁸⁹ Plastics Recyclers Europe: Recycling Statistics 2020 based on the EU27 + United Kingdom and Norway

⁹⁰ [This compares to a figure of about 6.6 million tonnes of installed recycling capacity in 2017 reported in the Eunomia, COWI study on investment needs in the waste sector, indicating that recycling capacity is growing.](#) Eunomia, COWI (2019), the study available at: <https://op.europa.eu/s/oSEb>

⁹¹ <https://bir.org/publications/annual-reports/download/648/1000000235/36?method=view>

⁹² Less than 1% of textile waste is recycled into new fibres for clothing (“textile-to-textile” recycling) as technologies for processing textiles to recycled fibres are only starting to emerge. A large share of unsorted collected textiles is sent for sorting in Eastern European countries then exported again for reuse or recycling in Africa and Asia. More information available at the Eionet Report (2019/6) - Textiles and the environment in a circular economy.

⁹³ At the level of Member States, only France has comprehensive reporting obligations and an Extended Producer Responsibility scheme for textile waste.

⁹⁴ Article 11 (b) of the Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste

Green Deal and the Circular Economy Action Plan, with the upcoming adoption of the first comprehensive EU Textile Strategy later in 2021, which aims at putting the textile sector and its entire value chain on a more sustainable and circular path. There are also important research and investment projects to improve textile waste treatment, notably on textile material recycling and integration into new products. The study on investment needs in the waste sector mentioned above indicates that investments amounting to 300 million euros would be needed by 2027 and a further 300 million euros by 2035 to treat the additionally collected textile waste. Different initiatives are taken to boost the recycling capacity. EURATEX⁹⁵ intends to establish 5 EU recycling hubs near textile and apparel districts to make raw materials by collecting, sorting, processing and recycling post-production and post-consumption textile wastes. Chemical recycling potential is being trialled mainly in the Nordic countries, in particular regarding the environmental perspectives for mixed textile recycling⁹⁶. Siptex⁹⁷ is a large scale sorting and recycling facility that uses infrared light to sort textiles by fibre composition and colour. Therefore, regardless certain short-term challenges, including possible temporary diversion of textile waste into energy for recovery plants, in the medium term, the EU textile waste treatment industry would be able to process textile higher up the waste hierarchy.

The potential gains for the European economy to boost its recycling capacity is one of the reasons why, as part of their recovery and resilience plans, the Commission has prompted EU Member States to prioritise financial support to investments in waste management and circular economy. Investments have been made and are being planned in the European industries recycling and processing waste which should allow to absorb an afflux of waste, even though a transition period might be needed to ensure that the required infrastructures are established for all waste streams concerned. It should also be noted that the demand for recyclates in the EU depends also on factors which are outside the remit of the WSR, like the prices for virgin materials and the obligation to incorporate recycled materials in new products, which are subject to other initiatives under the EU policy for circular economy.

In addition to the recycling sector in the EU, the energy-from-waste sector is also likely to be impacted by a possible reduction of the export of waste. If more waste is retained in the EU for treatment, additional quantities of waste will be sent to recycling facilities. These have a certain quantity of residual waste, which cannot be recycled – rates are different for different waste streams – and is directed to energy recovery plants⁹⁸. In addition, at least in the short term, if all waste retained in the EU cannot be sent for recycling due to a lack of capacity or demand, a share of it will be destined to facilities using waste as a source of energy.

Member States which rely a lot on export for some waste streams, and which have limited capacity to deal it domestically, would be more affected than others by measures relating to the export of waste outside the EU. This is likely to be the case for export of plastic and textile waste most notably. However, the impact will depend on the real volume of waste which would be affected by measures on export, and it could in many

⁹⁵ The European Apparel and Textile Confederation, representing in the EU 160,000 companies with a turnover of €162 billion, employing 1.5 million workers. <https://euratex.eu/news/euratex-presents-its-recovery-strategy/>

⁹⁶ <https://pubs.acs.org/doi/10.1021/acssuschemeng.9b01742>

⁹⁷ <https://smartcitysweden.com/best-practice/415/siptex-world-unique-textile-sorting/>

⁹⁸ Residues of recycling within the EU are assumed to be incinerated with energy recovery, as far as it concerns combustible fractions (plastics, paper, and textiles).

case be mitigated through export to other EU Member States or should be included in the waste management strategy of the exporting Member State to increase its waste management capacity.

Beyond the EU, a reduction on the export of waste would also impact a number of countries which are relying on this supply for their domestic economy. A reduction of exports to non-OECD countries would considerably impact textile waste, paper waste, non-ferrous metal scrap and, to a lesser extent, plastic waste and ferrous metal scrap as can be seen in the tables provided in Annex 9. Among the non-OECD countries, India, Pakistan, Malaysia, Indonesia, China, Egypt and the Russian Federation feature among the top importers of waste exported from the EU. Among OECD countries, Turkey is by far the largest importer. For some of them, the import of waste represents an important source of feedstock for their industries (steel in Turkey for example) and avoid the use of virgin materials in their industrial processes. The impact on these countries might be limited to the short term. Academic research has found that developed countries gained economically through global waste trade, including to developing countries, but failed to incorporate true environmental costs. At the same time waste management is a challenge for developing countries mainly due to the increasing generation of waste in these countries and the increasing costs associated to its management. High amounts of imported waste may disrupt the domestic waste management system with operators rather opting for the treatment of ‘cleaner’ foreign waste, instead of investing in separate collection and efficient sorting of domestically generated waste. Many of the countries importing waste from the EU are also emerging economies generating increasing volumes of waste, which could also replace imported waste as feedstock for their industries. On the longer term, reduced imports of waste should reduce the pressure on these vulnerable systems and allow for the development and improvement of domestic waste management systems in developing countries. This will result in a better performant management system, also economically.

There are considerable challenges in attempting to quantify the economic impacts of the potential reduction of export of waste and of the associated surplus of waste retained in the EU. As detailed in Annex 5, a large set of data has been compiled for the purpose of this impact assessment. This data is used below, in an attempt to provide, as far as feasible, quantified estimates on the economic impact of the various measures considered. These estimates should be considered with caution.

- *Common features linked to the environmental impacts of the measures affecting export of waste*

The assessment of the environmental impacts of the measures affecting the export of waste depends on a number of factors, which are common for all these measures and are therefore presented together here. Overall, the different measures would result in positive impact for the environment, as they would lead to:

- The treatment of waste (in the EU or in third countries authorised to import waste) in conditions which are subject to high environmental requirements, thereby avoiding the environmental externalities linked to the treatment of exported waste under the baseline scenario. However, this impact will depend on the volume and type of waste retained in the EU and on the time horizon considered. In the short term, a large surplus of waste staying in the EU might not be absorbed by the EU recycling industry, due to a lack of capacity, and could be diverted to other forms of treatment, like incineration or landfilling;

- Higher amounts of waste recycled in the EU, leading to replacement of virgin material by secondary materials in EU production processes⁹⁹, with associated environmental gains linked to reduction of (i) GHG and other environmental emissions, (ii) energy savings both from recycling materials¹⁰⁰ and producing energy from the non-recyclable fractions¹⁰¹ and (iii) avoided extraction of virgin resources;
- Less environmental emissions linked to the shipping of waste to third countries (expressed as GHGs and overall environmental externalities).

It is not possible to perform a quantified assessment of all these environmental impacts, due to a lack of data. Therefore, this impact assessment provides:

- a quantified assessment of the environmental impact linked to (i) the treatment of residual waste and (ii) transport externalities. This quantified assessment is expressed in differences in emissions of GHGs and overall environmental externalities (i.e. monetized environmental emissions).
- a qualitative assessment of a number of environmental impacts, where sufficiently reliable data was not available to quantify them.

The methodology, assumptions, data and modelling used for the assessment of these environmental impacts are in section 2(c) of Annex 5.

- *Common features linked to the social impacts of the measures affecting export of waste*

Where relevant possible social impacts in third countries are assessed, as a result of changes in flows of EU waste to those countries. In this regard, two major social impacts are assumed associated with the measures foreseen:

1. changes affecting employment sector, impacts on standards of living for people in the third countries which used to import the EU waste and impacts on public health of waste workers and communities leaving close to areas where waste are treated or or disposed in third countries;
2. additional employment possibilities within the EU as a result of increased volumes of waste retained within the EU.

⁹⁹ As examples: the recycling of plastic waste allows to reduce the use of oil for the production of new plastic products, the recycling of paper reduces the use of wood pulp in the paper production, the processing of steel scrap reduces the use of iron ore and coal for the steel industry, recycling of textile reduces use of cotton

¹⁰⁰ <https://www.economiecirculaire.org/articles/h/environmental-impact-of-recycling-in-france.html>

¹⁰¹ <https://ec.europa.eu/environment/waste/waste-to-energy.pdf>

2a) Specify obligations for exporters and public authorities to ensure and verify that waste exported to third countries is managed in an environmentally sound manner

Economic impacts

For companies exporting waste from the EU, the costs linked to this proposed measure will depend on a number of factors:

- Some companies already have mechanisms in place to ensure the traceability of their shipments of waste, so that the new auditing schemes would build on these mechanisms and the costs linked to the new measure would be limited to cover the new requirements laid out in the measure. The costs would be higher for companies which have so far not developed any particularly thorough traceability scheme for their supply chains;
- The costs of the proposed measure would also depend on the types and volumes of waste shipped, the countries of destination, the size of the facility, the complexity of the value chain, the nature of the waste treatment operations;
- Finally, the proposed measure foresees that exporting companies which have commissioned an audit to a given facility in accordance with the proposed measures should make their audit report available under fair commercial conditions to other exporting companies intending to export waste to the same facility. This should generally lower the costs of this measure for the exporting companies concerned. It should also be noted that some companies (especially SMEs) might also entrust Producer Responsibility Organisations to commission audits for their members, thereby pooling resources and decreasing costs of these audits.

As part of this impact assessment, the Commission consulted European companies that are planning to put in place auditing schemes for facilities located in third countries which treat waste from the EU.

Based on the elements presented above, it can be estimated that the measure would first incur a one-off cost for companies to organise themselves in setting up the audit schemes in question. This cost would mostly consist of time spent by the relevant staff of the company to identify and take the structural actions needed to implement this measure (such as contracting the independent audit company which will perform the audit of the facility/ies concerned). It can be estimated that this cost will represent several thousand euros but will not exceed 30 000 euros. It can also be estimated that the maintenance of these schemes would require a yearly recurring cost of around 5000 euro. In addition to these fixed costs, the costs of the audits themselves can be estimated at between 1000 and 2000 euro per audit of individual facilities.

These costs could be lower for companies which rely on Producer Responsibility Organisations to perform the audits or which acquire audit reports performed on behalf of other exporting companies, as indicated above. It should also be noted that the creation of such obligation would also ensure a level playing field for all companies, which would avoid a situation where different companies set up their own auditing schemes, on a voluntary basis, based on different criteria and methodologies.

For some companies which are currently not exercising any monitoring on their export, the obligation resulting from this new measure could lead to a complete disruption of

their supply chains if they find out during the audit that their supply chain is not sustainable enough. This could force them to either choose new commercial partners in third countries or stop exporting their waste altogether.

To mitigate this risk, a transition period of three years after entry into force of the new Regulation is foreseen before the proposed measure comes into force. This would allow companies sufficient time to prepare for the implementation of these new obligations. This includes companies located in outermost regions.

For companies located in third countries which transport and process waste imported from the EU, the effect would be positive for those performing their activities in an environmentally sound manner, as the audit would consolidate their activities and competitiveness, even though it could also incur some costs for upgrading their infrastructure and standards in the short term. The impact would be negative for those companies which are not able to comply with the criteria for environmentally sound management of waste laid out in the auditing schemes as they would lose customers from the EU.

For the competent authorities in the Member States, this measure would require to set up new procedures and adequate resources to check that exporting companies under their jurisdiction have adequately carried out the required audit schemes.

Environmental impacts:

The measure would have positive environmental impacts as it would guarantee that shipments of waste to third countries properly meet the criteria for environmentally sound management. This would represent an added-value compared to the current provisions of the WSR, which contain general obligations to this end, but do neither provide concrete criteria to check exports against, nor other tools to help companies and competent authorities meeting these obligations. The definition of criteria for the definition of such environmental sound management practices, and the implementation of comprehensive audit schemes by the companies exporting waste from the EU to ensure that they are fulfilled, should allow to check if the reality on the ground corresponds to the general aims of the WSR in that respect. If properly implemented, this measure would ensure that companies based in the EU stop exporting waste to facilities which are not managing it sustainably and avoid the related damages for the environment and public health.

Social impacts:

The social impacts for this measure is expected to be positive as it would reduce the adverse effects of mismanaging of waste in third countries. This would affect in the first place positively the health of workers active in the waste management sector and of local populations living nearby the areas where waste is treated.

Stakeholders' opinion

As indicated above, the Commission consulted, as part of this impact assessment, European companies exporting waste outside the EU, which are planning to put in place auditing schemes for facilities located in third countries which treat waste from the EU. They have expressed support for an auditing mechanism that would be harmonised throughout the Union. They further referred to positive feedback from other companies in the sector that have shown interest in the experiences of the development of these

corporate auditing schemes as a manner of demonstrating ESM of their exported waste at destination.

2b) Task the Commission, via implementing or delegated acts, to set out criteria to differentiate between used goods and waste, for specific waste streams for which export to third countries raises particular challenges

Economic impacts:

The measure is expected to contribute to increasing the treatment of waste in the EU, but cannot be quantified precisely and is expected to be rather limited. Clearer rules to distinguish used goods from waste should lead to better enforcement of the WSR and avoid that waste are illegally exported outside the EU. For example there are currently about 1 million used vehicles which are exported outside the EU and, among them, a certain share are “end-of-life vehicles” (ELVs) whose export outside the OECD is banned¹⁰² but takes place nevertheless, as there are no legally-binding and easy-to-enforce criteria to distinguish between ELVs and used vehicles. Defining such criteria in EU law would help to ensure that these ELVs are not exported outside the EU, but stay in the EU and be recycled there. This would have consequences for vehicles dismantlers and shredders in the EU and increase the production of metal scrap (derived from these ELVs) in the EU. It is important to stress that, in order to produce the desired results, this measure should be accompanied by adequate enforcement activities (i.e. clearer criteria will help enforcement authorities to implement the WSR, but there will still be a need for these authorities to devote sufficient time and resources to inspecting the waste in question).

Environmental impacts:

The environmental impact of the measure could be substantial for some waste streams, for which the unclear distinction between used goods and waste is an important factor contributing to their unauthorised export outside the EU. This is the case for some commodities containing hazardous substances (vehicles/ELVs, e-equipment/e-waste, batteries, etc.), whose export outside the OECD is banned. Once they arrive at destination, often in vulnerable countries with little or no proper waste management system, these wastes are usually treated under unsound conditions, with their valuable components sub optimally recovered (often through open burning) and the rest of it discharged in the open environment. The measure would contribute to stopping the export of these waste and contribute to putting an end to these severe environmental and public health damage.

In addition, the measure would provide reassurance that the export of used goods consists of commodities which are of better quality than waste. This should benefit economic operators exporting and importing these products, as well as customers in third countries buying these second-hand goods.

¹⁰² ELVs are considered as hazardous waste (unless they have been subject to depollution operation) whose export outside the OECD is banned under the WSR and the Basel Convention

Social impacts:

The social impacts of this measure are expected to be positive as it would reduce the adverse effects linked to goods that are wrongfully declared as used (non-waste), but being dumped or mismanaged as waste in third countries. This would positively affect in the first place local populations living nearby dumpsite areas and waste pickers working there.

Stakeholders' opinions:

Similar as for intraEU shipments, many economic operators highlighted during the consultation the challenges with diverging interpretations on the waste status of the material they wish to export and asked for clarification as regards the issue of used goods versus waste as regards shipments of waste. NGOs pointed at the large amounts of waste that end up in vulnerable countries outside the EU, that are exported under the guise of being “used” and not waste, and referred to the absence of clear criteria to make a distinction between used and waste for many products.

2c) Establish a new framework for the export of green-listed waste from the EU to a non-OECD country, according to which such export is only authorised to those countries that notify the EU of their willingness to import green-listed waste and demonstrate their ability to treat it sustainably, in accordance with criteria set out in the WSR

The extent of the reduction of the volume of exported waste under this measure would depend on several factors, notably the number of non-OECD countries authorised to import waste and the amount of waste that they could treat. In theory, the amounts of waste retained in the EU could correspond, as a maximum, to the overall waste currently exported outside the OECD. It is likely though that a number of non-OECD countries would be interested in continuing to receive waste from the EU and be able to demonstrate that they can deal with them in a sustainable manner. Some of the waste currently exported outside the OECD would also be re-directed to OECD countries.

Given this uncertainty, the impacts for this measure were calculated with the hypothesis that between 20% and 50% of the volume of the current exports of waste to non-OECD countries are retained in the EU. The tables 3-6 below provide the projections of volumes and value of 20% and 50% of waste being retained in the EU.

For 2019, this means that 2.4 - 6 million tonnes are retained in the EU, which were exported for a value ranging between 536 and 1341 million euro in 2019. Based on the projections of the volumes exported until 2030, the volume retained in the EU would be between 2.3 and 5.7 million tonnes and the value between 835 and 2088 million euro.

Economic impacts:

Based on the methodology explained in Annex 5 (point 3(b)(2)), the economic impact of this measure compared to the baseline, has been calculated as the difference between:

- the value of the waste which would have been exported under the baseline scenario but, under the proposed measure, would stay and be processed in the EU (so the loss in export value, taken from the value of waste declared upon export as detailed in tables E.10 and E.11 in Annex 5), and
- the net value generated by treating this waste in the EU (so the gain in value), which is calculated from (i) the revenues generated in the EU from the sale of the

secondary materials resulting from this treatment minus (based on market prices as detailed in tables E.12 and E.13 in Annex 5) (ii) the costs for treating this waste in the EU. The net value also factors in (iii) the difference in the costs of transport between shipping to a third country and transporting within the EU to a recycling facility. The value of energy produced with the recycling rejects (iv) is also considered to calculate this net value.

Tables 7 and 8 below present this difference in the 2019-2030 time period for the different waste streams concerned. This is a proxy for the economic impact of the proposed measure for the EU economy. These tables show that **the overall impact for the EU economy of this measure would represent a net benefit varying between 200 and 510 million euro (for 2019) and of between 1611 and 4044 million euro (for 2030)**. The impact differs greatly depending on the types of waste. This depends on the prices of secondary materials that would be sold in the EU.

Sorting companies are expected to sell waste in the EU market at lower prices than when such waste is exported, while companies purchasing this waste from sorting companies and recycling them would benefit from additional feedstock at lower prices, which would allow them to offer cheaper secondary raw materials and improve their competitiveness. SMEs active in the collection and sorting of waste could therefore be negatively impacted, insofar as they are dealing with waste which are currently exported at a higher price than the price that would be obtained on the EU market. An important share of SMEs working in the waste management sector are however not directly involved in the export operations outside the EU, so that it can be expected that this impact would remain limited. In addition, the retention of waste in the EU may have the side effect of generating new opportunities for economic operators, including SMEs, especially those involved in innovative technologies for recycling waste streams which pose particular challenges (such as plastics and textile).

It is likely that the **paper, ferrous, non-ferrous metal industries** would be able to process the additional waste staying in the EU as a result of this option without particular challenges. As indicated above, these industries are already processing in the EU important and quantities of waste (90 million tonnes of steel comes from scrap, which is also the case for 49 million tonnes of paper, 4 million tonnes of aluminium, 2 million tonnes of copper¹⁰³), which have increased steadily in the last years.

The yearly volume which would stay in the EU as a result of this measure would, under the 50% waste retention scenario, amount to between 1.5 and 2 million tonnes of ferrous metals, 0.2 to 0.6 million tonnes of non-ferrous metals, with the highest amount of paper and cardboard waste equal to between 2.3 and 2.5 million tonnes. Under the 20% waste retention scenario for the same period, that would result in 0.8-0.6 million tonnes of ferrous metals, 0.2-0.1 million tonnes of non-ferrous metals, almost 1 million tonnes of paper and cardboard waste. These figures represent a relatively limited quantity overall compared to the current capacity of the steel, paper and non-ferrous metal industries, and in view of its planned increase in the future.

¹⁰³ Based on the data gathered per industrial sector, including the reports and overviews available on the websites of Aluminium Institute, Copper alliance, The International Copper Study Group (ICSG), Eurometaux, Bureau of International Recycling (BIR), EuRIC, CEPI.

Table 3 – Forecast of tonnes of 20% exports of wastes to non-OECD countries for the period 2019-2030

Waste type	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Ferrous metals	781,540	612,097	689,063	574,319	596,039	676,162	547,194	567,185	650,466	507,273	525,537	611,975
Glass	13,279	11,543	10,817	10,010	9,123	8,154	7,105	5,975	4,764	3,472	2,099	646
Non-ferrous metals	236,869	231,524	220,097	208,107	195,554	182,438	168,759	154,517	139,712	124,344	108,413	91,919
Paper and cardboard	918,597	969,803	973,040	976,156	979,153	982,029	984,785	987,421	989,936	992,332	994,607	996,762
Plastic	201,111	202,293	203,323	204,199	204,924	205,496	205,915	206,181	206,295	206,256	213,214	205,720
Textiles	264,871	276,029	287,284	298,621	310,039	321,538	333,118	344,780	356,523	368,347	379,564	392,239
Total	2,416,266	2,303,289	2,383,624	2,271,413	2,294,830	2,375,816	2,246,875	2,266,058	2,347,695	2,202,024	2,223,435	2,299,262

Table 4 – Forecast of tonnes of 50% exports of wastes to non-OECD countries for the period 2019-2030

Waste type	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Ferrous metals	1,953,850	1,530,243	1,722,658	1,435,798	1,490,097	1,690,405	1,367,985	1,417,963	1,626,165	1,268,184	1,313,842	1,529,937
Glass	33,197	28,858	27,043	25,026	22,807	20,386	17,763	14,937	11,910	8,680	5,249	1,615
Non-ferrous metals	592,172	578,810	550,242	520,267	488,885	456,095	421,897	386,292	349,280	310,860	271,033	229,798
Paper and cardboard	2,296,493	2,424,508	2,432,600	2,440,391	2,447,882	2,455,073	2,461,963	2,468,552	2,474,841	2,480,830	2,486,518	2,491,906
Plastic	502,777	505,733	508,307	510,499	512,310	513,739	514,787	515,453	515,737	515,640	533,036	514,301
Textiles	662,177	690,073	718,211	746,552	775,097	803,845	832,796	861,950	891,307	920,867	948,910	980,598
Total	6,040,664	5,758,223	5,959,060	5,678,532	5,737,076	5,939,541	5,617,189	5,665,146	5,869,239	5,505,060	5,558,587	5,748,154

Table 5 – Forecast of EUR value of 20% exports of wastes to non-OECD countries for the period 2019-2030

Waste type	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Ferrous metals	137,372,288	84,899,584	106,816,181	151,777,798	82,167,495	105,480,525	153,794,363	77,901,115	102,610,576	154,276,638	72,100,443	98,206,337
Glass	1,589,507	1,354,142	1,321,431	1,284,902	1,244,555	1,200,390	1,152,406	1,100,603	1,044,982	985,543	922,285	855,208
Non-ferrous metals	237,796,970	273,126,385	296,427,930	319,838,436	343,357,904	366,986,334	390,723,726	414,570,080	438,525,395	462,589,673	486,762,912	511,045,113
Paper and cardboard	104,377,215	113,242,431	115,011,957	116,586,155	117,965,024	119,148,565	120,136,777	120,929,661	121,527,216	121,929,443	122,136,341	122,147,910
Plastic	26,587,852	26,730,268	26,845,474	26,933,471	26,994,259	27,027,838	27,034,208	27,013,369	26,965,320	26,890,063	26,787,597	26,657,921
Textiles	28,746,217	49,052,146	51,671,430	54,314,226	56,980,533	59,670,351	62,383,680	65,120,520	67,880,871	70,664,734	73,472,108	76,302,993
Total	536,470,049	548,404,955	598,094,403	670,734,988	628,709,770	679,514,002	755,225,159	706,635,346	758,554,361	837,336,093	782,181,684	835,215,482

Table 6 – Forecast of EUR value of 50% exports of wastes to non-OECD countries for the period 2019-2030

Waste type	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Ferrous metals	343,430,719	212,248,960	267,040,453	379,444,495	205,418,737	263,701,311	384,485,909	194,752,786	256,526,441	385,691,596	180,251,108	245,515,843
Glass	3,973,768	3,385,355	3,303,578	3,212,256	3,111,388	3,000,975	2,881,014	2,751,508	2,612,455	2,463,857	2,305,712	2,138,021
Non-ferrous metals	594,492,425	682,815,964	741,069,825	799,596,090	858,394,761	917,465,836	976,809,316	1,036,425,200	1,096,313,488	1,156,474,181	1,216,907,279	1,277,612,782
Paper and cardboard	260,943,038	283,106,077	287,529,893	291,465,387	294,912,559	297,871,412	300,341,942	302,324,151	303,818,039	304,823,607	305,340,852	305,369,776
Plastic	66,469,631	66,825,669	67,113,685	67,333,678	67,485,648	67,569,595	67,585,519	67,533,422	67,413,301	67,225,157	66,968,992	66,644,803
Textiles	71,865,542	122,630,364	129,178,575	135,785,564	142,451,331	149,175,876	155,959,199	162,801,299	169,702,178	176,661,835	183,680,269	190,757,482
Total	1,341,175,122	1,371,012,388	1,495,236,009	1,676,837,470	1,571,774,425	1,698,785,004	1,888,062,899	1,766,588,366	1,896,385,902	2,093,340,233	1,955,454,211	2,088,038,706

Table 7 – Economic impact if 20% of waste currently exported to non-OECD countries is retained in the EU (EUR)

Waste type	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Ferrous metals	824,940,535	1,050,898,396	1,022,768,582	1,111,400,335	1,215,086,432	1,183,257,611	1,278,910,146	1,390,139,587	1,354,611,659	1,457,285,077	1,576,057,663	1,536,830,827
Glass	7,143,511	7,110,176	7,595,642	8,095,044	8,608,383	9,135,660	9,676,874	10,232,054	10,801,171	11,384,226	11,981,217	12,592,146
Non-ferrous metals	- 311,809,243	- 291,904,121	- 224,690,649	- 154,321,194	- 80,795,058	- 4,112,243	75,727,253	158,723,429	244,876,286	334,185,823	426,651,343	522,274,240
Paper and cardboard	- 16,345,907	- 18,161,273	- 17,436,245	- 16,485,604	- 15,309,352	- 13,907,488	- 12,280,012	- 10,426,925	- 8,348,280	- 6,043,968	- 3,514,099	- 758,619
Plastic	19,917,214	24,344,526	28,465,030	32,754,966	37,214,036	41,842,538	46,640,322	51,607,390	56,743,741	62,049,523	62,212,140	73,168,940
Textiles	- 324,058,220	- 358,255,176	- 374,893,653	- 391,718,908	- 408,730,902	- 425,929,772	- 443,315,419	- 460,887,825	- 478,646,990	- 496,593,049	- 513,665,322	- 533,045,541
Total	199,787,890	414,032,529	441,808,707	589,724,640	756,073,539	790,286,306	955,359,164	1,139,387,711	1,180,037,588	1,362,267,632	1,559,722,941	1,611,061,994

Table 8 – Economic impact if 50% of waste currently exported to non-OECD countries is retained in the EU (EUR)

Waste type	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Ferrous metals	2,062,346,291	2,627,240,940	2,556,916,402	2,778,495,784	3,037,711,022	2,958,138,967	3,197,270,304	3,475,343,903	3,386,524,081	3,643,207,623	3,940,139,084	3,842,071,993
Glass	17,858,776	17,775,441	18,989,104	20,237,610	21,520,959	22,839,150	24,192,184	25,580,135	27,002,929	28,460,564	29,953,043	31,480,364
Non-ferrous metals	- 779,523,108	- 729,760,302	- 561,726,622	- 385,802,984	- 201,987,646	- 10,280,607	189,318,133	396,808,573	612,190,715	835,464,556	1,066,628,356	1,305,685,600
Paper and cardboard	- 18,007,749	- 21,272,034	- 19,378,923	- 16,924,774	- 13,909,586	- 10,333,359	- 6,196,092	- 1,497,788	3,761,419	9,581,801	15,963,091	22,905,419
Plastic	73,226,368	83,292,676	93,750,383	104,599,490	115,839,345	127,470,645	139,492,973	151,906,375	164,710,851	177,906,726	179,858,291	205,471,744
Textiles	- 845,509,559	- 930,813,805	- 972,182,682	- 1,013,979,989	- 1,056,205,710	- 1,098,860,138	- 1,141,942,988	- 1,185,454,262	- 1,229,393,958	- 1,273,762,360	- 1,317,581,956	- 1,363,784,717
Total	510,391,020	1,046,462,915	1,116,367,661	1,486,625,136	1,902,968,384	1,988,974,659	2,402,134,513	2,862,686,937	2,964,796,036	3,420,858,911	3,914,959,910	4,043,830,403

With regard to the **plastics** recycling industry, which is a relatively new sector, the situation is a bit different but the surplus of waste staying in the EU linked to this option should also be manageable. Under this option, by 2030 between 0.2 and 0.5 million tonnes of plastic waste should annually be retained in the EU, which used to be exported. This should be manageable by the EU plastic industry, which has an installed capacity of 8.5 million tonnes.

For the **textile** sector, the volume that is currently recycled in the EU is limited. Overall, it is estimated that the amount of textile waste that will stay in the EU under the measure 2c would be around 0.3-0.4 million tonnes annually - taking 20% waste retention scenario or around 0.7- 1 million tonnes if 50% of currently exported waste was retained within the EU. Some of this waste might not find its way to recycling in the EU immediately and would probably be sent to energy for recovery plants. This would still be more sustainable than shipping them to some third countries where no information would be available on their treatment and where they would run a serious risks of being burnt or landfilled in unsustainable conditions. And in the medium term, the EU textile waste treatment industry would certainly be able to absorb much more waste than today.

It is also important to stress that the measures foreseen under this measure would become effective only three years after the entry into force of the new regulation, which would leave time for a transitional period during which the relevant industries might also get prepared for these changes.

It should also be noted that, for some industries, it is expected that the measure will provide additional economic gains, due to a decrease of their financial contribution to the Emission Trading System, linked to a reduction of their emissions of greenhouse gases. For example, it can be estimated that for the steel industry, these economic gains could potentially amount to between 36 million and 116 million/year¹⁰⁴.

In addition to the economic impact linked to the treatment and valorisation of waste retained in the EU, this measure should also provide legal clarity to exporting companies from the EU and to competent authorities in the EU Member States on the regime and conditions applying to export of green-listed waste to a given country. This should reduce the number of delays in shipments linked to possible communication problems and the disputes linked to the refusal of a third country to import waste from the EU. These refusals and the implementation of the take-back procedures of waste into the EU often generate considerable difficulties and important costs for EU Member States.

Environmental impacts

Based on the methodology explained in section 7.1 and detailed in Annex 5 (point 3(c)), the environmental impacts of this measure are expected to be the following:

- The measure would ensure a better treatment of waste which are currently exported outside the OECD, because such waste would either:

¹⁰⁴ Depending on the 20% or 50% retention rate, and based on the amount of ferrous scrap retained in the EU, the fact that recycling of one tonne of ferrous scrap for the production of steel saves overall 1.5 tonnes of CO₂ compared to the use of iron ore and coal and with a price of 40 euro/tonnes of CO₂ under the EU ETS carbon market (value on Q1 2021).

- i. continue to be exported to a non-OECD country, which has demonstrated its capacity and ability to manage this waste in an environmentally sound manner;
 - ii. not be exported outside the OECD any longer but stay in the EU or be re-routed to an OECD country, where waste management standards are generally higher than outside the OECD.
- Overall, it would reduce the negative externalities linked to the mismanagement of waste in non-OECD countries and result in positive environmental impacts in the EU as higher amounts of waste would be recycled in the EU, processed into secondary raw materials and enter the circular economy. For example the use of steel scrap retained in the EU under this measure is expected to lead to a reduction of between 1 and 2.9 million tonnes/year of CO₂ for the steel industry in the EU¹⁰⁵. This demonstrates that the life cycle environmental impacts of metal production from waste sources are significantly lower than those for primary production. Assessment shows that 1 tonne of aluminium recycling saves 93% of the virgin aluminium impact equal to 7.65 t CO₂-eq. per t of aluminium scrap recycled¹⁰⁶. This shows that the life cycle environmental impacts of metal production from waste sources are significantly lower than those for primary production. By diverting the currently exported scrap materials into the production of aluminium, the EU could reduce considerable amounts of CO₂-eq. in tonnes. Under 50% waste retention scenario, it would lead minimum to savings ranging between 2-0.9 million t of CO₂-eq./year in 2019-2030. Under 20% waste retention scenario, these estimates would be 0.8-0.4 million t. Accordingly, copper recycling saves 65% of the virgin impact equal to 0.81 tonnes CO₂-eq. per tonne of recycled copper scrap. Under the 20% retention scenario, the use of copper scrap which would stay in the EU could lead to annual savings of 180 000 tonnes of CO₂-eq based on 2019 data. Similar benefits can also be calculated for other waste materials, like plastic waste, for which recycling and further use of recycled content generates less CO₂ emissions than the primary production based the extraction of fossil fuels. Recent assessments¹⁰⁷ show that 1 tonne of recycled plastics in the EU saves 997 kg of CO₂-eq. Based on that, recycling within the EU of 50% of the currently exported plastic waste outside the OECD would potentially reduce the emissions by 0.5 million t CO₂-eq/year for the period 2019-2030. Alternatively, under a 20% waste retention scenario these estimates would be around 0.2 million t of CO₂-eq./year for the same period.
- As it is however also expected that the use of such waste materials, particularly, scrap of ferrous and non-ferrous metals, can lead to reductions of CO₂ emissions in the countries where it is currently exported and processed into secondary materials, these figures have not been used for the quantification of the environmental impacts presented below. In the short-term, however, this measure

¹⁰⁵ Depending on the 20% or 50% retention rate, and based on the fact that recycling of one tonne of ferrous scrap for the production of steel saves overall 1.5 tonnes of CO₂ compared to the use of iron ore and coal

¹⁰⁶ More information available at: <https://european-aluminium.eu/media/2906/european-aluminium-circular-aluminium-action-plan.pdf>

¹⁰⁷ JRC report "Tonini et al. 2021, Environmental effects of plastic waste recycling"

might lead to oversupply of some types of waste streams that the recycling industry in the EU is not able to absorb. This is likely to be limited, notably as the measure would enter into force three years after the adoption of the Regulation to leave time to the recycling industry to adapt to the new situation.

- The treatment of rejects from the waste retained in the EU, compared to their treatment in a third country outside the OECD, would save 0.2 million tonnes of GHG emissions per year (under a 20% retention scenario) or 0.5 million tonnes (under a 50% retention scenario), for the period 2019-2030. The savings are particularly important for paper/cardboard, textile and plastic waste. In monetary terms, this represents savings of 674 million euro for the whole period of 2019-2030 in a 20% retention scenario or 56 million euro per year. Under a 50% retention scenario, the total amount for the same period would be around 1.7 billion euro or 140 million euro per year.
- The environmental benefits expected in avoiding transport related externalities for the period 2019-2030 are expected to amount to a total value of around 2.6 billion euro under a 20% retention scenario, which equals to around 215 million euro savings per year. Under a 50% retention scenario value would amount to 537 million euro per year.
- **The total environmental benefits linked to a combination of (i) a better treatment of rejects and to (ii) avoiding emissions linked to transporting the waste under a scenario where 20% of waste exported outside the OECD would be retained in the EU amount between 266 million euro in 2019 and 275 million euro in 2030. Taking the scenario that this measure could result in 50% of waste retained in the EU, these environmental benefits would range between 666 million euro in 2019 and 687 million euro in 2030. These values represent minimum amounts of the overall environmental gains linked to this measure, as many others could not be quantified and should be taken into consideration as well.** Notably, in receiving countries, this measure could also create an incentive to improve waste management infrastructure and related technologies and skills, in order to demonstrate that they can deal with the waste in a sustainable manner.
- In the short term, this measure could cause a reduced amount of waste being imported to third countries from the EU. This could lead local industries in destination countries to switch from waste to virgin materials as feedstock, thus increasing its environmental footprint. However, this risk seems to be limited as the measure does not set a full ban on shipments to third countries, but allows countries to continuously deal with the waste in a sustainable manner. In the medium term, domestic waste could replace imported waste. The reliance on the import of waste by the recycling industry in some countries actually often impedes the establishment of a proper system for the collection and treatment of domestic waste. Hence this measure is expected to have a positive environmental impact relating to the improvement of the sustainable management of domestic waste. For example, India develops at the moment a new legislation on the recycling of end-of-life vehicles. India is one of the world's largest importers of steel scrap. With the new legislation on end-of-life vehicles, India could in the future, rather than import steel scrap, source a considerable amount of steel waste from its domestic market, as steel is the largest component recovered from waste vehicles.

Social impact:

The social impacts in third countries will be positive as the measure would contribute to averting the detrimental effects of export of waste in a given country, and its possible associated negative impact on public health for the workers or populations affected by the treatment of this waste. On the other hand the livelihood of people in receiving third countries could be negatively affected.

There will be positive social impacts also in the EU, in terms of potential job creation in the recycling industry, linked to the treatment of waste retained in the EU. Applying the methodology detailed in section 7.1 and Annex 5, it is expected that the measure could lead to the creation of between 9 000¹⁰⁸ and 23 000¹⁰⁹ jobs in the EU waste treatment and industrial sector processing waste (notably ferrous and non-ferrous industry).

It should be noted that the measure would also have an impact on the companies transporting waste outside the EU. As it is expected that a large share of the waste retained in the EU would however be shipped inside the EU, the negative impact on employment linked to a reduction of export would likely be compensated by an increase in employment in the transport sector linked to the shipments of waste across the EU. This aspect is therefore not analysed further in the report.

Stakeholders' opinions

All stakeholders agreed during the consultations, that the current regime under Article 37 of the WSR and Commission Regulation 1418/2007 does not function well. Diverging views were expressed on the extent to which exports of green-listed waste should be controlled or limited. Industry mainly active in the collection and sorting of waste was more reluctant to limit exports of green-listed waste, than those industry actors active in final recycling of this waste in the EU. Companies involved in the collection and sorting of waste in the EU warned against the detrimental impact of a regime which would abruptly put an end to the export of waste which are pre-treated in the EU: according to them, this would have no or limited environmental added-value and undermine the economic business model and stability of the EU waste management sector, as it would impact the profitability of the companies collecting and sorting waste in the EU. Member States competent authorities expressed their support in principle for a reform of the current rules, which would provide better tools to verify that exported waste are managed sustainably in the countries of destination. NGOs felt that exports of waste should be limited severely, or completely banned (for plastic waste for example) and that, for waste which is exported outside the EU, a robust verification of ESM of the concerned waste at destination is absolutely necessary.

2d) Require that the export of green-listed waste outside the OECD is subject to the notification procedure

The reduction of the export of waste under this measure would likely be more modest than for other measures. It could still be assumed that it could reach up to 20% of the level of export outside the OECD, or 2.4 million tonnes, with a value on export of 536

¹⁰⁸ Under a scenario where 20% of waste exported outside the OECD would be retained in the EU

¹⁰⁹ Under a scenario where 50% of waste exported outside the OECD would be retained in the EU

million euro in 2019. Taking projections until 2030, the amount would be around 2.3 million tonnes with a value of 835 million euro.

Economic impacts

As explained under measure 2c, assuming a 20% retention scenario, this measure brings economic benefits of around 200 million euro in 2019 and 1.6 billion euro in 2030. The same economic impact as for measure 2c (for the 20% waste retention scenario) would be expected.

The EU steel industry would see its financial contribution to the Emission Trading System decrease by around 36 million euro/year.

This measure would result in considerable administrative costs for the competent authorities in the EU Member States, which would have to process a considerable quantity of new notifications. The administrative burden linked to this would also be important for companies exporting waste outside the EU, which would have to constitute the notification file, submit to all relevant authorities and await that all consents are provided, to be able to proceed with the export of the waste concerned. Finally, this would also have costs for the competent authorities in the countries of destination, which would need to also process the notifications. A number of third countries might not be legally able to issue consents for green-listed waste, as this is not required under the Basel Convention and might not be possible under their domestic legal regime.

Environmental impacts

This measure could provide more controls on and better monitoring of exported wastes, which could result in better guarantee of ESM in the country of destination. Requiring a more transparent transport and management evidence trail, this measure brings to some extent the environmental impacts as explained in the measure 2c above, relating to the amounts of waste retained in the EU for treatment. This includes avoided environmental externalities relating to transport and substandard treatment of the waste with regard to different percentages of retention of EU waste that would normally have been exported to non-OECD third countries.

The calculations for the environmental benefits of measure 2c under a retention scenario of 20% are valid for this measure as follows:

- Overall, the environmental benefits linked to (i) a better treatment of rejects and to (ii) avoiding emissions linked to transporting the waste would be between 266 million euro in 2019 and 275 million euro in 2030. As in the case of measure 2c, these values represent minimum amounts of the overall environmental gains linked to this measure, as many others could not be quantified and should be considered as well.

Social impacts:

In addition to the social impacts explained in measure 2c, it is estimated that this measure could lead to the additional creation of around 9 000¹¹⁰ jobs in the EU waste treatment and industrial sector processing waste (notably ferrous and non-ferrous industry).

Stakeholders' opinions

The measure was proposed by one Member State as a way to better monitor the export of green-listed waste outside the OECD, through the use of a well-known procedure, which already applies for notified waste. However, most private and public stakeholders are not supportive of increasing the amount of notifications and the burdens linked with it.

2e) Set up a specific procedure to monitor export of waste to OECD countries and mitigate environmental problems that might be caused by such exports

This measure is a safeguard, which would allow the Commission to monitor exports of green-listed waste to OECD countries, which are not subject to any specific control procedure involving public authorities, and to trigger a specific procedure in case it appears that such exports are causing environmental damages in a given OECD country. The adoption of this measure should not lead to any immediate considerable impact: it is setting out a procedure which, if used, could ultimately lead a reduction of export of certain waste streams to one or more specific OECD countries. This individual decisions would then have tangible economic, environmental and social impacts which would need to be assessed in the process leading to their adoption.

Economic impacts

As indicated above, the measure would not have any direct substantial economic impact. If export restrictions are adopted on the basis of this measure, they would lead economic operators in the EU to divert their export of waste to other destinations, either in the EU or outside the EU. The impact will depend on the volume and prices of the waste concerned, and would have to be assessed on a case by case basis.

Environmental impacts:

The environmental impacts of this measure are expected to be positive as it would provide a means for the Commission to avoid a situation whereby the export of waste from the EU is causing particular environmental difficulties in one OECD country. This would provide a legal basis for the Commission to start an official process towards the competent authorities of this country, which could ultimately lead to a suspension of the export of the problematic waste in question and thereby to the end of the environmental difficulties linked to this export.

Overall, the quality of waste management systems in OECD countries is assumed to be of higher quality than outside the OECD. It is however clear that still differences exist in some of the OECD countries, as compared with EU waste management standards, notably in some of the OECD countries among the top ten countries that currently receive waste from the EU. The export of waste to OECD countries has increased

¹¹⁰ Under a scenario where 20% of waste exported outside the OECD would be retained in the EU

considerably in the last years and is likely to increase further in the future, notably as a follow-up to decisions adopted in the Basel Convention on plastic waste and to the potential adoption by the EU of other measures presented in this report with regard to export outside the OECD. Additional countries have recently become members of the OECD and others are likely to join the organisation in the coming years. In this context, it is important the EU is able to prevent environmental challenges that could be created by the export of waste to OECD countries, notably in case of important waste flows or if they increase suddenly.

Social impacts:

The social impacts will be limited but would be positive as the measure would contribute to averting the detrimental effects of export of waste in a given country, and its possible associated negative impact on public health for the workers or populations affected by the treatment of this waste.

Stakeholders' opinions

Industry actors from the waste management sector generally consider that OECD countries have waste treatment standards which are comparable to those in the EU and do not think additional rules on such exports are needed. Several Member States' competent authorities have highlighted their experiences with waste exported to some OECD countries outside the EU, which create environmental challenges in these countries. These authorities have expressed their support to also strengthen the rules and controls for exports to OECD countries. This view was also shared by NGOs and some EU based recycling industries.

7.1.3 Objective 3: Better address illegal shipments of waste within the EU as well as illegal exports to third countries.

In general, each of the measures under objective 3 would contribute to improving the overall effectiveness and efficiency of the enforcement regime and inspection practices of the WSR and help better addressing waste crime, which is recognised in the 2021 EU SOCTA as being one of the most serious criminal threats facing the EU. These measures are mostly assessed qualitatively on how they can contribute to reduce illegal activities and unfair competition for legal operators in the waste sector.

Economic impacts:

The measures would have a positive economic impact for the legitimate actors in the waste sector reducing their loss of income linked to unfair competition from the illegal sector, notably ensuring that they are supplied with waste instead of illegal actors, and overall provide a better level playing field for their activities.

The measures should also result in benefits for public authorities, first directly through a better cooperation and synergies between other EU Member States authorities in tackling transnational criminal activities. The measures could also reduce enforcement actions linked to clean-up operations or repatriation activities, which are very costly and happen to remediate illegal activities. Repatriation costs of a single container within the EU are typically above €5000, and the costs can be up to €20,000 to bring back a container from

Asia to Europe. Where a multi-container consignment needs to be repatriated, costs quickly mount up, as do the complexities of the repatriation.

Finally, better enforcement should also lead to a reduction of loss of tax revenues.

Environmental impacts:

The most problematic illegal waste shipments are those concerning hazardous waste and waste which is illegally sent for dumping or sub-standard treatment. The dumping or substandard treatment of waste often has severe impacts on the environment (e.g. air, soil, groundwater contamination, effects on animals and plants, indirect impact on climate change etc.). By contributing to improving the overall effectiveness and efficiency of the enforcement regime, the measures would help prevent and reduce the serious environmental impacts stemming from illegal waste shipments, bringing overall environmental benefits.

Social impacts:

By contributing to improving the overall effectiveness and efficiency of the enforcement regime, the measures would help prevent and reduce the negative human health impacts (e.g. respiratory problems, injuries etc.) and negative impacts on labour (e.g. child and woman workers, no social benefits, low wages, etc.) stemming from illegal waste shipments, bringing overall societal benefits. Furthermore, better enforcement will have the positive effect of bringing overall societal benefits by reducing criminal activities, including organised crime activities which operate through informal and clandestine channels.

Stakeholders' opinions

During the consultations, many economic actors involved in waste collection and transport, but also treatment, stressed that for them a robust enforcement of the WSR is key to ensure a safe transition to a circular economy. Member States competent authorities agreed to that, but also pointed to the challenges they face at the moment, to perform enforcement actions as regards waste shipments. Most stakeholders, both private and public, expressed their support for strengthening the WSR's provisions and improve coordination and cooperation on enforcement.

Specific impacts linked to each measure listed under Objective 3 are described further below.

Specific objective 3.1: Further strengthen the WSR's provisions on enforcement and inspections

3a) Complement existing provisions on inspection plans

Economic impacts:

Requiring Member States to make available their inspection plans to the Commission represents a limited burden for the Member States. The assessment of the plans by the

Commission should lead to identification of best practices and allow for better targeting of inspection activities.

Environmental impacts:

No specific environmental impacts relating to this measure are foreseen in addition to the general environmental impacts described above.

3b) Issue guidance on efficient inspections and enforcement practices

Economic impacts:

Increased legal clarity results in less disputes and thus reduction of costs due to delays during shipments, but only limited effect is expected from this measure.

Environmental impacts:

The measure would have only limited environmental impacts since a guidance on inspections and enforcement practices cannot prescribe legally binding provisions.

3c) Empower the Commission (through OLAF) to carry out transnational investigative and coordinating actions against waste trafficking in the EU

Economic impacts:

Empowering the Commission (through OLAF) to carry out investigative and coordinating actions in respect of illegal waste shipments (both intra-EU and extra-EU) would strengthen the overall enforcement capacity and instruments at disposal of the EU and its Member States and could lead to more efficient use of scarce resources for enforcement. Furthermore, entrusting OLAF, an existing EU body with relevant investigative and coordinating experience and toolbox, with improving enforcement of the Regulation would also be proportionate and limit any possible financial impact of such measure as compared with the establishment of a new enforcement body at EU level. It is estimated that OLAF would be able to absorb new waste shipment cases in the first year of the application of the new Regulation. In the subsequent years, OLAF would need 1-3 FTEs, depending on the real increase of case numbers.

Environmental impacts:

No specific environmental impacts relating to this measure are foreseen, in addition to the general environmental impacts described above.

3d) Reinforce existing provisions on penalties

Economic impacts:

This measure should lead to a better targeting of penalties toward serious infringements to the WSR, which would be subject to higher sanctions, compared to infringements of lesser importance. This would help enforcement authorities, as part of their risk-based approach, to focus on the more prevalent forms of criminality linked to illegal shipments, which should overall have a positive economic impact for the waste sector. The incorporation of the economic value linked to the type of infringement for the calculation of the penalties should have a more deterrent impact on the illegal operators involved in waste shipments.

Environmental impacts:

It is expected that higher and more efficient penalties would prevent the perpetration of illegal shipments and their associated negative impact for the environment.

3e) Improve traceability of shipments of green-listed waste:

Economic impacts:

The digitalisation of the form in Annex VII of the WSR that needs to be completed for the shipment of green-listed waste should make it easier for economic operators to fill it in and present to competent authorities. A few minor additional elements of information would increase the efficiency of enforcement efforts considerably.

The registration of traders, brokers and other intermediary actors involved in waste shipments in all EU Member States where they perform their activities linked to the shipment of waste will generate a limited new additional administrative burden for those which are not yet registered in these countries, but again would render enforcement efforts and, where relevant, prosecution more efficient.

Environmental impacts:

The measure should help to better track the shipment of green-listed waste and make illegal traders accountable for their activities. As the illegal shipment of green-listed waste is one of the most serious challenges currently faced by enforcement authorities, the measure would contribute to tackle this problem, and address the environmental damages associated with these shipments.

Specific Objective 3.2: Strengthen cooperation within the Member States, across the EU and with international partners

3f) Facilitate cooperation between enforcement authorities at the national level

Economic impacts:

It is estimated that introducing a provision laying down requirements on national cooperation between the relevant enforcement authorities within the Member States will likely have some resource implications, in particular in Member States where effective mechanisms for such structured cooperation are currently lacking. On the other hand, it is expected that the overall economic benefits resulting from better and more efficient cooperation and coordination between the relevant national authorities will by far outweigh these possible additional costs.

Environmental impacts:

No specific environmental impacts relating to this measure are foreseen, in addition to the general environmental impacts described above.

3g) Creation of a dedicated group at the EU level with the task to facilitate and improve cooperation on enforcement of the WSR

Economic impacts:

No specific economic impacts relating to this measure are foreseen, in addition to the general environmental impacts described above.

Environmental impacts:

No specific environmental impacts relating to this measure are foreseen, in addition to the general environmental impacts described above.

Stakeholders' opinions

Member States authorities generally were in favour of increasing cooperation at EU and international levels against illegal waste shipments, with some of them indicating that the creation of a new group on this issue at EU level should build on, and not overlap with, existing structures, notably IMPEL.

7.2 How the options compare

The comparison of the policy options performed in this section is based on the assessment of the impacts of the proposed measures contained in section 7.1, taking into account the different combination of measures under each option, and is made against the standard assessment criteria defined in the Better Regulation guidelines (effectiveness, efficiency, coherence and proportionality). To facilitate such comparison, the impacts of each measure have also been calculated with a rating on a scale of 0-2, as presented in Annex 12. This allows to allocate an overall rating for each policy option, which represents the sum of the average of the scores per impact of the measures contained in these options. An overview of the ratings per options is also presented in Annex 12 in more detail.

Policy option 2 (“targeted changes”) provides a package of measures that can effectively and somehow efficiently address some of the problems which hamper the good functioning of the WSR. The measures under this option are coherent between themselves and also with other legislation, for example by clarifying the scope of the WSR. With respect to intra-EU shipments of waste, this option would help meeting the objective of this review by improving the functioning of the notification procedure (notably through a more consistent and frequent use of pre-consented facilities) and steer shipments of waste in the EU for recycling. For export outside the EU, it will put clear responsibilities on the EU exporting companies to show, via audit schemes, that they comply with the requirements that exported waste should be dealt with in an environmentally sound manner in the countries of destination. It would also provide better tools at the EU level to investigate illegal waste shipments, through the recognition of a formal role for the Commission (through its anti-fraud office OLAF) in this area. Many stakeholders have indicated the importance that addressing many of these issues bear for them. However, important problems identified in the evaluation, and repeatedly raised by stakeholders, would not be addressed through this option. Most prominently, this option does not address the pressing need to modernize the Regulation and reduce the burdens and delays caused by the paper-based systems in use in many Member States

for the notification procedure for intra-EU shipments of waste. This option is also not effective in addressing the lack of clear procedures and criteria which the Commission and third countries should follow to ensure the sustainable management of green-listed exported non-OECD countries. In that respect, the EU policy would continue to rely on Commission Regulation 1418/2007, which does not function well. This option would further not result in better coordination on enforcement between Member States against illegal shipments of waste. Finally, this option foresees that guidance could be adopted to avoid differences in interpretations of some provisions in the WSR between Member States, but experience shows that such soft law instruments are often not sufficient.

Overall, this option would represent an improvement of the current WSR but is not sufficiently effective in tackling serious problems which are linked to the general approach pursued in the WSR. This option would therefore have a limited impacts, compared to option 4. This is reflected in the overall scoring of this option (4.12), based on the assessment of each of its measures contained in Annex 12, which shows that it is well below policy option 4.

Policy option 3 (“structural changes”) provides for the introduction of measures, tools and procedures which are new compared to the current WSR. The underlying approach under this option is that the problems identified in the evaluation can only be overcome through a change of approach, both for intra-EU shipments of waste and the export of waste outside the EU. For intra-EU shipments of waste, an important new approach under this option is the shift to electronic systems to handle the notification procedures (through the EDI). This shift would ensure that burdens and delays are significantly reduced for both private and public actors in shipments of waste. It would moreover allow for a better monitoring of all waste flows as it can incorporate also the general information requirements for green-listed waste electronically and grant quicker access to all enforcement agents that are concerned with waste shipments. This option further includes the harmonisation of contamination levels for the classification of some waste and the mutual recognition of decisions taken by Member States on other classification issues (notably to determine if a commodity should be considered as ceasing to be qualified as waste). All this represents an effective way to ensure a smoother functioning and integration of the internal market for waste. This will however not necessarily lead to more recycling in the EU, as a majority of shipments of waste within the EU currently does not go for recycling. For the export of waste outside the EU, this option establishes a new framework (to be implemented by public authorities) to ensure that green-listed waste exported outside the OECD are managed in an environmentally sound manner, either through the application of the notification procedure for this waste, or the obligation for importing countries to demonstrate that they are able to deal with them sustainably. The application of the notification procedure for the export of all green-listed waste outside the OECD would represent an important burden for operators and public authorities, and not be linked explicitly to the objective to ensure the environmentally sound management of the waste in the countries of destination. It does not appear proportionate and cost-efficient to achieve this aim. On the other hand, the establishment of a new framework requesting non-OECD countries to demonstrate that they are able to deal with green-listed wastes sustainably would be better suited and cost-efficient to attain this objective. With regard to illegal shipments of waste, this option would lead to a better monitoring of shipments of green-listed waste through better traceability (also via EDI) and better coordination between EU Member States thanks to the creation of a dedicated official group at EU level for this purpose. This would address some of the

challenges linked to illegal waste shipments, but not improve the shortcomings due to insufficient detection and non-deterrent penalties.

Overall, while a focus on new solutions and approaches could be effective in achieving some of the objectives of the review of the WSR, it would remain insufficient to tackle all issues identified, especially those that require adjustments and improvements of the provisions in the WSR, such as streamlining existing procedures, address the environmentally sound management of waste in third countries at the level of individual shipments and treatment facilities, or improve the provisions on enforcement. Many of those detailed issues were raised as concerns by a broad range of stakeholders. In addition, some of the proposed measures would not be proportionate to the aims that it seeks to achieve (the generalisation of the notification procedure to the export of green-listed waste outside the OECD especially). Its overall impact to address the problems identified in the evaluation of the WSR would therefore be limited compared to option 4. This is reflected in the overall scoring of this option (4.18), based on the assessment of each of its measures, contained in Annex 12, which shows that it is well below policy option 4.

Option 4 (“far-reaching changes”), which combines measures from options 2 and 3, represents the most comprehensive option. It is more effective than the two other options as it contains a consistent set of measures, which both improve the implementation of the WSR and set out new solutions to tackle important challenges that the current WSR cannot address in its current form. This allows to deal with all important problems and concerns raised by stakeholders and identified in the evaluation. The measures under this option are coherent between themselves and also with other legislation, including on an international level.

Comparison with regard to the first objective of the review (Facilitate shipments of waste within the EU, in particular to align it with the circular economy objectives)

The fact that option 4 would combine the establishment of a new mandatory electronic system (electronic data interchange (EDI)) for the notification procedure with a range of measures designed to simplify, modernise and harmonise the rules governing intra-EU shipments of waste, as well as align them with the waste hierarchy, means that it would be far more effective than the two other options in achieving the first objective of this review. At the same time, this option would not contain any guidance measures, which are not sufficiently effective, and would also not try to pursue full harmonisation or mutual recognition on issues where this is not warranted in light of the limited gain that this would bring or of the likely opposition by Member States or stakeholders. This option would therefore also be proportionate to the aims that it seeks to achieve.

Comparison with regard to the second objective of the review (Guarantee that waste exported outside the EU is managed in an environmentally sound manner)

Compared to the other options, option 4 would represent a more effective way to achieve the second objective of the review. Option 4 is the only option which provides a comprehensive set of measures, commensurate with the seriousness and magnitude of the problems that this objective seeks to address. Option 4 is more effective than option 2, which only complements existing provisions of the WSR with (i) obligations for exporters to ensure that their waste are dealt with in an environmentally sound manner through audit systems and (ii) with the possibility for the Commission to set out criteria to distinguish between used goods and waste. While this is necessary, this is not enough,

which is the reason why option 4 also includes a new framework to ensure that public authorities are also involved in the verification and monitoring of the sustainability of export of green-listed waste. This is done through the new regime requiring importing non-OECD countries to inform the Commission that they wish to import waste from the EU and demonstrate that they can deal with it sustainably, as well as the specific procedure to monitor export of waste to OECD countries. These measures are contained in option 3, but again in isolation from other measures, which weakens their effectiveness. Option 4 is also efficient as it only imposes limited new costs to exporting companies exporting their waste outside the EU through new obligations for audits. It will change procedures for the export of waste, especially outside the EU, which will trigger some economic consequences for the waste sector in the EU. This impact is however proportionate, as export will remain possible, as long as there is evidence of the sustainability. Also, a 2 years transition period before these new rules would enter into force, is foreseen, leaving sufficient time for Member States, third countries and exporting companies to transition to the new system.

Comparison with regard to the third objective of the review (Better address illegal shipments of waste within and outside the EU)

Similarly as for the other objectives, option 4 is more comprehensive and effective in achieving the third objective of the review of the WSR. Option 4 includes all measures from option 2 (except guidance documents, in view of their non-legally binding nature and limited expected effect) which would reinforce the existing framework on inspection, penalties and allow the Commission to support transnational investigations in the EU. In addition, option 4 incorporates the measures under option 3 designed to better track green-listed waste and set up a formal group designed to reinforce cooperation at EU level on enforcement against illegal waste shipment. Option 4 therefore addresses the main challenges linked to illegal shipments of waste, which can be dealt with through regulatory changes of the WSR. It is also consistent with the EU policies and legislation on environmental crime, notably the Environmental Crime Directive and the recently adopted strategy against organised crime. Stakeholders have overall expressed support for reinforcing the framework on enforcement in the WSR.

The overall effectiveness, efficiency, coherence and proportionality of the policy option 4 is reflected in the rating for this option (4.70), based on the assessment of each of its measures, contained in Annex 12, which shows that it is well above other policy options.

Table 9 provides an overview of how the different options compare based on the individual assessment of measures as provided in Annex 12.

The options are composed of a selection of the measures above as explained in detail in section 6.3 of the impact assessment report. The overall rating for each policy option is the average of the overall ratings of all the measures it contains (these are listed in the left-hand column for ease of reference). The rating for each option's criteria was calculated by taking the average of the ratings of the measures that are included in that option. For example the rating relating to the economic impact of option 3 is the average of the rating for this impact of measures 1d, 1e, 1f, 1j, 1k, 1l, 2c, 2d, 2e, 3e, and 3g¹¹¹. The overall rating of each option corresponds to the sum of the ratings for each impact

¹¹¹ Details on the rating of individual measures is provided in Annex 12 to this report.

plus efficiency, and is presented in the right-hand column. This presentation provides an insight on the trade-offs for each option. Option 2 has economic, environmental and social impacts rated 1.38, 1.19 and 0.85 respectively and an efficiency impact of 0.69. Option 3 has higher economic impact with a rating of 1.68 but lower environmental and social impacts both rated at 0.82 with an efficiency rating of 0.86, which adds up to an overall rating of 4.18 – very close to the one of option 2. The table also clearly shows that the combination of measures included in option 4 results in the best rated environmental and social impacts with ratings of 1.27 and 1.00 respectively, a balanced economic impact rated at 1.53, and provides the most efficient way forward with an efficiency rating of 0.90. Option 4 has an overall highest rating of 4.70 compared to 4.18 for Option 3 and 4.12 for Option 2.

Table 9 – Summary on the comparison of policy options

Option	Economic impact	Environmental impact	Social impact	Efficiency	Overall
<p>Option 2 “Targeted changes”</p> <p>Measures 1a, 1b, 1c, 1g, 1h, 1i, 2a, 2b, 3a, 3b, 3c, 3d, 3f</p>	Rating: 1.38	Rating: 1.19	Rating: 0.85	Rating: 0.69	Overall Rating: 4.12
Conclusion	<p>Compared to the baseline, the targeted changes are more effective and coherent in achieving specific objectives, in particular to reduce administrative burden (1.1.) and increase waste shipment for treatment higher up the waste hierarchy (1.2.). However, as the rating indicates, the foreseen measures alone would not be able to result in maximum benefits, mostly due to the lack in efficiency and inter-coherence. Compared to the structural changes, this option is of rather limited scope to ensure that waste shipped across borders is managed in an environmentally sound manner (Objective 2). Although indispensable, implementation of Option 2 would only deliver moderate environmental and social impacts, as the measures mostly fragmentally target certain problem areas, e.g. by setting out criteria to differentiate between used goods and waste (2b) or by specifying the obligations for exporters (2a), and hereby lack a proportionate response to the problems. In this regard, the largest benefits are identified for the measures 3a-d and 3f, dedicated to better address illegal shipments of waste within and outside the EU (Objective 3).</p>				
<p>Option 3 “Structural changes”</p> <p>Measures 1d, 1e, 1f, 1j, 1k, 1l, 2c, 2d, 2e, 3e, 3g</p>	Rating: 1.68	Rating: 0.82	Rating: 0.82	Rating: 0.86	Overall Rating: 4.18
Conclusion	<p>Compared to Option 2, this option promises larger economic, environmental and social benefits. The implementation of the measures 1d, 1e, and 1f directly address the stakeholders’ concerns regarding the costs associated with the delays of intra-EU shipments and would significantly minimize administrative burden for national governments, authorities and economic operators (Objective 1). The introduction of measures 2c, 2d</p>				

	and 2e would set up a procedural framework at the EU level to guarantee that waste exported outside the EU is managed in an environmentally sound manner. It is considered as a proportionate and systemic response to the Objective 2. Based on the assessment of individual measures, certain changes would not be sufficient and coherent enough to achieve the necessary effect at the level of Member States. This is in particular so for the proposed measures 3e and 3g to better address illegal shipments of waste (Objective 3).				
Option 4 “Far-reaching changes” Measures 1a, 1b, 1c, 1d, 1e, 1g, 1i, 1j, 2a, 2b, 2c, 2e, 3a, 3c, 3d, 3e, 3f, 3g	Rating: 1.53	Rating: 1.27	Rating: 1.00	Rating: 0.90 Proportionality:+	Overall Rating: 4.70
Conclusion	The assessment shows that actions taken under targeted or structural changes alone would not reach the maximum effectiveness. Compare to these options,, the option to combine measures in a mix of “far reaching changes”, would result in a higher effectiveness, in an efficient and proportionate manner. Option 4 connects essential operational changes under Option 2 with the systemic ones, as presented under Option 3, by providing a package of the most efficient measures coherent with the overarching objectives of the European Green Deal – green and digital transition. The implementation of the measures to facilitate the intra EU trade of waste while preserving the environment provide a proportionate yet effective response to many of the challenges linked with the current regime, with a shift to an information exchange via electronic means and streamlined procedural framework, resulting a significant reduction of administrative burden for national governments, authorities and economic operators (Objective 1). The export related measures would deliver the most environmental benefits, while remaining proportionate to the objective they aim to achieve (Objective 2). Option 4 best addresses the problems described higher in this report. The package of enforcement related measures under the Option 4, provides a balanced approach and a basis for intervention at the EU, regional and national level necessary to reach efficiency, effectiveness and coherence in addressing the illegal shipment inside and outside the EU (Objective 3). Therefore, the integrated approach based on the separate elements of the structural and targeted changes would allow reaching highest positive impacts in a proportionate manner that would be impossible to achieve under the baseline option.				

8. PREFERRED OPTION

8.1 Conclusions based on the analysis of the impacts

The preferred option is Option 4. The blend of the targeted and structural changes chosen would result in a balanced approach in terms of effectiveness (achievement of the objectives) and efficiency (cost-effectiveness) as illustrated in Section 7.2. It aims to ensure that this Regulation can facilitate intra EU shipments in line with the circular economy objectives, support the EU's objective to stop exporting its waste challenges to third countries and contribute to better address illegal shipments of waste, without risking excessive costs or disruption. It responds both to (i) the need for new, effective measures to achieve the three objectives, and (ii) the importance attached to them being implementable while not creating excessive burden or undesirable impacts.

Option 4 is also proportionate to the aims that this review seeks to achieve:

- With respect to objective 1 on intra-EU shipments of waste, all measures under option 4 are necessary to achieve a better integration of the EU internal market for waste, steering these shipments to recycling. They will represent important changes for the procedures currently applicable to shipments, which will have an effect both on economic operators and public administrations. As detailed in sections 7.1 and 8.2, these measures will generate important gains for both of them, through reduced administrative burden, reduction of delays and more efficient processing of information. They will also contribute to support the transition to a circular economy in the EU, therefore benefiting the protection of the environment. These gains will largely outweigh the costs linked to the establishment of the new measures, notably the EDI regime. In addition, the obligation to digitalise the notification procedure for intra-EU shipments of waste via the EDI system will only become effective two years after the entry into force of the revised WSR, and preparatory work with Member States and stakeholders is already ongoing to get ready for this new regime.
- With respect to the second objective, option 4 will lead to important changes in the EU approaches and regulatory framework applying to the export of waste outside the EU. This is needed in view of the failure of the current WSR to achieve the objective to ensure ESM of waste exported from the EU, especially to developing countries. One important feature of option 4 is that it will require both economic operators and public authorities to take concrete actions to verify that waste exported from the EU is treated in a sustainable manner in the countries of destination. This will ensure that guarantees are provided both at country (through measures 2c and 2e) and at facility levels (through measure 2a) on the sustainable treatment of waste in the countries of destination. As detailed in sections 7.1 and 8.2, these measures should generate important environmental benefits. They will also have economic impacts. For some economic operators, notably those processing/recycling waste in the EU into secondary materials, this would potentially lead to higher quantities of feedstock available at a lower price, so this would overall have a positive impact. For those economic actors shipping waste outside the EU, the impact will depend on whether evidence is made available that the exported waste in the destination countries are treated in an environmentally sound manner. It is likely that, as a result, the export to some countries might become more difficult, which would impact negatively the companies exporting waste to these countries. They could face a decrease in the prices for the waste that they used to sell abroad, which would undermine their

profitability. The costs resulting from this situation are however expected to be limited and are outweighed by the overall environmental benefits of the measures. Finally, it is also important to note that proportionality is also ensured through the fact that the measures in option 4 would:

- apply a different regime between countries of destination, with more scrutiny over countries where the waste management practices and practices are deemed to be less sustainable than in the EU (non-OECD countries),
 - not result in a blanket ban but would set up a mechanism where importing countries have the opportunity to import waste from the EU if they demonstrate they are able to deal with the waste in a sustainable manner, and
 - enter into force only three years after the changes in the Regulation become effective, leaving a period of transition for all actors involved to get prepared for the new rules. This transition period would allow to mobilise funding to build capacity for processing additional waste in the EU, notably for plastic and textile recycling. This will be supported by public investments at EU and national levels, stemming from the Recovery and Resilience Plans, as well as from the EU Structural Funds. This transition period will also leave time for operators currently shipping their waste outside the EU to adapt to the new regulatory framework and, if necessary, change their supply chain to ensure that they are in line with the new EU rules on waste shipments and become more sustainable. The implementation of the Green Deal and Circular Economy Action Plan should also translate in new measures on waste reduction, better separate collection of waste, uptake of recycled content and higher levels of re-use and high quality recycling, which will help consolidating economic actors of the circular economy in the EU.
- With respect to the third objective, option 4 provides a series of measures to improve enforcement of the WSR. They are needed to step up the abilities of the Member States and the Commission to reduce illegal shipments of waste. These measures do not involve any fundamentally new tasks and additional related costs for operators and Member States. A more effective enforcement regime would help to prevent or reduce the volume of illegal shipments and, with it, significant cost savings for clean-up and repatriation as well as indirect cost savings for Member States where waste transits. Better enforcement should also lead to a reduction of loss of tax revenues. Furthermore, beyond the proposed measures, the Commission will continue to support the Member States' efforts to better implement and enforce the WSR via a wide array of tools. Many initiatives have been already taken at EU level against waste trafficking, which is one of the priorities of the EU overall policy on organised crime¹¹². The EU is also providing financial support to operational projects targeting waste trafficking¹¹³. In addition, the Commission is also assisting Member States in

¹¹² <https://data.consilium.europa.eu/doc/document/ST-9450-2017-INIT/en/pdf>

¹¹³ For example <https://www.wasteforceproject.eu/>, <http://www.lifsmartwaste.com/>, <https://opfawaste-project.eu/> or <https://www.sweap.eu/>

this area through the Environmental Compliance and Governance Forum¹¹⁴, the TAIEX-EIR PEER 2 PEER programme¹¹⁵ and the EU Environmental Law Training Package¹¹⁶.

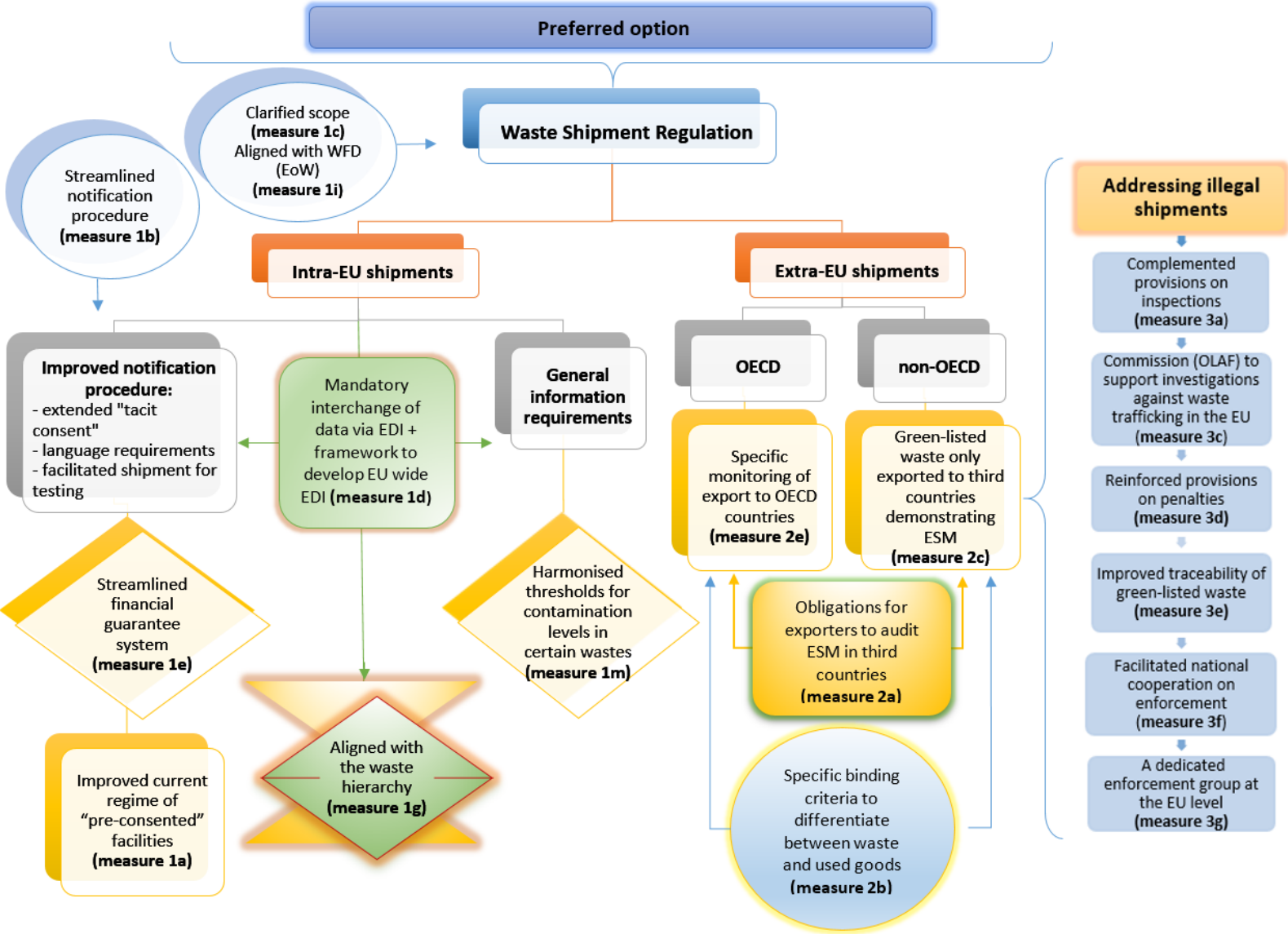
The graphic in Figure 10 below provides a schematic overview of the preferred option, and the measures that it contains. A more detailed description of how the preferred the option achieves the objective of the review of the WSR is presented in Annex 14.

¹¹⁴ https://ec.europa.eu/environment/legal/compliance_en.htm

¹¹⁵ https://ec.europa.eu/environment/eir/p2p/index_en.htm

¹¹⁶ https://ec.europa.eu/environment/legal/law/training_package.htm

Figure 10 – Overview of measures in the preferred option



8.2 Overall impact of the preferred option

In terms of **overall economic impact**, this preferred option should result in important savings for business operators shipping waste and competent authorities dealing with the procedures for authorising and monitoring these shipments, notably thanks to the establishment of the EDI system which is expected to represent savings in the order of 1.4 million euro/year. Other measures to modernise and simplify the WSR will bring additional savings. The other important economic impacts will stem from the measures linked to the export of waste, which should represent an overall economic gain for the EU economy ranging from 200 to 500 million euro/year, depending on the amount of waste which is retained in the EU, and based on 2019 data. For economic operators based in the EU, the impacts of these measures will differ significantly depending on their position in the value chain and the types of waste concerned, with some of those involved in exporting these waste likely to see the costs for exporting such waste increasing or turning to other purchasers in the EU, where they might get lower prices for their waste. Companies exporting waste would also have to set up auditing schemes, which would represent new but moderate costs (in the order of 5000 to 15000 euro/year after the setting up of the schemes). On the other hand, the economic actors recycling or processing waste in the EU should be able to use more waste as feedstock, which they should be able to purchase at a lower price compared to the baseline. The measure on illegal shipments should benefit to legal operators as they will help tackling illegal activities which represent a direct competition to their business.

SMEs will greatly benefit from the measures designed to facilitate shipments of waste within the EU, as the obstacles and burdens linked to the shortcomings of the current procedures represent proportionally a heavier burden for them than for larger companies. The measures on the export of waste will affect SMEs involved in export-related business activities. They will have to incur new costs to perform audits in facilities where they are shipping their waste (as foreseen in measure 2a). These costs remain however limited and could be pooled with other SMEs, notably through Producer Responsibility Organisations. They might also get lower revenues when selling their waste in the EU rather than exporting them, due to other measures on the export of waste (notably measure 2c). This could be problematic for some SMEs which rely extensively on export to non-OECD countries, but it is expected that such trade is mostly operated by large companies, so that the overall impact on SMEs will remain limited. Finally, the perspective that more waste will remain in the EU, together with new targets and obligations under EU law to ensure their recycling, will also represent a more solid basis for SMEs to develop innovative projects and technologies for recycling waste whose treatment pose particular challenges, such as plastic and textile waste.

This preferred option is expected to result in an **overall important positive environmental impact**. The measures designed to facilitate the shipment of waste for re-use and recycling in the EU will lead to higher amount of waste treated in better environmental conditions and higher amounts of secondary materials available in the EU, which would replace virgin materials as feedstock for a number of industries based in the EU. The proposed measures relating to the export of waste would have positive environmental impacts as it would better guarantee that shipments of waste to third countries are managed in an environmentally sound manner. It would also potentially lead to between 2.4 and 6 million tonnes of waste retained in the EU each year, which

would be treated according to EU standards and processed into secondary materials in the EU. While it is not possible to perform a monetised impact of the entirety of these environmental gains, the benefits linked to a better treatment of residual waste in the EU and of avoiding shipping this waste to third countries would range from 266 million euro to 666 million euro/year. The overall gains are likely to be even higher. By contributing to improving the overall effectiveness and efficiency of the enforcement regime, the measures relating to illegal shipments would help prevent and reduce the serious environmental impacts stemming from illegal waste shipments, bringing overall environmental benefits.

Finally, as regards the **overall social impact**, the measures linked to the export of waste, as well as those against illegal shipments of waste, should reduce the negative impact on human health (e.g. respiratory problems, injuries etc.) and labour conditions (e.g. no social benefits, low wages, etc.) stemming from the unsustainable management of waste, bringing overall societal benefits both abroad and in the EU. The treatment of waste in the EU, which used to be exported, should lead to the creation in the EU of between 9000 to 23000 jobs in the recycling and re-use sectors. Additional jobs in these areas are likely to be generated as a result of the measures designed to ensure a better functioning of the WSR for shipments of waste in the EU for recycling and reuse.

8.3 REFIT (simplification and improved efficiency)

A number of measures would lead to simplification and reduced costs (though these can be hard to quantify).

Table 10 – Overall quantified impact of the preferred option

REFIT Cost Savings – Preferred Option(s)		
Description	Amount	Comments
1a) Improve the regime of “pre-consented” facilities		Common conditions to identify a pre-consented facility set the foundation for mutual recognition Clarity on which shipments should follow the simplified pre-consent procedure leading to fewer disputes and delays More simplified pre-consent procedures with faster delivery of consent Predictability on obtaining pre-consented status Longer consent validity to 3 years leads to 1/3 of notifications for pre-consent facilities Notification fees divided by 3
1b) Improve or clarify notification procedures	Reduce delays during shipment: one delay estimated at 150k euro	Rationalise delays based on an electronic system Increased amounts of waste exempted from control for laboratory/testing purposes Reduce delays due to language issues
1c) Clarify the scope of the Regulation with respect to		

waste covered by other legislation		
1k) Ensure that the EU criteria on end-of-waste are better respected for decisions regarding the shipment of waste/non-waste between EU Member States		
1g) Mandatory EU electronic data interchange	0.9 – 1.1 million per year for public authorities (EU27) 450 thousand per year for economic operators overall throughout the EU27	Expected resources saved on a yearly basis for the submission and handling of notification requests electronically for competent authorities and companies respectively
1h) Harmonise calculation methodology of financial guarantee		Lower administrative burden for competent authorities and companies, which have to apply a harmonised methodology
1j) Task the Commission to set thresholds for contamination of wastes		Reduced delays as rules are more clear
2b) Mandate for implementing or delegated acts, to set out criteria to differentiate used goods and waste, for specific waste streams		Reduced delays as rules are more clear
2c) Export to non-OECD countries under strict conditions		The current Commission Regulation (EC) 1418/2007 would be repealed and replaced by this measure.

9. HOW WILL IMPACTS BE MONITORED AND EVALUATED?

The new Regulation should result in an increase in waste materials reused and recycled in the EU, an improvement in standards and practices for waste management in countries importing waste from the EU and a reduction of illegal waste shipments both in the EU and outside the EU. It should also contribute to building robust and dynamic markets for secondary materials and increasing the transition to a circular economy in the EU and third countries.

In terms of monitoring, potential problems with compliance and enforcement would be monitored through the Member States' regular implementation reports and progress reports drawn up by the Commission based on these Member States' reports.

In this respect, it is noted that a key measure to improve the efficiency of the implementation of this Regulation is the establishment of an EU wide system to interchange documents and information electronically (electronic data interchange or "EDI"). This should allow for all involved actors to have better access to many data that are of relevance for the implementation of Regulation. Notably competent authorities will have a much more comprehensive and consistent data set to monitor waste streams, both within and outside the EU, and also monitoring of waste flows within, and to and from the EU will improve. In the end the EDI system should ensure that structured data are interchanged, which means extractions can be consistently done by Member State competent authorities and the Commission. This should improve the quality of reporting considerably and hence allow to better monitor how successfully the Regulation is being implemented.

Furthermore, the new provision concerning the review of Member States' inspection plans by the Commission would also be an important source of information for monitoring the implementation and enforcement of the Regulation.

Additionally, compliance and enforcement issues would be monitored and discussed in the context of the new Waste Shipment Enforcement Group, which could also identify further actions and measures to be undertaken at the EU level to increase the effectiveness of the Regulation in the future.

Finally, the Regulation would be reviewed within ten years after its entry into force to ensure that its objectives are being met and its impact is ensured and justified. This review would take into consideration in particular the indicators in Table 10 below.

Table 11 – Indicators to take into account in future reviews of the WSR

<p>The contribution of the WSR to the transition towards a circular economy in the EU</p>	<ul style="list-style-type: none"> - the amount of waste shipped for recycling in a given year; - the number of consents to notifications in a given year, destined for recycling; - the number of pre-consented facilities throughout the EU; - the amount of waste shipped to pre-consented facilities in a given year; - the number of consents to notifications in a given year, destined for pre-consented facilities.
<p>The effectiveness of any waste export restriction outside the OECD, outside the EU or to the OECD</p>	<ul style="list-style-type: none"> - the amounts of waste shipped annually to those areas respectively, per relevant waste stream; - the number of non-OECD countries which are included on the EU list of countries authorised to import waste from the EU, and the amount of waste exported to these countries.
<p>The effectiveness of the WSR's provisions on enforcement</p>	<ul style="list-style-type: none"> - the number of inspections carried out by a MS in a given year; - the number of reported illegal cases and penalties imposed; - the amounts of waste involved in those illegal cases; - the number of investigative and coordinating actions carried out by OLAF on illegal shipment of waste, as well as the number of recommendations issued by OLAF upon which Member States have acted.