



Support study for the Evaluation of Regulation (EU) No 1257/2013 on ship recycling

Final report



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Abstract

The support study for the evaluation of Regulation (EU) No 1257/2013 on ship recycling (SRR) was performed in the period December 2022-November 2023. It was commissioned by DG Environment of the European Commission and implemented by a consortium that includes Ecorys, Ramboll, and Grimaldi. The study is a backward-looking assessment, which covers the classical Better Regulation Guidelines criteria and their corresponding evaluation questions: Effectiveness; Efficiency; Relevance; Coherence; and EU added value. The study results show that the SRR has contributed to all its stated objectives, but its effectiveness is hampered by significant challenges, such as circumvention of the obligation to recycle end-of-life vessels in EU-listed yards because of the re-flagging of vessels, as well as, to a lesser extent, the insufficient compliance with the requirements for the Inventories of hazardous materials (IHM).

Executive summary

The support study for the evaluation of Regulation (EU) No 1257/2013¹ on ship recycling (henceforth the “SRR”, the “Ship Recycling Regulation”, or “the Regulation”) was performed in the period December 2022-November 2023. It was commissioned by DG Environment of the European Commission and implemented by a consortium that includes Ecorys, Ramboll, and Grimaldi.

Purpose and methodological overview

The main **purpose** of this study is to support the Commission in preparing its Staff Working Document (SWD) on the evaluation of the Ship Recycling Regulation. It is a backward-looking assessment, which covers the classical Better Regulation Guidelines criteria and their corresponding evaluation questions: Effectiveness; Efficiency; Relevance; Coherence; and EU added value.

The evaluation followed the classical four steps: structuring, data gathering, analysis, and reporting. An overview of the main applied **methods** is presented below.

	Overview
Databases	The following data/databases from EMSA were used in the evaluation: the THETIS-EU on the inspections of ships on the inventories of hazardous materials; the MARINFO database on the list of vessels sent for recycling; the DONA Reporting gate allowing for Member States to report under Article 21 of the SRR under a common portal.
Call for evidence	The purpose of the Call for Evidence was to gather views from the public and stakeholders on the SRR as a starting step in the evaluation process. It was open 2-30 June 2022. The Commission received 16 responses. The majority of responses came from business associations (6). Others came from companies (2), NGOs (2), Citizens (2), trade union (1), public authority (1) and other (2).
Public consultation	A public consultation was published on the Have Your Say website to gather opinions and evidence on the key elements (effectiveness, coherence, relevance, and EU added value) of the SRR for a period of 12 weeks between 15 March 2023 and 7 June 2023. A total of 63 responses were received from 18 EU Member States and 7 non-EU countries. Additionally, 12 position papers were received.
Survey	The survey-questionnaire was open for about a month, with an official launching date on 3 March 2023. The main purpose was to gather information and feedback from the relevant stakeholders, which will be used to produce a quantitative and qualitative analyses. The targeted audience included all the interested parties encompassing European ship owners, stakeholders in the ship recycling industry, environmental and workers’ right organisations and other relevant entities impacted by or interested in the Regulation. After the cleaning process was completed, the team ended up with a sample of 79 respondents, of which 69 reached the end.
Interviews and written feedback	A total of 48 organisations were interviewed and/or provided written feedback between May and September 2023. During the targeted interviews, questions were asked to assess how well the regulation has achieved its objectives, and whether it continues to deliver in terms of effectiveness,

¹ 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 Text with EEA relevance.

	Overview
	efficiency, relevance, coherence, and EU added value, as well as areas for future improvement.
Workshop and expert group meeting	A workshop, on the evaluation, the SRR enforcement, and a potential financial instrument was organised in June 2023; the workshop gathered 62 stakeholders and 26 representatives of Member States. Findings of the evaluation of the SRR were presented to the expert group on ship recycling during a meeting organised in January 2024.

Conclusions

Regulation (EU) No 1257/2013 is an ambitious tool, which aims to ensure that EU-flagged ships are dismantled in safe and environmentally sound facilities worldwide. Another specific objective is to contribute to the proper management of hazardous materials on ships. The Ship Recycling Regulation does not only implement the requirements of the Hong Kong Convention² and aims at facilitating its entry into force, but also adds more and stricter rules. The evaluation results show that **the SRR has contributed to all these objectives, but its effectiveness is hampered by significant challenges, such as the circumvention of the obligation to recycle end-of-life vessels in EU-listed yards because of the re-flagging of vessels**, as well as, to a lesser extent, the insufficient compliance with the requirements for the Inventories of hazardous materials (IHM). Specific aspects addressing the SRR achievements and challenges are presented below.

The SRR has contributed to its high-level objectives of protecting human health and the environment by establishing criteria for ship recycling facilities, but the standards need further clarification: The overall opinion of the consulted stakeholders is that the SRR has **contributed to mitigating adverse health and environmental impacts in the ship recycling sector**, by establishing stringent criteria for ship recycling facilities. A significant majority of stakeholders recognise the effectiveness of the SRR in this regard, while the available health data shows that, e.g., the average deaths per year in Turkish recycling facilities decreased from 7.1 fatalities per year in the period 2010-2018 to 2.3 in the period 2020-2022. A few stakeholders interviewed (notably recycling yards) point out the clear guidance the SRR gives to the ship recycling industry on what can be considered sustainable ship recycling or not. The most recent NGO report on Türkiye³ highlights **the EU inspection reports' pivotal role in driving yard improvements**. At the same time, stakeholders expressed **the need for further clarification of the standards for establishing compliance and inclusion in the EU list of ship recycling** to ensure a better level playing field.

Through the European List of Ship Recycling Facilities, the SRR has ensured sufficient current capacity for EU-flagged ships to be dismantled in safe and environmentally sound facilities worldwide, but the capacity needs to keep growing: The number of **facilities on the European list has nearly doubled**, going from 25 in 2018 to 48 as of August 2023. The list records a **historically high annual output of 1.3 million LDT** and a theoretical recycling capacity of close to 3 million LDT. The list also shows a **diversified capacity in terms of size**, with 15 yards capable of recycling very large vessels (i.e. vessels with the following dimensions: $\geq 294\text{m}$ in length and $\geq 48\text{m}$ in width), accounting for 33.3% of the total facilities⁴. **The List exceeds the existing recycling**

² The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, more information available at: <https://www.imo.org/en/About/Conventions/Pages/The-Hong-Kong-International-Convention-for-the-Safe-and-Environmentally-Sound-Recycling-of-Ships.aspx>

³ NGO Shipbreaking platform (2023). Ship Recycling in Turkey Challenges and Future Direction. 20 December 2023. Available at: <https://shipbreakingplatform.org/wp-content/uploads/2023/12/Turkey-Report-2023-NGOSBP.pdf>.

⁴ This does not include floating platforms.

needs for EU-flagged and EU re-flagged ships (1 year prior to dismantling) for the period analysed between 2018-2022. As concerns the forecasted needs, most stakeholders agree that the EU-listed recycling yards **do not have sufficient capacity to meet future demand for recycling**. This consensus on the future capacity is confirmed by the forecasting exercise performed within the assignment - the demand for recycling EU-flagged vessels is expected to peak in 2032 to almost 2.5 million LDT, which is more than the currently available recycling capacity of active facilities.

The effectiveness of the EU SRR has been substantially undermined by the practice of re-flagging ships. The entry into force of the SRR **has exacerbated the practice of re-flagging**, where shipowners change the flag of their vessels shortly before dismantling. There was a significant spike in the number of cases of re-flagging in 2012, the year preceding the adoption of the SRR. In 2019, the **LDT volume of EU reflagged ships that were recycled was almost four times higher than the LDT volume of recycled EU-flagged ships**. In 2022, the latest year for which complete data are available, a total of 37 ships that had been flying an EU flag one year prior were dismantled. Of these, 10 were re-flagged within one year before being dismantled. Nine of these ten re-flagged vessels were scrapped in non-EU listed dismantling facilities. Moreover, the **9 re-flagged ships scrapped in non-EU listed facilities accounted for 54.4% of the total EU LDT dismantled that year**. After reflagging, these vessels often reach the end of their service life in South Asian countries like Bangladesh, India, and Pakistan, **effectively circumventing the obligations** imposed by the EU Ship Recycling Regulation. The principal consequence of circumvention through re-flagging is that it undermines the effectiveness of the SRR in ensuring that EU-flagged ships are dismantled in facilities worldwide that are safe and environmentally responsible.

To a certain extent, the SRR contributed to reducing disparities between EU and third country facilities, but there the health and environmental record of South Asian yards remains alarming: About 45% of respondents agreed that the SRR has been effective in **reducing disparities in standards between facilities in the EU and those in third countries**. Furthermore, **interviewees generally expressed the opinion that the SRR has influenced ship recycling yards in third countries** in improving their standards, even if they are not yet on the EU SRR list, thus having a global impact. This can be linked to some extent to investments in **applicant** facilities to meet the criteria for listing, even if they do not fully meet the required safety levels and have not been included in the EU List. **This said, the general situation in the region remains worrying.** The Shipbreaking Platform documented **425 deaths and 329 injuries in South Asian shipbreaking yards between 2009 and 2022**. Particularly Bangladesh's record of fatalities and injuries remain very high: 78 deaths and 127 injuries in the period 2018-2022. The fatal accidents in EU-approved installations are from a much lower magnitude (three fatalities in Türkiye⁵ in 2020-2022, one fatal accident in the USA and another one in the Netherlands in 2022). Moreover, stakeholders indicated that in third countries (such as Bangladesh, Pakistan and India) the management of the waste **resulting from recycling** often does not meet the strict requirements set by the laws of these countries.

The requirement for an Inventory of Hazardous Materials (IHM) contributes to the proper management of hazardous materials on ships, but its compliance and enforcement are insufficient: The requirement for preparing and maintaining an Inventory of Hazardous Materials (IHM) on ships, which was introduced by the SRR, is **assessed positively by all stakeholders**. The SRR has **triggered many efforts aimed at standardising** the development and maintenance of IHM and providing standard

⁵ The Isiksan and Simsekler shipyards in Turkey are no longer on the EU-approved list.

procedures for vessel inspection. Despite efforts by the European Commission and EMSA to support enforcing IHM-related obligations, data from EMSA reveal ongoing challenges in ensuring compliance with this regulation. The numbers of non-compliance for 2021 and 2022 show that **in 50% of the cases (668 out of 1,347 inspections), ships were non-compliant with the SRR.**

The SRR has been successful to a significant extent in facilitating the ratification of the HKC: The European Commission encouraged EU Member States to prioritise ratification, based on a Council Decision in 2014 that explicitly focuses on the objectives of the SRR, including facilitating ratification of the Convention. **There has been a significant increase in the number of ratifications after the SRR became applicable in 2018.** Almost fifty percent of the countries that have ratified the HCK are EU Member states. Thus, the SRR contributed to the Hong Kong Convention's entry into force on 26 June 2025.

The MS reporting obligations are not fully abided: Member States' commitment to the process of improving the implementation and enforcement of the SRR has differed from country to country. While some have actively participated in the meetings and fulfilled their reporting obligations, some reporting have been markedly succinct and late. By November 2023, ten Member States, including Norway, submitted reports under Article 21 providing specific details on the RFRCs for 90 vessels and Statements of Completion (SOC) issued. As concerns the remaining fourteen Member States - six of them provided a specific statement that no RFRC had been issued, while the others left the form blank. Three countries provided reports much later after the deadline and two did not respond at all. According to the EMSA analysis of this reporting, 9 additional vessels should have been reported by the MS, but were not included in the reporting, further underlining the **lack of consistency and completeness of the reports.**

The enforcement of the SRR is challenging and not uniform: It should be noted in the first place that enforcement of the provisions of the SRR related to obligation of the shipowner to have the vessel dismantled in an EU listed facility is often just not possible due to the re-flagging practice mentioned previously. In some cases, enforcement action in relation to illegal ship recycling might need to be pursued under the Waste Shipment Regulation. Cooperation between Member States is in all cases particularly challenging due to **jurisdictional complexities.** For instance, when a ship is owned by a company domiciled in one country, flagged in a second, located in a third and then recycled in a fourth. In such cases, determining which set of regulations applies can be problematic and identifying the authoritative body responsible for enforcement further complicates the process, potentially resulting in a scenario where non-compliance slips through the cracks. EU Member States enforcement authorities encounter the challenging task of conducting intricate investigative operations **at international level** to trace the journey of EU vessels that have been sold to cash buyers, serving as intermediaries on their way to the ultimate recycling destinations. The sanctions for SRR infringements differ across countries, and it is widely perceived that **the existing administrative penalties for violations of the SRR in Member States are inadequately low** to effectively discourage non-compliance.

Stakeholders, including national competent authorities and recycling yards, **consider the costs of the SRR to be proportionate or outweighed by the benefits in pursuing the above objectives.** There is a consensus that the **costs entailed by the SRR requirements are low to moderate for most stakeholders.** The authorities that provided data, indicated 1-4 full-time equivalents (FTEs), with on average 2 FTEs, per country working on issues related to the SRR (excluding Port State control inspections). Member States' competent authorities report relatively low costs for reporting to the European Commission on the state of ship recycling (less than 5% of an FTE), i.e. **the administrative**

costs of the SRR are low for MSs. Similarly, costs are considered as low for the cooperation with other national authorities, which however may also suggest a relatively limited number of initiatives and activities conducted in this regard.

For recycling yards (both listed and non-listed), direct regulatory costs linked to the development of a ship recycling plan are considered low, but most of the recycling yards surveyed and some interviewees **indicate high costs associated with complying with the requirements set in the SRR to be included in the European list.** While compliance costs are considered high, half of the recycling yards surveyed, seconded by shipowners and the steel industry, also stress that the **SRR was a decisive factor in the evolution of revenues of the ship recycling facilities,** because the SRR plays a role in stimulating investors' funding to upgrade recycling facilities, so that they can attract more customers. In other words, the SRR can bring **reputational benefits.**

Overall, the SRR is internally coherent and consistent within its provisions. Stakeholders were positive about the coherence/consistency between the provisions of the SRR. This is also clear in the intervention logic of the SRR and the specific result pathways, which show clear and logical links and no inconsistencies. To a large extent, **the SRR is coherent with other existing EU environmental and maritime legislation,** such as the Waste Shipment Regulation, the Waste Framework Directive and other EU waste legislation, the Port State Control (PSC) Directive and the Flag State requirements Directive. There are also clear **synergies between the SRR and the Basel Convention and the IMO Hong Kong Convention.** At the same time, some concerns were raised regarding the clarity/scope of the **definitions** for "waste", "shipowner", "ship recycling", and the lack of a definition of "End-of-Life" vessels. Particularly the lack of a clear definition for "End-of-Life" vessels poses a challenge for enforcement authorities in identifying ships ready for recycling and detecting breaches of the obligation to recycle in EU-listed yards.

The SRR **corresponds to the needs** identified in many EU policy documents such as the EU Green Deal, Circular Economy Action Plan, Zero Pollution Action Plan. The reduction of pollution is considered well-addressed by the SRR, with 27 (out of 40) respondents believing it sufficiently addressed the policy ambition either to a moderate or large extent. On the contrary, the **circular economy and the management of GHG emissions were not considered by the survey respondents to be sufficiently addressed by the SRR.** While the SRR aligns with the overall objectives and principles of the European Green Deal, the Regulation has a weaker relevance with respect to the EU's **GHG emissions reduction ambition** as it sets standards on the safety and environmentally sound recycling of ships but does not target GHG emissions resulting from these activities.

Until the ratification of the HKC and its entry into force, the specific issues related to the safe and environmentally sound recycling of ships have continued to be unaddressed at the international level. In this regard and in the absence of effective implementation at the international level until, problems related to ship recycling **have continued to justify the efforts conducted at the EU level.** In light of the recent ratification of the HKC, **the SRR continues to play a role by establishing higher standards and sets the example globally.** There is consensus among stakeholders and stakeholder groups that the SRR has a positive EU-added value compared to what Member States could have achieved alone. The SRR **established a number of coordination mechanisms at the EU level that contribute to raising awareness among stakeholders and advancing efforts to better recycle ships.**

Finally, **the relevance of the SRR will increase with the expected growing needs for ship recycling.** Even though there has been a slight decrease in recycling volumes over time, it is expected that ship recycling volumes will grow significantly in the coming years,

due to the ageing of the current fleet. As more ships will need to be recycled in the future, it is desirable that this will increasingly be done in a sustainable way.

Regarding the **scope** of the SRR, there is some support to extend it to non-EU flagged ships and to ships of less than 500 GT, although stakeholders recognise the legal complexity in the first case and limited EU added value in the latter (as smaller ships are often recycled within the EU). There is support for including responsibility for **beneficial ownership** in the SRR to improve accountability, but concerns are expressed about the complexity of this extension. As concerns the relevance of a **financial incentive** (as per Art.29 of the SRR), the majority of those that responded to the survey questionnaire either strongly agreed or agreed that a financial incentive such as the ship recycling licence applying to all vessels calling at an EU port bridging the revenue gap may be helpful to encourage safe and environmentally sound recycling.

The **key lessons learned** that would merit from further attention in the design, implementation, and enforcement of the SRR are summarised in the table below:

Lesson learned/issue	Details
The practice of re-flagging resulting in circumventing the SRR, undermines its effectiveness	<p>According to EMSA data, for the period 2018-2022, the percentage of EU LDT re-flagged prior to dismantling (ending up mainly in South Asia) is above 60% of the total of all the LDT that had an EU flag at least one year before dismantling⁶. The principal consequence of circumvention through re-flagging is that it undermines the effectiveness of the SRR in ensuring that EU-flagged ships are dismantled in facilities worldwide that are safe and environmentally responsible.</p> <p>The price paid to shipowners (determined mainly by scrap steel price and compliance costs related to labour and environmental standards) is among the main factors impacting the choice of locations for ship dismantling and therefore the progress and enforcement of the SRR. The price range for South Asian countries is consistently above \$500 per LDT in 2023, the prices in Türkiye are in the range \$280-340 per LDT, while in the EU they are reported to be even lower (about a third of the price in Türkiye).</p>
The IHM requirements are not uniformly applied, which reduces the effectiveness of the SRR	<p>Despite the establishment and standardisation efforts, the effectiveness of the IHMs is diminished due to notable gaps in compliance with the IHM requirements. Overall, across 2021 and 2022, 50% of the performed 1,347 inspections resulted in non-compliance findings, largely involving missing or incomplete Statements of compliance (for third countries) and Inventory certificates (for EU MS). According to stakeholders, the reason for this lack of compliance is the relatively light penalties for non-compliance, along with inconsistent enforcement, which have led many shipowners to bypass the IHM as a cost-saving measure. Several stakeholders raised the issue of loose qualifications criteria for experts preparing IHMs as a cause for concern, as it potentially undermines the quality and reliability of the IHM as well as the need for more specialised investigation tools and trainings.</p> <p>At the same time, IHM checks do not mobilize significant resources – approx. 5% of the inspection costs during Port State control and between USD 4,000 and USD 6,500 per ship, depending on the type/size of the ship and the quality of the inventory provided. These costs, however, vary across countries, and it should be noted that the more in-depth an inspection is, the more expensive it is, but this is not necessarily a negative effect of the SRR as better IHM inspections would likely lead to better management of hazardous materials.</p>

⁶ The sum of LDT volume of EU flagged and EU re-flagged (1 year before recycling).

Lesson learned/issue	Details
Future capacity and geography of the EU list	There is a consensus on the need to keep expanding the European List to accommodate the shipping industry's future recycling needs, which is backed up by ship recycling needs projections. The European List of Ship Recycling Facilities is geographically diverse, featuring 45 yards across 15 countries within and outside the EU. However, there is a notable absence of facilities from South Asia, a significant player in the global shipbuilding industry, due to compliance to SRR requirements which could not be demonstrated so far. It has however to be noted that the Basel Ban amendment, has de facto frozen the application process for non-OECD countries since 2020.
Possibilities to clarify the SRR definitions	There are certain articles or provisions within the SRR text, which may lead to incoherence and inconsistencies. In particular, there is a need in providing clear definitions of: 'waste'; 'End of life vessel'; 'shipowner'; and 'ship recycling'.
Further cooperation in enforcement needed	The general enforcement of the SRR provisions is one of the main dimensions continuing to require EU-level coordination. A few public authorities interviewed refer to the difficulties in enforcing the rules uniformly as maritime and environmental authorities may have conflicting interpretations. Furthermore, a couple of public authorities interviewed mentioned exploring through separate processes the consequences of the entry into force of the HKC, which indicates a need for further cooperation between national administrations to assess the implications of the HKC and potential inefficiencies in its interaction with the SRR.
Strengthening the link to the circular economy and GHG objectives / a life cycle approach for vessels	<p>While the definition of 'ship recycling' in the SRR mentions the recovery and reuse of materials, the Regulation does not include any concrete requirements for the amount or proportion of materials required to be reprocessed or reused versus disposed. A few stakeholders from the ship recycling industry interviewed echoed this concern, stressing that most non-steel materials are incinerated instead of recycled. They identified the lack of information on the ship equipment's maintenance history as the main cause of this issue. Interviewees also acknowledged the potential for the SRR to have a vital role in promoting a circular economy, particularly given the large amounts of high-quality scrap steel which is made available from recycled ships.</p> <p>Stakeholders mentioned that from a general perspective, in most cases the dismantling of EU-flagged ships still use carbon-intensive methods per ton of recycled steel compared to low-carbon methods available in the EU. At the same time, others acknowledged the lack of a direct link between the SRR and the European Green Deal and its climate ambitions, explaining that the SRR sets the standard for operations and safety, rather than for emissions reduction.</p> <p>Furthermore, important innovations aim to reduce the environmental impact of shipbuilding and operation, for instance, applying circular economy and resource efficiency principles in shipbuilding or implementing alternative fuels. This is a broad field, including lightweight design, the use of sustainable materials, eco-responsible coatings etc. The implementation of such innovations can also have an effect on the environmental impact of ship recycling and increase the pertinence of a life cycle approach for vessels.</p>
Consideration for the concept of beneficial ownership in the SRR and a financial incentive	There is significant support for including responsibility for beneficial ownership in the SRR to improve accountability, but also strong concerns are expressed about the complexity of introducing such concept, in particular in identifying the beneficial owner in the maritime sector. As concerns the relevance of a financial instrument (as per Art.29 of the SRR), the majority of those that responded to the survey questionnaire either strongly agreed or agreed that a financial instrument such as a ship recycling licence applying to all ships call at an EU port and bridging the

Lesson learned/issue	Details
	revenue gap may be helpful to encourage safe and environmentally sound recycling.

List of abbreviations

DG	Directorate General
EC	European Commission
ECSA	European Community Shipowners' Association
EMSA	European Maritime Safety Agency
EoL	End of life
EQ	Evaluation Question
FTE	Full time equivalent
FwC	Framework contract
GT	Gross tonnage
HBCDD	Brominated Flame Retardant
HKC	Hong Kong Convention
IHM	Inventory of hazardous materials
ILO	International Labour Organisation
IMO	International Maritime Organisation
ISRA	International Ship Recycling Association
LDT	Light Displacement Tonnage
MS	Member State
NGO	Non-governmental organisation
OECD	Organisation for Economic Cooperation and Development
OPC	Online public consultation
PFOS	Perfluorooctane sulfonic acid
PSC	Port State Control
RFRC	Ready for recycling certificate
RO	Recognised organisation
SDGs	Sustainable development goals
SMEs	Small and medium sized enterprises
SoC	Statement of completion
SRR	Ship recycling Regulation
SWD	Staff working document
WFD	Waste framework directive

1 Introduction

1.1 Aim of the report and reading guide

This final report presents the results of the analyses and conclusions arising from the support study for the evaluation of Regulation (EU) No 1257/2013 on ship recycling (henceforth the “SRR”, the “Ship Recycling Regulation”, or “the Regulation”), performed in the period December 2022-November 2023. It also contains a short description of the SRR, the background of the evaluation, and an overview of the methodology and its limitations. The report is an input to the Commission’s evaluation of the Regulation.

This final report is structured as follows:

- Chapter 1 outlines the purposes, scope, and applied methodology for the evaluation;
- Chapter 2 provides the background of Regulation 1257/2013 and the state of play of key indicators such as recycling trends;
- Chapter 3 presents the evaluation findings;
- Chapter 4 provides a summary of the evaluation conclusions.

The report also contains annexes as follows.

- Annex I includes a table with an overview of costs and benefits;
- Annex II contains the causal pathways that complement the general SRR intervention logic (presented in section 2.2);
- Annex III presents the evaluation matrices per evaluation criterion;
- Annex IV is the Synopsis of the stakeholder consultations;
- Annex V provides the Bibliography.

1.2 Purpose and scope of the evaluation

The main purpose of this study is to support the Commission in preparing its Staff Working Document (SWD) on the evaluation of the Ship Recycling Regulation. In line with the Better Regulation Guidelines/Toolbox, it is **a backward-looking assessment that considers emerging challenges**. It aims to go beyond the descriptive (what), but also to assess what is working well and less well and the reasons (why) and the extent (how much) of the observed changes could be attributed to the SRR.

The scope of the evaluation is presented in Table 1.1.

Table 1.1 Scope of the evaluation

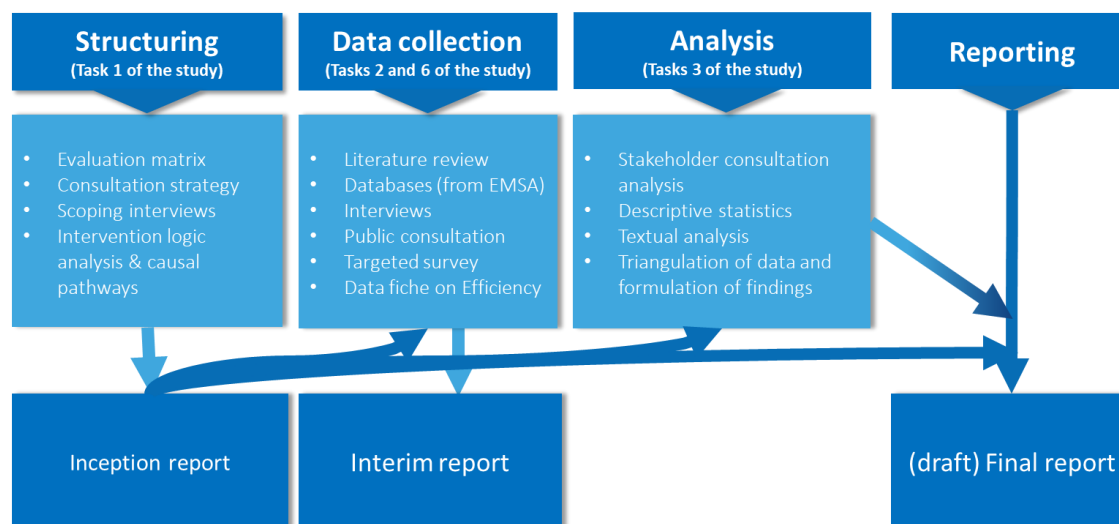
Scope	Description
Time and cut-off date	The evaluation covers ten years (i.e. 1 January 2013 to 31 December 2022). Nevertheless, it is important to keep in mind that most of the requirements effectively entered into force from 31 December 2018 onwards, which influences the points of comparison presented in section 2.3. To the extent possible (e.g. in terms of the capacity of the EU list of ship recycling facilities), the study also considers data after 31 December 2022.
Geographical scope	1. EU/EEA countries

Scope	Description
Evaluation criteria	<p>2. Third countries</p> <p>The evaluation covers the classical Better Regulation Guidelines criteria and their corresponding evaluation questions as follows.</p> <ol style="list-style-type: none"> I. Effectiveness II. Efficiency III. Relevance IV. Coherence V. EU added value <p>The evaluation matrices which present the questions, judgement criteria, indicators, sources of information, and overall approach for the evaluation criteria is provided in Annex III. It also provides sub-questions, which further detail the above evaluation questions.</p>
Key target groups	<p>The scope of the evaluation required coverage of key stakeholders as follows:</p> <ol style="list-style-type: none"> 1. Member State administrations/competent authorities (flag state, port state); 2. Shipowners; 3. Recycling companies/yards; 4. Classification societies; 5. Steel producers; and 6. Academics, research institutions and the civil society. <p>The results of the consultation activities are presented in Annexes IV-VI.</p>

1.3 Methodology and limitations

The evaluation followed the classical four steps: structuring, data gathering, analysis, and reporting. The key methods and deliverables related to them are presented in the figure below.

Figure 1.1 Evaluation phases, methods, and deliverables



The figure also refers to tasks relevant for the contract as a whole. In addition to the evaluation (Objective A), the assignment had two other objectives - assessing the possible implications (i.e., the impacts) of a potential financial instrument (Objective B), and analysis of the enforcement measures implemented by the Member States (Objective C). These different objectives had three tasks in common – the design of the study (Task 1), collection of evidence (Task 2), and stakeholder consultations (Task 6).

Reports on the stakeholder consultations are provided in Annexes IV-VI, while the evaluation matrices provide further detail on the methodology. In the table below we provide an overview of the methods applied in the evaluation and their limitations.

Table 1.2 Methods applied - an overview

	Overview	Input into the evaluation study	Limitations
Literature review	The literature review was particularly useful for the interim stages of the evaluation. For this final report, we have kept only the most relevant sources.	Mostly Effectiveness	While the literature review contributed to answering the evaluation questions, most of the available literature was not using up-to-date information. This was mitigated by using the most recent data, particularly in the analysis of Effectiveness (e.g., issues like capacity and re-flagging).
Databases	<p>The following data/databases from EMSA were used in the evaluation:</p> <ul style="list-style-type: none"> the THETIS-EU on the inspections of ships on the inventories of hazardous materials; the MARINFO database on the list of vessels sent for recycling; the DONA Reporting gate allowing for the centralisation of Member States' reports under Article 21 of the SRR. <p>They were used for:</p> <ul style="list-style-type: none"> Analysis of the compliance with the IHM requirements; Presenting the number/percentage of ships recycled; Review of the re-flagging phenomenon. 	Effectiveness	<p>Overall, the data from THETIS-EU and MARINFO provided up-to-date and comprehensive information. However, an issue to be considered with the THETIS-EU database is that while PSC controls have to be inserted in the system, this is not the case for SRR aspects, which might provide an incomplete picture in terms of inspections data.</p> <p>Furthermore, some incomplete reporting by Member States in DONA, e.g. on Readiness for Recycling Certificates (RFRCs).</p>
Public consultation	A public consultation was published on the Have Your Say website to gather opinions and evidence on the key elements (effectiveness, coherence, relevance, and EU added value) of the SRR for a period of 12 weeks between 15 March 2023 and 7 June 2023. A total of 63 responses were received from 18 EU Member States and 7 non-EU countries.	All evaluation criteria	A limitation of the public consultation is the relatively limited number of responses received. This is why the results of the consultation have been used with particular care, triangulating also with other consultation tools, and no findings were based solely on public consultation input.

	Overview	Input into the evaluation study	Limitations
Call for evidence	The purpose of the Call for Evidence was to gather views from the public and stakeholders on the SRR as a starting step in the evaluation process. It was open 2-30 June 2022. The Commission received 16 responses. The majority of responses came from business associations (6). Others came from companies (2), NGOs (2), Citizens (2), trade union (1), public authority (1) and other (2).	All evaluation criteria	As above
Survey	The survey-questionnaire was open for about a month, with an official launching date on 3 March 2023. After the cleaning process was completed, the team ended up with a sample of 79 respondents, of which 69 reached the end.	All evaluation criteria	Similarly to the public consultation, the number of responses for the survey were somewhat limited. At the same time, the number of stakeholders in the ship recycling sector is also limited as this is a rather specific topic. Thus, the number of responses can be considered sufficient for the use of the survey results in answering the evaluation questions. Nevertheless, the survey results were only rarely used (e.g. a few occasions in the Efficiency and the EU added value sections) as a sole source to drive the argumentation for answering the evaluation questions.
Interviews and written feedback	A total of 48 organisations were interviewed and/or provided written feedback between May and September 2023. During the targeted interviews, questions were asked to assess how well the regulation has achieved its objectives, and whether it continues to deliver in terms of effectiveness, efficiency, relevance, coherence, and EU added value, as well as areas for future improvement.	All evaluation criteria	No particular limitations can be reported as concerns the interviews. They covered all main stakeholder groups and were consistent with the feedback provided via the public consultation and the targeted survey. The written feedback provided by Member States was very valuable for the analysis of Efficiency. Yet, as always with this evaluation criterion, the data on the costs (full-time equivalents) and their distribution per activity depends on the availability of the data and the perceptions of the people reporting.

	Overview	Input into the evaluation study	Limitations
Workshop and expert group meeting	<p>A workshop, on the evaluation, the SRR enforcement, and a potential financial instrument was organised in June 2023, the workshop gathered 62 stakeholders and 26 representatives of Member States.</p> <p>Findings of the evaluation of the SRR were presented to the expert group on ship recycling during a meeting organised in January 2024.</p>	All evaluation criteria	The workshop was very useful in framing the most important issues on which the evaluation should focus. The expert group meeting served as an occasion for validating the key findings of the evaluation.

Based on the above use and limitations of the methodology, we conclude that **the gathered information and data allow for robust evaluation findings**. The data used in the evaluation is generally up to date (even going beyond the agreed cut-off date of December 2022). There are only two issues related to the data that are worth mentioning: (1) no data was found on the numbers and severity of environmental pollution accidents in ship recycling facilities inside and outside the EU; and (2) no quantitative assessment could be provided on the ratio between the costs and the benefits. As concerns the quantification of benefits, we have opted for a qualitative approach, considering how arbitrary it would be to monetise the contribution of the SRR. The data on the costs per stakeholder group and item was also not fully available as initially planned (see Annex III, indicators EQ5.1). Nevertheless, as noted above, the written feedback provided by Member States was very valuable for the analysis of Efficiency.

The evaluation study relies on several distinct stakeholder consultation methods, including public consultation, survey, and interviews. The consultation methods complemented each other and did not have significant divergence in viewpoints within stakeholder groups and across consultation tools, which also contributes to the robustness of the findings.

2 Background of Regulation 1257/2013

2.1 Policy background of the initiative

To avoid the negative consequences of ship recycling, several international attempts have been made to agree on international rules to reduce the risk of substandard ship recycling and ensure that ship recycling is completed in a safe and environmentally sound manner.

Basel Convention and Ban Amendment

The first convention is the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal ('the Basel Convention'⁷). This Convention was adopted on 22 March 1989 and has been ratified by 187 States and political and/or economic integration organisations. The Convention entered into force on 5 May 1992.

The Convention aims to manage and dispose of hazardous waste in an environmentally sound manner. The Parties are (1) requested to minimise the export of – and transport between countries of – hazardous waste as much as possible, (2) minimise the content of hazardous substances in waste (3) process the hazardous waste as close to the source as possible (e.g. in the country where the waste is produced) and (4) assist developing countries with processing hazardous waste as environmentally-friendly as possible. The Basel Convention applies to all types of waste, including ships. Once it is decided to scrap/recycle a ship, the ship's last journey (i.e. to the country where the ship will be recycled) is often seen as a transboundary movement of hazardous waste.⁸

The Basel Convention has been amended several times. For ship recycling, the Ban Amendment, which was concluded in 1995 and entered into force only in December 2019, is important.⁹ The Ban Amendment states that transboundary movements of hazardous waste from OECD States to non-OECD States are forbidden. To ensure that EU Member States would already fulfil the requirements of the Ban Amendment, the Waste Shipment Regulation (WSR)¹⁰ was adopted in 2006. Based on the Ban Amendment, the movement of hazardous waste produced in one of the Member States cannot be shipped to a non-OECD country. Before the adoption of the Ship Recycling Regulation (SRR) (see also below), the WSR prohibited that EU-flagged vessels could be recycled at yards in South Asia. With the general application of the SRR on 31 December 2018, EU-flagged vessels have been excluded from the scope of the WSR (while ships flying the flag of third countries have remained covered by it). By doing this, the SRR has potentially broadened the scope of legal destinations for EU-flagged end-of-life ships outside the OECD, while at the same time stipulating that ship recycling facilities located in a third country and intending to recycle ships flying the flag of a Member State shall submit applications to the Commission for inclusion in the European List (Art. 15 of Regulation (EU) No 1257/2013).

With the Ban Amendment's entry into force, the legal situation changed again. To ensure that the WSR is in line with the Ban Amendment, the EU co-legislators have introduced

⁷ See <http://www.basel.int/TheConvention/Overview/tabid/1271/Default.aspx>.

⁸ Please refer to President Judicial Division of the Netherlands Council of State – 12 December 2001 Case No. 2001-12-12/SES_26121, LNJ: AK4607, Schip&Schade 2002, 81 The Sandrien.

⁹ <https://www.ohchr.org/en/special-procedures/sr-toxics-and-human-rights/ratification-basel-ban-amendment-letters-several-states#:~:text=Ban%20Amendment%20becomes%20international%20law,into%20force%20in%20December%202019>.

¹⁰ Regulation (EC) No 1013/2006 on shipments of waste.

several changes to the WSR¹¹. In operational terms, the changes mean subjecting EU-flagged ships covered by the SRR that become waste in the EU to the WSR provisions implementing the Basel Ban Amendment (i.e. export ban outside the OECD) once again, and thus partly reversing the exclusion introduced with the adoption of the SRR.

The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships

The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships (hereafter the Hong Kong Convention) aims to ensure that all ship recycling activities are carried out in a safe and environmentally sound manner, no matter where the ship is recycled.¹² It was adopted at a Diplomatic Conference held in Hong Kong in May 2009 and was developed with input from IMO Member States and non-governmental organisations, and in co-operation with the International Labour Organization and the Parties to the Basel Convention¹³.

The HKC sets the following objectives:

- Each ship that is up for recycling should provide an Inventory of Hazardous Materials (IHM). The inventory contains information on the types, quantities and locations of hazardous materials onboard each ship. The inventory needs to be compiled once the ship is built, updated during its lifetime and needs to be completed before recycling. Additionally, onboard verification, through initial, renewal and additional surveys carried out by the classification society, is required;
- The ship recycling facility needs to prepare a ship recycling plan. This is a specific plan for each ship. The plan details how the ship will be recycled (in the safest and environmentally sound manner). All States with recycling facilities, that are Party to the Convention, need to ensure that their recycling facilities comply with the Convention rules;
- All Parties to the Convention need to take effective measures to ensure compliance with the Convention.

Particularly the combination of the first and second measure tackles some of the problems mentioned above. Labourers are aware of the presence of hazardous and toxic materials (as this is included in the IHM) and know how to deal with them in a safe manner (as this is laid down in the ship-specific recycling plan). This would help to reduce the number of accidents related to ship recycling.

The Hong Kong Convention will enter into force 24 months after the following required criteria have been met¹⁴:

- not less than 15 States;
- not less than 40% of the world's merchant shipping by gross tonnage; and
- ship recycling capacity of not less than 3% of the gross tonnage of the combined merchant shipping of those States mentioned above.

¹¹ See https://environment.ec.europa.eu/topics/waste-and-recycling/waste-shipments_en.

¹² It should be noted that the Convention does not ban the beaching practise. Nevertheless, the beaching should be done in such a way that it is safe (especially for the workers at the recycling facilities) and environmentally sound.

¹³ For more information, see [IMO](#).

¹⁴ For more information, see [IMO](#).

These conditions have been met only in June 2023 (i.e. fourteen years after its adoption) and it will enter into force on 26 June 2025.

The Ship Recycling Regulation

To ensure that the agreements made under the Hong Kong Convention do apply to EU Member States, the Commission decided to adopt Regulation (EU) No 1257/2013 on ship recycling¹⁵.

The Ship Recycling Regulation not only implements the requirements of the Hong Kong Convention, but also adds more and stricter rules for EU Member States. The main additions from the Ship Recycling Regulation are the introduction of an obligation for EU Member States to introduce an enforcement regime, standalone documents to support implementation and more stringent environment and safety requirements. An important additional provision is the requirement for EU-flagged vessels to be recycled at an EU-approved recycling facility (Article 6(2)(a)). This yard could either be located in an EU/EEA Member State or a third country and needs to fulfil a set of criteria and has to be included in the so-called European List of Ship Recycling Facilities. Facilities located within the European Union are inspected by authorities of the Member State in which they are located (Article 14). Facilities located outside the European Union are inspected by the European Commission (Article 15).

The latest list was published in December 2023 (Commission Implementing Decision (EU) 2023/2726¹⁶). It contains 45 ship-recycling facilities, including 35 yards in Europe (EU, Norway, and the UK), 9 yards in Türkiye and 1 yard in the USA¹⁷.

The Ship Recycling Regulation mainly applies to EU-flagged vessels (Article 2(1)). In addition, the Regulation introduces some specific requirements for non-EU flagged vessels that enter an EU port (Article 12). Non-EU flagged vessels are obliged to have an IHM on board. They are also prohibited from installing any of the materials¹⁸ mentioned in Annex I of the Regulation while being in port or at anchorage in a Member State. In case the non-EU flagged ship is not in compliance with the obligation, the ship can be warned, detained, dismissed, or excluded from ports in the Member States (Article 15(5)).

The requirement to have an IHM onboard the ship was introduced gradually. As a first step, all EU-flagged ships that went for recycling, from December 2016 onwards, were obliged to have an IHM. In the second step (from 31 December 2018 onwards), all newly-built EU-flagged ships¹⁹ were obliged to carry the IHM. Since 21 December 2020, all ships, both EU and non-EU flagged vessels need to have an IHM on board.

¹⁵ 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 Text with EEA relevance.

¹⁶ The Commission Implementing Decision (EU) 2023/2726 is available [here](#).

¹⁷ For more information, see DG ENV [news article](#).

¹⁸ Materials mentioned are Asbestos, Ozone-depleting substances, Polychlorinated biphenyls (PCB), Perfluoro octane sulfonic acid (PFOS), and anti-fouling compounds and systems.

¹⁹ New ships are defined as: a ship for which either (a) the building contract is placed on or after the date of application of Regulation 1257/2003, (b) in the absence of a building contract, the keel is laid or the ship is at a similar stage of construction six months after the date of application of Regulation 1257/2003 or thereafter, or (c) the delivery takes place thirty months after the date of application of Regulation 1257/2003.

2.2 The intervention logic of the initiative

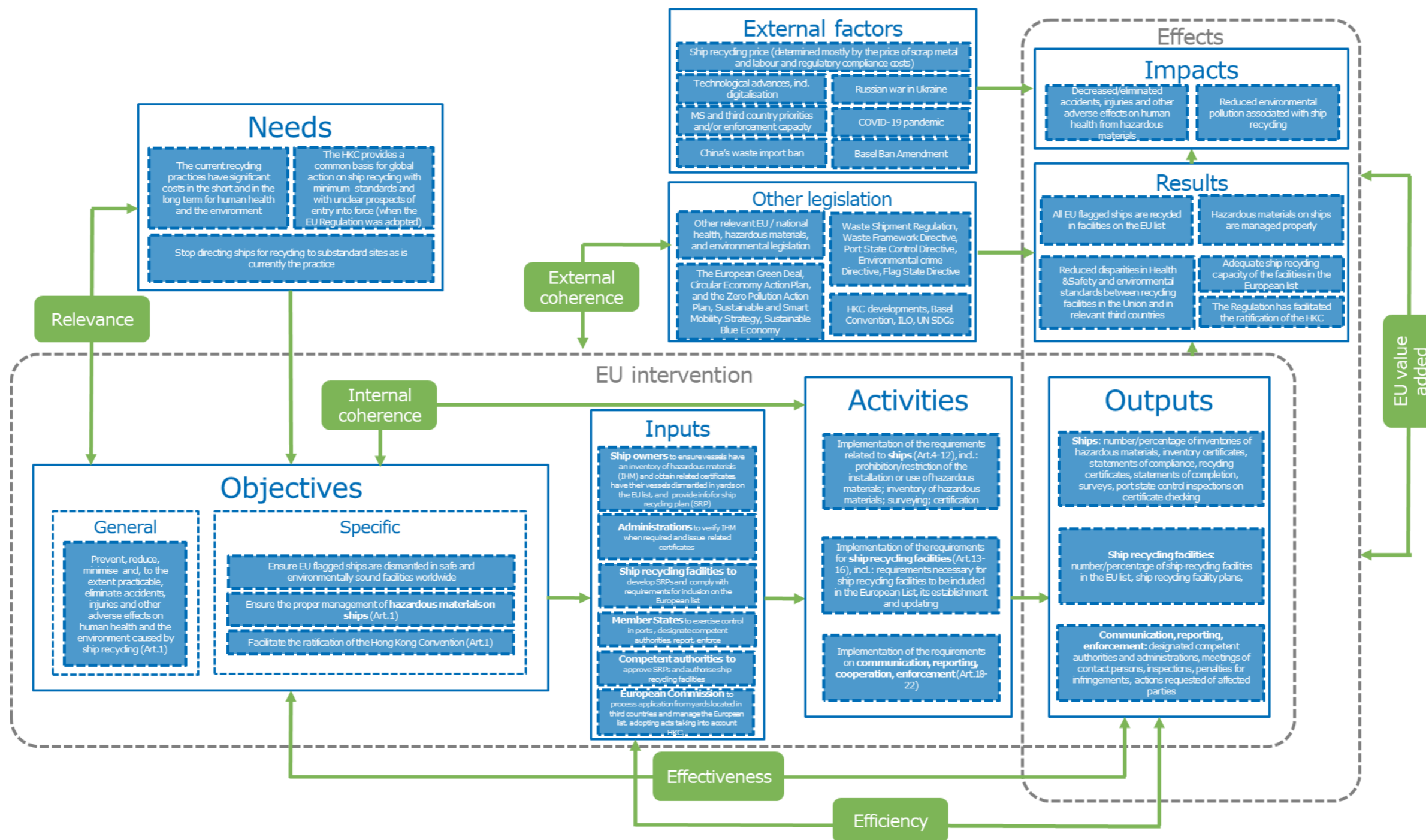
The Intervention logic (IL) of the SRR forms the basis of the evaluation framework and the other research activities that were carried out under this assignment. The IL summarises how the expected logic of the SRR should lead to the intended changes. Hence, the IL structured the information needs and the corresponding approach to data collection and analysis activities.

The IL, drafted in the Inception stage and presented below, provides details on the linkages between inputs, activities, and outcomes. The figure presents the general logic of the SRR – from the identified needs and their corresponding objectives to the expected outputs, results, and impacts. It also includes external factors and legislation to be reviewed in view of assessing the SRR external coherence. All evaluation criteria applied for the evaluation are also presented on the figure.

Additionally, intervention logic causal pathways on the specific elements of the Regulation were developed and used throughout the evaluation. They are presented in Annex II and cover all key elements of the Regulation while matching the general intervention logic:

- Ship-recycling requirements for EU-flagged ships (Art. 6-9 +13);
- Requirements for authorisation of EU ship recycling facilities (Art. 13-14, 16);
- Control, inventory, maintenance and verification of hazardous materials;
- Facilitation of ratification of the HKC;
- Requirements for third-country ship recycling facilities and ships flying the flag of a third country (Art. 12-13, 15);
- Communication, reporting, and enforcement (Art. 18-22).

Figure 2.1 General intervention logic of the SRR



2.3 Points of comparison and state of play

The impact assessment study accompanying the proposal for a Ship Recycling Regulation developed a baseline scenario, which was based on the assumption that the Hong Kong Convention would enter into force in 2020. This assumption did not materialise, which is why, for the purposes of this evaluation, we apply a static point of comparison, which coincides with the entry into force of most SRR requirements - **31 December 2018**.

As explained in section 2.1, it is acknowledged that the SRR requirements on IHM availability on board vessels were introduced gradually (i.e. some of its elements were introduced before 2018). However, even if it is also included in the HKC, the IHM is essentially a new tool, legally introduced by the SRR, which is why no before/after comparisons were made in this regard. Instead, we have used in the evaluation the latest available data on IHMs.

The indicators related to the key objectives of the SRR, which are used for before/after comparisons, are:

- The number and percentage of EU-flagged ships dismantled in EU listed facilities compared to the worldwide²⁰ numbers and their location of dismantling;
- EU flagged ships changing their flag prior to dismantling;
- Accidents/occupational diseases/pollution²¹ (EU and non-EU listed facilities / before and after the EU list);
- The state of ratification of the Hong Kong Convention by the major flag and recycling states;
- Number/capacity of ship recycling facilities.

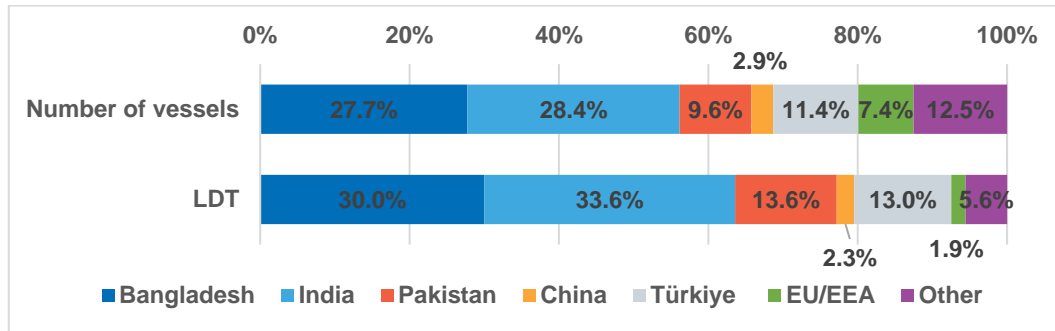
The analysis of these indicators is presented in section 3.1.1, while below we provide some basic trends in ship recycling and data on the share of the EU fleet.

In the current situation, **the majority of vessels worldwide are recycled in India, Bangladesh, and Pakistan**. According to NGO Shipbreaking Platform and European Maritime Safety Agency (EMSA)'s data, it is estimated that they jointly recycled 65.8% of the vessels in 2022. Of the 34.2% recycled in 2022 in facilities located in other countries, Türkiye shows the most important remaining share of the market, equal to 11.4%. Measuring the vessels recycled in terms of LDT, the three aforementioned Asian countries appear to have an even more prominent role, as they accounted for 77.2.% of the LDT recycled in 2022. The larger vessels are mostly recycled in facilities located in these countries, whereas smaller vessels are recycled in recycling facilities located in other countries (see Figure 2.2).

²⁰ "Worldwide" refers to the combined data on dismantling EU-flagged and non-EU-flagged ships.

²¹ As mentioned earlier, no data was found on the numbers and severity of environmental pollution accidents in ship recycling facilities inside and outside the EU.

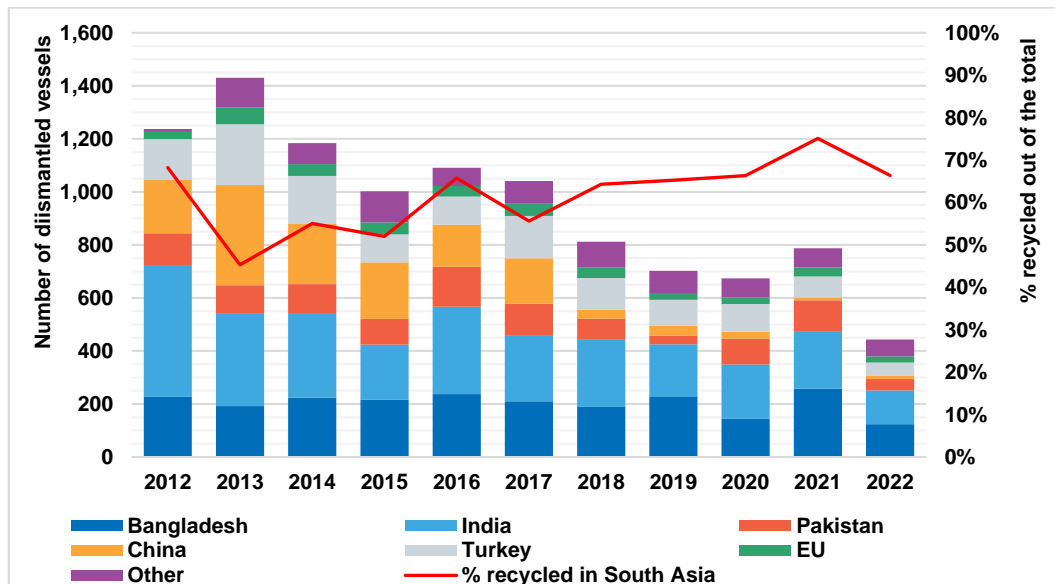
Figure 2.2 Ship recycling countries by percentage of vessels and LDT recycled in 2022



Source: elaboration of the authors based on data of NGO Shipbreaking Platform and EMSA.

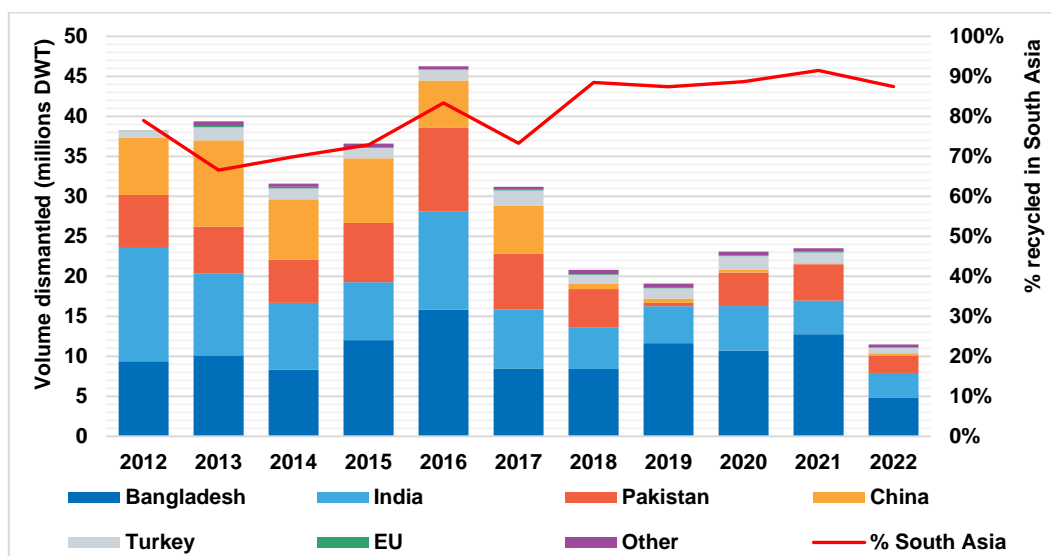
Concerning the recycling trends at global level, data of the NGO Shipbreaking Platform and EMSA show that despite the decreasing number of vessels and LDT, **the share recycled in South Asian countries has been in an increasing pattern between 2013 and 2022** (see Figure 2.3 and Figure 2.4).

Figure 2.3 Number of vessels recycled by country (2012-2022)



Source: elaboration of the authors based on data of NGO Shipbreaking Platform and EMSA.

Figure 2.4 Volume of LDT recycled by country (2012-2022)



Source: elaboration of the authors based on data of NGO Shipbreaking Platform and EMSA.

According to data from Equasis,²² in 2022 the world merchant fleet was composed of 126,947 vessels which together amount to 1.56 million GT. Only a **relatively small fraction of vessels from the global fleet flies an EU flag**. The share of the world fleet that flies an EU flag varies from 1.7% for offshore vessels to 18.8% for container vessels (see Table 2.1).

Table 2.1 Share of world fleet vessels by flag

Vessel type	EU share of world fleet	Non-EU share of world fleet
Bulk carriers	7.9%	92.1%
Container vessels	18.8%	81.2%
Fishing vessels	12.6%	87.4%
General cargo	9.9%	90.1%
Offshore vessels	1.7%	98.3%
Oil tankers	12.0%	88.0%
Other types of vessels	14.8%	85.2%

Source: elaboration of the authors based on EMSA (2022).

Elaborations based on UCNTAD data show that **the share of the EU-flagged merchant fleet was equal to 17.2% of the GT (or 13.3% of the vessels) for the EEA, out of the total world fleet in 2022²³**. However, **considering end-of-life vessels, this percentage was lower for that year and equal to 7%**. Moreover, data of NGO Shipbreaking Platform and EMSA show that **out of the 451 vessels known to have been recycled worldwide in 2022, 176 vessels (i.e. 39% of the total) were re-flagged just before recycling**.

²² The European Commission and the French Maritime Administration developed an information system which collates existing safety-related information on ships from both public and private sources and makes it available on the Internet. The information we used is available here: <https://www.equasis.org/EquasisWeb/public/HomePage>.

²³ <https://www.emsa.europa.eu/eumaritimeprofile/section-2-the-eu-maritime-cluster.html>.

3 Evaluation findings

3.1 To what extent was the intervention successful?

The Better Regulation tool#49 defines how the success of an intervention can be measured - to what extent the intervention achieved its objectives effectively, to what extent it was done efficiently and to what extent the intervention is coherent. In other words, its successfulness covers the evaluation criteria, *effectiveness*, *efficiency*, and *coherence*, which are presented in the following subsections.

3.1.1 To what extent is the intervention effective?

EQ1. How successful has the SRR been in achieving (or progressing towards) its objectives?

Main findings:

- The **overall opinion of the consulted stakeholders is that the SRR has contributed to mitigating adverse health and environmental impacts**, by establishing stringent criteria for ship recycling facilities and through the process of EU inspections.
- Through the European List of Ship Recycling Facilities, the SRR has **ensured sufficient current capacity for EU-flagged ships to be dismantled in safe and environmentally sound facilities worldwide. The list exceeds the existing recycling needs for EU-flagged and EU re-flagged ships** (1 year prior to dismantling) for the period analysed between 2018-2022
- However, the **effectiveness of the EU SRR has been substantially undermined by the practice of re-flagging ships**²⁴. There is a noticeable upward trend in the proportion of recycled LDTs of vessels that have been re-flagged since the SRR came into force. These vessels are then often recycled in yards (e.g. in Bangladesh, India, and Pakistan) with lower health/environmental standards than the ones on the EU list.
- The European List of Ship Recycling Facilities is geographically diverse, featuring in 2023 45 yards across 15 countries within and outside the EU. However, there is a **notable absence of facilities from South Asia**, also due to the Basel Ban amendment, which has de facto frozen the application process for non-OECD countries in 2020²⁵.
- With future recycling needs expected to increase, **the EU list capacity also needs to continue growing**
- The requirement for an Inventory of Hazardous Materials (IHM) contributes to the proper management of hazardous materials on ships, but **compliance with IHM requirements is not sufficient** (as illustrated by the large number of non-compliances detected – 389 with Statement of Compliance²⁶ and 117 with inventory certificates²⁷ in 2021), **which reduces the effectiveness of the instrument**

²⁴ The issue is further analysed in EQ3.

²⁵ See also EQ2.

²⁶ As per Article 3 of the SRR: a 'statement of compliance' means a ship-specific certificate that is issued to ships flying the flag of a third country and that is supplemented by an inventory of hazardous materials in accordance with Article 12.

²⁷ As per Article 3 of the SRR: an 'inventory certificate' means a ship-specific certificate that is issued to ships flying the flag of a Member State in accordance with Article 9 and that is supplemented by an inventory of hazardous materials in accordance with Article 5.

- To a certain extent, the SRR contributed to reducing disparities between EU and third country facilities by **influencing ship recycling yards in third countries in improving their standards**, even if they are not yet on the EU SRR list, thus having a global impact. Nevertheless, the environmental and health record (fatalities and casualties) of SouthAsian shipbreaking yards remains dismal.
- The SRR has been **successful to a significant extent in facilitating the ratification of the HKC** - there has been a significant increase in the number of ratifications after the SRR became applicable in 2018 and almost fifty percent of the countries that have ratified the HCK are EU Member States.

EQ1.1: How successful has the SRR been in preventing, reducing, minimising and eliminating accidents, injuries, and other adverse effects on human health (e.g. occupational disease) and the environment caused by ship recycling?

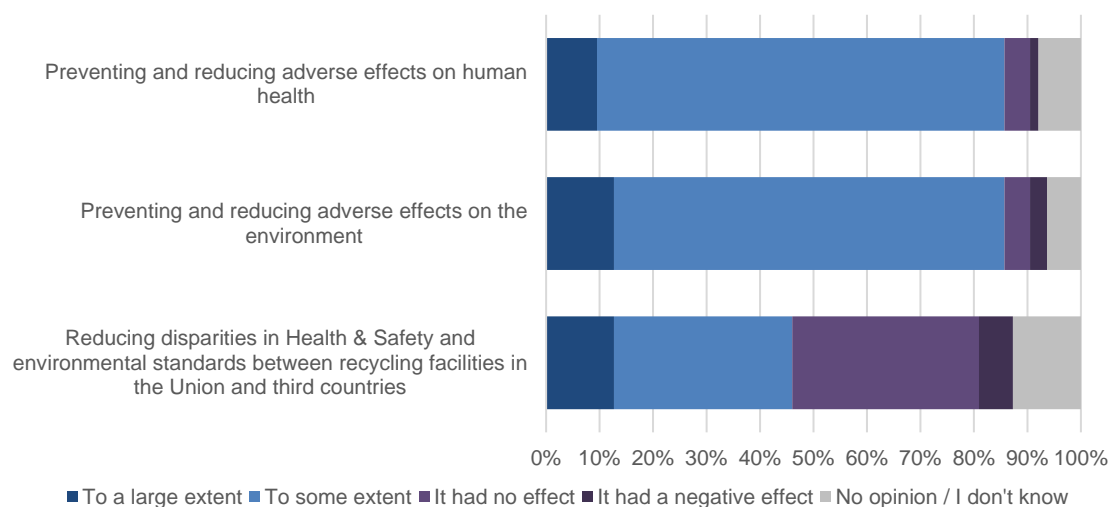
The Ship Recycling Regulation (EU) No 1257/2013 (SRR) aims to prevent, reduce, and minimize accidents, injuries, and other adverse effects on **human health** and the **environment** related to the recycling of ships flying the flag of EU countries. This section focuses on the effectiveness of the SRR in achieving these objectives.

In response to pressing environmental and human health concerns, the SRR was established to raise industry standards. The SRR requires EU-flagged ships to be recycled in facilities that meet strict criteria, and lists facilities that comply with these requirements on the European list of ship recycling facilities. These facilities adhere to rigorous protocols for the management of hazardous and polluting materials, offering a safer alternative to traditional open beaching methods (Choi et al., 2016; Barua et al., 2018). Furthermore, these protocols ensure that all waste generated is meticulously documented and transferred only to authorised waste management and recycling centres, thus minimising risks to human health and the environment.

The general perception of the consulted stakeholders is that the SRR has proven to be effective in mitigating accidents, injuries and adverse health and environmental impacts, by establishing stringent criteria for ship recycling facilities and extending its influence beyond European borders. Through the targeted survey, stakeholders were asked about the extent to which the Ship Recycling Regulation has been effective in reducing the negative impacts of ship recycling on both human health and the environment. **A significant 82% (54 out of 66) of the survey respondents across all stakeholder groups indicated that the SRR has had a positive influence on improving human health conditions.** This figure rises to **89% when considering the Regulation's positive impact on the environment.** Furthermore, 87% of those surveyed believe that the SRR has successfully narrowed the gap in health, safety, and environmental standards between recycling facilities within the Union and those in third countries.

The findings from the public consultation generally corroborate the survey results. As Figure 3.1 displays, over 86% of respondents affirmed that the Regulation has been effective in alleviating negative impacts on human health, relative to what the situation would have been without it. Similarly, 86% believe that the regulation has been successful in mitigating adverse environmental effects. However, it's worth noting that **only 45% of respondents agreed that the Regulation has succeeded in reducing disparities in health, safety, and environmental standards between recycling facilities within the Union and those in third countries.**

Figure 3.1 Opinions from stakeholders gathered through OPC on the effectiveness of SRR in mitigating health risks, environmental impact, and reducing disparities in ship recycling between the EU and third countries.



Source: consortium elaboration, based on OPC questionnaire.

During the interviews, stakeholders agreed that the Regulation has been beneficial in multiple respects: it has improved working conditions and health standards, and has mitigated the environmental impact of ship recycling, especially in facilities located in third countries. Respondents highlighted that the adoption of the Regulation, together with the creation of a list of approved facilities, has encouraged investments in upgrading recycling facilities. These improved facilities, especially those located in third countries, have become more environmentally responsible and safer for workers. However, it is important to note that while there is general agreement on raising standards, some stakeholders pointed to concerns about the management of hazardous waste. In countries such as Türkiye, Bangladesh, Pakistan and India the management of hazardous waste often does not meet the requirements set by the laws of these countries. Examples of such concerns include issues with downstream waste management identified in a recent report on ship recycling in Türkiye²⁸ and in precedent NGO reports²⁹.

On a more general note, the most recent NGO report on Turkey³⁰ highlights **the EU inspection reports' pivotal role in driving yard improvements**. For example, according to interviewed workers the EU inspection procedure has increased awareness of occupational safety hazards at the yards and that their working conditions have become slightly better following EU audits. At the same time, the NGO report also concludes that the inspection reports reveal deficiencies in EU-listed yards in Türkiye highlighting the need to ensure implementation of the standards is effective on a daily basis.

Human Health

Ship recycling remains an essential industry for the management of end-of-life vessels. However, the industry faces several challenges, particularly in terms of worker health and safety as well as other human health threats in general. Most of the vessels are dismantled

²⁸ NGO Shipbreaking platform (2023). Ship Recycling in Turkey Challenges and Future Direction. 20 December 2023. Available at: <https://shipbreakingplatform.org/wp-content/uploads/2023/12/Turkey-Report-2023-NGOSBP.pdf>.

²⁹ For example, NGO Shipbreaking platform. Impact Report 2020-2021. Available at: https://shipbreakingplatform.org/wp-content/uploads/2022/11/NGO-SBP-Annual-Report-2020_2021.pdf.

³⁰ NGO Shipbreaking platform (2023). Ship Recycling in Turkey Challenges and Future Direction. 20 December 2023. Available at: <https://shipbreakingplatform.org/wp-content/uploads/2023/12/Turkey-Report-2023-NGOSBP.pdf>.

in facilities employing the most common method of recycling known as "**beaching**", which is especially common in South Asia. South Asian and some Turkish yards, places where most of world's ship dismantling take place, have a reputation of low occupational health and safety standards. Often facilities lack adequate training programmes, equipment, and awareness among employees (Gunbeyaz, Kurt, & Turan, 2018).

The loose approach related to beaching results in a high number of workplace accidents. For example, in India an average of 3.26 worker accidents take place per month in open beaching yards (Misra, 2018). However, it is important to put the figure in context: fatalities and serious accidents are rarely documented, according to existing reports (NGO Shipbreaking Platform, 2019). Therefore, the actual level of risk could be even higher than the data suggest. Factors contributing to this uncertainty include the inadequacy of nearby hospital facilities and "downstream diseases" - such as cancer and asbestosis - that manifest themselves years after exposure to fumes and toxic substances.

Previous research by Toxics Watch Alliance indicated that at least 434 people died in Indian shipbreaking yards between 1991 and 2012. Similarly, the Shipbreaking Platform documented 425 deaths and 329 injuries in South Asian shipbreaking yards between 2009 and 2022. Siecker and Adams (2016) also reported 470 deaths in the 30 years prior to 2016 in India alone.

Data from Türkiye provide a more complete picture. According to the Izmir Development Agency (2022), 64 fatal occupational accidents occurred in the Aliğa district between 2010 and 2018. Of these, 25 % (16 worker fatalities) occurred in the ship recycling sector (İSGARD, 2019). Additional data reveals that since 2013, 19 fatalities have been recorded in the region, and the overall count reaches 42 since 1992 (ISIG Meclisi, 2022). Since 2020, at least seven workers have died in different ship recycling yards in Türkiye (NGO Shipbreaking Platform, 2023). Out of these seven fatal accidents, three occurred in two EU-listed shipyards³¹. As with the South Asian data, these figures do not consider deaths caused by long-term occupational diseases.

As far as fatal accidents in EU-approved installations are concerned, besides the three fatalities in Türkiye, there have been two other very serious accidents in EU listed yards. In 2019, there was 1 fatal accident in the USA³² and another in the Netherlands in 2022³³.

Table 3.1 compiles data on fatalities and injuries among workers in shipbreaking facilities in Türkiye, Bangladesh, India, and Pakistan. This table was gathered through a comprehensive review of annual reports published by the Shipbreaking Platform, supplemented with data from the Izmir Development Agency (2022). It is important to note that, due to the variable availability of reliable data, the table contain inconsistencies. Some entries may be blank, indicating that the data could not be obtained, or its validity could not be verified.

Table 3.1 provides insight into **the different trajectories of facility inclusion to the European List of Ship Recycling Facilities (SRF) and fatality rates between Türkiye, India and Bangladesh, each revealing distinct patterns**. In Türkiye, there is a noticeable progress after 2018, with the inclusion of eight facilities, although two of these were

³¹ The two yards were removed from the EU list.

³² <https://www.texas-wrongful-death-lawyer.net/109223/jorge-loredo-killed-work-accident-international-shipbreaking-brownsville-tx.htm>

³³ <https://www.omroepzeeland.nl/nieuws/15083735/dode-bij-bedrijfsongeval-in-nieuwdorp>

removed from the list. **The average deaths per year decreased from 7.1 fatalities per year in the period 2010-2018 to 2.3 in the period 2020-2022³⁴.**

Similarly, **India** presents another interesting development. Even without any listed facilities, there have been 27 applications for inclusion – section EQ1.4 provides further information, and despite none being included in the list, **there has been a notable decrease in the average annual fatalities from 8.6 to 2.33 after 2018** (i.e. similar to Türkiye).

In contrast, **Bangladesh** presents an opposite scenario. No shipyard has applied for inclusion. Alarming, **mortality rated in Bangladeshi establishments have maintained a steady high** (Human Rights Watch, 2023).

The different trends among countries exemplify the likely impact of the SRR through its creation of a list of approved facilities, which affects operational (labour but also environmental) standards within these countries. This dynamic is an illustration of the positive and wider effects of the SRR, which extend even to countries that do not have facilities on the European list. By investing in their facilities to meet the criteria for listing, countries raise their operational standards, even if they do not fully meet the required levels. This indicates that, irrespective of listing, **the very pursuit of compliance is likely to lead to an improvement in standards compared to pre-existing ones**. There are obviously other factors that have certainly also contributed to the positive trends in India (e.g. new corporate social responsibility trends, the HKC and external assistance from committed countries or shipping companies), but **interestingly they are not observed in Bangladesh**.

Table 3.1 Number of fatalities and injured workers in shipbreaking yards in Bangladesh, India, Pakistan, and Türkiye (2010-2022)

Country		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
India	Fatality					13	6	2	8	14	2		2	3
	Injured								1		1			
Pakistan	Fatality							29	5	7		1	5	2
	Injured							60						3
Bangladesh	Fatality				20		16	20	15	44		24		10
	Injured						20	29	22	46		48		33
Türkiye ³⁵	Fatality	4	4	5	7	5	6	8	14	11		1	5	1
	Injured													

Source: compilation based on Shipbreaking Platform annual reports (various years) and İzmir Development Agency (2022).

With the objective of going beyond the statistics on the SRR effectiveness in reducing accidents and fatalities, below we provide an excerpt of a report by the Human Rights Watch with a personal account of a ship recycling incident in Bangladesh. Furthermore, it also illustrates what is at stake with the circumvention of the SRR that is described under EQ3 and which also have a health dimension.

Box 1: Health and circumvention issues in Bangladesh

In the summer of 2021, B was working at a shipyard in Chattogram Bangladesh, dismantling a 24-year-old bulk carrier ship. On August 23, he was torching through a pipe in the engine room when it suddenly exploded. The explosion threw him against the

³⁴ The paragraph above presents the data from different sources, while the table compiles data from other additional sources. Data regarding accidents is often inconsistent and incomplete.

³⁵ Another 18 fatalities are reported by Shipbreaking Platform for the period between 1982 and 2007, based on information gathered from unions, press and researchers.

wall, severely burning his face and breaking his back. He lost consciousness, only becoming alert when he realized his coworkers were carrying him to the road. B's family sold all their land to pay for his continued medical treatment and he now runs a tea stall to support them.

The Max was previously owned by a Greek shipping company and was subject to European Union regulations regarding the disposal of end-of-life ships (i.e. the EU Waste Shipment Regulation (EUWSR) and the SRR). However, the ship was sold to a scrap dealer ("cash buyer"), it was declared waste, and then sent on its final voyage. After the incident, the former owner, the exporting port, and the scrap dealers who directly sold the ship to the shipbreaking yard could all evade liability for B's injury.

Source: Human Rights Watch.³⁶

In addition to the accidents that take place in the facilities location, workers are also at risk of other health problems such as lung cancer due to asbestos exposure (Muralidhar et al., 2017; Wu et al., 2014), along with eye and respiratory problems, and skin conditions likely caused by chemical exposure (Hossain et al., 2008; Sikder et al., 2016). Furthermore, the working conditions presents other significant challenges. A study by Kutub et al. (2017) found that only one-fifth of workers were paid overtime, even though most had families to support. These employment challenges contribute to high turnover, with 32% of workers leaving within two years and 89% leaving before ten years (Hossain et al., 2008).

Besides to occupational hazards, open beaching facilities expose local communities to health risks through the food chain. Studies have shown that heavy metals such as copper, lead, and zinc accumulate in marine organisms and eventually find their way into human food sources, causing adverse health impacts (Lin et al., 2022; Liu et al., 2015).

Environmental issues

The detrimental effects of ship recycling are not limited to human health and working conditions, but also extend to the environment. Studies show that these open beaching facilities, have high concentrations of toxic substances in the sea, air, and sediments. These pollutants alter marine biodiversity and contribute to the loss of vital ecosystems (Hossain et al., 2020; Rizvi et al., 2020). Table 3.2 provides an overview of environmental pollution and hazardous waste management concerns in ship recycling facilities by country.

Table 3.2 Overview of Environmental Pollution and Hazardous Waste Management Concerns in Ship Recycling Facilities by Country

Source	Country	Key Findings and Issues
ResearchGate	Bangladesh	Accumulation of hazardous materials due to poor practices; need for improved environmental management.
NGO-SBP Annual Report 2020/2021	India	Serious concerns related to pollution, s, presence of heavy metals in water samples.
NGO-SBP Annual Report 2020/2021	Bangladesh	Toxic spills devastating local communities; lack of facilities for hazardous waste management; large import of toxic materials projected.
NGO-SBP Annual Report 2020/2021	Pakistan	No impermeable working areas; hazardous waste simply dumped behind shipbreaking area.

³⁶ Human Rights Watch (2023). Trading Lives for Profit. HRW. September 28, 2023. Available at: https://www.hrw.org/report/2023/09/28/trading-lives-profit/how-shipping-industry-circumvents-regulations-scrap-toxic#_ftn2

Source	Country	Key Findings and Issues
NGO Shipbreaking Platform, 2023	Türkiye	Toxic substances including arsenic, lead and other heavy metals, asbestos, polyaromatic hydrocarbons, tributyltin oxide and dieldrin; absence of a proper wastewater treatment system and separators, burning of cables, and hazardous waste streams that are poorly monitored or managed; particulate matter and heavy metal pollution in the air in the region where ship dismantling activities are carried out.
Overall general findings		Different studies show that the sea sediment, and air around the South Asian shipbreaking yards contain highly toxic substances such as copper, lead, and zinc being significantly higher than normal (Neseret al 2012, Hasan et al 2013).

The SRR also goes beyond the standards set by the Hong Kong Convention, especially regarding environmental risks. It has identified and banned the use of two hazardous substances - perfluorooctane sulfonate (PFOS) and hexabromocyclododecane (HBCDD) - known to have long-term adverse effects on marine ecosystems. In doing so, the SRR contributes to preserving marine biodiversity and water quality.

In addition, the SRR imposes comprehensive environmental management procedures. For example, it requires the use of impermeable soils and effective drainage systems at ship dismantling sites, thus containing hazardous materials and mitigating environmental degradation (for more information on the SRR EU added value, see EQ14). This is a marked improvement over traditional methods, which have been criticised for their environmental shortcomings.

EQ1.2: How successful has the SRR been in ensuring the proper management of hazardous materials on ships?

The SRR aims to ensure the proper management of hazardous materials on ships by requiring: 1) the preparation of an Inventory of Hazardous Materials (IHM), which lists the hazardous materials on board a ship, and 2) the updates if any maintenance or work affects this list. This section explores the effectiveness of the SRR in achieving proper management of hazardous materials on ships.

The IHM is a document that specifies the location and quantities of hazardous materials on board³⁷. The SRR requires all new European ships, any EU ship going for dismantling, and third-country ships stopping in EU ports to have an IHM on board. This policy is designed to facilitate the recycling of vessels and reduce the presence of toxic materials on ships. To assist in the implementation of the IHM requirement, the European Commission, the European Maritime Safety Agency (EMSA), and EU Member States have worked jointly. In October 2016, EMSA published a best practice document concerning IHM inventories³⁸. This document provides comprehensive guidance on the development and maintenance of an IHM, as well as on conducting vessel inspections to confirm compliance with IHM and

³⁷ See: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:JOC_2020_349_R_0001.

³⁸ Available at: <https://www.emsa.europa.eu/we-do/sustainability/environment/150-ship-recycling/2874-emsa-s-best-practice-guidance-on-the-inventory-of-hazardous-materials.html>.

maintenance standards. To complement this, EMSA published a further guidance document on inspections in October 2019³⁹. In October 2020, to take into account the exceptional circumstances linked to the Covid-19 crisis, the Commission published guidelines focusing on compliance with SRR obligations specifically related to IHM for ships operating in European waters. These guidelines aim at ensuring a harmonised approach towards enforcement by the EU port States authorities during ship inspections.

Despite efforts by the European Commission and EMSA to support enforcing IHM-related obligations, data from EMSA reveal ongoing challenges in ensuring compliance with the SRR. According to the THETIS-EU SRR module data (voluntarily reported by authorities), which is used by 16 European Union Member States and Norway for monitoring compliance, a total of 950 inspections were conducted in 2021, resulting in the discovery of 524 instances of non-compliance, i.e. 55% of the inspections found non-compliance. A significant portion of these non-compliances, 389 (74%), were associated with Statement of Compliance (SoC)⁴⁰ issues, while 117 (22%) were related to problems with inventory certificates⁴¹. In 2022, out of 397 inspections, 144 non-compliances were identified, i.e. 36% of the inspections found non-compliance. Among these, 104 (72%) were linked to SoC issues, and 24 (17%) were connected to inventory certificate discrepancies. Table 3.3 below provides a detailed breakdown of this information.

Table 3.3 Non-compliance breakdown (2021-2022)

Type of Non-Compliance	Sum of Total Non-Compliances
2021	524
Control Measures for Hazardous Materials	13
Inventory Certificate	117
Other (SRR)	4
Ready for Recycling Certificate	1
Statement of Compliance	389
2022	144
Control Measures for Hazardous Materials	8
Inventory Certificate	24
Other (SRR)	8
Statement of Compliance	104
Total	668

Source: elaboration based on EMSA data.

Table 3.4 highlights that the majority of SoC non-compliances can be attributed to documents that are missing, incomplete, not meeting required standards, or invalid. In a similar vein, the deficiencies identified in inventory certificates primarily involve documents that are missing, incomplete, or not conforming to the required criteria.

Table 3.4 Non-compliance nature of defects

Nature of Defect per Type of Non-Compliance	Sum of Total Non-Compliances
Control Measures for Hazardous Materials	21
Not as required	21
Inventory Certificate	141

³⁹ Available at: <https://www.emsa.europa.eu/we-do/sustainability/environment/150-ship-recycling/3721-guidance-on-inspections-of-ships-by-the-port-states-in-accordance-with-regulation-eu-1257-2013-on-ship-recycling.html>.

⁴⁰ As per Article 3 of the SRR: a 'statement of compliance' means a ship-specific certificate that is issued to ships flying the flag of a third country and that is supplemented by an inventory of hazardous materials in accordance with Article 12.

⁴¹ As per Article 3 of the SRR: an 'inventory certificate' means a ship-specific certificate that is issued to ships flying the flag of a Member State in accordance with Article 9 and that is supplemented by an inventory of hazardous materials in accordance with Article 5.

Nature of Defect per Type of Non-Compliance	Sum of Total Non-Compliances
IHM not specific to the ship	3
IHM not updated	2
IHM not verified	1
Incomplete	5
Missing	118
Not as required	12
Other (SRR)	12
Other	12
Ready for Recycling Certificate	1
Missing	1
Statement of Compliance	493
IHM not specific to the ship	3
IHM not updated	2
IHM not verified	4
Incomplete	52
Invalid	12
Missing	371
Not as required	49
Total	668

Source: elaboration based on EMSA data.

Taking together the numbers of non-compliance for 2021 and 2022 show that in 50% of the cases (668 out of 1,347 inspections), ships were non-compliant with the SRR. In 73% of the cases (489 out of 668 non-compliance cases), an Inventory certificate or a Statement of Compliance were missing. These numbers show low compliance with the SRR as concerns the management of hazardous materials. A comparison of the different types of incompliance between third countries (Statement of compliance) and Member States (Inventory certificates), to a large extent, shows very common dynamics. At the same time, the data also suggests that when present, the documents on hazardous materials of EU-flagged vessels are of slightly better quality than the documents presented by third countries. This is illustrated by the lower percentages of incomplete, not as required, and invalid⁴² documents.

Table 3.5 Inventory Certificate and Statement of Compliance breakdown

Inventory Certificate	141	%	Statement of Compliance	493	%
IHM not specific to the ship	3	2.1%	IHM not specific to the ship	3	0.6%
IHM not updated	2	1.4%	IHM not updated	2	0.4%
IHM not verified	1	0.7%	IHM not verified	4	0.8%
Incomplete	5	3.5%	Incomplete	52	10.5%
Missing	118	83.7%	Missing	371	75.3%
Not as required	12	8.5%	Not as required	49	9.9%
			Invalid	12	2.4%

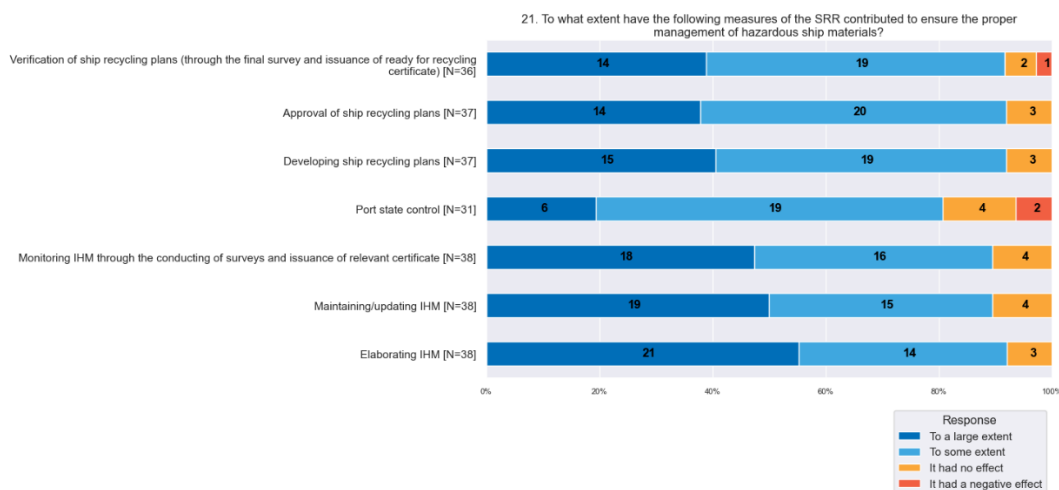
Source: elaboration based on EMSA data.

The requirement to prepare and maintain an IHM on ships, introduced by the SRR, is positively valued by stakeholders. For instance, survey participants (n=38) **were very positive regarding the contribution of the SRR to the proper management of hazardous ship materials via measures related to the elaboration** (35 positive responses), maintaining/updating (34 positive responses), and monitoring of the IHMs

⁴² No data is available for invalid Inventory Certificates.

through the conducting of surveys and issuance of relevant certificates (34 positive responses). Yet, it has to be noted that the responses concerning the role of Port state control have been less positive than for the remaining SRR features. This is likely due to the concerns that some stakeholders expressed about the effectiveness of the IHM checks during inspections.

Figure 3.2 Stakeholder opinion on the SRR contribution to ensuring proper management of hazardous ship materials



Source: consortium elaboration based on targeted survey questionnaire.

Likewise, the majority of the public consultation respondents - 78% (49 out of 63 replies), think that the Regulation's requirement to develop and maintain an IHM was 'very effective' or 'effective'. At the same time, a lower percentage (49% - 30 out of 63 replies) consider the control and enforcement of IHM as 'very effective' or 'effective'.

During our targeted interviews, **various stakeholders expressed reservations about the effectiveness of the IHM requirement**. Several interviewees highlighted that the relatively light penalties for not having an IHM on board, combined with the fact that the document is not always checked for its quality or even presence, have **led many shipowners to forgo the IHM as a cost-saving measure**. The **administrative penalties differ significantly between countries**. In countries like Croatia or Italy, these fines can range from EUR 2,600 to EUR 5,000. However, in Sweden, they can be as high as EUR 17,000. Furthermore, IHM-Maintenance is often only a formal exercise, downgrading the quality of IHMs, or not done at all. This remains undetected due to the absence of structured control and enforcement activities. In addition, stakeholders have shared that there is some misinformation and confusion about the IHM. There are doubts about how IHMs are maintained or if a related procedure is implemented, and how this is checked during PSC inspections.

Regarding the inspections, Member States have underlined on several occasions **the lack of proper training** for EU Port State Control Officers. Inspection and control activities, as referred to in the 2019 EMSA Guidance on ship recycling inspections, do not refer only to paper checks but to controls that requires specialised knowledge. Whereas the Port State Control Directive does describe the authority for inspectors to conduct these inspections, these inspectors responsible for controls under EU SRR are not traditional PSCO checking

international conventions (as so far HKC is not into force)⁴³. During the discussion at the January 2024 Commission Expert Group on Ship Recycling, some authorities also pointed out to the need for adequate tools (e.g. protective

Equipment and instruments for laboratory analysis) for carrying out the investigations.

In addition, questions were raised about the **qualifications needed to prepare an IHM**. Several stakeholders communicated that the approval process is alarmingly short: a person can receive accreditation from a classification society after only two days of training and then be considered competent to prepare an IHM. This loose qualifications criterion is a cause for concern, as it potentially undermines the quality and reliability of the IHM. Supporting this point, another organisation indicated that many ship recycling yards are forced to redo IHM due to poor quality of the existing one. This problem could be directly attributed to insufficient training and qualification of the people in charge of creating the initial IHMs.

Another specific issue raised by stakeholders during the consultation process concerns the provision of Material Declarations (MDs) and Suppliers Declaration of Conformity (SDoC). Ultimately, marine equipment suppliers have the responsibility to provide the MDs and SDoCs as part of the development and ongoing maintenance of the IHM, but the role of obtaining MDs and SDoCs rests with the shipowners. However, as noted by shipowners, **obtaining the documents from suppliers has proved to be challenging**. Shipowners generally agree that the content of the MDs must be improved to enable shipowners to properly maintain the IHM, while claiming however that this cannot be achieved through regional legislation⁴⁴.

EQ1.3: How successful has the SRR been in facilitating the ratification of the Hong Kong Convention?

The SRR was specifically designed to facilitate the speedy ratification of the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, commonly known as the Hong Kong Convention (HKC). The SRR aims to achieve this objective by imposing regulatory measures on ships and recycling facilities in accordance with the specifications outlined by the Convention.

The Hong Kong Convention was initially adopted during a diplomatic conference held in Hong Kong from 11-15 May 2009. Orchestrated by the International Maritime Organisation (IMO), this international agreement focuses on ensuring that end-of-life ships are recycled in a manner that is safe for human health and sustainable for the environment. 14 years after its adoption, the Convention was finally ratified on 26 June 2023 and will consequently enter into force on 26 June 2025.

The European Union has contributed to the ratification of the Hong Kong Convention. The European Commission encouraged EU Member States to prioritise ratification, in line with a Council Decision in 2014⁴⁵ that explicitly focuses on the objectives of the SRR, including facilitating ratification of the Convention. The MS that ratified the HKC are: France in 2014,

⁴³ A general issue raised at the Expert Group meeting was the potential duplication of HKC, PSCO, and EU SRR inspectors once the HKC enters into force.

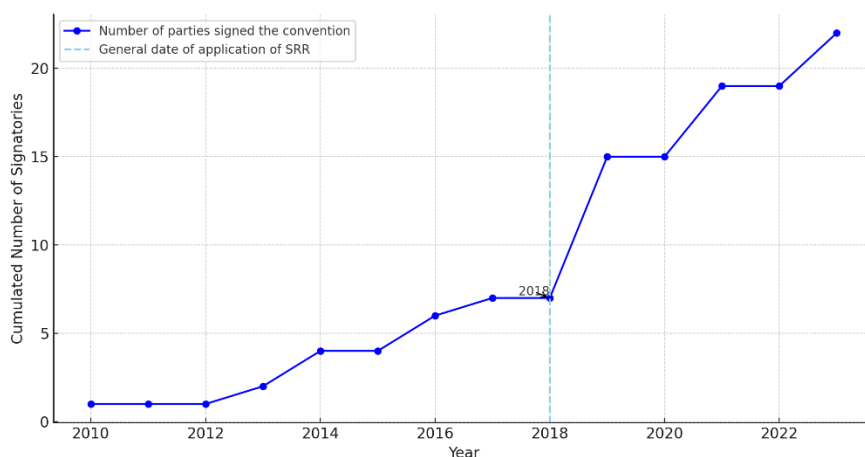
⁴⁴ See, BIMCO [position statement](#).

⁴⁵ 2014/241/EU: Council Decision of 14 April 2014 concerning the ratification of, or the accession to, the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009, by the Member States in the interests of the European Union, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014D0241>

Belgium in 2016, Denmark in 2017, the Netherlands, Malta, Estonia, and Germany in 2019, Spain and Croatia in 2021, and Portugal in 2023.

Some academics, such as Werven (2019), suggest that the momentum in ratification of the Hong Kong Convention can be attributed, at least in part, to the Ship Recycling Regulation. Following the adoption of the SRR, major ship recycling nations such as China and India began to examine the Convention more closely, underlining the EU's influential role in this international discourse. This is confirmed by Figure 3.3, which illustrates the annual growth in the number of signatories to the Hong Kong Convention. There was a steady increase in ratifications from 2010 to 2018, with a significant increase in 2019. Notably, **the number of ratifications increased substantially after the SRR became applicable in 2018**, further highlighting the Regulation's impact on the Convention's adoption. Eight more countries - including Türkiye, the Netherlands, Malta, Serbia, Japan, Estonia, Germany, and India - ratified the Convention, bringing the total number of ratifying countries from 7 to 15.

Figure 3.3 Cumulated Number of Signatories of the HKC per Year



Source: consortium compilation from various sources.

As of December 2023, 23 countries have ratified the Convention (Ghana, Norway, the Republic of the Congo, France, Belgium, Panama, Denmark, Türkiye, the Netherlands, Malta, Serbia, Japan, Estonia, Germany, India, Croatia, Spain, Luxembourg, Sao Tome and Principe, Portugal, Bangladesh, Liberia and Pakistan), accounting for more than 40% of the global gross tonnage of merchant vessels. Among the countries that have ratified the HKC, **48% of them are EU Member states**.

Although most stakeholders agreed that the SRR played a role in facilitating the ratification of the Convention and its subsequent entry into force, opinions diverge depending on when the stakeholders were asked the question (positive after the entry into force of the Hong Kong Convention and negative before).

Looking at the results of the survey, the respondents did not provide a uniform assessment of the extent to which the SRR facilitated the ratification of the HKC. It is important to contextualise that at the time the survey was conducted, the HKC had not yet met the criteria required for ratification. The responses (n=20) are evenly distributed between “to some extent” and “it had no effect” (8 responses in each category), which suggests that **according to the stakeholders, the SRR contribution to the HKC ratification is limited**.

In contrast, targeted interviews conducted after the announcement that the HKC would enter into force in June 2025 revealed a different opinion. **Most stakeholders agreed that the EC and the SRR played a role in facilitating the Convention's ratification and its subsequent entry into force.** A minority of those interviewed raised unease that 16 Member States have yet to ratify the Convention. However, it should be noted that this is largely related to the need to satisfy the conditions for entry into force of the HKC: 1) not less than 15 Contracting States; 2) not less than 40% of the world's merchant shipping by gross tonnage; and 3) ship recycling capacity of not less than 3% of the gross tonnage of the combined merchant shipping of the Contracting States. Ratification of some MS, could have led to compromising the combined targets of these criteria, while the becoming of Contracting States of Bangladesh (one of the worlds' largest ship recycling countries) and Liberia (one of the world's largest flag States by tonnage) triggered the entry into force of the HKC.⁴⁶

EQ1.4: How successful has the SRR been in ensuring that EU-flagged ships are dismantled in safe and environmentally sound facilities worldwide?

European List of Ship Recycling Facilities Capacity

To improve the safety and environmental standards of ship recycling, the SRR requires all EU-flagged ships to be dismantled in officially recognised facilities listed by the European Union. Established in December 2018, this European List of Ship Recycling Facilities registers recycling yards that meet stringent criteria related to worker safety and environmental conservation. The list incorporates facilities both inside and outside the European Union and is subject to periodic review and monitoring to include new compliant facilities and exclude those that do not maintain strict safety and environmental standards.

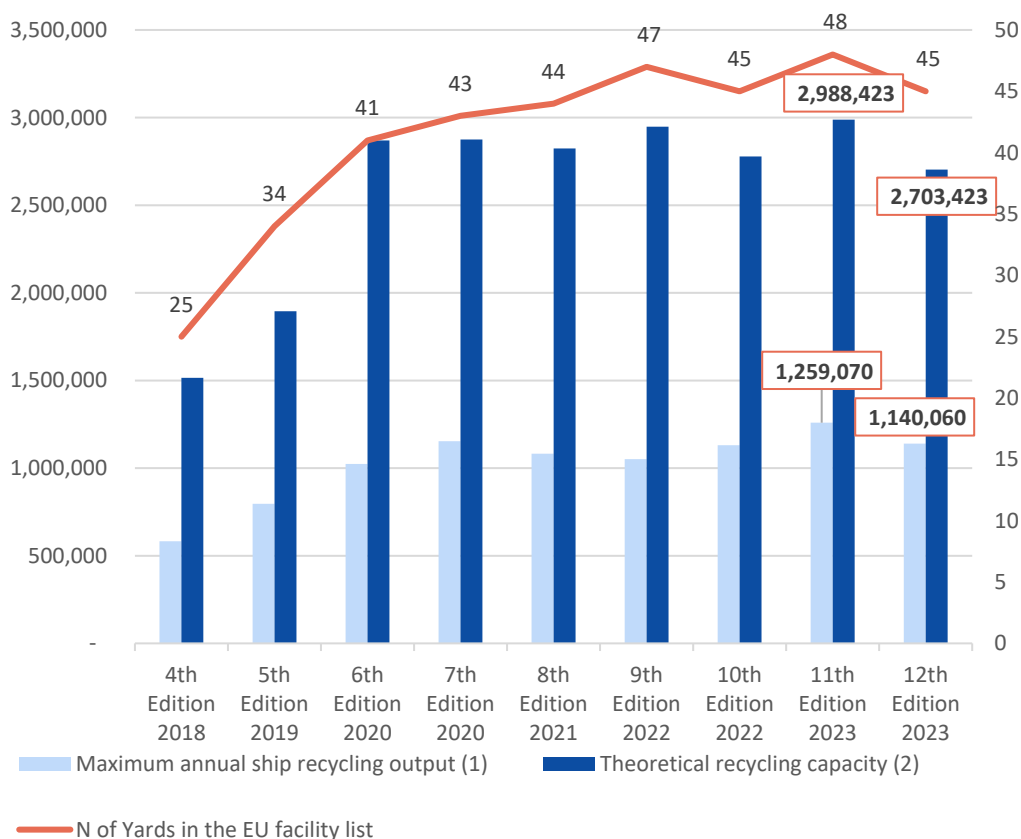
Since the establishment of the SRR, the European Commission has continuously been updating this list to expand the total ship recycling capacity, while ensuring that all facilities on the list continue to meet stringent safety and environmental criteria.

As of July 2023, the European Commission had published the 11th edition of the list, which at that time revealed a notable growth in recycling infrastructure. Particularly noteworthy was the expansion of listed facilities, which had almost doubled from 25 in December 2018 to 48 as of July 2023.

Additionally, the 11th edition of the list marked a record in ship recycling capacity. It reported an unprecedented annual output of 1,259,070 LDT, along with the highest theoretical recycling capacity then recorded on the list at 2,988,423 LDT. The year 2023 also marked a high point in terms of the number of listed yards, reaching 48.

In December 2023, the European Commission updated the list with its 12th edition. This latest edition brought some changes, most notably the removal of three facilities located in Denmark, the Netherlands, and Norway, as they were no longer in the ship recycling business. Additionally, there were updates to the information regarding the maximum annual ship recycling output. These changes resulted in a new figure of 1,140,060 LDT for the maximum annual ship recycling output and a revised theoretical recycling capacity of 2,703,423 LDT.

⁴⁶ For more information, see <https://www.imo.org/en/MediaCentre/PressBriefings/pages/Hong-Kong-Convention-set-to-enter-into-force-.aspx>

Figure 3.4 European List of Ship Recycling Facilities (2018-2023) (LDT)

Source: Own analysis based on the different European lists of ship recycling facilities.

The obligation requiring EU-flagged ships to undergo recycling in certified facilities poses questions about the adequate capacity of these facilities to meet the demand from the shipping industry for recycling EU flagged ships.

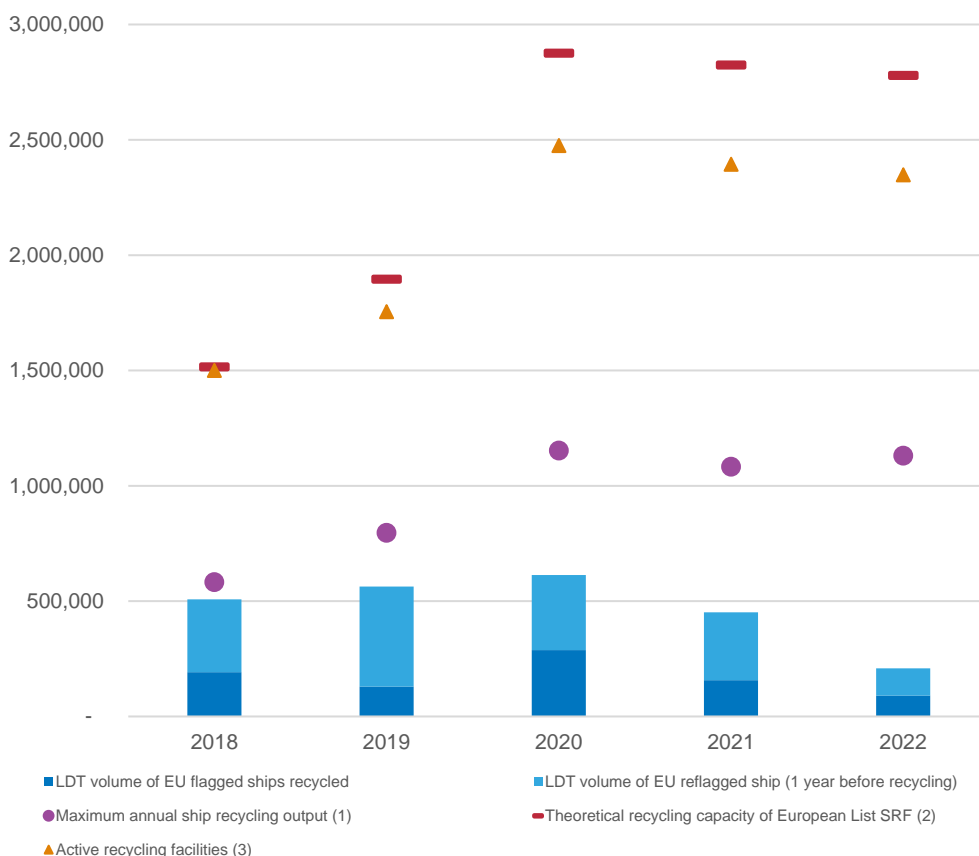
Based on data by EMSA and information listed in the European List of Ship Recycling Facilities, we have examined the sufficiency of the recycling capacity listed in the EU list. A significant consideration is the lack of a uniform definition of "capacity", which is subject to variations depending on the different variables examined. The European List of Ship Recycling Facilities describes two different types of recycling capacity: (1) the Maximum Annual Ship Recycling output, determined by selecting the highest value occurring in the preceding 10-year period for each ship recycling facility expressed in Light Displacement Tonnage (LDT); and (2) the Theoretical Maximum Annual Ship Recycling Capacity, determined through submitted data or according to the facility's permit. The actual recycling capacity is likely to lie between these two specified reference values.

To enrich this analysis, we have introduced an additional metric, named "Active Recycling Capacity" (3), which considers only the yards that are currently engaged in ship recycling. This parameter has been introduced in response to concerns about the inclusion in the EU list of yards that, although listed, are not actively engaged in ship recycling but are focused on other activities. Active recycling is defined as the maximum theoretical capacity of ship recycling yards actually engaged in ship recycling activities. This term refers specifically to

the full potential of yards that are operational and actively recycling ships, as opposed to those yards that may have capacity but are not currently recycling ships.

Using these three units of measurement of capacity, we have compared them with the LDT volume of EU-flagged ships that have been recycled, and the LDT volume of EU-flagged ships re-flagged one year before recycling. As the accompanying bar chart shows, **all three capacity metrics exceed existing recycling needs for the period analysed - 2018-2022**. The analysis incorporates the most recent year for which complete annual data is available.

Figure 3.5 Comparison between the EU flagged and EU re-flagged (1 year before recycling) LDT with the different capacity measurements (2018-2022)



Source: Own analysis based on different sources, including the European lists of ship recycling facilities and EMSA data on re-flagging.

The findings related to capacity are corroborated by data on the operational capacities of the yards. Six of the yards provided data, indicating the percentage of capacity at which they operated over the last seven years, as presented in Table 3.6. The reported values reveal that, **currently, the recycling yards are functioning well below their maximum capacity**.

Table 3.6 Used capacity of the recycling yards (in %)

Yard/year	2016	2017	2018	2019	2020	2021	2022
Türkiye ⁴⁷		16	8			17	16
Norway ⁴⁸	40 ⁴⁹	40	40	40	40	40	40
US ⁵⁰	100	80	70	60	50	60	80
Denmark ⁵¹	50	55	45	45	38	35	30
Türkiye ⁵²	60	70	70	70	95	95	10
Türkiye ⁵³				50	60	50	50

Source: consortium elaboration based on targeted survey questionnaire.

Furthermore, our analysis goes beyond the simple juxtaposition of the shipyards' declared capacities with the industry's recycling needs. It also explores the size of facilities, in light of reports from industry stakeholders suggesting that the size of a recycling facility is a key factor that influences a yard's recycling capacity. The input on the type and size of ships recycled, gathered via the stakeholder survey, is presented in Table 3.7 below.

Table 3.7 Type and size of the ships recycled

Yard	2020	2021	2022	2020	2021	2022
Türkiye ⁵⁴	tug, tanker	cruise, tug, tanker, rig, barge, tanker, dry cargo	cruise, tug, tanker, rig, barge, tanker, dry cargo	20,706 LDT	37,583 LDT	34,933 LDT
Norway ⁵⁵	0	FPSO ⁵⁶	FPSO (1, ongoing)		235m, 25,000 metric tons	
India ⁵⁷	Bulk carrier	Ore carrier	Crude Oil Tanker	Dimension 332.000 x 58.000 x 29.500 m, 39,778 LDT	Dimension : 327.5 x 57.2 x 30.4 m 41,553 LDT	Dimension : 274m x 48m 23,191.5 LDT
India ⁵⁸	2 Drill Ship	Drill Ship, Semi submersible, FPSO	FPSO, 2 Accommodation barge	185.98, 221.50, 61,171	174.42, 122.22, 331.11, 96,672	254.37, 90.24, 91.50, 35,695
UK ⁵⁹	Bulker	Yard used for vessel maintenance for the majority of the time	Yard used for vessel maintenance for the majority of the time	100m, 1,200 t	0	0

⁴⁷ KILICLAR Ship Recycling (not yet on the EU-list during the reference period).

⁴⁸ AF Offshore Decom.

⁴⁹ "Average number compared to permitted capacity".

⁵⁰ International Shipbreaking Limited LLC.

⁵¹ Smedegaarden A/S.

⁵² Avsar Ship Recycling Facility (in the EU list since December 2020).

⁵³ EGE CELIK SAN. VE TIC. A.S.(in the EU list since February 2020).

⁵⁴ DORTEL SHIP RECYCLING CO.(applicant to the EU list).

⁵⁵ AF Offshore Decom.

⁵⁶ Floating production storage and offloading.

⁵⁷ Bansal Ship Breakers Pvt. Ltd.

⁵⁸ Priya Blue Industries Pvt. Ltd.

⁵⁹ Kishorn Port Ltd.

Yard	2020	2021	2022	2020	2021	2022
India ⁶⁰	Offshore, Chemical tanker, Chemical tanker, Bulker offshore			(150m,18,000) (183m, 11,100) (183m,11,095, 275m, 22,000, 160m, 12,000)		
Germany ⁶¹			Barge, pilot project			38 m
India ⁶²	1 tanker, 1 FSO and 1 Container	1 Gas carrier, 2 Chemical tankers, 1 passenger vessel	1 offshore, 1 tanker, 1 FSO	3,259, 13,334, 24,230 (LDT)	5,220, 2,360, 3,240, 7,873 (LDT)	5,525, 1,687, 25,308 (LDT)
US ⁶³	Bulk, Tanker, Other	US navy	US navy			
Denmark ⁶⁴	10 small ships	8 small ships + 1 seismic	19 vessels (Fishing, Crew change, Ponton, Seismic, PSV, Anchor handler)	Total LDT 4,100 ton, Max length 60 meter	Total LDT 11,000 ton, Max Length 105 x 22 meter	Total 8.000 LDT, Max L 72 meter (declared normal capacity: 28-38.000,- LDT/year)
India ⁶⁵	Container	FSO	Inactive due to non-availability of ships for recycling under the HKC convention	LOA-162.26M, LDT-6,862	LOA-236 M, LDT-14,842	
Türkiye ⁶⁶	RORO	RORO	REEFER	55,000 LDT	55,000 LDT	8,000 LDT
Türkiye ⁶⁷	cruise	cruise	cruise	30,000	30,000	31,000

Source: consortium elaboration based on targeted survey questionnaire.

Furthermore, in the table below, the facilities listed in the latest edition of the European list are classified according to their capacity to recycle ships of certain lengths. As Table 3.8 demonstrates, most yards have the capacity to recycle small and medium-sized ships. However, the European list has also increased the recycling capacity of considerably larger ships. In its most recent edition from December 2023, the list identifies 15 yards capable of recycling ships over 294 m in length, which constitutes 33.3% of the approved facilities.

⁶⁰ Shree ram group 1)Shree ram vessel scrap Pvt Ltd/Shree ram shipping Industries Pvt LTD, yard 78/81 2) R.K.Industries Unit-II LLP, Yard No-V7, Alang ship recycling yard, Gujarat, India.

⁶¹ Leviathan GmbH.

⁶² ALANG AUTO & GENERAL ENGINEERING COMPANY PRIVATE LIMITED.

⁶³ International Shipbreaking Limited LLC.

⁶⁴ Smedegaarden A/S.

⁶⁵ JRD INDUSTRIES.

⁶⁶ Avsar Ship Recycling Facility.

⁶⁷ EGE CELIK SAN. VE TIC. A.S.

Table 3.8 European List of Ship Recycling Facilities Capacity by Dimension for 2022 and 2023

Dimension Capacity ⁶⁸	No Yards (2022)	No Yards (2023)	Yards' Capacity for Recycling Ships of Lengths:
Very Large	13	15	(> 294 m)
Large	3	3	(260 -> 294 m)
Medium	10	9	(190 -> 260 m)
Small	19	18	(0 -> 190 m)

Source: Own analysis based on the different European lists of ship recycling facilities.

In an extension of our analysis concerning the capability to recycle larger vessels, the 2023 edition of the European List of Ship Recycling Facilities offers further insights. There are 15 yards that can dismantle vessels with a width that is equal or above 48 metres, with an average width capability of 70 metres across these facilities. Two of these yards impose no limitations on the maximum width of ships they can handle.

Turning our attention to the length, the average capacity of yards identified as capable of recycling large vessels stands at 407 metres, and 9 yards have no restrictions on the length of the ships they can recycle. These capacities appear more than adequate for the recycling of some of the largest vessels currently in existence. This conclusion is further substantiated when considering that over the past decade, five vessels classified as 'very large' have been reflagged and dismantled⁶⁹. Thus, **the current capacities can meet and even exceed the demand for recycling large vessels.**

Table 3.9 Width and Length Metrics for 'Very Large' Ship Recycling Yards (2023)

Dimensions "Very Large" Yards (2023)	Width (m)	Length (m)
Equal and above	48	350
Average	70	407
No. of Yards with no limit	2	9

Source: Own analysis based on the different European lists of ship recycling facilities.

A significant portion of the available literature review and the research conducted by platforms like NGO Shipbreaking also suggests that the current European List is adequately equipped to meet the recycling needs of EU-flagged ships. However, this viewpoint contrasts with concerns raised by shipowners' associations such as BIMCO and the European Community Shipowners' Association (ECSA), who argue that the list falls short in addressing both current and future demands, particularly on a global scale. Werven's 2019 study supports the adequacy of the European List, indicating that the capacity even surpasses demand threefold, based on historical data. Yet, Werven also calls attention to the importance of geographical distribution in the list's success. On the other hand, a study by Solakivi et al. (2021) predicts a shortfall in future recycling capacity, suggesting the inclusion of non-EU facilities to meet growing demands effectively.

The question of whether the European List of Ship Recycling Facilities possesses sufficient capacity has been a subject of considerable debate. During various meetings of the Experts Group on ship recycling, ISRA expressed confidence in the existing European List's capacity, attributing underperformance to unfair competition from South Asian beaching yards. Conversely, ECSA urged the inclusion of South Asian yards in the European List, emphasizing the need for increased global capacity to effectively manage ship recycling.

⁶⁸ The differentiation based on dimension is made for illustrative reasons. Nevertheless, shipyards can recycle smaller vessels, meaning very large shipyards can dismantle ships that are equal to or smaller than their lengths.

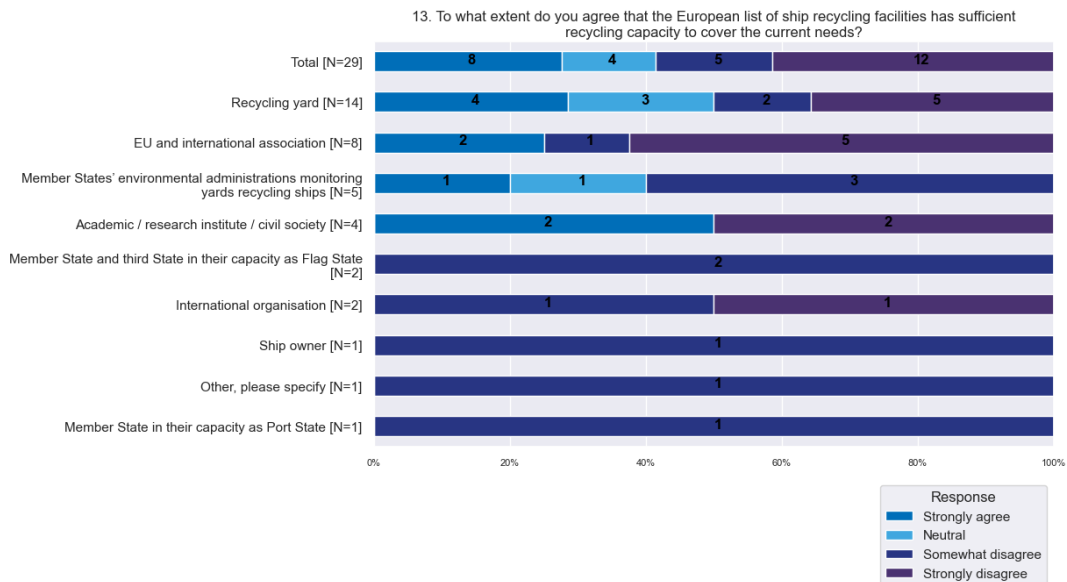
⁶⁹ The average length of these vessels was 332m and the average width 58m. Source: EMSA and VesselFinder

Despite these differing opinions, **there is a consensus on the need to keep expanding the European List** to accommodate the shipping industry's future recycling needs.

This dichotomy in opinions has remained consistent through the multiple consultation activities—including a Targeted Survey, OPC, workshop, and a dedicated workshop.

The stakeholder input received via the survey presented the same dichotomy in views expressed above concerning the capacity of the ship recycling facilities on the European list. The survey participants disagree on whether the ship recycling capacity currently included in the list can cover the current needs (see Figure 3.6) - 17 out of 29 responses in the negative scale (somewhat disagree and strongly disagree), 4 neutral answers, and 8 answers in the positive scale (strongly agree). Looking at the group of recycling yards (n=14), the opinions are split - 7 consider the capacity insufficient, while 4 consider it sufficient (with 3 neutral answers).

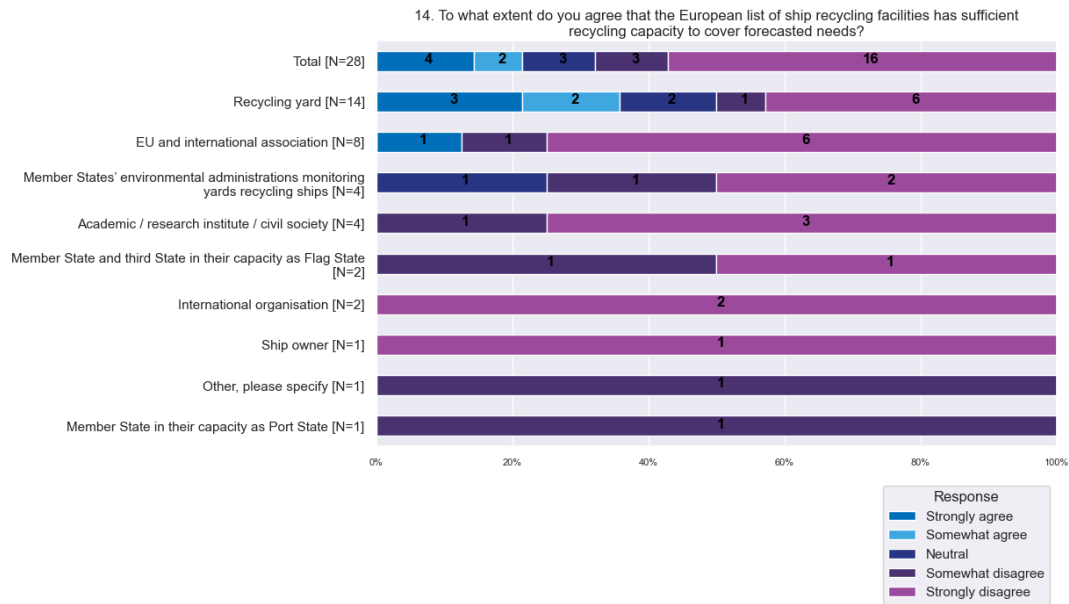
Figure 3.6 Stakeholder opinion on the capacity of the ship recycling facilities on the EU list regarding current demand



Source: consortium elaboration based on targeted survey questionnaire.

As concerns the forecasted needs, most stakeholders agree that the EU-listed recycling yards do not have sufficient capacity to meet future demand for recycling. Out of 28 respondents, 16 strongly disagree that the European list of ship recycling facilities has sufficient capacity to cover future needs (see Figure 3.7). Yet, even for this question, recycling yards (n=14) do not share the same opinion – 6 strongly disagree that the capacity is sufficient, while 3 strongly agree.

Figure 3.7 Stakeholder opinion on the capacity of the ship recycling facilities on the EU list regarding future demand

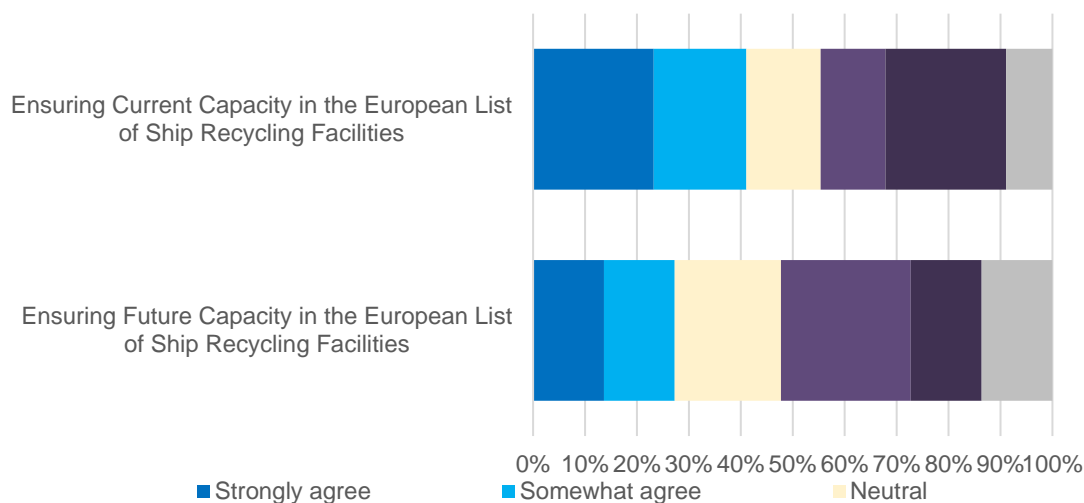


Source: consortium elaboration based on targeted survey questionnaire.

The OPC presents a very similar picture to the survey regarding stakeholder opinions affecting the capacity of the ship recycling facilities on the European list. On the question **of whether the current capacity is sufficient, the views are almost evenly split**. Out of 56 respondents, 41% (23 stakeholders) agree or strongly agree that the European List SRF has enough capacity to meet current needs. Conversely, 36% (20 stakeholders) disagree with this statement. A smaller proportion, 14% (8 stakeholders), remain neutral, while 9% (5 stakeholders) have no opinion on the matter.

When it **comes to forecasting future needs, the consensus leans more towards a lack of sufficient capacity**. Out of 44 respondents who answered this question, 39% (16 stakeholders) believe that the European list will not have enough capacity to meet future demands. In contrast, only 27% (12 stakeholders) believe that the capacity will be sufficient. A fifth of the respondents, 20% (11 stakeholders), remain neutral, and 14% (6 stakeholders) state that they have no opinion (see Figure 3.8).

Figure 3.8 OPC Stakeholder opinion on the capacity of the ship recycling facilities on the EU list regarding future demand



Source: consortium elaboration based on targeted survey questionnaire.

This general consensus on the future capacity is **confirmed by the forecasting exercise performed within the assignment**⁷⁰. It shows that globally recycling is expected to grow from just under 19 million LDT currently to a peak of almost 25 million by 2032⁷¹. This peak is the result of the large expansion of the global merchant fleet in the 2000s, which is now starting to age and will likely be recycled within a decade as also confirmed by industry stakeholders. The EU-flagged fleet is expected to follow the same trend as the global fleet. Thus, the demand is likely to peak in 2032 to almost 2.5 million LDT, which **is more than the currently available recycling capacity of active facilities**.

European List of Ship Recycling Facilities Geographical Distribution

The 12th edition of the EU list adopted in December 2023 comprises 45 facilities dispersed across 15 different countries. These include EU Member States as well as countries such as Norway, the United Kingdom (UK), and the United States (US). Out of the 45 facilities, 26 are located within the EU, accounting for approximately 58% of the total. Among the EU Member States, Denmark is the most represented, with five facilities, followed by the Netherlands (4), France (4), and Lithuania (4). Additional countries contributing to this total include Spain, Belgium, Estonia, Italy, Latvia, Finland, and Northern Ireland, each hosting one or two facilities.

The remaining 42% of the facilities (19 yards) are situated in non-EU countries. Türkiye leads this category with nine facilities, closely followed by Norway, which has seven. The UK and the USA contribute two and one facilities, respectively.

⁷⁰ The impact of decarbonization measures (such as Fit for 55 and CO₂-related IMO measures) has not been incorporated in the projects not because it is negligible, but rather because it is not possible to quantify its impact nor to predict with precision when it would occur. It became very clear during stakeholder interviews that most stakeholders expect some form of accelerated recycling timelines, but none can say when this will happen or how accelerated it will be, and we could not identify other sources for it. This aspect may very well mean that the peak in recycling changes in timing and magnitude, possibly to an earlier and/or higher peak, and thus this is an issue that needs to be monitored.

⁷¹ Other sources predict a similar peak for the global fleet. The Sustainable Shipping Initiative expects close to 27 million for 2033, and BIMCO also offers similar numbers.

Table 3.10 Number of Facilities by Country: EU vs. Non-EU

EU		Non-EU	
Country	Number of Facilities	Country	Number of Facilities
Bulgaria	1	Türkiye	9
Denmark	5	Norway	7
The Netherlands	4	UK	2
France	4	USA	1
Lithuania	4		
Spain	2		
Belgium	1		
Estonia	1		
Italy	1		
Latvia	1		
Finland	1		
UK – Northern Ireland	1		
TOTAL	26		19

Source: Own analysis based on the 12th edition of the European list of ship recycling facilities.

The **lack of representation of South Asian shipyards in the European list has attracted a lot of attention from stakeholders**, as this region is critical in the global ship recycling industry. Since 2013, 56 facilities located in third countries (i.e., non-EU/EEA) have applied for inclusion in the European Directory. Among these applicants, Indian and Turkish facilities have been the most active, with 27 (48%) applications originating from India and 19 (30%) from Türkiye⁷². Notably, while 11 Turkish facilities have successfully been included in the list (but two were removed, so the current number is 9 as specified in the table below), no Indian facilities have been included so far. While a more detailed explanation is presented in the subsequent question, it is worth highlighting that the notable absence of non-OECD countries from the EU list can be partly **attributed to the implementation of the Basel Ban Amendment**.

Table 3.11 Country-wise Breakdown of Yard Applications and Acceptances

Country	Number of Applications	Number of yards included in the list
China	4 ⁷³	0
India	27	0
USA	2 ⁷⁴	1
Türkiye	19 ⁷⁵	9 ⁷⁶
UK	3 ⁷⁷	2
Bahrain	1	0

Source: Own analysis based on the different European lists of ship recycling facilities.

Despite substantial efforts to ensure that the EU List of Ship Recycling Facilities offers ample capacity to meet industry needs, the volume of LDT recycled in Europe has notably declined since 2013. It is important to note that the decline is part of a broader downward trend in ship recycling, evident since that year. Data from EMSA, sourced from the MARINFO database, highlights this trend. Figure 3.9 shows a decrease in the annual

⁷² One yard applied twice as it was previously removed from the list.

⁷³ De facto the applications are withdrawn.

⁷⁴ One application was withdrawn.

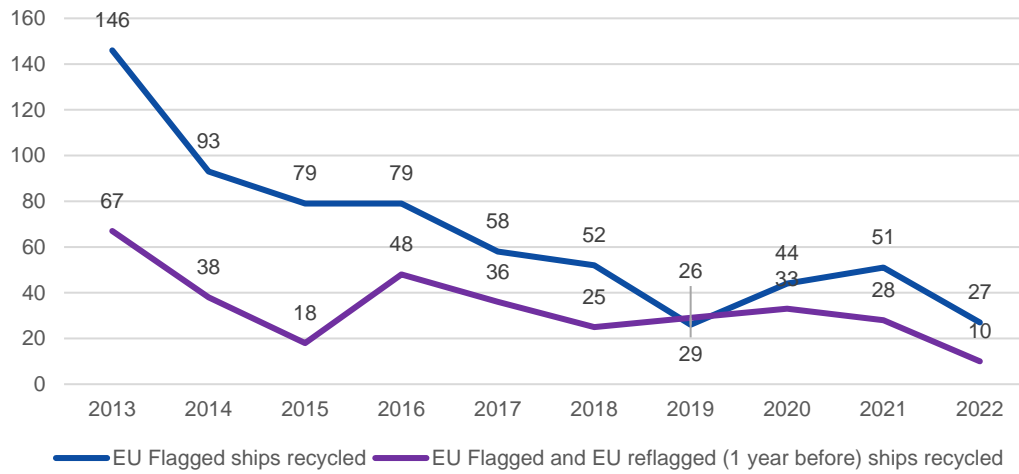
⁷⁵ One application was withdrawn.

⁷⁶ As explained earlier in the text, two yards were removed from the list.

⁷⁷ One application was withdrawn.

number of EU flagged ships recycled over the past decade, accounting for both EU and non-EU flagged ships.

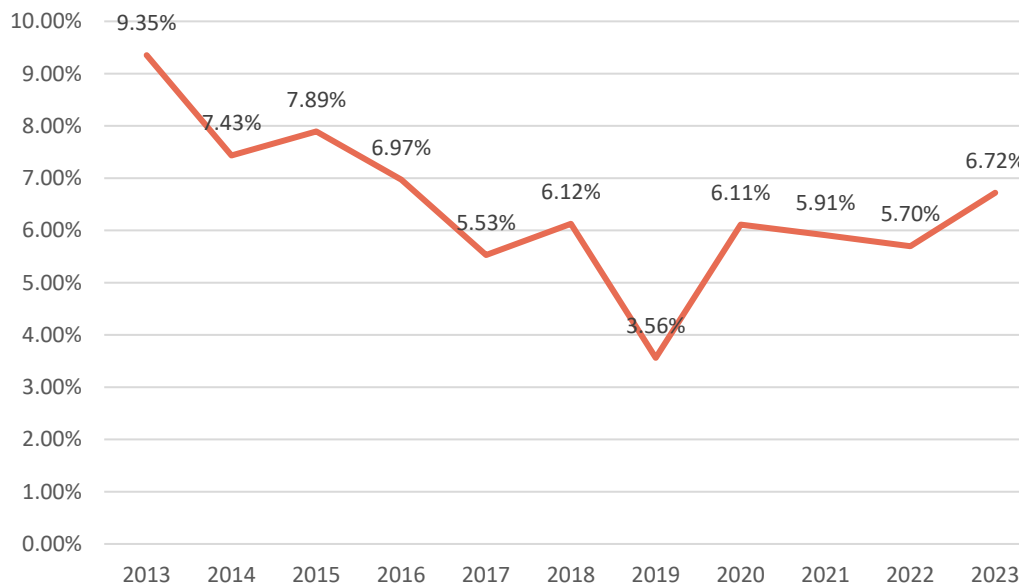
Figure 3.9 Number of ships recycled between 2013 - 2023 (EU and non-EU flagged)



Source: EMSA.

It is worth noting that not only has the total number of ships recycled each year decreased, but the proportion of EU-flagged ships among them has also fallen. Figure 3.10 focuses on this aspect, revealing a decline in percentages from 9.35% in 2013 to 3.56% in 2019.

Figure 3.10 Percentage of EU-flagged ships recycled (from the total of ships recycled worldwide)

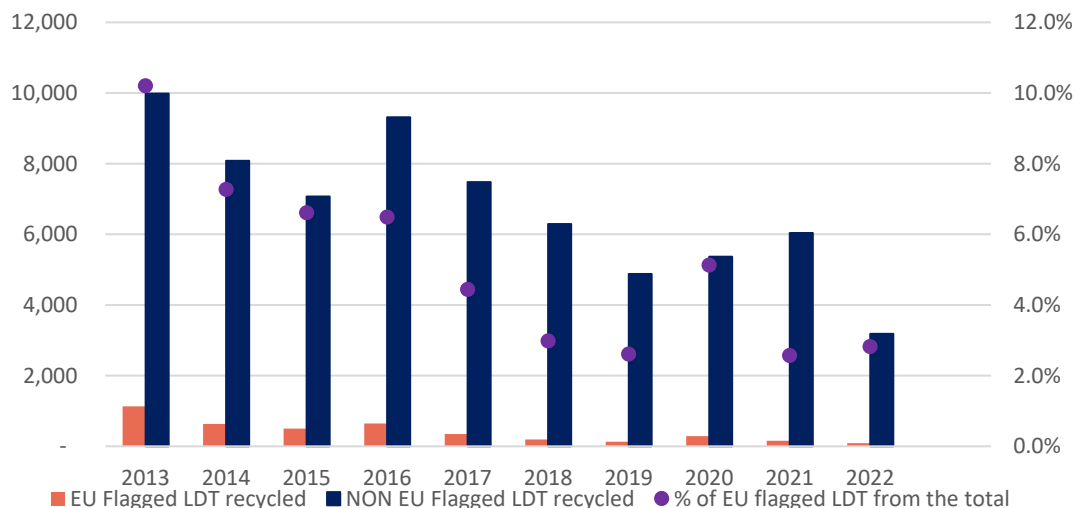


Source: EMSA.

In terms of LDT, Figure 3.11 shows the volume for both Non-EU flagged ships (dark blue) and EU-flagged ships (light blue). It is noticeable that both the absolute number of ships and the total volume of LDT have experienced a decline over the years. Moreover, the volume of LDT recycled from EU-flagged ships has seen a more pronounced reduction, as illustrated by the purple percentage representing EU-flagged LDT in the overall total of

scrapped vessels. This percentage decreased from 10.2% in 2013 to 2.8% in 2022, as shown in Figure 3.11.

Figure 3.11 LDT volume recycled per year (2013-2022)



Source: EMSA.

When examining the data on LDT recycled in EU-listed ship recycling facilities compared to the total LDT of scrapped vessels that still had a EU flag one year before dismantling (i.e. scrapped EU flagged vessels and scrapped vessels that changed their flag one year before dismantling), as table 3.12 shows, in 2019, only 13% of the LDT that should have been recycled according to the SRR was recycled in EU-listed yards. In subsequent years, this figure has increased, reaching 46% in 2022, but despite this trend, 54% of the LDT that is required to be recycled in the European list is still dismantled in non-listed facilities. The difference highlights a gap between what is expected by the SRR and the reality of recycling of EU flagged ships. To a very large extent, this gap is due to the practice of reflagging. As shown in Table 3.12, the percentage of vessels recycled in an EU-listed yard is also increasing in the period 2019-2022, and yet close to 34% of the number of EU-flagged vessels (including those that were re-flagged one year prior to dismantling) were not dismantled in EU-listed yards.

Table 3.12 Evolution of EU flagged LDT/vessels scrapped in the EU listed yards between 2018-2022 out of the total scrapped LDT/vessels that still had an EU flag one year prior to dismantling⁷⁸

		2019	2020	2021	2022
LDT	Percentage of LDT recycled in an EU-listed yard	13.14%	44.92%	25.17%	46.22%
	LDT recycled in an EU-listed yard ⁷⁹	67,138	257,655	121,843	96,284

⁷⁸ Vessels for which the shipbreaker is unknown were excluded from the calculation.

⁷⁹ In the text and tables here, we present the difference between the EU LDT/number of vessels scrapped in the EU listed yards between 2019-2022 out of the total LDT/number of all scrapped vessels that still had an EU flag one year prior to dismantling. In 2020, 55% of the LDT that was required to be recycled in the European list was still dismantled in non-listed facilities. These numbers are very similar to the average 60% figure on re-flagging, which is presented further in

		2019	2020	2021	2022
	LDT recycled in non-EU listed yard	443,735	315,957	362,156	112,033
Number of vessels	Percentage of vessels recycled in an EU-listed yard	33.33%	52.17%	54.69%	66.67%
	Number of vessels recycled in an EU-listed yard	15	36	35	24
	Number of vessels recycled in non-EU listed yard	30	33	29	12

Source: EMSA.

To summarise, there has been a worldwide decline in the volume of LDT recycled per year from 2013 to 2022. The percentage of EU-flagged LDT from the total LDT recycled has also decreased substantially. **The practice of re-flagging ships has contributed to the reduction of EU-flagged LDT. This has weakened the effectiveness of the EU SRR (see EQ3 for more details).**

Before 2013 the frequency of flag changes for vessels remained low, but there was a spike in the number of cases of re-flagging in 2012, the year preceding the adoption of the regulation. Over the period 2016-2022, **there is a noticeable upward trend in the proportion of recycled LDTs of vessels that have been re-flagged.**

In the period 2016-2022, the LDT volume of EU reflagged ships (1 year before recycling) is consistently higher than the LDT volume of EU-flagged ships that are recycled (130% in 2022). The number of EU reflagged ships seems however to decrease (37% in 2022). **After reflagging, these vessels often reach the end of their service life in South Asian countries like Bangladesh, India, and Pakistan**, which are not on the EU list and have much lower health and environmental protection standards.

EU list and implementation of standards

The EU SRR has established a framework to ensure that ship recycling activities are carried out in an environmentally sound and safe manner. Notably, EU-listed ship recycling facilities are subject to thorough scrutiny, including independent third-party certification and auditing. This process includes the conduct of inspections in third countries yards applying to enter the European List of SRF. Typically, these facilities undergo 2-3 inspections over a period of 2-3 years before inclusion in the EU list, thereby ensuring continuous improvement and adherence to stringent environmental and safety norms.

The table below offers a comprehensive summary of the most frequent challenges that applicant yards encounter when pursuing inclusion on the list. This information is derived from site inspection reports and includes details on the specific obstacles involved, and a description of the obstacle.

the report. The percentages of re-flagged vessels and the percentages of EU-flagged and re-flagged LDT/number of vessels recycled in non-EU listed yards do not fully match due to the following reasons: 1) Some vessels were excluded from these calculations, mainly due to unknown or uncertain scrapping locations; 2) Certain vessels, despite being re-flagged, were recycled in EU-listed yards; 3) Some vessels, although not re-flagged, were recycled in non-EU-listed yards.

Table 3.13 Most challenging areas for applicants to the European List

Obstacle/Barrier	Description
Implementation of Ship Recycling Facility Plans (SRFP)	The existence of SRFP is not enough; practical implementation is vital. Criticism for not adhering strictly to SRFPs
Environmental Concerns	Inadequate control over leakages to the intertidal zone
Pulling equipment	Deformed shackles and damaged wire rope to pull vessels
Control of hazardous materials	Asbestos management
Worker Safety and safety culture	Absence of systematic safety management and lack of adequate Personal Protective Equipment (PPE) expose workers to high risks.
Environmental Monitoring	Environmental monitoring programmes found lacking either in terms of robustness of methodology or analysis
Lack of Adequate Medical Facilities (Relevant for India)	Absence of adequate hospital facilities near recycling yards
Downstream Waste Management (Relevant for India)	Standards and control of downstream waste management facilities, in particular for specific waste

Source: Own analysis based on the site inspection reports available [here](#).

Stakeholders have underlined on several occasions the importance of the EU list and its independent inspections in driving yards improvements. The majority of stakeholders, including the industry, reacted positively to the Commission decision to remove two yards located in Türkiye from the EU list in 2022, underlining the importance of maintaining high standards, noting the effectiveness of the EU audit system, including taking punitive action where necessary⁸⁰.

This important also the EU List serves as a valuable (and branding) differentiating mechanism for yards that have invested in proper safety and environmental standards.

It was also noted that the recent reports since late 2022 have provided especially valuable information on situation at the ship recycling facilities as the European Commission has begun to move through a more detailed examination of actual practice. Stakeholders however also frequently mentioned that the audits of third countries' recycling yards can be scheduled too far in advance, giving the yards time to adjust their practice for the visit of the inspectors. As a result, the Commission started with unannounced inspections in 2023.

The NGO Shipbreaking platform and Member States have underlined the importance of frequent and unannounced inspections and also expressed the need for transparent and effective measures for addressing non-compliance findings in EU listed yards (e.g. possibility to suspend a facility).

EQ2. What factors have affected (positively or negatively) progress towards the objectives and its enforcement?

Main findings:

- The price for ship recycling is a **key factor negatively affecting the progress in reaching the SRR objectives**. The **price of the steel scrap is one of the main**

⁸⁰ See 10th edition of the European List of ship recycling facilities https://environment.ec.europa.eu/news/update-eu-list-ship-recycling-facilities-2022-12-14_en.

factors affecting the prices for ship recycling and consequently the choice of shipowners where to dismantle their ships. **Higher prices of scrap metal and lower labour and regulatory compliance costs** in South Asia, especially, have drawn a substantial amount of ship dismantling activities to the region. Beaching methods of dismantling, largely prevalent in South Asia, are **significantly more profitable** due to reduced operational, labour, and environmental compliance costs, influencing the shift of the ship recycling business to these regions from the 1980s. As a result, in pursuit of higher profits and to circumvent compliance costs, shipowners **often prefer dismantling EoL ships in these yards**⁸¹.

- **Several other factors have also influenced the progress and implementation of the SRR:** Basel Ban Amendment, China's waste import ban, the COVID-19 pandemic, and the war in Ukraine.

Several factors **have significantly influenced the progress and enforcement of the SRR objectives**. Notably, scrap metal prices play fundamental roles in determining the locations chosen for ship dismantling. However, other elements also affect the implementation of the SRR, albeit to a lesser extent. These include the Basel Ban Amendment, China's waste policies, and the implications of Brexit. In the following section, we delve deeper into each of these factors.

Price for ship recycling

Ship recycling is a commercial business for which the recycling facilities pay the shipowners⁸² a significant amount of money to salvage raw materials and equipment from recycled vessels. Inevitably, the enforcement and achievements of the SRR are significantly influenced by the **price that shipowners can receive for ship recycling**, which is defined by **scrap metal prices** and **labour costs** associated with different ship dismantling methods (Kagkarakis et al., 2016; Buxton, 1991).

Scrap metal prices

Ship owners are incentivised to capitalise on an end-of-life vessel, monetising its value based on the price offered by the recycling facilities to purchase it. The end-of-life value of a vessel depends primarily on the price of the material that can be recycled from it, steel in particular.

It has to be acknowledged that, as discussed with representatives of the steel industry, the actual price of the recycled steel, and the price gap with other regions of the world is very challenging to assess and present in a sufficiently comprehensive manner. However, the steel sector's stakeholders that were interviewed for this study as well as the literature review confirmed that a substantial portion of the components of a vessel consist of high-quality metals⁸³ and approximately 60-85% of the weight (measured in LDT) can be recycled for subsequent uses.^{84,85} Comparable estimations on the quantity of recycled

⁸¹ See EQ3.

⁸² Usually, the cash buyers that the HKC considers as final shipowners. This means the shipowner is no longer responsible for the vessel once sold to the cash buyer. According to (Bernike, 2019), cash buyers mediate 80% of end-of-life sales.

⁸³ Ancelormittal (2023). Smarter steel for people and planet, Presentation at Shipbreaking Lab 20/09/2022.

⁸⁴ Mahindrakar, et al. (2008), Ship breaking industry in India: Assessment of Opportunities and Challenges, Paper 765, Journal of Air & Waste Management Association, January 2008; OECD (2017), Ship recycling, An overview. AJL Consulting and EVAK (2017), Ship Recycling in Finland Virtual project of a ship purchased, dismantled and recycled at Turku Repair Yard, Final Report, 11 January 2017.

⁸⁵ In India, the metallic scrap is generally recycled as re-rollable scrap and melting scrap. About 60% of the total weight of the ship's steel consists of re-rollable scrap and comprises of steel in form of plates, beams, girders, and angle bars. The re-rollable scrap is sold at a premium compared to the remaining 40%, and which consists of irregular pieces of steel earmarked as melting scrap. Heavy Melting Scrap (HMS) is a globally used definition for steel scrap.

material can be found in previous studies,⁸⁶ according to which 85% of the weight of a vessel consists of metal, 8% of other elements and 7% of material that cannot be recycled (i.e. weight loss). Table 3.14 4 presents the recycled materials and the percentage of the recycled weight (measured in LDT) from three types of vessels.

Table 3.14 Recycled materials and percentage of the recycled weight (LDT) by type of vessel

Recycled material	General cargo	Bulk carriers	Oil tankers
Re-rollable ferrous steel	56 - 70%	61 - 76%	72 - 81%
Meltable ferrous steel	10%	8 - 10%	5 - 7%
Cast iron scrap	1.5 - 5%	1.5 - 2.5%	1.5 - 3%
Non-ferrous metals	0.5 - 1%	0.5%	0.5 - 2%
Weight loss	9 - 15%	10 - 16%	10 - 12%
Machinery	4 - 8 %	1 - 6%	0.5 - 2%
Wooden furniture and fitting / Fixtures	5%	1 - 5%	1.5 - 2%

Source: Compilation based on Mahindrakar et al. (2008).

Literature research also shows that **the price of scrap steel may fluctuate through time and vary significantly by world region**. Therefore, the price at which a shipowner can sell an end-of-life vessel varies with respect to the time and local demolition rates offered by the recycling facilities. As noted by the SRR Impact assessment, **the market demand for steel scrap and goods present on board ships is a factor affecting dismantling costs**⁸⁷. It notes that higher price for metal can be paid if it can be recycled “cold”, without energy-intensive and thus expensive remelting in electrical furnaces. Using data for 2009, the impact assessment finds that better prices for steel scrap from ships are paid by operators in Bangladesh where the standards of workers’ safety and pollution prevention are the lowest, and most steel was processed without melting in re-rolling mills, while India and Pakistan also offered similar prices. Thus, the IA concludes that “[o]ther countries like China, Türkiye and several EU Member States with capacity for ship dismantling in dry docks, at piers and on hard slipways only account for a smaller fraction of the market as they are typically priced out of the market”⁸⁸. **The situation described in the impact assessment has largely remained similar**, as the analysis below shows.

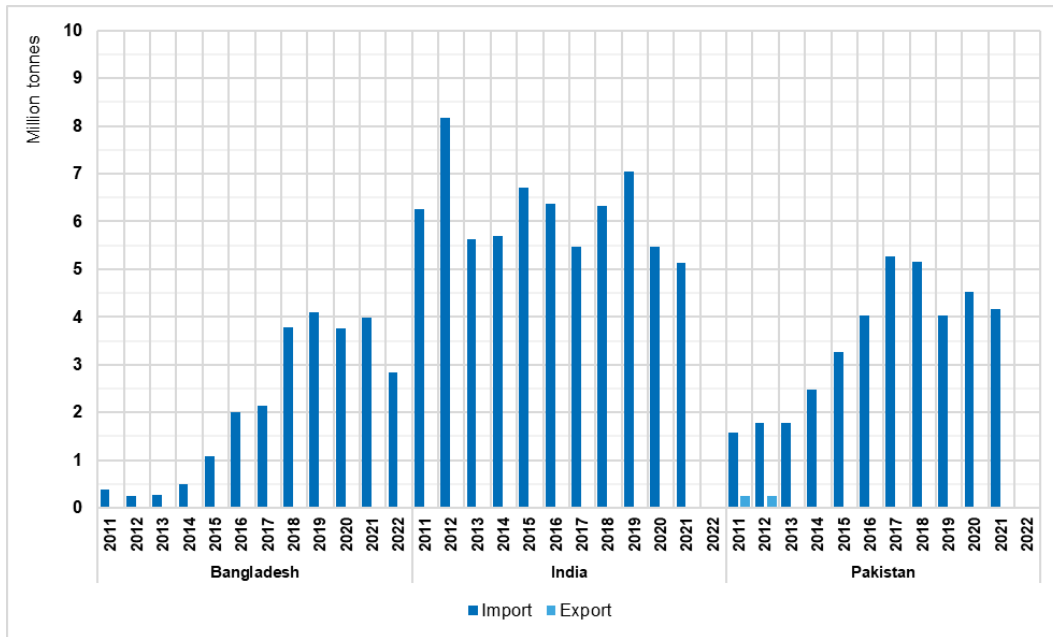
South Asian countries tend to rely more on the shipbreaking industry to supply the scrap steel demanded from other sectors of their local economies. Dismantled ships provide valuable recyclable resources, such as high-quality steel, which are heavily relied upon by downstream industrial supply chains in Asia (Gregson et al., 2010; Hsuan & Parisi, 2020). In particular, EoL ships supply 60% and 25% of steel resources for Bangladesh and Pakistan, respectively (Sarraf et al., 2010). Trends elaborated from UN’s Comtrade database show that the volume of scrap steel imported is significantly higher compared to that exported in countries such as Bangladesh, India, and Pakistan (see Figure 3.12 and Figure 3.13).

⁸⁶ Sarraf, et al. (2010), Ship Breaking and Recycling Industry in Bangladesh and Pakistan, the World Bank, Report No 58275-SAS. Jain, et al. (2016), Quantitative assessment of material composition of end-of-life ships using onboard documentation, Delft University of Technology.

⁸⁷ EC (2012). Commission Staff Working Document. Impact Assessment accompanying. Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on ship recycling. Brussels, 23.3.2012. SWD(2012) 47 final. Available at: <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SWD:2012:0047:FIN:EN:PDF>.

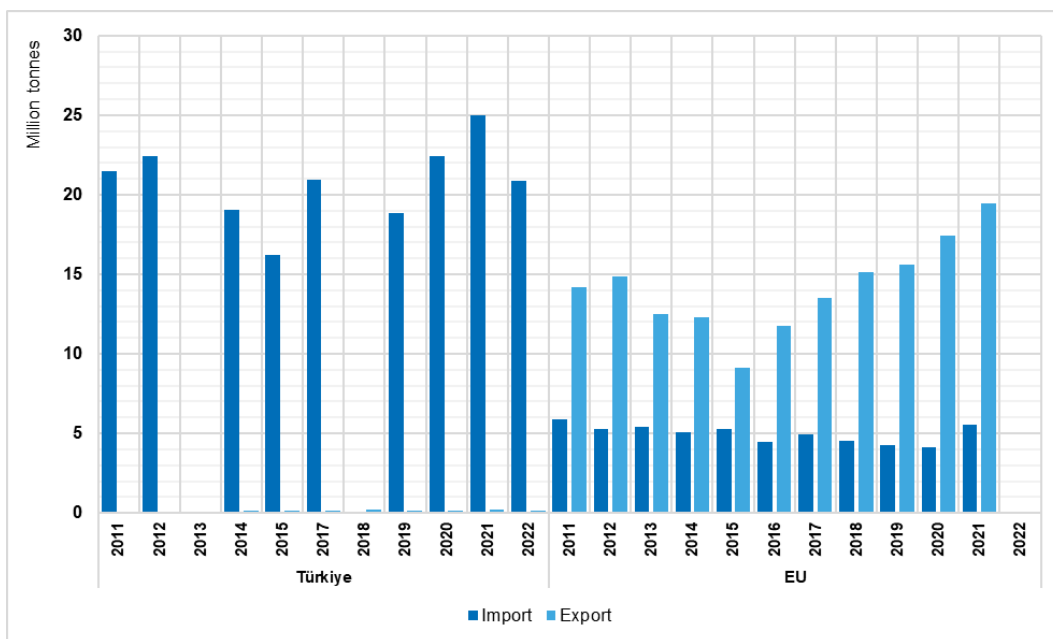
⁸⁸ Ibid, p.17.

Figure 3.12 Volume of imports and exports of waste and scrap and remelting scrap ingots for Bangladesh, India, and Pakistan (millions of tonnes, 2011-2022)



Source: elaboration based on UN Comtrade database.

Figure 3.13 Volume of imports and exports of waste and scrap and remelting scrap ingots for Türkiye and the EU (Millions of tonnes, 2011-2022)



Source: elaboration based in UN Comtrade database and Eurostat (CEI_SRM020).

Moreover, the literature review shows that the percentage of steel recycled from end-of-life vessels, and subsequently used in other sectors, is 10-15% in India and Pakistan and 60%

in Bangladesh⁸⁹. **In Europe, the quantity of metal recycled to other sectors from end-of-life vessels is smaller (i.e. 5%),** and according to stakeholders representing the steel industry, it plays a negligible role in determining the price of the recycled steel.⁹⁰ In other words, the economic contexts in South Asia offer higher demand for recycled steel, the price offered for this material is higher, and consequently the shipowner's income potential is bigger.

Labour costs and compliance with labour safety and environmental standards

The **labour cost of shipbreaking facilities is another important factor** impacting ship dismantling. It has already been well-described in the Impact Assessment of the SRR proposal, which mentions that “in countries using the beaching method, such as Bangladesh, India and Pakistan the level of mechanisation and the labour costs are low and this industry offers thousands of jobs”⁹¹. Thus, labour costs were acknowledged as an important external factor even before the adoption of the SRR. For example, direct labour costs account for approximately 30% of the total costs in dry-dock and alongside methods and **50% of the costs are due to compliance with labour safety and environmental standards** (Choi et al., 2016). The handling of hazardous materials contributes to 42% (Ahluwalia et al., 2004) or 50% (Choi et al., 2016) of total costs in dry-dock and alongside, as opposed to only 1-3% in beaching methods, which are traditionally applied in South Asian facilities. These findings are corroborated by Ahammad and Sujaudin (2017).

Recycling processes became more mechanized, regulated, and consequently, more expensive (Rabbi & Rahman, 2017). As a result, the ship recycling business began to shift from Western developed countries towards Southern Asia from the 1980s onwards (Rabbi & Rahman, 2017). The substantial cost differences between dry-dock, alongside or landing methods and beaching methods present challenges to the SRR objective achievement, as ship-breaking yards face competition from yards with a distinct cost structure (Sarraf et al., 2010). Barua et al. (2018) report a price difference of over USD 220 per LDT between beaching and other shipbreaking methods, emphasizing the small margin in comparison to the estimated gross scrap value of USD 360 per tonne (2018 prices).

Among the four dismantling methods, **the so-called ‘beaching’ method can generate up to 7 times more revenues**⁹² due to lower labour, operational, and infrastructure costs, as well as **reduced expenses related to handling hazardous materials on board of vessels**⁹³. Furthermore, desk research shows that for the period between 2014 and 2023, the price offered by recycling facilities located in South Asia, using the ‘beaching’ method, was from 30% to 90% higher than the price offered by recycling facilities located in Türkiye, using the ‘landing’ method. The price difference is even bigger for recycling facilities located

⁸⁹ Zulfikar Ali & Pierce (2020), The South Asia Shipbreaking Industry and its Unsafe Mining Practice, Aspects Min Miner Sci 5(2), AMMS.000607.2020.

⁹⁰ According to Ancelormittal (2023), the volume of scrapped metal from ships is estimated around 5 million tonnes on annual basis, which corresponds to approximately 5% of metal scrap availability reported by Eurofer in the EU for the current situation (i.e., around 100 million tonnes).

⁹¹ EC (2012). Commission Staff Working Document. Impact Assessment accompanying. Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on ship recycling. Brussels, 23.3.2012. SWD(2012) 47 final. Available at: <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SWD:2012:0047:FIN:EN:PDF>

⁹² Choi, et al. (2016), Economic and environmental perspectives of end-of-life ship management, Resources, Conservation and Recycling, Volume 107, February 2016, Pages 82-91. Sarraf, et al. (2010), Ship Breaking and Recycling Industry in Bangladesh and Pakistan, the World Bank, Report No 58275 (European Community Shipowners' Associations, 2016).

⁹³ Barua, et al. (2018), Environmental hazards associated with open-beach breaking of end-of-life ships: a review, Resources, Conservation and Recycling, Volume 107, February 2016, Pages 82-91. Choi, et al. (2016), Economic and environmental perspectives of end-of-life ship management, Resources, Conservation and Recycling, Volume 107, February 2016, Pages 82-91. Du, et al. (2017), Challenges and solutions for ship recycling in China, Ocean Eng, 2017;137:429-439.

in the EU. The stakeholders reported a value of about EUR 100 per LDT,⁹⁴ namely approximately 30% the recycling quotation observed in Türkiye.

On the other hand, the shipbreaking industry in South Asia **creates job opportunities**, generating 30,000 jobs in India (Garud, 2012) and 50,000 jobs in Bangladesh (Rahman, 2020). As a result, South Asian countries are more inclined to import large quantities of EoL ships to boost revenue and employment. However, ship recycling involves, especially in South Asia, **child labour** as well. A recent study⁹⁵ on labour conditions in Bangladeshi facilities revealed that all 33 yards included in the study use child labour. Overall, 13% of all employees in those facilities were estimated to be under the age of 18. Most of the children involved are the age of 15, 16 or 17. Compared to the past, the use of younger children (< 15 years) seems to have stopped. The study observed that during day shifts, about 6% of the workers are children, whereas during night shifts this share is estimated to be 20%. The study indicated that the estimations might be an underestimation of the actual situation. Thus, despite several international Conventions prohibiting the use of child labour, it is still quite common practice when it comes to recycling the end-of-life vessels.

Price of end-of-life vessels

When it comes to the price offered to buy an end-of-life vessel, the data, literature review, and stakeholder consultation highlighted that a **significant difference exists between EU-listed and non-EU-listed recycling facilities**⁹⁶. The combination of a high demand for scrap steel on the local markets and the dismantling/beaching method, relying on low labour, low environmental protection and low waste management cost/standards has led to **shipbreaking yards in South Asia offering higher prices for EoL ships**⁹⁷. In pursuit of higher profits and to circumvent compliance costs, shipowners **often prefer dismantling EoL ships in these non-standard yards** (see EQ3).

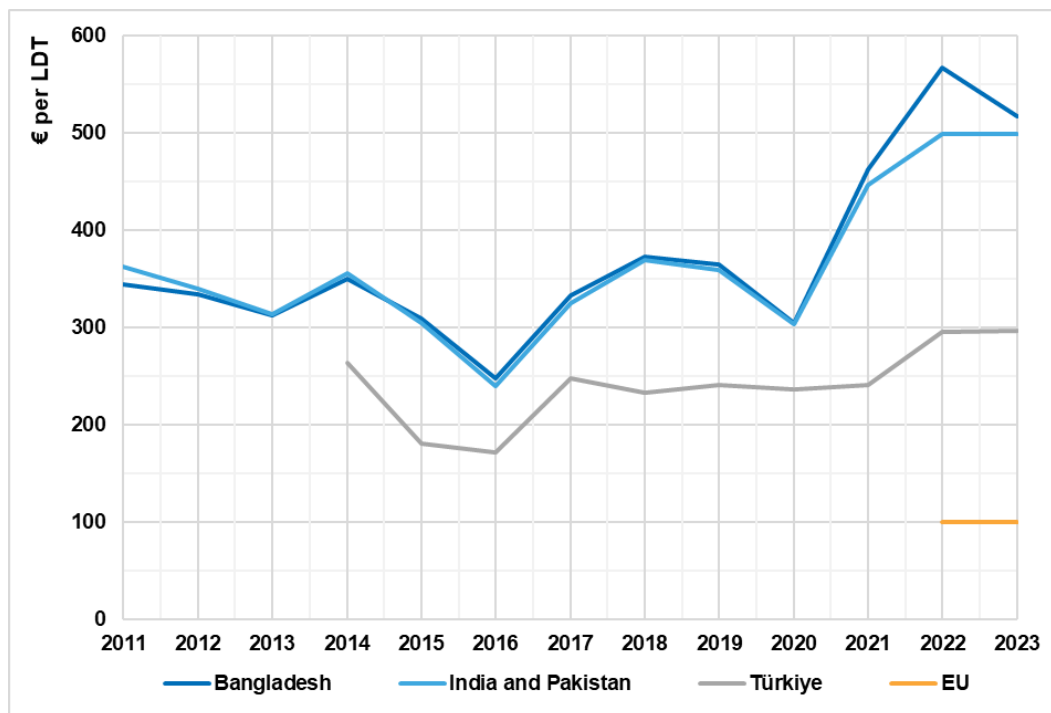
Figure 3.14 4 shows the fluctuation of rates for recycling vessels in Bangladesh, India, Pakistan, and Türkiye for the period 2011-2023 (in EUR per LDT). In all years covering the 2014-2023 period, the prices offered by South Asian yards are higher than the prices offered by Turkish yards.

⁹⁴ See also data reported in (Mosconi & Tola, 2023). The research authors reported the end-of-life value of ships recycled in facilities in the EU as equal to USD 110 for bulk carriers, USD 115 for oil tankers and USD 120 for container ships PER TON OF STEEL, respectively. Assuming the official exchange rate between USD and EUR recommended by the European Central Bank for 2023, we found the value reported in this research consistent with the value from the field research carried out in the context of this study.

⁹⁵ Chowdhury M. S. (2019). Study Report on Child Labour in the Shipbreaking sector in Bangladesh, University of Chittagong, Chittagong, Bangladesh.

⁹⁶ ISL (2021), Shipping statistics and market review, Volume 65 - No. 9. Sustainable Shipping Initiative (2021), Exploring shipping's transition to a circular industry, Findings from an inquiry to understand how circular economy principles can be applied to shipping, June 2021. Izmir Development Agency (2022), Izmir Aliaga Ship Recycling Sector Analysis, Izmir.

⁹⁷ At the January 2024 Expert Group on Ship Recycling (ESR) it was also discussed that **insurance costs** also affect the price difference between EU-listed yards and facilities in South Asia.

Figure 3.14 Fluctuation of the rates for recycling vessels in Bangladesh, India, Pakistan, and Türkiye

Source: elaboration based on (Sustainable Shipping Initiative, 2021), (Developed by 2BHonest based on (Mikelis, 2020)), (ISL, 2021), (Izmir Development Agency, 2022) and GMS website ((* average value until 31 December 2023).

The recycling prices **are consistently higher for two different categories of ships** (dry bulk carriers and tankers), as shown in Table 3.15 below. The price range for South Asian countries is consistently above \$500 per LDT in 2023, **the prices in Türkiye are in the range \$280-340 per LDT, while in the EU they are reported to be even lower (about a third of the price in Türkiye).**

The differences in recycling prices have a significant impact on the expected value a shipowner can expect depending on the location chosen for dismantling. As shown in Table 3.15, the difference in compensation for a ship dismantled in Europe, Türkiye or South Asia is substantial. **For a shipowner, the choice of dismantling location can result in a difference of more than \$1.5 million per average vessel, between dismantling in the EU and in South Asia.** The following table provides a calculated estimate of these differences, derived from the average LDT of EU-reflagged ships in 2022 and the corresponding market prices⁹⁸ for tankers of similar gross tonnage in the same year.

Table 3.15 Comparison of recycling prices across various countries (USD/LDT)

Country	Dry Bulk		Tankers		Price		% of the value of a new ship	
	510	540	520	550	1,746,661	1,847,430	3.7%	3.9%
Pakistan	510	540	520	550	1,746,661	1,847,430	3.7%	3.9%
Bangladesh	500	590	510	610	1,713,071	2,048,967	3.6%	4.4%
India	520	570	530	580	1,780,250	1,948,199	3.8%	4.1%

⁹⁸ Container News Team. (2022, 4 mars). Vessels Value: Newbuild Report 2021 - Container News. Container News. <https://container-news.com/vesselsvalue-newbuild-report-2021/#:~:text=,ACE%20Tankers%20for%20US%24188%20million>

Country	Dry Bulk		Tankers		Price		% of the value of a new ship	
Türkiye	280	330	290	340	974,099	1,142,047	2.1%	2.4%
EU	84	99	87	102	292,229	342,614	0.6%	0.7%

US Dollar prices per LDT, 10 March 2023 and 18 September 2023 (<https://www.gmsinc.net/>), Survey Inputs and consortium calculations.

Table 3.15 provides an overview of the ship recycling market. It compares recycling prices for two types of ships: dry Bulk Carriers and tankers. These prices are expressed in US dollars per LDT. The table shows data for the following countries: Pakistan, Bangladesh, India, Türkiye, and the EU, and illustrates the variability in recycling prices between these countries/regions. It also provides an indication of the relative value of these recycling prices by presenting them as a percentage of the value of a new ship. This comparison helps to understand the economics and market trends of ship recycling in these regions. The data, provided by GMS Inc. and derived through surveys and consortium calculations provides a perspective on the dynamics of the global ship recycling market. For further contextualisation, Box 2 below also provides a ballpark illustration of the size of the value of scrapping one ship as compared to the overall revenues of a few prominent shipowners (with all the caveats of the different ship sizes and scrapping prices)⁹⁹.

Box 2: Percentage of scrap value compared to revenues

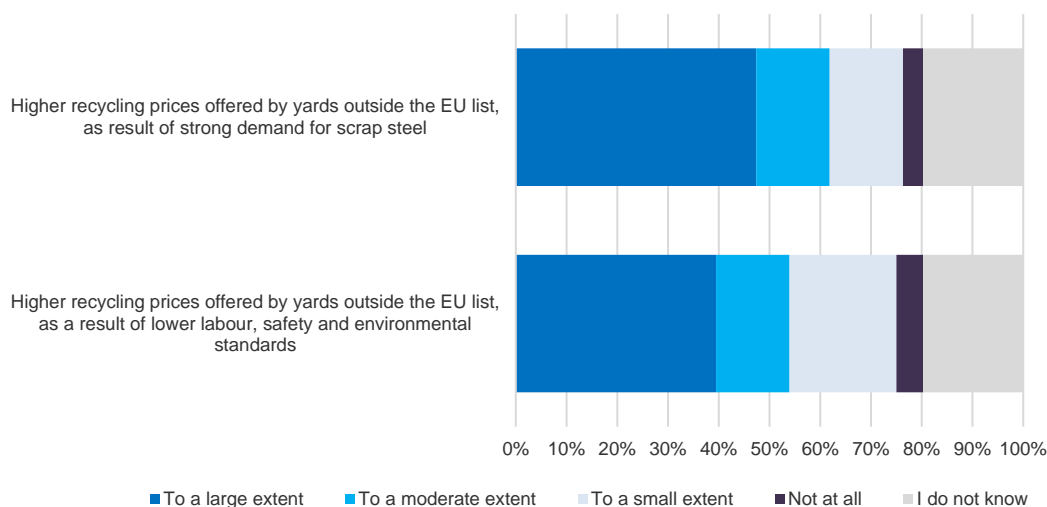
The aim of this box is to enhance the comprehension of the potential returns for shipowners by examining their yearly turnover. It is important to note that there is significant variability in the annual revenue of shipping companies based in the EU. For an indicative comparison, in the table below we compare the financial gains from selling a standard dry bulk vessel for recycling to the revenues for 2022 for three of the most prominent EU-based shipowners.

Company	2022 Revenue (in million EUR)	Number of Employees	% of Scrap Value Compared to 2022 Revenue
Maersk Group	75,006.7	104,260	0.0023%
CMA CGM Group	68,540.0	155,000	0.0025%
Hapag-Lloyd	33,488.0	14,248	0.0052%

Source: annual company reports and own calculations.

In the targeted survey, **stakeholders validate these findings, stating that the higher prices offered by non-European List shipbreaking yards significantly influence the choice of location for ship dismantling.** When asked about the elements contributing to these higher prices, 62% (N=76) attribute this to a large or moderate extent to a higher demand for scrap steel. Similarly, 54% (N=76) believe that higher prices are to a large or moderate extent a consequence of lower labour, safety and environmental standards; this figure rises to 75% if those who consider these factors to have a minor impact are included.

⁹⁹ For the purpose of comparison, we use an average price for the south-asian countries.

Figure 3.15 Stakeholder Perceptions on the Factors Determining Price Differences among Yards

Source: consortium elaboration based on targeted survey questionnaire.

Stakeholders emphasised that the elevated prices in these non-EU regions, roughly three to four times higher than those in Europe, play a crucial role in defining the choice of ship dismantling locations. This difference in prices is partly attributed to the high demand for scrap steel in non-EU countries, where the **process of re-rolling ship steel** into construction rods is a prevalent low-cost steel-making method.

Moreover, in the same line, stakeholders pointed out that **lower operational costs in non-EU countries due to compromised labour, safety, and environmental standards significantly contribute to the attractive pricing of ship recycling in these regions.** The reduced standards also contribute to a wider price disparity with yards that are listed, as these compliant yards must make considerable investments to adhere to EU SRR standards. These investments encompass substantial allocations for the development of infrastructure, acquisition of equipment, and augmentation of the workforce, consequently raising the operational costs compared to those yards that practice substandard recycling.

Several other factors that have influenced the progress and implementation of the Regulation have also been identified (presented below).

Basel Ban

As described in Section 2.1, the Basel Ban Amendment, which was adopted back in 1995 and entered into force on 5 December 2019, states that transboundary movements of hazardous waste from OECD States to non-OECD States are forbidden. In other words, hazardous waste generated in one of the Member States cannot be shipped to a non-OECD country.

As a consequence of the entry into force of the Basel Ban amendment in 2019, the application process for inclusion into the EU list of ship recycling facilities located in non-OECD countries was practically frozen in 2020. Commission services had explored the option of applying a derogation from the Ban Amendment through the conclusion of a bilateral agreement between the EU and India under the terms of Article 11 of the Basel Convention. However, there were political and legal challenges that prevented pursuing this option. Alternatively, the EC proposed amendments to the waste shipment regulation

to meet its international obligations and at the same time allow including non-OECD countries in the EU list. As noted in section 2.1, in this regard the EU co-legislators have introduced several changes to the WSR¹⁰⁰.

Chinese Ban

China's waste import ban refers to a series of restrictions and bans implemented by the Chinese government on the import of various types of waste streams. The ban was first introduced in 2017 with the aim of reducing environmental pollution and improving public health caused by the processing and disposal of large quantities of foreign waste (Brooks et al., 2018).

The impact of China's waste import ban on the EU SRR objectives has been a subject of concern among experts and stakeholders. According to Werven (2019), the ban implemented by the General Office of the State Council in 2017 has hindered four Chinese facilities from being included in the EU list. Consequently, the applications for these facilities have been put on hold, a development considered negative for the EU SRR. Experts argue that these facilities possess the potential to significantly contribute to the EU list due to their high standards, but also for their capacity, as illustrated in the report by BIMCO on the European List of Ship Recycling Facilities (2022).

The waste import ban enacted by China put a halt to the process for the possible inclusion of ship recycling facilities from China into the EU List, thereby limiting the geographical scope of the List and impacting the effectiveness of the EU's SRR.

BREXIT

Since the UK is no longer an EU member, its facilities are considered in a third country, except for Northern Ireland, which remains listed in Part A due to the unique Brexit arrangements. The BIMCO Report on the European List of Ship Recycling Facilities notes that despite the UK's small contribution to ship recycling, according to International Maritime Organization (IMO) figures, the country still offers substantial theoretical capacity through facilities such as Kishorn Port. The UK now maintains its own list of approved facilities, the 'UK List,' since it had fully implemented all elements of the EU Ship Recycling Regulation before Brexit, resulting in a system identical to the EU's.

Currently, the EU list includes three facilities, one in Northern Ireland (considered located in an EU MS) and two in part B – ship recycling facilities located in a third country (Dales Marine Services Ltd and Kishorn Por). Overall, it can be concluded that Brexit did not have any major impact on the capacity of the recycling yards on the EU list.

COVID-19 pandemic

The COVID-19 pandemic has had a profound impact on various industries, including shipping and ship recycling. According to the literature reviewed, the progress towards the objectives and enforcement of the SRR has been negatively affected by the pandemic (European Commission, 2020/C 349/01). The SRR requires all existing EU-flagged ships and non-EU flagged ships calling to an EU port or anchorage to carry an Inventory of Hazardous Materials (IHM) / Certificate or Statement of compliance by 31 December 2020 (European Commission (2020/C 349/01), 2020). However, the pandemic-induced lockdown measures and travel restrictions significantly impeded the surveying of ships and the production of certified IHMs (BIMCO, 2020).

¹⁰⁰ See https://environment.ec.europa.eu/topics/waste-and-recycling/waste-shipments_en.

As reported by industry stakeholders, COVID-19 restrictions prevented many shipowners or their agents from producing the IHM, and also hindered flag State surveyors and recognized organizations from verifying and certifying the IHMs (European Commission, 2020). In response, the EC provided guidance on this issue, allowing ships which could not comply extra time. This was well received by the industry. Nonetheless, due to the extraordinary period related to the COVID-19 pandemic, a large number of ships were estimated to be unable to comply with the IHM obligations (European Commission, 2020/C 349/01); however, the situation normalised afterwards as conditions stabilised.

Regarding ship recycling, the COVID-19 pandemic had a particularly significant impact on passenger ships, with many EU Member State flag cruise ships being sold or sent for recycling (BIMCO, 2022). Most of these ships were directed to Türkiye, where the recycling facilities have reached full capacity due to the influx of passenger ships (BIMCO, 2022). As noted by shipowners during the interview process, Turkish yards were also busy dismantling non-EU-flagged cruise ships. Shipowners chose deliberately to send their EoL vessels to EU-listed yards, even when the vessels were not flying an EU flag or the cruise company was not located in the EU. This shows that the **reputational effect of the EU List is important** as these companies were not under the obligation to do so¹⁰¹. At the same time, this created bottlenecks in the yards. Satellite imagery and news reports show ships vying for position, while others are awaiting slots at alternative facilities (BIMCO, 2022). This backlog persisted in 2022, exacerbating the challenges faced by the cruise industry and hindering progress towards the objectives of the SRR (BIMCO, 2022). The spike in dismantling cruise ships as a result of the COVID-19 pandemic shows that external shocks **may expose vulnerabilities in the available capacity of the EU list**. This finding corroborates with the general consensus on the need to keep expanding the European List to accommodate the shipping industry's future recycling needs (see EQ1.4 for further analysis on the capacity).

War in Ukraine

The war in Ukraine has led to a surge in energy prices and market volatility, affecting various industries, including ship recycling (BIMCO, Report on the European List of Ship Recycling Facilities 2022). Due to the ongoing crisis, numerous ships contracted for recycling prior to the conflict now face delays and losses, as local steel mills are operating at reduced capacity (BIMCO, 2022).

In Türkiye, for instance, some facilities report difficulties selling steel at expected prices, as local steel mills are running at only 10% capacity due to increased electricity costs (BIMCO). Moreover, the market is inundated with cheap Russian steel ingots, exacerbating the situation for these ship recycling facilities (BIMCO, 2022). According to the Turkish Statistical Institute (TUIK), as quoted by Eurometal, in the first eight months of 2023, Turkey imported 4.3 million tonnes of semi-finished steel (3.04 million tonnes in the same period of 2022), with Russia managing to maintain its large share, exporting 2.27 million tonnes to Turkey in the reported period versus 2.25 million tonnes in January-August 2022, partially due to low prices compared with other suppliers¹⁰². Currently no relevant trade statistics are available on [UN's trade database](#) for 2022, which does not allow further exploring this issue.

The limited storage space in most shipyards, such as those in Aliaga, Türkiye, further complicates the issue (BIMCO, 2022). With no room to stockpile steel and wait for better

¹⁰¹ For more information, see: <https://fathom.world/carnival-corporation-commits-to-sustainable-ship-recycling/>.

¹⁰² See Eurometal (2023). Turkey searches for alternatives for steel imports amid geopolitical strains. 4 October 2023. Available at: <https://eurometal.net/turkey-searches-for-alternatives-for-steel-imports-amid-geopolitical-strains-2/#:~:text=Russia%20managed%20to%20maintain%20its,other%20suppliers%2C%20according%20to%20sources.>

prices, ship recycling facilities are forced to sell steel as it is removed from the ship, leading to financial losses amidst the current market conditions (BIMCO), 2022.

Offshore decommissioning

Some stakeholders claim that the decommissioning of offshore platforms (also covered by the Regulation) may be negatively impacting the ship recycling objectives of the SRR. This concern arises from the differential pricing schemes and the economic incentives associated with offshore recycling, as highlighted in the BIMCO Report on the European List of Ship Recycling Facilities (2022). According to the report, offshore recycling is more attractive and lucrative for certain facilities, as they can generate income from both the dismantling and the steel. (BIMCO, 2022). Therefore, offshore recycling facilities might prefer to dismantle offshore platforms instead of other ships, due to the higher price they can receive.

Critics argue that this choice may hinder the implementation of the SRR, as recycling facilities are more focused on decommissioning offshore platforms rather than other vessels.. Nonetheless, for the evaluation period until the date of this report, this has largely not been the case as there is sufficient recycling capacity to cope with the current demand for ship recycling. Moreover, offshore platforms fall within the definition of 'ship' specified in Art.3 of the SRR¹⁰³, thus their dismantling in a sustainable way contributes to the realisation of SRR objectives. In this sense, the concerns raised (mostly by shipowners) have to do with the type of vessel dismantled (platforms instead of ships), rather than with a phenomenon that hampers reaching the SRR objectives.

Others

Factors that have contributed positively to the development and implementation of the Regulation can largely be attributed to the harmonization of existing legislative structures in both the EU and the Member States, the EU's policy of strategic autonomy and the prevailing environmental principles ESG, as highlighted by stakeholders through various interviews and survey. These elements have not only enabled the successful implementation of the SRR but have also been synergistically integrated with the overall objectives embodied in the EU SRR (see the Coherence criterion for more details).

EQ3. Are there unexpected or unintended effects that have occurred?

Main findings:

- The entry into force of the SRR has **exacerbated the practice of re-flagging**, where shipowners change the flag of their vessels shortly before dismantling
- After reflagging, these vessels often reach the end of their service life in South Asian countries like Bangladesh, India, and Pakistan, effectively **circumventing** the obligations imposed by the EU Ship Recycling Regulation
- The principal consequence of circumvention through re-flagging is that it **undermines the effectiveness of the SRR** in ensuring that EU-flagged ships are dismantled in facilities worldwide that are safe and environmentally responsible

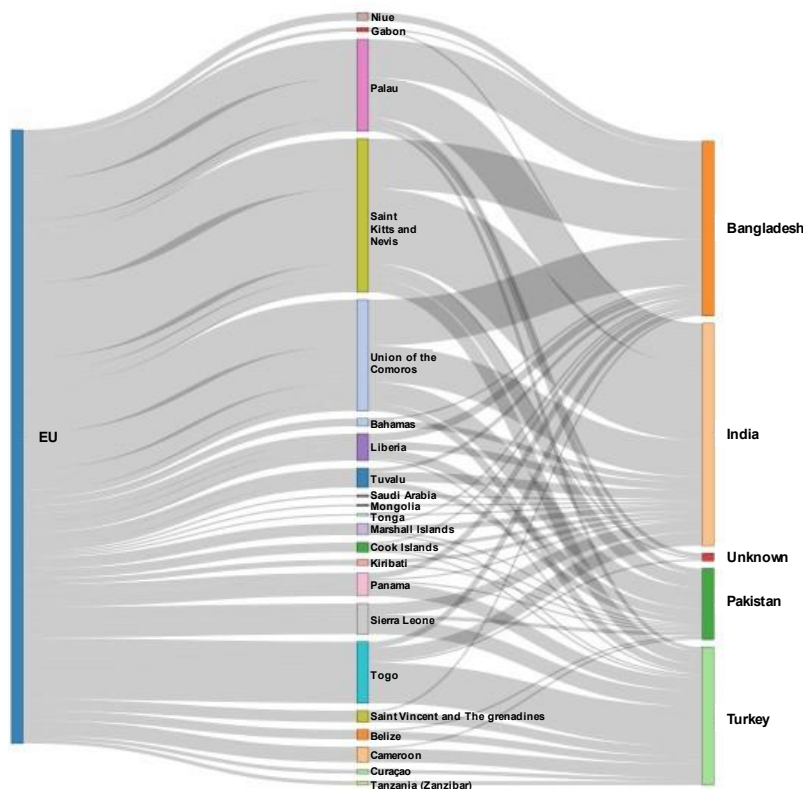
¹⁰³ Art.3(1) of the SRR: 'ship' means a vessel of any type whatsoever operating or having operated in the marine environment, and includes submersibles, floating craft, floating platforms, self-elevating platforms, Floating Storage Units (FSUs), and Floating Production Storage and Offloading Units (FPSOs), as well as a vessel stripped of equipment or being towed;

The **effectiveness of the EU SRR has been undermined by the practice of re-flagging ships**, the extent of which has emerged as an unintended consequence. In this context, re-flagging refers to the practice where EU-owned ships change their flags, often to nations such as Palau, St Kitts and Nevis, or the Union of the Comoros, within 30 to 365 days prior to scrapping. According to Lin et al. (2022), this is done to minimise costs, a point also supported by Alcaidea et al. (2016). According to Solakivi et al. (2021) and Lin et al (2022), shipowners frequently change the flag of their vessels to circumvent the obligations imposed by the SRR, thereby weakening its impact on promoting environmentally sound ship recycling practices.

The involvement of cash buyers in the ship recycling process has added a layer of complexity to the enforcement of effective regulations. Cash buyers, serving as a middleman, enable ship owners to avoid selling end-of-life ships directly to shipbreaking yards, e.g. those in South Asia. The cash buyer often will register the ship under new ownership (frequently a P.O. box corporation created for the purposes of disposing the vessel) and works with a flag registry to change the ship's flag. With a new flag, a new name, and a new owner, the cash buyer then sells the ship to the highest shipyard bidder. Since ships can be sold at higher prices to substandard shipbreaking yards using these tactics, shipowners are often interested in engaging with cash buyers¹⁰⁴. Cash buyers mediate 80% of end-of-life sales, which means the original shipowner is no longer responsible for the vessel once it is sold to the cash buyer (Werven, 2019). Despite being excluded from the EU SRR, cash buyers facilitate the circumvention of the Regulation (Shipbreaking platform position paper "Make the polluter pay", October 2016).

To offer a more comprehensive understanding of the re-flagging phenomenon, Figure 3.16 illustrates re-flagging data from EMSA. The data incorporated in the visual representation spans from 2013 to 2022 and reveals a consistent pattern of reflagging and scrapping activities. During this period, a total of 320 vessels were re-flagged and dismantled in these locations.

Figure 3.16 EU Ships: Number of Flag Changes and Dismantlement Locations Before Scrap (2013-2022)¹⁰⁵



Source: Consortium elaboration based on EMSA data.

Some of these flags, which are rarely used during the operational life of the vessels, are considered “flags of convenience” and are often associated with non-compliance with international maritime laws. Specifically, shipping registries such as Palau, Saint Kitts and Nevis, Togo and Comoros are on the Paris Memorandum of Understanding (MOU) blacklist for poor implementation of international maritime standards, indicating non-compliance with these laws (Rahman and Kim 2020).

After reflagging, these vessels often reach the end of their service life in South Asian countries like Bangladesh, India, and Pakistan, as Figure 3.16 illustrates. In fact, according to EMSA data, for the period 2018-2022, the percentage of EU LDT re-flagged prior to dismantling (ending up mainly in South Asia) is above 60% of the total of all the LDT that had an EU flag at least one year before dismantling¹⁰⁶.

For instance, for the period between 2019 and 2022, approximately 28% of the re-flagged ships were transferred to Bangladesh, 25% to India, and 10% to Pakistan. The remaining, around 30%, of ships that changed flag one year before being dismantled ended up in

¹⁰⁵ This Sankey diagram provides a visual representation of the transitions of EU re-flagged ships from the years 2013 to 2022 prior to their scrapping. The diagram is segmented into three columns, delineating the stages of a ship's end-of-life journey. The leftmost column identifies the origin points, indicating initial ship registrations under EU flags. The central column illustrates the changes or transitions these vessels undergo, specifically the flag changes as ships are re-registered under different national flags. The rightmost column denotes the final stage, showcasing the various dismantlement locations where these ships are taken for being scrapped. The flows connecting these columns are represented by bands or streams, with the width of each band corresponding to the volume of ships that have undergone the specific transition, thus providing a quantitative measure of the ships' flag changes and final dismantlement locations.

¹⁰⁶ The sum of LDT volume of EU flagged and EU re-flagged (1 year before recycling).

Türkiye. Of the latter, 65% were dismantled in non-EU listed yards, 22% in EU listed yards and the final destination of the remaining 13% is unknown. Notably, of all the re-flagged ships for which information is available, only about 3% were dismantled at facilities on the EU list.

In 2022, the latest year for which complete data are available, a total of 37 ships with EU flagged or that still had an EU flag one year prior to dismantling were dismantled. Of these, 10 were re-flagged within one year before being dismantled. It should be noted that 9 of these 10 re-flagged vessels were scrapped in non-EU listed dismantling facilities. These **10 re-flagged ships accounted for 56.5% of the total EU LDT dismantled that year**¹⁰⁷. Table 3.16, provides a complete overview of the re-flagged ships, including the original flag, the date of re-flagging, the new flag, and the country where they were finally scrapped.

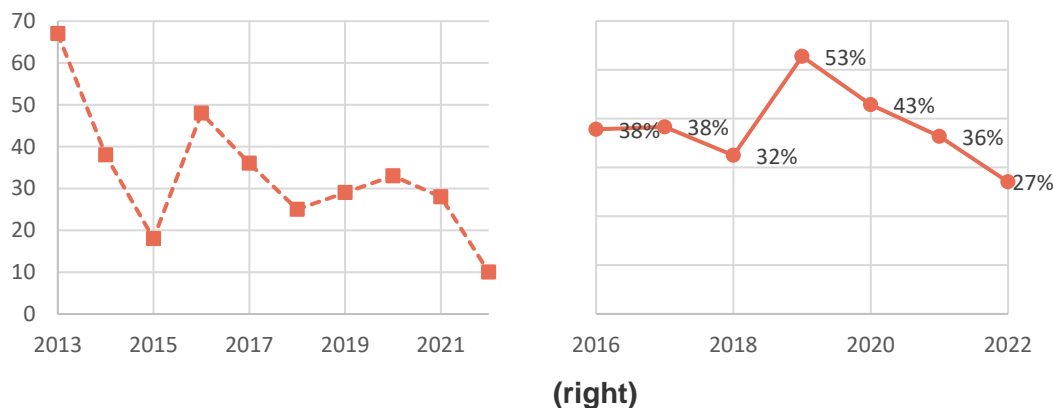
Table 3.16 Overview of Re-Flagged EU-Owned Ships and Their Scrap Destinations in 2022

Flag Before	Date Change of Flag	Flag After	Country of Scrap
Greece	01/03/2022	Togo	Türkiye
Norway	01/12/2021	Marshall Islands	India
Greece	01/10/2022	Union of Comoros	India
Malta	01/02/2022	Liberia	Bangladesh
Greece	01/02/2022	Liberia	Pakistan
Norway	01/05/2022	Palau	India
Cyprus	01/04/2022	Palau	Pakistan
Malta	01/05/2022	Togo	Türkiye (EU listed yard)
Malta	01/01/2022	Union of Comoros	Bangladesh
Italy	01/09/2021	Panama	India

Source: Consortium elaboration based on EMSA data.

Until 2013 the frequency of flag changes for vessels remained low. In other words, re-flagging before dismantling ships was an uncommon practice prior to the implementation of relevant regulations. Interestingly, there was a significant spike in the number of cases of re-flagging in 2012, the year preceding the adoption of the SRR, i.e. before the introduction of an EU list of ship recycling facilities and the requirement for EU-flagged vessels to be dismantled in these facilities. Subsequently, the annual cases of re-flagging have oscillated between 10 and 66 between 2013 and 2022, when the number sharply declined to just 10. Experts attribute this reduction to the prevailing market trends and the heightened demand currently experienced by the global shipping industry.

¹⁰⁷ The sum of LDT volume of EU flagged and EU re-flagged (1 year before recycling).

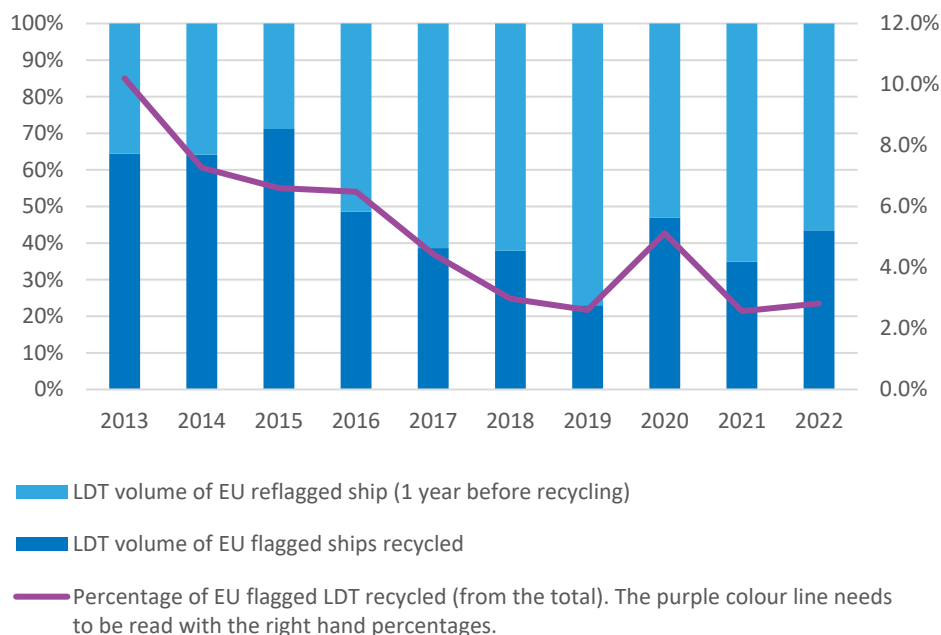
Figure 3.17 EU-reflagging data in absolute numbers (left) and in percentage of EU ships changing flag 1 year before dismantling out of the total EU-flagged recycled¹⁰⁸

Source: Consortium elaboration based on EMSA data.

It is evident that **the trend of re-flagging ships has an inverse correlation with the number of EU-flagged ships undergoing recycling**. In 2013, a total of 146 EU-flagged ships were scrapped, but this number decreased significantly to 25 in the following year. Furthermore, it should be noted that EU-flagged ships being recycled are predominantly smaller ships, with an average LDT of around 4,000 over the period 2018 to 2022. This contrasts sharply with ships reflagged to a non-EU flag, which had a substantially higher average LDT, amounting to almost 12,000.

The bar graph below **illustrates a noticeable upward trend in the proportion of recycled LDTs of vessels that have been re-flagged since the SRR came into force**. This has had a negative impact on LDTs from ships flying the flag of a Member State. As time passes, **the percentage of re-flagged LDT being recycled increases**. In the period 2016-2022, the LDT volume of EU reflagged ships (1 year before recycling) is consistently higher than the LDT volume of EU-flagged ships that are recycled. In 2019, **the LDT volume of EU reflagged ships that were recycled was almost four times higher than the LDT volume of recycled EU-flagged ships**. At the same time, there is a significant decrease in the proportion of EU-flagged LDT recycled from the total LDT recycled worldwide, falling from 10.2% in 2013 to a mere 2.8% in 2022, as represented by the purple line in the graph. This pattern corroborates the results, indicating **that the introduction of the SRR has led to a significant increase in the instances of ships re-flagged for recycling purposes**.

¹⁰⁸ "Total EU-flagged recycled" refers to the total number of vessels that were registered under an EU flag one year prior to their dismantling.

Figure 3.18 Comparative Visualisation of LDT for EU Re-flagged Ships (one year prior to recycling) and Recycled EU-flagged Ships

Source: Consortium elaboration based on EMSA data.

The research indicates **that the predominant cause of circumvention stems from price differences**. As mentioned previously, South Asian yards, on average, command significantly higher prices per LDT than EU-listed yards.

However, there are **additional reasons for re-flagging**. Some stakeholders have raised that, for instance, before dismantling in Türkiye, EU-flagged vessels had to be re-flagged since Turkish companies or cash buyers cannot keep the flags of some EU countries when buying vessels. It has been explained that, upon acquisition of a ship, the new owners typically choose in that case a flag from a non-EU country with an open register or a flag of convenience as the procedures are smoother. Some stakeholders pointed out that re-flagging when selling a ship to a company located in a non-EU country is a commonplace practice during the lifetime of the vessel, as EU generally maintains a younger fleet than the rest of the world. Nevertheless, EMSA data reveals that the average age of a ship in the EU is 22.08 years, compared to 22.48 years for non-EU ships.

The **principal consequence of circumvention through re-flagging is that it undermines the effectiveness of the SRR in ensuring that EU-flagged ships are dismantled in facilities worldwide that are safe and environmentally responsible**. This is because non-EU flagged ships do not have the obligation to be recycled in facilities listed in the European List of Ship Recycling Facilities.

EQ4. To what extent have Member States and stakeholders been engaged in the process of improving implementation and enforcement of the SRR?

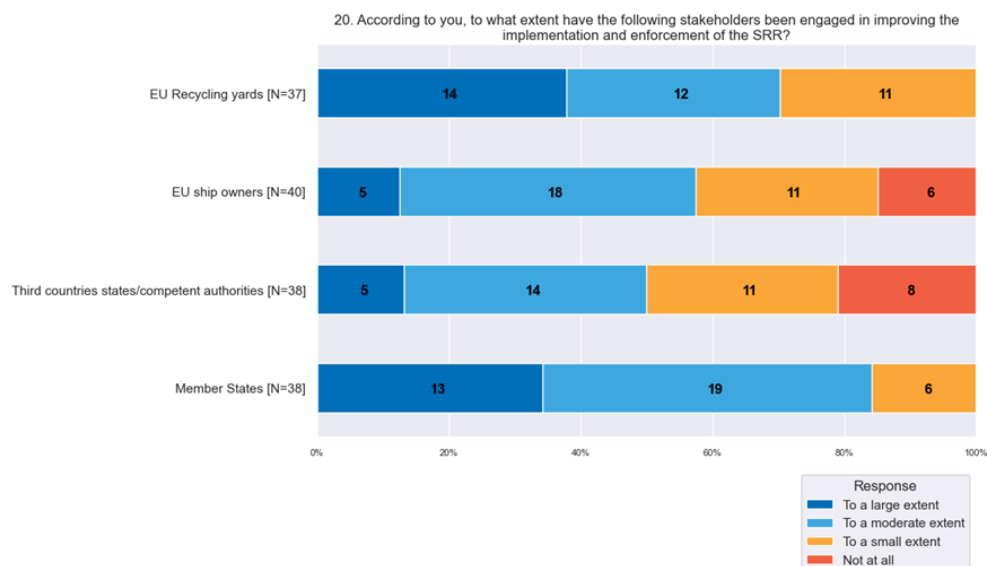
Main findings:

- **Most stakeholders have reported high degree of involvement in the process of improving implementation and enforcement of the SRR.**
- Both MS and other stakeholders (such as the industry and NGOs) are **actively using different channels** (notably the Expert Group meetings) to share data and perspectives on possible improvements of the SRR.
- In the first reporting period 2019-2021, the **MS reporting** under Article 21 was: (1) not provided on time by all countries; and (2) did not provide comprehensive data on the recycled MS-flagged vessels.
- Several aspects requiring coordination between MS have been identified, in particular in setting **penalties for infringements** and **enforcement in international jurisdictions**¹⁰⁹.

EQ4.1: To what extents have Member States been engaged in the process of improving implementation and enforcement of the SRR?

Most stakeholders have reported some degree of involvement in the process of improving implementation and enforcement of the SRR. During the targeted survey, stakeholders were inquired on their perspectives on the participation of various Member States in improving the implementation and enforcement of the SRR. As depicted in Figure 3.19, a **substantial majority of stakeholders, constituting 85% (N=38), asserted that Member States have been involved to a considerable or moderate extent in the improvement and enforcement of the SRR.**

Figure 3.19 Stakeholder Perspectives on Engagement in Enhancing the Implementation and Enforcement of the SRR



Source: Consortium elaboration based on the targeted survey.

¹⁰⁹ See EQ15 for further analysis on the cooperation needs.

In the paragraphs below, we explore the key mechanisms for MS involvement (reporting obligations and participation in the Expert Group on Ship Recycling (ESR)), and the identified areas where cooperation between MS could lead to further improvement of the SRR implementation and enforcement.

Reporting obligations

Comprehensive reporting and data are an important element of the process of improving the implementation and enforcement of the SRR. This is why, the analysis starts with a review of the reporting obligations of Member States under Article 21. To facilitate this task the Commission with EMSA established the portal Dynamic Overview of National Authorities (DONA).

According to EMSA's analysis of Member States' reports for the period 1st January 2019 to 31st December 2021 at the DONA, the reporting was not comprehensive, as in November 2023, ten Member States, including Norway, submitted reports providing specific details or the certificates issued to their vessels, they have issued an RFRC. **Among the 24 Member States (including Norway)** fourteen Member States did not provide information. Six of them provided a specific statement that no RFRC had been issued. The others left the form blank. Three countries provided reports after the deadline – Greece, Lithuania, and Latvia and Czechia and Iceland, not at all. Table 3.17 below presents data on the countries that had sent ships for recycling during the relevant period.

Table 3.17 Number of vessels certificated for recycling as reported by Member States between 2019 and 2021

Member State	Ready for Recycling Certificate	Ready for Recycling Certificate + Statement of Completion
Austria	0	0
Belgium	2	2
Bulgaria	0	0
Croatia	1	1 ¹¹⁰
Cyprus	11	5
Denmark	9 (3 extra vessels were reported where the RFRC has not been received but the SOC has)	8 (including 2 where the RFRC has not been received but the SOC has)
Estonia	0	0
Finland	0	0
France	0	0
Germany	0	0
Greece ¹¹¹	8	6
Hungary	0	0
Ireland	0	0
Italy	6	4 ¹¹²
Latvia ¹¹³	0	0
Lithuania ¹¹⁴	0	0
Luxembourg	0	0
Malta	24	0
The Netherlands	7	4

¹¹⁰ Received in 2022.

¹¹¹ Report submitted on 17/05/2023.

¹¹² One Statement was received in 2022.

¹¹³ Report submitted on 24/04/2023.

¹¹⁴ Report submitted on 29/11/2022

Member State	Ready for Recycling Certificate	Ready for Recycling Certificate + Statement of Completion
Poland	0	0
Portugal	0	0
Romania	0	0
Spain	1	0
Slovakia	0	0
Slovenia	0	0
Sweden	1	1
MS TOTAL	73	31
EFTA Countries		
Norway	17	10
TOTAL	90	41

Source: Analysis of Member States' reports in DONA, EMSA and own elaboration.

Belgium and Italy were among the few countries that reported specific cases and detailed the measures and sanctions applied, shedding light on enforcement actions, such as significant fines for non-compliance.

In addition, according to EMSA, the dataset from the ten Member States, including Norway showed gaps, with 41% of the ship registers of the participating Member States missing the date of the RFRC, and only 29% containing information on the date of receipt of the SOC. A cross-check of the data submitted with MARINFO revealed at least **9 additional vessels should have been reported by the MS.**

In summary, in the first reporting period 2019-2021, the MS reporting was: **(1) not provided on time by all countries;** and **(2) did not provide comprehensive data on the recycled MS-flagged vessels.** This reveals some inadequacies in the systems for continuous monitoring and transparent reporting on ship recycling activities.

Participation in Expert Group meetings

The participation of Member States in the Expert Group on Ship Recycling (ESR) has generally been high. The available data for the attendance in nine Expert Group meetings in the period 2018-2022 shows that the **attendance rate has consistently exceeded 64%, with an average of 76% of member countries present.** Furthermore, it is important to note that all Member States have attended at least one meeting in the period 2018-2022, including landlocked countries, and only four have an absence rate higher than 70%.

Countries with significant ship recycling activities (as reported in Table 3.17 above) generally are present in all meetings, e.g. Norway, Malta, Italy, Denmark. At the same time, some other countries with high relevance to ship recycling took part in too few meetings in the reviewed period. This triggered the EC to send in April 2020 letters to invite two MS to intensify efforts to ensure an effective and successful implementation of the EU Ship Recycling Regulation in the future. This effort seems to have been successful, as the concerned Member States took part in the following three meetings in 2020, 2021, and 2022 for which the minutes are publicly available.

Beyond the attendance rates, **the minutes of the expert group meetings show in-depth debates covering all important subjects under the SRR with active MS participation** on topics such as ship recycling capacity and changes to the EU list, recycling trends, reflagging, IHM, enforcement (see the minutes of the 10th, 11th, 12th ESR, and 13th meetings).

Key areas for further MS cooperation on the improvement of SRR implementation and enforcement

A parallel study on the enforcement of the SRR, concluded that **cooperation could be enhanced where there are jurisdictional complexities**. For instance, when a ship is owned by a company domiciled in one country, flagged in a second, and then recycled in a third. In such cases, determining which set of regulations applies can be problematic and identifying the authoritative body responsible for enforcement further complicates the process, potentially resulting in a scenario where non-compliance slips through the cracks.

The IMPEL¹¹⁵ **End-of-Life Ships project also emphasised the need for guidance to support authorities in their enforcement practices**. Based on the responses to a questionnaire launched by IMPEL in 2021, IMPEL decided to launch a ship recycling project (2022-2024). This effort was initiated because enforcing the SRR obligation for EU-flagged vessels to use EU-listed recycling facilities poses significant challenges for national authorities. The IMPEL ship recycling project does not focus on the enforcement of illegal ships itself but on the improvement of collaboration between environmental and maritime authorities involved. The desired outcome of the project is to (i) clarify the differences between WSR and SRR; (ii) improve the cooperation between environmental and maritime agencies at national and international level; (iii) improvement of collaboration with European Institutions (European Commission, EMSA) and other Networks and NGOs; (iv) share practices knowledge (court cases, documents, reports and experiences); (v) develop guidance/leaflets for inspectors for better understanding of the WSR and the SRR. The final report of the project will give the state of actual situation on enforcement and compliance practices on WSR vs SRR. Within the project a database called Basecamp is being used to share relevant information between the mainly WSR competent authorities but also with maritime agencies which are participating in IMPEL. As noted by the IMPEL coordinator, in addition to IMPEL, there is **also bilateral cooperation with several countries within and outside the EU on topics related to SRR enforcement**.

Another aspect requiring coordination between MS is the setting of **penalties for infringements**. There are no minimum financial penalties in the SRR itself and it is up to Member states to set them. Therefore, 12 Member States (Belgium, Czechia, Greece, France, Ireland, Italy, Malta, Netherlands, Norway, Portugal, Romania, Slovenia)¹¹⁶ have adopted measures covering infringements of the different SRR provisions (full compliance). Additionally, 11 Member States (Bulgaria, Spain, Croatia, Lithuania, Poland, Slovakia, Cyprus, Denmark, Finland, Iceland, Sweden,)¹¹⁷ have adopted provisions on sanctions for some of the SRR measures (partial compliance) while seven (Austria, Germany, Estonia, Hungary, Ireland, Latvia, Luxembourg) did not have any specific measures.

Furthermore, 12 Member States (Belgium, Greece, France, Malta, Norway, Cyprus, Denmark, Finland, Iceland, Netherlands, Sweden, Slovenia)¹¹⁸ have the possibility to apply criminal sanctions for some infringements of the SRR. However, when regulatory bodies do manage to identify breaches in compliance, the penalties imposed might lack the severity to act as an effective deterrent. Regarding the severity of sanctions, it is widely perceived that **the existing administrative penalties for violations of the SRR in Member States are inadequately low to effectively discourage non-compliance**. This

¹¹⁵ The European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL) is an international non-profit association of the environmental authorities of the European Union Member States, acceding and candidate countries of the EU, EEA and EFTA countries and potential candidates to join the European Community. The association is registered in Belgium and its legal seat is in Brussels.

¹¹⁶ And Norway.

¹¹⁷ And Iceland.

¹¹⁸ As well as Norway and Iceland.

concern was thoroughly discussed during the stakeholders' workshop in June 2023, and a majority emerged in favour of substantially increasing the penalties. Interviewees argue that the Member States should consider the opportunity cost relative to the value of the ship, its materials, and the potential revenues from recycling. As they stand presently, the sanctions are viewed as insufficient.

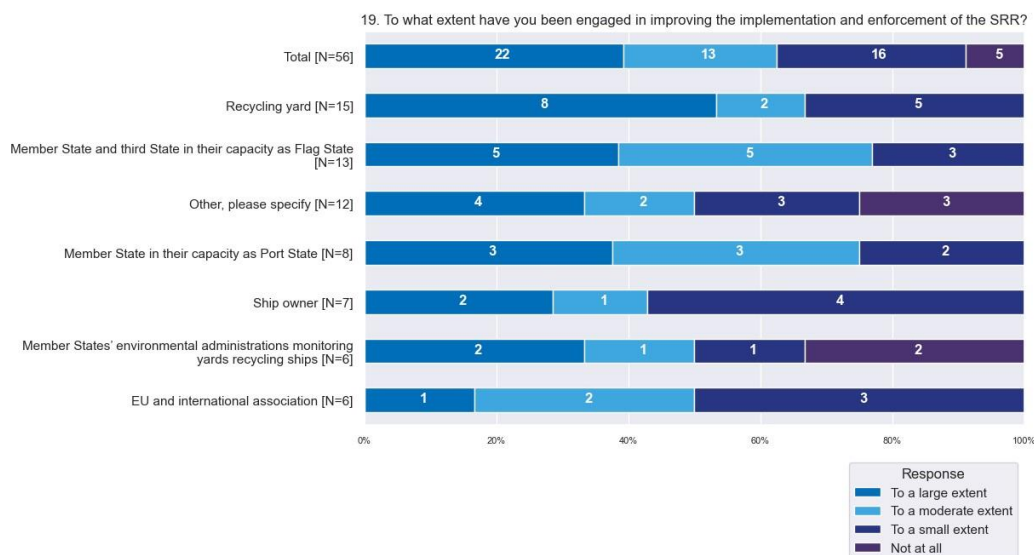
EU Member States enforcement authorities encounter the **challenging task of conducting intricate investigative operations at international level** to trace the journey of EU vessels that have been sold to cash buyers, serving as intermediaries on their way to the ultimate recycling destinations to substandard yards (mostly in in South Asia) once they've reached the end of their operational life.

Overall, there is no homogenous situation within the EU when it comes to enforcement. Stakeholders have however often raised that specialised training and investigation tools, as well as better coordination and information exchange mechanisms could contribute to a more effective enforcement.

EQ4.2: To what extent have stakeholders been engaged in the process of improving implementation and enforcement of the SRR?

Further to the MS engagement presented in the previous sub-section, The results of the targeted survey highlight the **strong commitment of other key stakeholders to the Regulation** (such as recycling yards and associations at EU level). A significant 62.5% of participants (35 out of 56 respondents) reported that they were either very or moderately engaged. This percentage rises to 91% when including stakeholders who acknowledged their involvement to a lesser extent. The entities reporting the most involvement were recycling yards, Member States, shipowners, international and EU associations.

Figure 3.20 Reported stakeholder engagement in the improvement of SRR implementation and enforcement



Source: Consortium elaboration based on the targeted survey.

Stakeholders have exhibited engagement in the process of improving SRR implementation and enforcement through their active participation in various activities. Illustrative of this engagement is their **active contribution to the expert group meetings**. Further to MS, the EC invites key stakeholders to these meetings, typically the NGO Shipbreaking

Platform (NGO SBP), the International Ship Recycling Association (ISRA) and the European Community Shipowners' Association (ECSA), so that they can present their main experiences and challenges encountered in relation to the implementation of the EU Ship Recycling Regulation.

Beyond the expert group meetings, stakeholders have been **quite active in making proposals to improve the SRR on concrete issues**, as well as on monitoring ship recycling activities and alerting enforcement authorities on possible illegal activities linked to ship recycling (notably Shipbreaking platform and ISRA). In addition to proposals, stakeholders also gathered regular valuable information and data on the situation of shipbreaking in various countries e.g. the data provided by the [NGO SBP](#) or BIMCO on the capacity.

The different stakeholders were also **very active during the evaluation process, which also shows their commitment to improving the SRR implementation and enforcement**. The targeted survey received a total of 79 responses, while the public consultation received 63 responses. In addition, a workshop held on 7 June, 2023 was attended by 63 stakeholders, reinforcing the active participation of different entities in the SRR dialogues. Annexes IV, V, and VI provide a detailed breakdown of the participation of the various stakeholders in each of these consultation activities.

3.1.2 To what extent is the intervention efficient?

The extent to which the SRR has established an efficient regime is assessed through three evaluation questions: the proportionality of costs and benefits (EQ5), exploration of the differences in the costs between countries and stakeholder groups (EQ6), and the possibilities for simplification / reducing costs (EQ7). The answers to these questions are briefly presented on the following pages.

EQ5. Are the costs related to the SRR proportionate to the benefits (overall and for different stakeholder groups)?

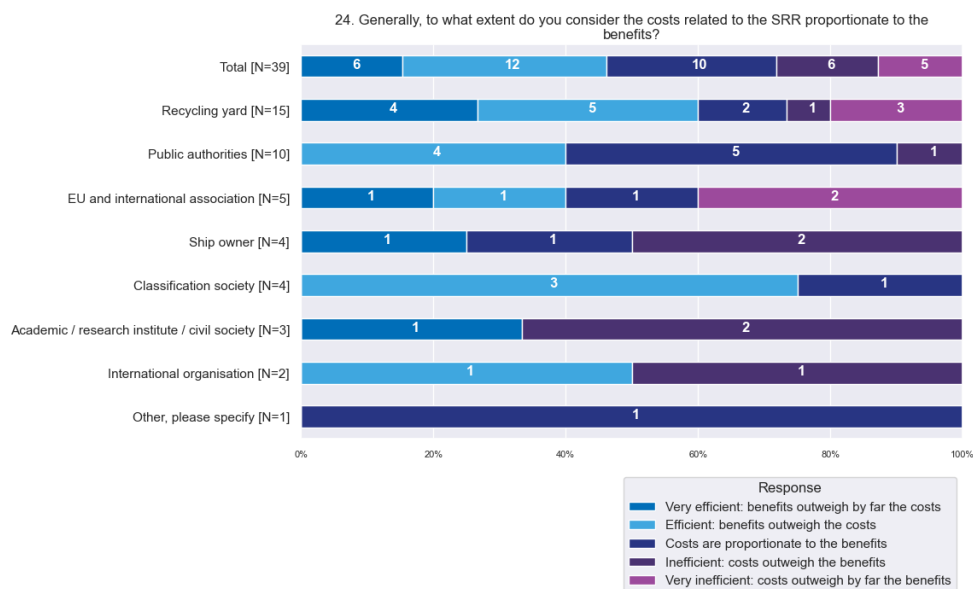
Main findings:

- Most stakeholders, including national competent authorities and recycling yards, **consider the costs associated with the SRR to be proportionate or outweighed by the benefits**.
- The **IHM-related costs can be considered as marginal for shipowners and generally do not require significant resources for inspections** (approx. 5% of the inspection costs).
- **The SRR requirements result in low to moderate costs for public authorities** - the authorities that provided data, indicated 1-4 full-time equivalents (FTEs), with on average 2 FTEs, per country working on issues related to the SRR (excluding Port State control inspections).
- Stakeholders indicate **high costs for improving infrastructure before inclusion in the European list of ship recycling facilities** (the costs vary across different countries and depend also on the availability of adjacent infrastructure and services), but the **investments can bring more revenues**.

Overall, a majority of stakeholders surveyed consider the costs entailed by the SRR to be at least proportionate - if not outweighed - by the benefits the Regulation brings. National competent authorities (Flag State and Port State control), classification

societies and most recycling yards surveyed agree that costs are proportionate to the benefits. However, some shipowners, academic, research and civil society organisations, and a minority of ship recycling yards surveyed disagree and consider that the costs outweigh the benefits (without providing reasons for this opinion).

Figure 3.21 Stakeholders' opinion on the question of the proportionality between costs and benefits



Source: consortium elaboration based on targeted survey questionnaire.

Overall, costs borne by stakeholders of the SRR are considered low or moderate for a majority of the requirements set by the regulation.

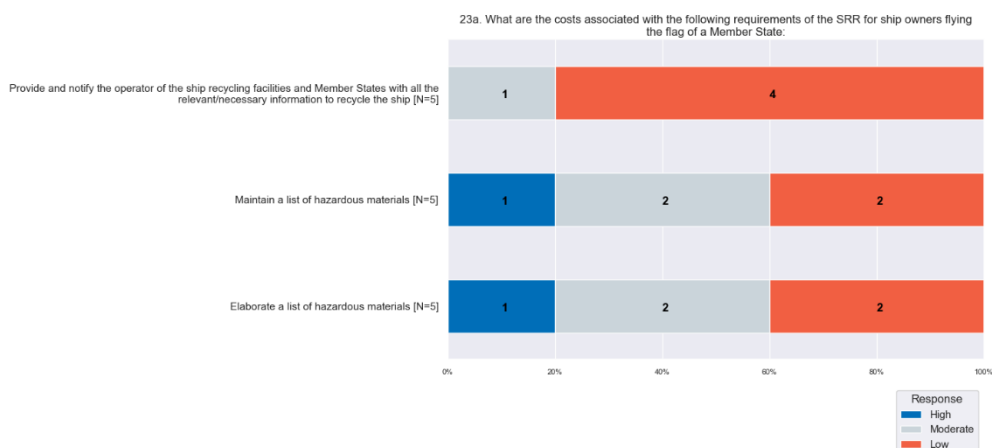
Direct regulatory costs for shipowners to elaborate and maintain a list of hazardous materials are considered low to moderate by most shipowners (4 out of 5 responses each). However, the process of establishing / keeping the inventory updated can be time-consuming and administratively complex, pushing shipowners to externalise these tasks to external suppliers.

According to one of these service suppliers interviewed, **the cost of an IHM can vary between EUR 3,800 and EUR 6,176 per ship**¹¹⁹, depending on the type/size of the ship and the quality of the inventory provided (see EQ6 on differences in costs). It should be noted that the HKC will also require an IHM, thus in the future these costs would also be associated with HKC-compliance, not just with the SRR. Regarding the maintenance of the inventory, the company indicates average costs ranging between EUR 475 and EUR 950¹²⁰ per ship per year, depending on the amount and complexity of the information to update. Thus, **the IHM-related costs can be considered as rather marginal. The administrative burden of informing recycling facilities and competent authorities for sending a ship for recycling are also considered minimal by shipowners** (see Figure 3.22 below).

According to some yards applicants but not yet on the EU list, the cost of a proper IHM they have to incur if the ship did not come with one is considered very high.

¹¹⁹ Conversion rate: USD 1 = EUR 0,95.

¹²⁰ Conversion rate: USD 1 = EUR 0,95.

Figure 3.22 Stakeholders' opinion on the question of the costs for shipowners

Source: consortium elaboration based on targeted survey questionnaire.

Requirements of the SRR also entail relatively **low to moderate costs for public authorities**. The authorities that provided data, indicated **1-4 full-time equivalents (FTEs) per country working on issues related to the SRR** (excluding Port State control inspections). Competent authorities responding indicate mobilising on average 2 FTEs. These are mostly used for conducting research on potential cases of violation and to perform checks and inspections on ship recycling facilities (which are in some cases performed by regional environmental authorities).

Member States' competent authorities report relatively low costs for reporting to the European Commission on the state of ship recycling. According to some national authorities, the reporting activity represents less than 5% of an FTE. Similarly, costs are considered as low for the cooperation with other national authorities, which may also suggest a relatively limited number of initiatives and activities conducted in this regard.

Public authorities indicate moderate costs (approximately 5-20% of an FTE) for granting ship recycling facilities authorisations in the EU. Costs associated with the control and inspection of inventory, Ready for recycling certificates and statements are also considered low (3 out of 6 responses each).

In the case of inventory inspections, port state authorities interviewed explained that these inspections can be combined with other controls and be rapidly performed through a yes or no questionnaire, i.e. **IHM checks do not require significant resources**. In the Commission expert group held in early 2024, some Member States however underlined that inspection and control activities as outlined under the 2019 EMSA Guidance on ship recycling inspections refer to several items that are clearly not paper checks. Whereas the Port State Control Directive does describe the authority for inspectors to conduct these inspections, these inspectors are not traditional PSCO checking international conventions. For these controls to be effective, there is a need for more training, resources, and investigation tools which has a cost, which should also be considered¹²¹.

¹²¹ The SRR Impact Assessment estimated the cost of "Administrative costs related to the checking of the existence and the correctness of the inventories" at 32,5 €/ship calling European ports in administration (see p. 124 in the [SWD](#)). However, the data on which this estimate is based is outdated (the IA was performed more than 12 years ago, and moreover, these estimates do not take into account the 2019 EMSA Guidance).

The table below provides an overview of the costs related to the implementation of the SRR for national administrations.

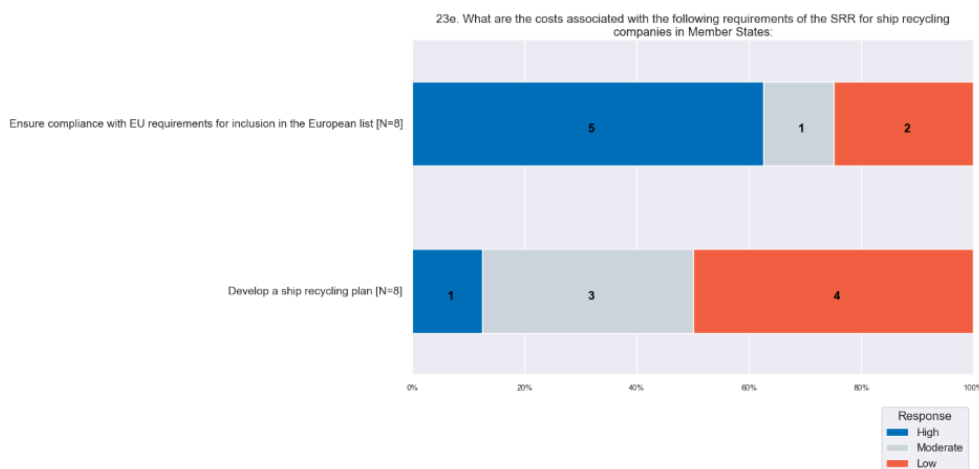
Table 3.18 Overview of the SRR costs for national administrations (in % of total time dedicated by administrations for the SRR)

Type of costs	Activity	Percentage of time dedicated by national administrations to the activity out of all other activities related with the SRR
Direct compliance costs	Approve ship recycling plans (Article 7)	7 to 10%
	Perform surveys of ships (Article 8)	Typically outsourced to recognised organisations (30% when not outsourced)
	Issue and endorse inventory and ready for recycling certificates (Article 9)	Typically outsourced to recognised organisations (10% when not outsourced)
	Authorise ship recycling facilities (Article 14)	Between 5% and 20%
Enforcement costs	Reporting by Member States (Article 21)	<5%
	Enforcement (Article 22)	Varies significantly, depending on the type of administration, specific country, and variety of SRR cases – from 3% to 50%
	Port State controls (Article 11)	Varies, but likely less than 5% of the time needed for a Port State control inspection
Administrative costs	General communication with the sector, general public or the EC	12%

Source: Based on interviews and additional information provided by national competent authorities.

For **recycling yards** (both listed and non-listed), direct regulatory costs linked to the development of a ship recycling plan are considered low (4 out of 8 responses) and vary depending on the location (see EQ6). However, a majority of recycling yards surveyed and some interviewees **indicate high costs associated with complying with the requirements set in the SRR to be included in the European list** (5 out of 8 responses).

While compliance costs are considered high, half of the recycling yards surveyed, seconded by shipowners and from the steel industry (7 out of 13 responses) also stress that the **SRR was a decisive factor in the evolution of their revenues**. The SRR plays a role in stimulating investors' funding to establish recycling facilities, while another mentioned that the SRR incentivised the facility to use better quality personal protective equipment, which reduced workers' injuries and therefore resulted in lower costs. Additionally, a majority of respondents to the public consultation (46 out of 63 replies) sees the brand value and an increase of reputation for the facilities included on the EU list, bringing and more customers and commercial benefits to the listed facilities.

Figure 3.23 Stakeholders' opinion on the question of the costs related to inclusion in the European list and developing a ship recycling plan

Source: consortium elaboration based on targeted survey questionnaire.

The management of the EU list also incurs some regulatory and compliance/enforcement **costs at the EU level**, which amounted to 1.4 million between 2016-2020 and to 1.5 million for 2020-22, with at least one-half Full Time Equivalent within the European Commission dedicated to the management of the EU list. These management costs include inspections of ship recycling facilities located in third countries as well as follow-up inspections in the case of fatal incidents in recycling yards. **Inspection costs vary from EUR 30,000 to 80,000 depending on the type of inspection performed and the necessary prior or post-desk assessment necessary for the inspection.** While these costs cannot be considered excessive, for the sake of exploring efficiency gains, there could have been consideration of other options, including delegating the operational management of inspections to EMSA.

Table 3.19 Overview of EU-costs related to the management of the EU list for third countries facilities

Costs	Breakdown
EUR 1.4 million paid between 2016-2020 and 1.5 million paid between 2020 and 2022	EUR 1.5 million already spent between 2020 and 2022 Examples of typical costs: <ul style="list-style-type: none"> • Costs for an inspection of a ship recycling facility in Türkiye: between EUR 30,000 and 80,000 (depending if it is the first inspection or not, and on the extent of the desk assessments prior to and after the inspection), in Bahrain EUR 70,000, in the UK – EUR 60,000; • Cost for desk assessment of a ship recycling facility in India: approx. EUR 18,000; • Cost for an inspection of ship recycling facilities in India: approx. EUR 35,000-45,000; • Cost for assessment of accident investigation following a recent fatal incident in Türkiye: EUR 15,000.
At least half an FTE	Dedicated to the management of the EU list

Source: consortium compilation.

Quantification of indirect regulatory costs linked to the circumvention of the regulation as well as spillover effects are not provided due to the lack of available data.

EQ6. Are there significant differences in terms of costs (or benefits) for Member States and different stakeholder groups, and if so, what are the underlying causes?

Main findings:

There are **significant differences in terms of costs for MS and stakeholder groups, but they are not due to the SRR**. The costs associated with the SRR depend largely on:

- different implementation practices across MS (e.g. on the way IHM and recycling yard inspections are performed, the number of Port State Control Officers, enforcement powers among authorities);
- the willingness of shipowners to invest in quality IHMs; and
- the specific needs of recycling yards to invest in infrastructure/services upgrades.

Most differences in terms of enforcement costs can be noted **between competent authorities** implementing the SRR, but it is important to recognise that the responsibilities for implementing the different requirements of the SRR are also different among Port State, Flag State, and environmental authorities. Public authorities recognise that the SRR adds a layer of work that requires special attention and additional resources (e.g. in cases of infringements or criminal cases) but do not put the burden of the legislation requirements into question. Ultimately, the costs per competent authority depend on the organisation, size, intensity of shipping, specific infringements, etc. rather than on SRR requirements. As indicated in the previous EQs, interviews with Port State Control Authorities/inspection Authorities suggest that the costs of the SRR are minimal for them as inspections of inventories can be combined with other activities, but **ship-inspection requirements and practices across Member States are not considered uniform by the stakeholders**.

For example, the number of Port State Control Officers (PSCOs) varies significantly across Member States as per Article 29 of Directive 2009/16/EC. While the SRR does not oblige EU Member States to have designated SRR inspectors to carry out site inspections, Denmark, Finland, Poland, and Romania have designated SRR inspectors in addition to their PSCOs.

Table 3.20 Number of SRR inspectors and PSCOs per country

Country		PSCOs carrying out ship inspections as per Article 29 of Directive 2009/16/EC
Austria	0	0
Belgium	0	10
Bulgaria	0	4.8
Croatia	0	17 (part-time)
Cyprus	0	2.31 (2 full-time, 5 part-time)
Czech Republic	0	0
Denmark	20; Inspection done alongside PSC	20
Estonia	0	9
Finland	21	8
France	0	88
Germany	0	38 (Ship Safety Division - DS)
Greece	0	63
Hungary	0	0
Iceland	0	2

Country		PSCOs carrying out ship inspections as per Article 29 of Directive 2009/16/EC
Ireland	0	4.75 (full-time equivalent)
Italy	0	38.12 (full-time equivalent)
Latvia	0	9
Lithuania	0	3 (full-time)
Luxembourg	0	0
Malta	0	2 full-time, 1 part-time
Norway	0	47
Netherlands	0	26
Poland	9	11
Portugal	0	8
Romania	5	5 (full-time)
Slovakia	0	0
Slovenia	0	0
Spain	0	91
Sweden	0	19

Source: DONA Country Profiles (2023).

Therefore, the costs associated with these inspections are likely to differ between MS (see Table 3.20 in EQ6).

Interviewees shared that the same is valid when it comes to enforcement practices in cases of infringements. In this regard, resources envisioned for enforcement may differ between MS, but this is also **due to the willingness and abilities of administrations to invest in enforcing the SRR**. Additionally, there are **diverging enforcement powers among authorities across Member States**. Enforcement measures specified in the SRR may not always be directly enforceable by inspectors due to varying legal authorities granted to them by their respective Member State laws. Some inspectors have the capability to directly enforce measures such as issuing warnings, ordering suspensions, or detaining vessels, while others are required to involve the court or other relevant authorities to implement such measures, resulting in different procedures and therefore costs.

There are notable differences in terms of costs across **environmental administrations** from different Member States. Interviews conducted with a couple of them suggest that the administrative workload to enforce the regulation can be minimal (around 2 FTE) as the national legislation is already well in line with EU standards. Feedback received from another authority shows that enforcement costs are higher and can reach up to 4 FTE at the national and 1 to 4 FTE at the regional levels. Differences in costs can also be explained by geographic factors as well as the volume of ships coming in and being recycled in the relevant jurisdiction. As illustrated in EQ1.2., the number of inspections of ships conducted per year vary from a couple in some Member States to more than 200 in others, therefore requiring different levels of resources.

Differences in the costs can be observed for the **development and maintenance of the IHM by shipowners**. Interviews conducted with shipowner associations and specialised companies indicate that the quality of such inventories largely depends on the willingness of stakeholders to invest in the proper assessment of hazardous materials. Costs to develop an IHM can vary depending on the methods applied, which for example can range from a couple of Euros (EUR 8) to more than EUR 50 per sample depending on how thorough the inventory is developed / updated. Therefore, the price of an IHM can vary

significantly (between EUR 3,800 and EUR 6,176 per ship¹²²) depending on the type/size of the ship and the quality of the inventory provided. Even if the requirement for preparing and maintaining an Inventory of Hazardous Materials (IHM) on ships, is assessed positively by all stakeholders (see EQ1), some shipowners are tempted to select the cheaper options proposed by service providers.

Notable differences can be observed across regions in the **costs to develop a ship recycling plan**. Estimates provided by different recycling yards surveyed indicate costs ranging from GBP 2,000 in the United Kingdom, USD 80,000 in the United States to EUR 100,000 in Norway. No estimates are available for MS countries.

Finally, **differences are also observed regarding the compliance costs to meet the EU list requirements between EU and non-EU recycling yards**. EU recycling yards surveyed indicate minimal costs, as the yards are already complying with all existing EU legislation, while recycling yards in Norway, the United States and India mention high capital investment costs. In the US, such compliant costs are estimated to USD 500,000 while in India, the Gujarat Maritime Board planned in 2016 to upgrade the ship recycling yard of Alang Sosiya in Gujarat to modernise it into a safe and environmentally sound recycling yard has mobilised INR 1,630 billion (approx. EUR 185 million). These costs included an upgrade of the 167 recycling plots, and the construction of an incinerator at the waste treatment storage and disposal facility. Additionally, the plan included the construction of two new dry-docks to decontaminate ships and of a waste oil treatment system, which are yet to be built.¹²³

EQ7. Are there opportunities to simplify the legislation or reduce unnecessary regulatory costs/burdens without undermining the intended objectives of the intervention?

Main findings:

- Most surveyed stakeholders see opportunities to simplify the legislation / reduce costs but did not specify what these opportunities could be;
- Concerns were raised by national authorities and industry stakeholders on possible redundant obligations between the SRR and the HKC after the entry into force of the latter which indicates a need for further cooperation between national administrations to assess the implications of the two legislations.

More than half of the survey respondents (31 out of 45 responses) see opportunities to simplify the legislation or reduce unnecessary regulatory burdens. Among the areas for improvements, suggestions were made to digitalise ship recycling plans and have them available in an online database. Additionally, both EU and non-EU recycling yards suggest simplifying the procedure to approve recycling facilities in the European list and reducing the period for companies to be officially listed and published in the list.¹²⁴ Another suggestion discussed during interviews was to increase the approval period during which facilities can be listed on the list from five to 10 years.

¹²² Conversion rate: USD 1 = EUR 0,95.

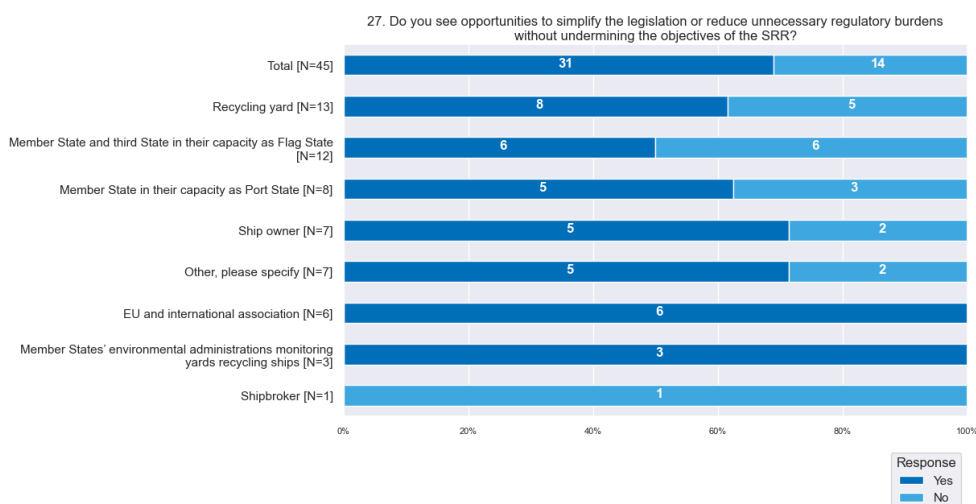
¹²³ Mecon Limited, Gujarat Maritime Board (2016). Proposed Upgradation of Existing Ship Recycling Yard at Alang Sosiya, Gujarat For Undertaking Safe and Environmentally Sound Ship Recycling Operations. Available here: https://www.jica.go.jp/Resource/english/our_work/social_environmental/id/asia/south/india/c8h0vm00009ulddw-att/c8h0vm0000ahd7tr.pdf.

¹²⁴ Suggestion is made to have companies included in the list within one month instead of having to wait for up to a 6-month period when the revised list is published.

Other suggestions coming from a couple of recycling yards include to make the overall process for ships to be recycled in a listed facility easier. The complexity of applying for a permit to move a ship to a listed yard and delays between the buying of the ship and its arrival into the yard are two other factors seen as hampering listed yards to operate efficiently. Stakeholders consulted did not specify in detail which specific procedures they were referring to.

A few competent authorities interviewed also expressed concerns about the complexity of procedures for issuing Inventory certificates. They provided a number of suggestions for simplification – primarily targeted to national competent authorities – which include: providing further guidance and documentation to shipowners on the steps and requirements to obtain a certificate, setting up digital platforms where the necessary documentation can be submitted electronically to streamline the overall certification process as well as investing in training and capacity building programs for enforcement authorities and industry stakeholders involved in the certification process.

Figure 3.24 Stakeholders' opinion on the question of opportunities to simplify the legislation and reduce regulatory burden



Source: consortium compilation.

The future entry into force of the HKC is perceived by shipowners as a way to simplify the overall legislative framework, providing a global regime which can ensure a level playing field for ships worldwide. **Concerns are raised on the possible redundancies that the co-existence of the two legislations** could bring for stakeholders involved with the SRR. This could reportedly be the case for the IHM and the certificates shipowners have to provide. The IHM certificate issued to comply with the SRR should also be accepted under Regulation 11(12) of the HKC (as the scope is the same except for two additional chemicals that are included in Annex 1 of the SRR (PFOS and HBCDD)). A couple of public authorities interviewed mentioned exploring through separate processes the consequences of the entry into force of the HKC, which indicates a need for further cooperation between national administrations to assess the implications of the HKC and potential inefficiencies with the SRR.

While a few competent authorities surveyed indicate a need for clarification on the penalty regime to ensure greater harmonisation within the EU, they did not raise particular concerns regarding the enforcement reporting obligations as foreseen in Article 22. On the contrary, a few authorities interviewed consider the obligations relevant and justifying the administrative costs incurred. In this regard, reporting obligations for competent authorities

in the SRR can be considered as relevant as they are also included in the HKC and proportionate as their scope and number are limited.¹²⁵ However, with the entry into force of the HKC, the duplication of reporting obligations under the SRR and the HKC should be avoided and streamlined to avoid unnecessary administrative burden.

3.1.3 To what extent is the intervention coherent?

The coherence aspect is covered in three evaluation questions, which start with internal coherence (EQ11) and then continue with the external coherence (EQ12 and EQ13).

EQ11. To what extent is the SRR internally consistent and coherent?

Main findings:

- Stakeholders consider the SRR **internally coherent and consistent within its provisions**; no cases of incoherent/overlapping provisions were identified;
- At the same time, some concerns were raised regarding the **clarity/scope of the definitions** for “waste”, “shipowner”, “ship recycling”, and the lack of a definition of “End-of-Life” vessels;
- **Stakeholders expressed the need for clarification of the standards required for inclusion in the EU list of ship recycling facilities and of the cases where a yard should be suspended or removed from the list.**

Overall, the SRR is internally coherent and consistent within its provisions: Stakeholders were overall positive about the coherence/consistency between the provisions of the SRR. This is also clear in the intervention logic of the SRR and the specific result pathways (Annex II), which show clear and logical links and no inconsistencies. Nevertheless, some concerns were raised in terms of key definitions.

Key definitions

An element of inconsistency within the SRR comes from a lack of clarity in some definitions, potentially resulting in misinterpretation of the regulation in practice and certain key definitions were identified as needing clarification. This includes a fundamental aspect of the regulation: **what constitutes ‘waste’?** Within the literature, and also mentioned by several stakeholders, there are uncertainties in determining how and when ships become waste under the SRR. The Regulation refers to the definitions of waste as set in the Waste Framework Directive (WFD)¹²⁶ for the purpose of Article 7(2)(d) and Articles 13, 15 and 16. However, for the determination about when the ship becomes a waste, Article 6 of SRR refers to the notions of “preparing to send a ship for recycling” and to “ship destined to be recycled”. This is related to a notification procedure to the relevant administration of the “intention to recycle the ship” in a specified ship recycling facility or facilities.

The practical interpretation of ‘waste’, by enforcement authorities, is that a ship becomes waste once the shipowner has notified a recycling centre of its intention to recycle, and on this final voyage, the ship is then considered waste. However, if a ship leaves the EU on a commercial voyage with no specific notification for its disposal, there is a possibility it can be disposed of in an unregistered or non-EU listed facility. Stakeholders, including NGOs

¹²⁵ The HKC notably foresees obligations to report investigations carried out for violations both from the administration detecting the violations and the administration of the ship concerned (Article 12).

¹²⁶ Directive 2008/98/EC on waste.

and international associations, mentioned that **there is an absence of enforcement of legal powers or repercussions to deter this practice.**

In line with the above, the lack of a clear **definition for "End-of-Life"** vessels poses a challenge for enforcement authorities in identifying ships ready for recycling and detecting breaches of the obligation to recycle in EU-listed yards. Stakeholders consulted acknowledged the complexity of this issue and provided the following suggestions:

- Defining an "End-of-Life" vessel solely based on price is challenging. If the scrap value surpasses that of an operational vessel, recycling it in the EU would require an extremely low operational value due to lower prices in EU yards;
- Implementing a time limit for when shipowners can no longer sell vessels for operation could be considered to designate them as "End-of-Life." Stakeholders suggested obliging shipowners to declare whether they sell for operation or scrap. However, setting a time limit based on a vessel's age may conflict with IMO emission reduction goals, which demand new technological solutions for longer vessel lifespans;
- While a specific definition might not entirely solve the issue due to various factors influencing shipowner decisions, suggestions included setting a time limit of 30-35 years or considering compliance with classification society requirements for older vessels. Vessels older than the prescribed time limit, but meeting all classification society requirements, could still operate.

Responses to the targeted survey noted that the SRR lacks clarity on the exact allocation of responsibilities of the different parties. According to them, the current definition of **'shipowner'** in the SRR as it stands does not provide sufficient clarity on the exact responsibilities of the multiple parties that may be responsible for the ship over its life cycle. The existing definition refers to the "natural or legal person registered as the owner of the ship," encompassing those owning the ship temporarily pending its sale or transfer to a recycling facility. It also includes individuals or entities such as managers or bareboat charterers assuming operational responsibility in the absence of registration, as well as the legal entity operating a state-owned ship (Article 3(14)). However, ships often have several owners or managers, and a few stakeholders surveyed noted that it is not clearly identified in the regulation who exactly is responsible for certain actions or requirements, without providing specific examples. Enforcing authorities face limitations when investigating cases involving a change of flag of EU-flagged vessels before recycling. Proving the shipowner's intent to recycle the vessel prior to selling it to a non-EU-based cash buyer is complex, with responsibility often transferred to the new shipowner outside the EU, thus escaping the SRR scrutiny. Considering these limitations, some stakeholders suggested introducing the concept of 'Beneficial Owner' - the **ultimate beneficiary** of any monetary gain from the use or sale of a ship and often makes the final decision on scrapping or recycling¹²⁷. In addition, they also suggested being more specific on which parties (i.e., Beneficial Owner, the commercial operator, or any other intermediate shipowners or managers who may have competence). Some other stakeholders on the other hand, voiced the difficulties in incorporating the concept of beneficial ownership in SRR. At global level, definition of shipowners is well defined and used globally for safety and environmental standards; other approach is seen out of the remit of the EU. EMSA also shared its experience with EQUASIS that included a field for beneficial owner in the past, and almost all complaints they received were about having the wrong beneficial owner listed.

¹²⁷ See [https://shipbreakingplatform.org/our-work/glossary/#:~:text=The%20Beneficial%20Owner%20\(BO\)%20is,sell%20a%20vessel%20for%20scrap.](https://shipbreakingplatform.org/our-work/glossary/#:~:text=The%20Beneficial%20Owner%20(BO)%20is,sell%20a%20vessel%20for%20scrap.)

Overall, stakeholders found that **the definition of ‘ship recycling’ itself**, was too narrow to align with broader sustainability goals. In the SRR, ship recycling is defined as “the activity of complete or partial dismantling of a ship at a ship recycling facility in order to recover components and materials for reprocessing, for preparation for re-use or for re-use, whilst ensuring the management of hazardous and other materials, and includes associated operations such as storage and treatment of components and materials on site, but not their further processing or disposal in separate facilities”. They notably suggested to expand the definition of ship recycling beyond the activities of the ship recycling facility and include the entire lifecycle of materials dimension to make the definition more consistent with the objectives of the European Green Deal and circular economy goals. At the same time, it should be noted that including the further processing or disposal of components and materials from ships in separate facilities (i.e., not in the ship-recycling facilities) could be too wide for the scope of the SSR and could be covered by other legislation.

Procedure and requirements for inclusion in the EU list

Stakeholders, predominantly from non-EU recycling yards, noted that the procedure to enter the list is overly time-consuming and complicated and creates unnecessary obstacles, particularly for new market participants. The ***different auditing and approval processes for EU versus non-EU yards*** were considered by some stakeholders to be balanced against non-EU yards and to contribute to reducing the level playing field for the industry worldwide. Articles 14 and 15 refer to the “authorisation of ship recycling facilities located in a Member State” and “ship recycling facilities located in a third country”, respectively.

The argument of the level playing field is however also used by yards located in the EU and NGOs, balanced against EU yards. Also in this context (but not only) there is a **general call by stakeholders for clarification of the EU-listed standards required**

Beyond the calls for further definition of the standards for ‘ideal’ facilities, some interviewees expressed concerns that the following SRR text is not specific enough as concerns third-country yards receiving waste: “For the purposes of Article 13, with regard to the waste recovery or disposal operation concerned, environmentally sound management may only be assumed to be in place provided the ship recycling company can demonstrate that the waste management facility which receives the waste will be operated in accordance with human health and environmental protection standards that are broadly equivalent to relevant international and Union standards” (Article 15(5)). **Not being specific on what “broadly equivalent” to the EU standards means, may open the door for double standards.** Stakeholders (particularly from the NGO sector) expressed the need for more clarity on the standards for recycling yards included in the EU list (both EU and non-EU facilities). They notably suggest adding criteria to evaluate waste management and steel recovery operations as well as provisions for yards to establish more efficient waste management system, effective pollution control measures and use cleaner technologies for their dismantling and recycling activities.¹²⁸

The need for clarifying that EU listed yards should not apply double standards towards EU and non-EU flagged ships was also raised. In this regard, Article 3(4) of the HKC clarifies that parties are required to ensure that no favourable treatment is given to ships entitled to fly the flag of non-parties to the Convention.

¹²⁸ NGO Shipbreaking Platform (2023). Ship Recycling in Turkey – Challenges and future Direction. Available at: <https://shipbreakingplatform.org/wp-content/uploads/2023/12/Turkey-Report-2023-NGOSBP.pdf>.

The targeted surveys also raised questions on the coherence of specific provisions within the SRR. In terms of the **reporting obligations of recycling yards**, one Member State (which responded as a flag and port state) noted that the wording of Article 13(2) of the Regulation is not consistent and has led to internal confusion regarding which authority or entity should be addressed through the reporting. Article 13(2) specifies that ship recycling facilities must report to the ‘administration’ that the facility is ready to start the recycling of a ship. According to the definitions laid out in the regulation, this means that the report should be sent to the flag state authority of the ship. However, it was highlighted that it would be more appropriate for the authorities responsible for the ship recycling facilities to be notified in this case, rather than the flag state of the ship, in order to ensure the recycling process taking place is compliant with environmental and safety requirements. In its Regulation (24(3) and 25), the HKC foresees the notification to the competent authorities of the recycling facility that should inform the flag state administration. Having this notification process to both administrations ensures that the recycling facility is properly monitored by its competent authorities and compliant with the requirements set in the regulation.

Article 30(2) - alignment with the HKC

One issue raised by the targeted survey was the content and coherence of Article 30(2) of the Regulation. Stakeholders commented on the lack of clarity about *when and how* the SRR will align with the developments of international conventions. The SRR is predominantly based on the HKC, therefore Article 30 referring to the review of the Regulation, contains a paragraph on the entry into force of the HKC, which is seen as unclear regarding action and timing. Article 30(2) mentions that the “*review shall consider the inclusion of ship recycling facilities authorised under the Hong Kong Convention in the European List in order to avoid duplication of work and administrative burden*”. However, some stakeholders, specifically international associations, believe the article may need to be revised considering the disparities and lack of a comparable system in authorising ship recycling facilities between the SRR and the HKC.

EQ12. To what extent is the SRR coherent with other existing EU environmental and maritime legislation (such as the Waste Shipment Regulation, the Waste Framework Directive and other EU waste legislation, the Port State Control (PSC) Directive and the Flag State requirements Directive)?

Main findings:

- The **SRR complements the Waste Shipment Regulation (WSR)** by covering ‘operationally generated waste’;
- There are **high levels of coherence with the EU Directive on environmental crime and the Waste Framework Directive**;
- Also, **high levels of coherence with the Port State Control (PSC) Directive and the Flag State requirements Directive** have been observed.

EQ 12.1: Is the SRR coherent with the Waste Shipment Regulation, in light of the entry into force of the Basel Ban Amendment (i.e., an export ban outside the OECD)?

The SRR and the WSR have a similar geographical scope in that they cover EU countries as well as the non-EU countries which interact with EU ports, imports, exports, or which have ships transiting through the EU. The SRR complements the WSR by covering a further dimension of waste related to ships: the WSR excludes waste generated on board

ships through their normal operation, otherwise known as 'operationally generated waste', whereas this is included under the scope of the SRR.

In a bid to reduce legislative overlaps, and subsequently ensure legal clarity and avoid unnecessary administrative burden, ships falling under the scope of the SRR were no longer covered by the WSR. This is an important derogation as the WSR is founded in the Basel Convention and implies that the SRR intends to take the place of the WSR as the binding EU legislation which encompasses its objectives. The SRR only covers EU-flagged vessels, therefore, vessels with non-EU flags which are sold for scrapping while they are in European waters are still be covered by the Waste Shipment Regulation. While this avoids overlaps, it could also be considered incoherence and a source of confusion, considering that end-of-life ships located in the EU are covered under different regulations based on their flag states.

What could also be seen as an incoherence between the two regulations lies in the fact that the WSR prohibits exports of waste for disposal outside of the EU (except EFTA Basel countries) and exports for the recovery of hazardous waste are prohibited (except for countries where OECD decision applies¹²⁹). Conversely, the SRR allows exports of end-of-life ships to non-EU countries, provided that they are recycled at an EU-approved facility.

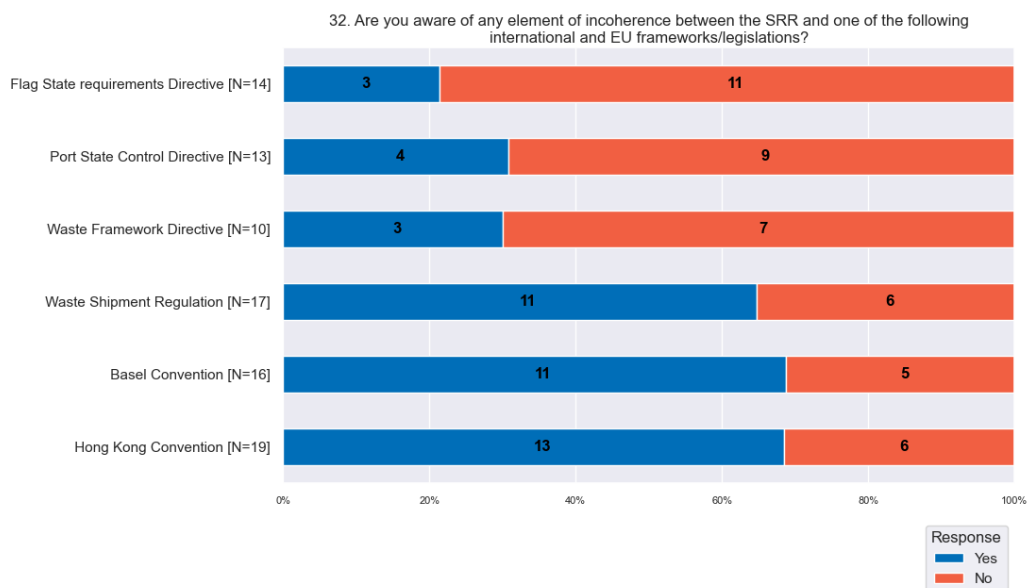
Also, unlike the WSR, the scope of the SRR is more limited regarding the disposal of materials beyond the ship recycling facility (as mentioned earlier).

In a bid to align the two regulations and above all meet its international obligations following the entry into force of the Basel Ban Amendment, **the European Commission proposed in 2021 extending the scope of the WSR** to include EU-flagged vessels that have become waste within the EU, and as a result these vessels would also become subject to the Basel ban amendment so that they could not be exported outside of OECD countries. The new WSR including this principle will enter into force in 2024.

The different approaches identified above between **the SRR and the Waste Shipment Regulation are reflected in the results of the targeted survey**. Respondents were asked whether they are aware of any elements of incoherence between the SRR and the WSR and 11 out of 17 respondents indicated that they were aware of incoherence (Figure 3.25). Interviewees (including a Member State environmental administration monitoring recycling yards and an NGO) also highlighted the ambiguity and inconsistencies between the SRR and the WSR, mostly in the definitions presented in the SRR, as compared to those already in existence in the WSR.

¹²⁹ Decision C(2001)107/Final of the OECD Council concerning the revision of Decision C(92)39/Final on control of transboundary movements of wastes destined for recovery operations.

Figure 3.25 Stakeholders' opinion on the awareness of elements of incoherence between the SRR and other international and EU frameworks/legislations



Source: consortium elaboration based on targeted survey questionnaire.

EQ 12.2: Is the SRR coherent with the EU Directive on environmental crime, the Waste Framework Directive and the other EU waste legislations?

To increase and incentivise compliance with EU environmental law, the Environmental Crime Directive was established to supplement the existing sanction system with criminal law penalties. Under the Environmental Crime Directive, there are serious penalties for discharging, emitting or otherwise releasing dangerous materials into the air, soil, or water; collecting, transporting, recovering or disposing of hazardous waste; and shipping noticeable quantities of waste. The new Directive on environmental crime¹³⁰ complements the SRR by requiring Member States to establish criminal sanctions for harmful and environmentally damaging ship recycling practices arising from exporting ships for substandard shipbreaking.

The Waste Framework Directive (WFD) sets out a hierarchy for waste management and a framework for the management of waste streams. There are several synergies with the SRR, namely that it promotes the reduction of hazardous substances present in materials and products; that it aims to stop the generation of marine litter; and that it focuses on reducing waste generation. Similarly, the WFD¹³¹, Member States must “encourage the design, manufacturing and use of products that are resource efficient, durable, repairable, reusable and capable of being upgraded”¹³². The SRR exhibits elements of coherence with this requirement of the WFD due to its role in implementing the HKC in the EU context. More specifically, the SRR specifies that the environmentally sound and safe recycling of ships should be factored into the decision-making in the design, construction, and

¹³⁰ Directive on the protection of the environment through criminal law and replacing Directive 2008/99/EC, final compromise text, 1 December 2023. Available at: <https://data.consilium.europa.eu/doc/document/ST-16069-2023-INIT/en/pdf>.

¹³¹ See also Directive (EU) 2018/851 of the European Parliament and of the Council of 30 May 2018 amending Directive 2008/98/EC on waste.

¹³² See also <https://eur-lex.europa.eu/legal-content/EN/LSU/?uri=celex:32008L0098>.

operational phases, and can be compared to the encouragement of resource efficient and reusable design and manufacturing required under the WFD.

Coherence with the Waste Framework Directive was positively acknowledged in the targeted survey results, with 7 out of 10 respondents unaware of incoherence between the two regulations. Stakeholders replying being aware of incoherence did not specify their answers. As identified from the research, the SRR tends to complement the objectives of the WFD.

EQ 12.3: Is the SRR coherent with the Port State Control Directive and the Flag State requirements Directive?

The Port State Control (PSC) Directive was designed to establish common criteria for the control of ships by port States and to harmonise the procedures for inspection and detection in order to reduce substandard shipping in the EU, to increase compliance with EU and international legislation on pollution and living/working conditions for on-board staff. The SRR cohesively integrates the PSC Directive through Article 11, where it notes that national law encompassing the PSC Directive should be followed. The scope of the SRR in port state control is rather limited, however, in addition to general compliance with the PSC Directive, it specifies that ships destined for recycling must provide either an inventory certificate or a Ready for recycling certificate to port authorities. If, during the initial inspection, the port state control inspector's general impressions or observations on board reveal clear grounds which in his professional judgement warrant a detailed inspection under the SRR of an EU ship, the inspector may proceed to further investigate if the ship substantially meets the relevant requirements of the SRR.

Stakeholders generally agree that the PSC and the SRR complement each other. This is reflected in the targeted survey responses as 9 out of 14 respondents are not aware of incoherence. However, of those who were aware of incoherence, they specified that the PSC Directive should require inspections to include verification of a ship's intent to go to a shipyard, therefore offering additional strength to the provisions of the SRR and minimising the loopholes.

The Flag State Requirements Directive aims to enhance safety and prevent pollution from EU-flagged vessels. As the Directive has a very specific scope, there is little overlap or similarities with the SRR. However, there is potential for synergies between the two initiatives where monitoring and accountability for flag states are concerned. Through the Flag State Requirements Directive, before allowing a ship to fly its flag, Member States can verify the ship's compliance with international and EU legislation, particularly regarding any safety issues, and can also consult the previous flag state if necessary. The increased transparency and accountability offered through the Directive could potentially support the SRR in investigating flag changes which may be intentionally made prior to dismantling in order to circumvent SRR requirements. Targeted survey respondents agreed with the identified lack of incoherence (11 out of 14 are not aware of elements of incoherence).

EQ13. To what extent is the SRR coherent with other relevant international policies and instruments, such as the Basel Convention and the IMO Hong Kong Convention?

Main findings:

- As for WSR which transposes the Basel Convention into EU law, there are **synergies in the overall goals**, but also an **apparent contradiction** - while the Basel Convention encourages processing waste as close to the source as possible, the SRR allows for disposal outside of the OECD if it is an EU approved facility;

- There are **certainly synergies between the SRR and HKC**, considering that the SRR was designed to enact the HKC and often references compliance with the HKC. The SRR is often considered a stronger instrument as it sets **more stringent requirements** (as allowed by HKC). At the same time, the HKC provides for some rules which do not always have their equivalent under SRR (e.g., **suspension of EU listed facilities located in third countries, notification of statement of completion to competent authorities**).

EQ 13.1: Are there synergies or overlaps (potentially leading to inefficiencies) between the SRR and the Basel Convention?

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which entered into force in 1992, was established to reduce the generation and limit the movement of hazardous and other waste to protect human health and the environment. Once it is decided to recycle a ship, the ship's last journey (i.e., to the country where the ship will be recycled) is often seen as a transboundary movement of hazardous waste. Therefore, international conventions, such as the Basel Convention, must be considered when assessing the SRR. Once the Basel Convention entered into force, it was implemented at the EU level through the WSR. This shifted once the SRR was introduced, which reduced the scope of coverage of the WSR (and the Basel Convention as a result), and instead followed the objectives of the Hong Kong Convention (HKC), which is not yet in force.

Despite being modelled after another international convention, there are synergies between the SRR and the Basel Convention, mainly regarding the overall goals of the initiatives. The Basel Convention aims to assist developing countries in processing hazardous waste as environmentally friendly as possible, which complements the criteria within the SRR for ships to be responsibly recycled to reduce the damage caused in developing countries from illegal beaching and unregulated recycling facilities. A noted difference is however that the Basel Convention encourages processing waste as close to the source as possible (e.g., where the waste was produced), whereas the SRR allows for recycling outside of the OECD countries if the vessel is set to an EU approved facility.

Following the entry into force of the Basel Ban Amendment, the Basel Convention prohibits the export of end-of-life ships to countries outside the OECD. The Ship Recycling Regulation theoretically allows for export of end-of-life ships to countries outside the OECD, as long as such transport takes place to facilities included on the EU list. Nevertheless, since no facilities from non-OECD countries are included on the EU list, in practice, it was, during the evaluation period, impossible to export EU-flagged end-of-life ships to non-OECD countries in conformity with the Ship Recycling Regulation. As with the HKC and the EU SRR, it was deemed appropriate to subject end-of-life ships to a regime of controlled export for recycling, rather than to an export ban, the Commission proposed in 2021 an amendment to the WSR which allows to reconcile the two approaches. As mentioned earlier, the EU co-legislators have included this principle in the new WSR that will enter into force in 2024.

Environmental NGOs keep arguing that by placing EU-flagged ships within the remit of the SRR rather than the WSR, thus replacing the Basel prior informed consent control procedure with the Hong Kong approach instead, the environmental objectives of the Basel Convention have been undermined within the EU context (Shipbreaking Platform, 2020). This situation does not originate from the SRR but from the Hong Kong Convention adopted to ensure an efficient and effective solution to unsafe and unsound ship recycling practices

because the Basel Convention was considered not adapted to the specificities of ships and international shipping.

Some stakeholders surveyed, including a few competent authorities also stressed the fact that HKC and SRR put the responsibility to the flag state and not the export state. Therefore, Article 6 of the SRR does not specify that states have the right to deny movements of waste to and from their territories prior to the actual movement of waste. This even if they may have concerns about the facilities' ability to manage the scope of the waste in an environmentally sound manner. Additionally, some overlaps have also been identified in the implementation of the regulation due to differences in scope of the SRR and the Basel Convention. Also, as the SRR only applies to EU countries and not to third countries, some EU flagged vessels to be recycled in an EU listed recycling yard were required by third country authorities to provide a Prior Informed Consent (PIC) notification under the Basel Convention while they already had a ready for recycling certificate under the SRR.

EQ 13.2: Are there synergies or overlaps between the SRR and the IMO Hong Kong Convention?

While the Basel Convention was transposed into EU legislation through the Waste Shipment Regulation, the SRR was intended to implement the HKC. The HKC for the Safe and Environmentally Sound Recycling of Ships aims to “ensure that ships, when being recycled after reaching the end of their operational lives, do not pose any unnecessary risk to human health and safety or to the environment”¹³³. The HKC was developed specifically to address issues related to ship recycling and shipbreaking, which are not explicitly addressed in the Basel Convention. It brought a specific focus to the management of hazardous waste onboard and in the materials of ships themselves and to the environmental and working conditions of ship recycling facilities across the world.

While not strictly a synergy or overlap, the SRR has been seen as a stronger instrument than the Hong Kong Convention in some aspects, as it sets more stringent requirements (as allowed by HKC). According to experts, the standards set by the convention are too low and have become outdated since its creation (Werven, 2019). The SRR specifies stricter conditions for ship recycling facilities than the HKC, namely in the inclusion of downstream waste management, more detailed provisions for handling and containment of hazardous waste and emergency response, and that the inspections of the facilities are carried out by independent verifiers and by the Commission (or agent acting on its behalf). This measure may reduce the likelihood of sub-par inspections due to either a lack of resources or attempts to falsify compliance.

There are **obviously synergies** between the SRR and HKC, mostly arising from the fact that the SRR was designed to enact the HKC and often includes references to compliance with the HKC within its text. As a result, they share much of the same provisions and scope, including the coverage of ships only 500GT and above, and the requirement for the inventories of hazardous materials (IHMs), of a ship recycling facility plan describing the processes and procedures relating to operations, worker safety and training, reporting, and more. Additionally, the Commission implementing decisions¹³⁴ on the format of the IHM

¹³³ See also <https://www.imo.org/en/About/Conventions/Pages/The-Hong-Kong-International-Convention-for-the-Safe-and-Environmentally-Sound-Recycling-of-Ships.aspx>.

¹³⁴ See https://environment.ec.europa.eu/topics/waste-and-recycling/ships_en.

certificate, of the ready for recycling certificate and of the ship recycling statement of completion build on the HKC and IMO templates¹³⁵.

The exact hazardous materials which must be disclosed are listed in annexes/appendices to both legislations. Annex I lists hazardous materials which are prohibited or restricted from being installed or used on ships, with specific control measures for each. Annex II lists the hazardous materials which may be found on board ships and must be included in the IHM. The contents of the IHMs, which are split into three parts including a list of hazardous materials, a list of the operationally generated waste present on board the ship, and a list of the stores present on board the ship, are the same in the SRR as in the HKC (Article 5 in the SRR and Regulation 5 in the HKC).

The SRR differs however from the HKC in that it has expanded the list of hazardous material within its annexes compared to the HKC. The SRR requires the disclosure of Perfluoro octane sulfonic acid (PFOS) (Annex I) and Brominated Flame Retardant (HBCDD) (Annex II) as well as each hazardous material listed in the appendices of the HKC. The study conducted by EMSA has shown that these two substances can be found on ships and rigs and require a cautious management as they cause threats to health and the environment.¹³⁶

Another notable difference between the SRR and the HKC is that there is a different procedure for the inclusion of ship recycling facilities located in the EU and in third countries, detailed in separate articles of the SRR. For recycling facilities located in third countries, ship recycling companies must apply to be included in the European list, including evidence of compliance with the requirements of the regulation. Ship recycling facilities within EU Member States are added to the European list by authorisation of the Member States' competent authority once they comply with the requirements of the SRR.

Stakeholders¹³⁷ also raised the issue of **the lack of possibility to suspend EU approval of ship recycling facilities upon detection of non-compliance**, which triggers some implementation/enforcement challenges. This issue concerns only facilities located in third countries. The SRR mentions in Art.14 that “[w]here a ship recycling facility ceases to comply with the requirements set out in Article 13, the Member State where that ship recycling facility is located shall suspend or withdraw the authorisation given to it or require corrective actions by the ship recycling company concerned and shall inform the Commission thereof without delay.” For facilities located in third countries, there are no references to suspension or corrective actions. HKC, Regulation 16 provides more clarity on the ways/reasons ship recycling facilities may be suspended. Some Member States have expressed the need for a methodology to address non-compliance findings in EU listed facilities located in third countries, including the possibility to suspend the authorisation.

As seen in the figure presented in the findings on EQ12, the results of the targeted survey largely echo the contradictions and overlaps between the SRR and the Basel Convention, as identified in the literature. 11 out of 16 respondents indicated that they are aware of elements of incoherence between the two legal frameworks. Few detailed responses were given as to exactly why stakeholders consider them incoherent. Interviewees confirmed this by noting the ambiguity between the SRR and both the Basel Convention and the Hong

¹³⁵ See Appendices 3, 4, 6 and 7 of the HKC.

¹³⁶ EMSA (2013). Study of two hazardous substances (PFOS and HBCDD) included in the annexes of regulation (EU) 1257 / 2013 on ship recycling.

¹³⁷ NGO Shipbreaking platform. (2023). Ship Recycling in Turkey Challenges and Future Direction. 20 December 2023. Available at: <https://shipbreakingplatform.org/wp-content/uploads/2023/12/Turkey-Report-2023-NGOSBP.pdf>.

Kong Convention, potentially as a result of the unclear or inconsistent definitions of key terms, as previously discussed. Regarding the Basel Convention, a point of inconsistency raised was in the limited scope of the SRR in covering only EU-flagged vessels, with all other vessels covered by the more Basel-aligning Waste Shipment Regulation instead. Several Member States' enforcement authorities interviewed have notably declared that with reference to the detection of infringements related to the recycling of end-of-life vessels in non-EU recycling yards, they frequently resort to the WSR instead of the SRR. This is due to the re-flagging but they also point to the clearer rules in the WSR concerning the definition of waste, the procedures to be followed in relation to the shipment of waste and the activities to be put in place for investigation and enforcement purpose of the cases of violation. Due also to the familiarity of rules, investigations and sanctions are considered more straightforward under the WSR. This underscores the importance in having coordination of unified enforcement power for the WSR and the SRR.

Regarding the Hong Kong Convention, most stakeholders agree SRR is a stronger instrument (13 out of 19 respondents said they were aware of incoherence). A commonly mentioned point is the difference in the list of hazardous materials between the regulations as well as the difference in the list of approved ship recycling facilities as mentioned above. Regarding the latter, some stakeholders are concerned that the HKC-compliant facilities are not approved under the European list. Other issues identified by stakeholders are the differences in the bodies ensuring compliance and to be notified of start and completion of recycling activities. A point specifically mentioned in the targeted survey is that under Article 13(2) of the SRR, it is required that the ship recycling facilities report to the administration (the flag state authority) notifying them that they are ready to process the recycling of the ship and that the recycling is complete. However, the HKC requires the ship recycling facility to notify its 'competent authority/authorities', meaning those responsible for ship recycling facility duties. A few public authorities and ship recycling yard association interviewed mentioned how the difference in standards between the SRR and HKC for ship recycling facilities raises concerns and poses risks to implementation when both will be in force.

EQ 13.3: Are there any potential synergies or overlaps between the SRR and other international initiatives, policies, and instruments?

The primary international initiatives, policies, and instruments which the SRR relates to are the aforementioned HKC, Basel Convention, and several of the IMO guidelines for ship recycling and the inventory of hazardous materials. The overarching goals of the SRR have some alignment with other international initiatives such as the International Labour Organization (ILO) Guidelines, the United Nations Sustainable Development Goals (SDGs), the United Nations Convention on the Law of the Sea (UNCLOS). This alignment of objectives demonstrate that synergies are ensured with international policies. Furthermore, the SRR directly refers to the guidelines of the IMO, ILO, Basel Convention and the Stockholm Convention on Persistent Organic Pollutants in its Article 13(1), which are used by ship recycling facilities inspectors when conducting their compliance assessment.

These guidelines and initiatives address similar goals and principles of the SRR for safe and environmentally sound ship recycling. The ILO guidelines are related to the occupational health and safety aspects of ship recycling. These guidelines include the "Guidelines for the Development of National Legislation on Occupational Safety and Health in Shipbreaking." Goal 12 of the SDGs covers Responsible Consumption and Production, which emphasises sustainable practices in production and consumption, including those related to the life cycle of products such as ships. The SDGs provide a broader framework for promoting environmentally sustainable practices in various industries.

The United Nations Convention on the Law of the Sea (UNCLOS) is a comprehensive international treaty that establishes the legal framework for the use and protection of the world's oceans. While it does not specifically focus on ship recycling, it includes provisions related to the protection and preservation of the marine environment. Part XII of UNCLOS addresses the protection of the marine environment, and Article 194 emphasizes the prevention, reduction, and control of marine pollution from various sources, including ships. This ties into the SRR provisions for the safe and environmentally sound management of hazardous materials.

Various industry initiatives and partnerships, involving shipowners, shipyards, and other stakeholders, aim to promote responsible ship recycling practices. This includes the Ship Recycling Transparency Initiative (SRTI). The SRTI aims to drive progress on responsible ship recycling by providing a one-stop shop online platform to report information on policies and practices against a set of predefined disclosure criteria. The SRTI therefore complements the goals of the SRR by promoting transparency and sustainability in the ship recycling sector, as well as by sharing best practices to address environmental and social concerns.

3.2 How did the EU intervention make a difference?

This section aims to assess how the EU intervention made a difference and to whom. In other words, this section aims to assess the EU's added value. The analysis is based on the detailed answers to EQs 14 – 15.

EQ14. To what extent do the needs/problems addressed by the SRR continue to require action at EU level? Should they be better addressed at global level?

Main findings:

- In the absence of a global instrument (before the entry into force of the HKC), the SRR has provided a needed instrument at EU level as it allowed implementing and operationalising of the HKC provisions within the EU.
- After the HKC ratification and with the perspective of its entry into force, the SRR continues to add value by setting higher health and environmental requirements than the HKC, thus setting a global example.

As explained under Evaluation Question 13 (EQ13), the SRR was intended to facilitate the ratification of the Hong Kong Convention. Until the ratification of the HKC and its entry into force, issues related to the safe and environmentally sound recycling of ships have continued to be unaddressed at the international level through a dedicated instrument. **In this regard and in the absence of effective implementation at the international level, problems related to ship recycling have continued to justify the efforts conducted at the EU level.**

However, arguments on the most appropriate level of legislation (EU or international) to address ship recycling issues differ across stakeholders. The Sustainable Shipping Initiative notes that **overall, the impact of existing legislation is limited** as international regulations have a global reach but were either not yet in force (HKC) or subject to

interpretation (Basel Convention), while EU legislation is currently in force but only has a regional scope and has its own limitations (see EQ3).¹³⁸

Other arguments, notably from stakeholders from the shipping industry, state that ship recycling issues would be better addressed globally. The question of ensuring a level playing field between EU and non-EU shipping actors is central to the industry and backed by several shipping companies, shipowner associations and recycling yards. Recycling yards notably argue that keeping the regulation of ship recycling at the EU level contributes to lead to differences in audit schemes processes between EU listed and non-EU listed recycling facilities as well as in difference in costs between compliant facilities in the EU list and facilities not in the list though certified by classification societies. Moreover, global-level action is seen as more efficient by the industry to ensure the proper enforcement of ship legislation. Stakeholders surveyed in that group¹³⁹ pointed out to the limited impact of the SRR in ensuring that ships are recycled in safe and environmentally sound manner due to the issues of ship reflagging. Others expressed the opinion that the issue would be better addressed at the international level through the HKC, provided that its scope is sufficiently broad to avoid circumventions. They see in the entry into force of the HKC the opportunity to enhance ship recycling on a global level and thus prefer international over regional standards.

On the other hand, arguments in favour of continuing efforts at the EU level point out the higher level of ambition set by the SRR compared to the HKC. These are notably supported by NGOs, trade unions and ship recycling associations. Requirements set by the SRR are stricter than those set by the HKC as they include considerations on labour rights and cover a higher number of hazardous materials (PFOS and HBCDD) for the management of hazardous materials. With independent third-party certification and auditing, as well as the possibility for NGOs to request the Commission to take action when facilities are not aligned with the SRR, ship recycling facilities in the EU list also face a higher level of scrutiny compared to others.¹⁴⁰ As discussed at the January 2024 Expert Group on Ship Recycling (ESR), the **independent verification mechanism** is one of the distinct added values of the SRR. Stakeholders agree that despite continuing trends on vessels being sold to yards in South Asia, new and foreseen recycling facilities in countries such as South Africa, Bahrain, Brazil, and Indonesia are looking at the SRR for guidance to establish recycling methods that are more environmentally friendly and reduce risks for workers. Several public authorities, NGO, classification society interviewed see a role for continued EU action through the SRR once the HKC enters into force.

Where the two groups meet is when evoking a possible revision of the Hong Kong Convention after its entry into force, where the EU should promote its higher standards to be adopted at IMO level.

With these arguments said and in light of the expected entry into force of the HKC in June 2025, efforts conducted at the EU level continue to be relevant as the SRR sets stricter requirements than the HKC for several reasons. First, the EU regulation offers a higher level of environmental protection as it imposes stricter environmental requirements, requiring shipowners to report on two additional hazardous materials in their IHM compared to what the HKC foresees. Additionally, the SRR specifies stricter conditions for recycling facilities, including on the management of downstream waste.

¹³⁸ See: <https://www.sustainableshipping.org/resources/shippings-transition-to-a-circular-industry/>.

¹³⁹ Mostly recycling yards and shipowners (associations) as well as two Member States.

¹⁴⁰ NGO Shipbreaking Platform (2016). Position paper. Make the polluter pay! Why we need the EU Ship Recycling Licence.

Secondly, the SRR put more emphasis on the health and safety of workers as it has established a harmonised process to approve ship recycling facilities and include them in the EU list of recycling facilities. Furthermore, the SRR benefits from the coordination of the European Commission (and the support of EMSA) to monitor the regulation while the HKC relies solely on individual countries' actions and cooperation to enforce the provisions of the legislation. The HKC primarily puts the responsibility of enforcement on the recycling states without proper independent oversight as the SRR does with the Commission. Therefore, the SRR contributes to establishing stronger monitoring and enforcement processes to ensure the safe and environmentally sound recycling of ships.

EQ15. What has been the EU added value of the SRR compared to what could have been reasonably achieved by Member States acting alone?

Main findings:

- The SRR provides value beyond what could have been achieved by Member States alone, because without the SRR and in the absence of a ratified HKC, Member States would not have had the same legally binding requirements on safe and sound recycling of ships in Europe.
- EU-level coordination is still needed in the areas covered by the SRR, particularly in: maintaining the coordination mechanisms at the EU level that contribute to raising awareness among stakeholders and advancing efforts to better recycle ships; the collection and centralisation of data at the EU-level; maintain sufficient recycling capacity for recycling EU flagged vessels; and the general enforcement of the SRR provisions.

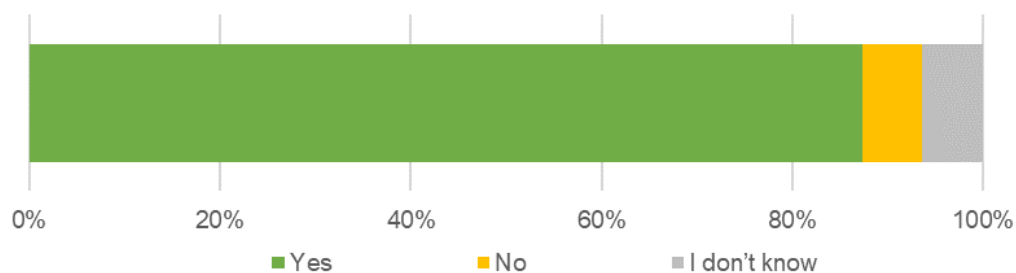
EQ 15.1: To what extent could the SRR's objectives be achieved by EU MS acting alone?

There is currently no identifiable evidence suggesting that the SRR's effects could have been (better) achieved by Member States acting alone. As mentioned in EQ1.3, the SRR has been successful to a considerable extent in facilitating the ratification of the HKC by actively encouraging EU MS to ratify the HKC. Therefore, *it can be assumed that without the SRR and in the absence of a ratified HKC, Member States would not have had the same legally binding requirements as they have now to ensure the safe and sound recycling of ships in Europe.*

Furthermore, in the absence of the SRR, rules related to ship recycling would only be addressed through the Waste Shipment Regulation, which is not adapted to the specificities of ships, making it therefore, challenging to tackle ship recycling issues. This, therefore, raises doubts that in the absence of the EU regulation on ship recycling, the goals of the SRR could have been better achieved.

A large majority of stakeholders consulted (87%, 59 out of 63 respondents) during the public consultation recognise the EU added value of the SRR and consider the Regulation to bring better results than if Member States were acting alone. This opinion is shared across the different stakeholder groups.

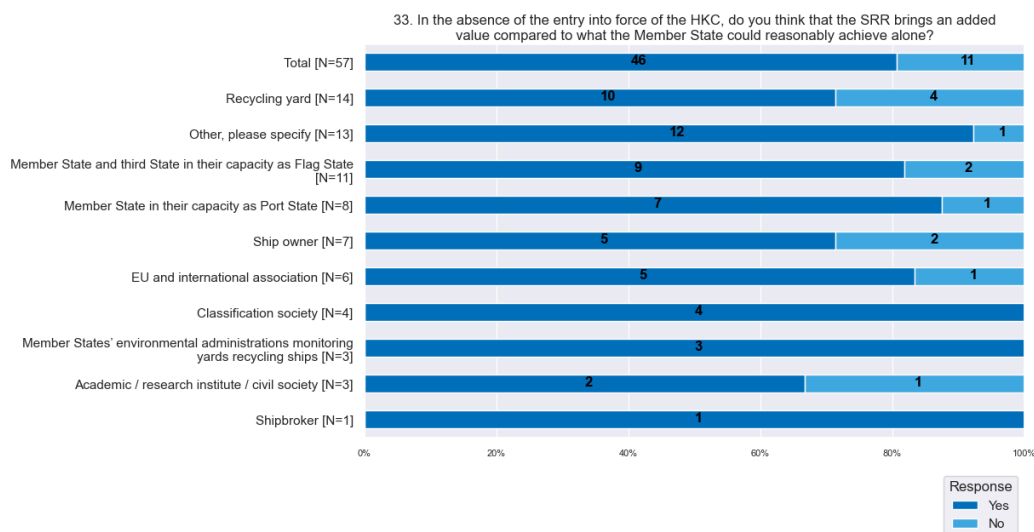
Figure 3.26 Do you consider the EU Ship Recycling Regulation to still be a relevant piece of legislation, and better than if Member States were acting alone? n = 63



Source: public consultation.

Additionally, stakeholders' responses to the targeted survey indicate a positive EU-added value of the SRR compared to what Member States could have achieved alone for all three points (see Figure 3.27). A large majority of stakeholders surveyed (46 out of 57 respondents) think that the SRR brings an added value compared to what Member States could reasonably achieve alone in the absence of the entry into force of the HKC. A fifth of the stakeholders surveyed (11 out of 57 respondents, which mainly represent both EU and non-EU recycling yards, shipowners and two Member States) disagree with this statement.

Figure 3.27 Stakeholders' opinion on the question of the added value of the SRR compared to what the Member States could reasonably achieve alone



Source: consortium elaboration based on targeted survey questionnaire.

The rationale for an EU intervention on ship recycling through the SRR was notably described in the SRR impact assessment (2012)¹⁴¹ and in COWI's supporting study¹⁴². The following arguments for an EU intervention were put forward:

¹⁴¹ SWD(2012) 47 final. Available at: <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SWD:2012:0047:FIN:EN:PDF>.

¹⁴² COWI/DHI for the European Commission, DG Environment, Study on "Ship dismantling and precleaning of ships", Final report of June 2007, published on the Commission website at: <http://ec.europa.eu/environment/waste/ships/index.htm>.

- Reduce administrative burdens for shipowners and recycling yards in the EU;
- Establish a consistent and harmonised approach across Member States on ship recycling standards;
- Ensure a level playing field at the EU level between stakeholders.

On reducing the administrative burdens for shipowners and recycling yards in the EU, the impact assessment conducted in 2012 for the SRR indicates that a “*harmonization of standards and procedures for surveys and certificates by an EU legislative instrument would reduce administrative and legal costs*”. This was mainly expected to result from the more adapted and easier procedure under SRR compared to WSR. Even though the SRR does not seem to result in unnecessary or excessive administrative burdens, there is no evidence that it decreased it. On the contrary, as can be expected for a new legislation, it increased the administrative burdens related to ship recycling, as the requirements were increased. Furthermore, only a few stakeholders surveyed as part of the current evaluation¹⁴³ (2 out of 57 responses) see the SRR as a solution to avoid the multiplication of national legislations and act faster than what Member States alone could achieve.

On the added value of the SRR to establish a consistent and harmonised approach, respondents to the surveys notably indicate the difficulties for EU countries **alone to establish requirements for stakeholders – especially recycling yards – located outside of their territories**. In this regard, the SRR incentivises non-EU stakeholders to improve their processes through the European list of recycling facilities. A wide range of stakeholders consulted (16 out of 68 respondents representing ship recycling facilities, classification societies, consultancies and academic) also value the role of the SRR in setting minimum standards for ship recycling. According to most stakeholders surveyed, it allowed to gain transparency and establish a common set of rules (see EQ1.2), such as maintaining an IHM, requiring the approval of yards, elaborating ready for recycling certificates, and Port State controls. Despite guidelines provided by EMSA, a few stakeholders however mention a lack of harmonisation on the way IHM are undertaken. They mentioned the lack of explicit requirements to maintain Part I of the IHM leading to inconsistencies and making it more difficult for member states to use and enforce requirements on the IHM.

On ensuring a level playing field at the EU level, stakeholders recognise the role of the SRR to ensure the required level playing field for the maritime industry and recycling yards operating in the EU. A few stakeholders interviewed (notably recycling yards) point out the clear guidance the SRR gives to the ship recycling industry on what can be considered sustainable ship recycling or not. However, a few others (notably NGOs) disagree and asks **for clearer and more standardised requirements concerning the management of different waste** to ensure a better level playing field among stakeholders. Additionally, several stakeholders also mention the need to not limit the level playing field at the EU level only and take instead a global approach as initially foreseen with the HKC.

EQ 15.2: To what extent is EU-level coordination needed in each of the areas covered by the SRR?

The SRR established a number of coordination mechanisms at the EU level that contribute to raising awareness among stakeholders and advancing efforts to better recycle ships. Since 2018, more regular meetings have been held under the umbrella of the Commission [Expert Group on Ship Recycling](#), gathering the European Commission, representatives of the Member States and with invited stakeholders, namely the European Community

¹⁴³ Targeted surveys conducted in 2023.

Shipowners' Association (ECSA), the International Ship Recycling Association (ISRA) and NGOs (NGO SBP). Originally established in 2012, the activity reports of the working groups show an intensification and increased regularity of meetings from 2018 onwards. These meetings allow for exchanges of information on the latest policy developments regarding ship recycling as well as implementation issues and concerns raised by the European Commission and/or Member States.

Additionally, the [collection and centralisation of data](#) at the EU-level allow to facilitate the monitoring and assessment of progress on ship recycling. As examples, the THETIS-EU module led by the European Maritime Safety Agency (EMSA) is used to record inspections of ships on the inventories of hazardous materials as well as ready for recycling certificates.¹⁴⁴ The EQUASIS statistics¹⁴⁵ managed by EMSA provides data on the list of vessels sent for recycling. Finally, the DONA Reporting gate developed by EMSA allows for the centralisation of Member States' reports under Article 21 of the SRR.

Several areas of the SRR continue to require EU-level coordination. This is notably the case for the [European List of Ship Recycling Facilities](#). Through its List of recycling facilities, the SRR has ensured during the evaluation period sufficient capacity for EU-flagged ships to be dismantled safely and in a safe environment. According to our findings (see EQ1), the list has exceeded the recycling needs for EU-flagged and re-flagged ships between 2018 and 2022. To face future recycling needs that are expected to increase, the EU list capacity will need to continue growing moderately. This is not to be seen as a problem as there are still a number of applications in the pipeline.

The [general enforcement of the SRR provisions](#) is another dimension continuing to require EU-level coordination. While some EU-funded initiatives such as the IMPEL project have contributed to enhance cooperation between Member States, for example through knowledge / best practices sharing and capacity building activities¹⁴⁶, several stakeholders (mostly shipowners, recycling yards and classification societies) note a lack of interest and willingness from some Member States to enforce the legislation and effectively prevent circumventions.¹⁴⁷ A few public authorities interviewed mentioned challenges to supervise and enforce the regulation due to a lack of clear timelines and procedures notably regarding a specific timeline for shipowners to inform the flag state about their intention to discard a vessel. They also refer to the difficulties in enforcing the rules uniformly as maritime and environmental authorities may have conflicting interpretations.

3.3 Is the intervention still relevant?

This section aims at assessing the criterion of relevance of the Regulation and whether the SRR reflects current and future needs. These issues are covered by EQs 8-10, which are briefly presented below.

¹⁴⁴ See <https://www.emsa.europa.eu/thetis-eu.html>.

¹⁴⁵ See <https://www.emsa.europa.eu/equasis-statistics.html>

¹⁴⁶ European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL). PREVENT portal: <https://www.impel-prevent.eu/toolkit/ship-recycling/>

¹⁴⁷ These concerns were notably raised during the Expert Group meeting on ship recycling in November 2020 as well as during targeted interviews conducted for the evaluation.

EQ8. To what extent is the SRR still relevant and does it correspond to the needs within the EU, in particular as regards the new policy ambitions (as set out, for example, in the European Green Deal, the Circular Economy Action Plan, the Zero Pollution Action Plan, the Sustainable and Smart Mobility Strategy and the Sustainable Blue Economy)?

Main findings:

- The **SRR corresponds to the needs identified in many EU policy documents:** EU Green Deal, Circular Economy Action Plan, Zero Pollution Action Plan, Sustainable Blue Economy Communication;
- There is a high relevance of the SRR to EU policy ambitions on reducing pollution, but **weaker relevance to the circular economy ambitions and GHG emissions.**

The SRR has considerable potential to contribute to many EU policy ambitions considering its role in reducing waste generation, boosting the circular economy, reducing environmental impacts, and improving human health and working conditions, among others.

The SRR has strong correlations with the [Circular Economy Action Plan](#) in that it aims to reduce and responsibly dispose of hazardous chemicals, and that it increases energy and resource efficiency through the recycling of materials, primarily via the reduced production of new steel. In particular, section 4 of the European Commission's communication on the new Circular Economy Action Plan details the "Less waste, more value" goals of the plan, including the enhancement of "circularity in a toxic-free environment", which includes hazardous waste, the creation of a "well-functioning EU market for secondary raw materials" and finally "addressing waste exports from the EU"¹⁴⁸. Each of these objectives ties into the overall objectives of the SRR. As a main pillar of the [EU Green Deal](#), the alignment with the Circular Economy Action Plan is also reflected in the SRR's alignment with the goals of the Green Deal itself. The steel industry is one of the industries that generate the highest amount of CO₂ emissions in the EU¹⁴⁹. Therefore, the increased recycling of steel scraps and steel by-products will reduce emissions and can play a large role in achieving the Green Deal ambition to reduce greenhouse gas emissions by more than 55% (by 2030).

The SRR requirements are also relevant with the EU's efforts to direct and align investments towards the green transition under the [EU taxonomy](#). The Commission Delegated Regulation establishing the technical screening criteria for activities contributing substantially to sustainable activities explicitly identifies listed ship recycling facilities as activities contributing to a circular economy as well as preventing pollution.¹⁵⁰

Similarly, the [Zero Pollution Action Plan](#) sets several goals to improve air, water and soil quality, one of which is a goal "towards zero pollution from production and consumption" which is closely linked to the circular economy action plan and specifically aims to "foster breakthrough technologies and more systemic solutions, such as industrial symbiosis and circular supply chains by which wastes or by-products of an industry or small and medium-sized enterprises (SMEs) become the raw material for another"¹⁵¹. As mentioned in the

¹⁴⁸ See also <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1583933814386&uri=COM:2020:98:FIN>.

¹⁴⁹ Towards competitive and clean European steel.

¹⁵⁰ COMMISSION DELEGATED REGULATION (EU) 2023/2486. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32023R2486>.

¹⁵¹ See also <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0400&qid=1623311742827>.

definitions provided in Article 3 of the SRR, 'ship recycling' itself is the "complete or partial dismantling of a ship... to recover components and materials for reprocessing, for preparation for re-use or for re-use". The SRR is relevant to the Zero Pollution Action Plan in this regard in that it can contribute to circular supply chains by providing steel and other scrap materials for reuse. Similarly, the goals of the SRR to reduce and minimise the negative effects on the environment correspond to the zero pollution policy ambitions of the action plan, specifically in that the SRR increases the requirements for ship recycling facilities to reduce negative environmental impacts, pollution and otherwise. Environmental standards set by the Regulation, notably on the environmentally sound management and storage of hazardous materials and waste (Article 13) but also prevention of spills and leakages, contribute to prevent pollution releases. In this regard, site inspection reports of listed recycling yard reflect monitoring measures in place to prevent air, water, soil, and noise pollution.

The [Sustainable Blue Economy](#) is another EU strategy which aims to develop the blue economy in a sustainable way through offshore renewable energy, the decarbonisation of maritime transport, and the decommissioning of offshore platforms. The SRR is explicitly mentioned in the text of the European Commission's 2021 communication on a new approach to a sustainable blue economy in the EU¹⁵² in how its standards for the recycling of large ships can contribute to the Sustainable Blue Economy goals for reducing pollution and more specifically developing circular models and solutions for this purpose. It also mentions how the revision of the Regulation to potentially expand its scope and reinforce the existing regime will be important in furthering the achievement of the aforementioned objectives. The 2022 communication on the EU's International Ocean Governance agenda also highlights that the EU should promote the fulfilment of flag States responsibilities by those acting as open registers used to escape obligations for sustainable and safe recycling of end-of-life ships.¹⁵³

Despite the SRR's relevance to the abovementioned policies and their objectives, stakeholders generally believe that the SRR does not fully address the needs of certain policy ambitions, such as the [EU new industrial strategy](#). This strategy was created to support the transition to a green and digital economy, to make EU industry more competitive globally, and to enhance Europe's open strategic autonomy. The SRR supports the development of strategic value chains within the EU. By regulating ship recycling practices, the EU aims to ensure that ship recycling facilities within the region adhere to environmental and safety standards. This can contribute to the competitiveness of the EU ship recycling industry globally. The SRR promotes resource efficiency and a circular economy by encouraging the recycling and reuse of materials from end-of-life ships. This aligns with the broader EU objectives of reducing dependence on external resources and enhancing resource autonomy. However, over half of the respondents believed the SRR sufficiently addressed the needs of the EU industrial strategy only to a small extent or not at all (n=29). Respondents commented that certain aspects of the strategy, including ensuring a competitive EU steel industry, is not fully championed by the SRR due to the majority of EU ships being dismantled in non-EU recycling facilities, particularly Türkiye, allowing EU scrap metals to leave the EU.

The [reduction of pollution](#) was considered to be more well-addressed by the SRR, with 27 respondents believing it sufficiently addressed the policy ambition either to a moderate or large extent (n=40). As noted in other sections of this report, many stakeholders agreed

¹⁵² See also <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2021:240:FIN>.

¹⁵³ https://oceans-and-fisheries.ec.europa.eu/system/files/2022-06/join-2022-28_en.pdf.

that the environmentally sound recycling standards set by the SRR have led to less pollution overall.

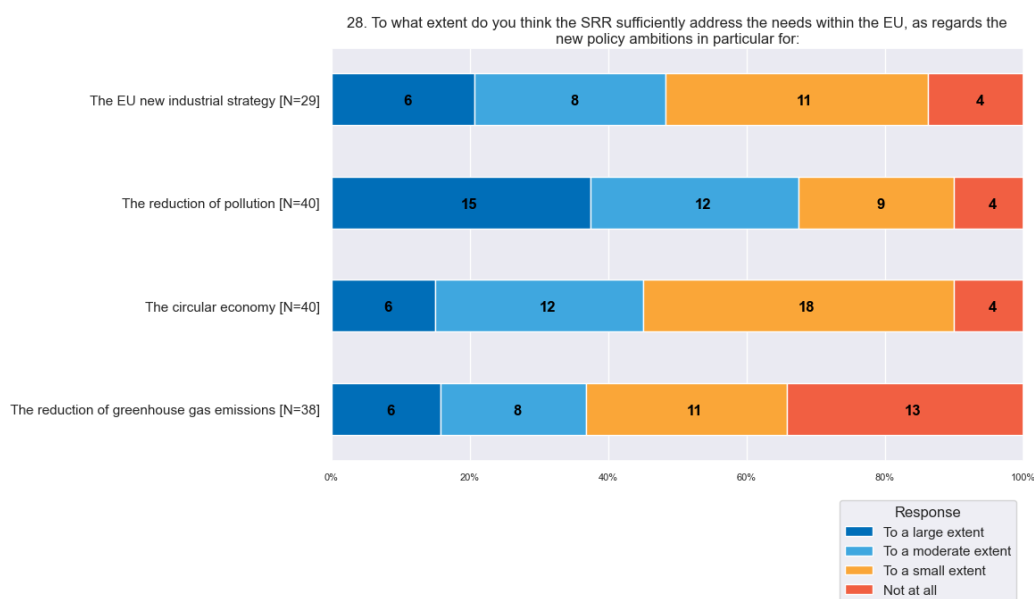
On the contrary, the [circular economy](#) was not considered to be sufficiently addressed by the SRR, with more than half of the respondents agreeing either to a small extent or not at all (n=40). Due to the core nature of the SRR being the recycling of materials for reuse, several stakeholders acknowledged the role the regulation plays in addressing the needs of the circular economy in the EU. Despite this, it was once again argued that the level of circumvention of the regulation renders it less effective and that the materials made available are not kept in the EU economy for as long as possible. Other responses to the targeted survey argued that while the definition of 'ship recycling' in the SRR mentions the recovery and reuse of materials, the regulation does not include any concrete requirements for the amount or proportion of materials required to be reprocessed or reused versus disposed. A few stakeholders from the ship recycling industry interviewed echoed this concern, stressing that most non-steel materials are incinerated instead of recycled. They identified the current lack of information on the ship equipment's maintenance history as the main cause of this issue. Interviewees also acknowledged the potential for the SRR to have a vital role in promoting a circular economy, particularly given the large amounts of high-quality scrap steel which is made available from recycled ships. In contrast, it was mentioned that the EU will require more scrap metal than is currently being made available by European-listed recycling facilities to meet its policy ambitions. Suggestions were given as to how to improve the SRR's alignment with the circular economy, including to explore synergies with complementary sectors, such as train recycling, to create economies of scale and optimize existing yards. Others noted that certain definitions, including that of 'ship recycling', were overly restrictive and not fully consistent with wider sustainability objectives. In particular, they recommended that the **definition of ship recycling be broadened to cover not only the activities at the ship recycling facility, but also the full life cycle of the materials**. This would be more in line with the objectives of the European Green Deal and the principles of a circular economy.

Additionally, there are opportunities to further align the SRR with the Zero Pollution and Circular Economy objectives by looking at **the design dimension of vessels**. There are currently limited synergies between EU legislation related to the design and construction of ships¹⁵⁴ and the SRR. Therefore, looking at the issue from the ship design perspective and identifying the materials of value to maximize their value through a Material passport¹⁵⁵, could not only contribute to enhancing circularity but also to easing the dismantling of vessels and therefore contribute to the safe and environmentally sound recycling of ships.

While the SRR aligns with the overall objectives and principles of the European Green Deal for the policies mentioned above, the Regulation has a weaker relevance with respect to the EU's [GHG emissions reduction ambition](#) as it sets standards on the safety and environmentally sound recycling of ships but does not target GHG emissions resulting from these activities. Over 60% of stakeholders surveyed did not believe that the SRR has sufficiently addressed the need to reduce greenhouse gas emissions (n=38). Stakeholders cited several reasons for this, namely that the dismantling of EU-flagged ships still use carbon-intensive methods per ton of recycled steel compared to low-carbon methods available. Others acknowledged the lack of a direct link between the SRR and the policy ambition, explaining that the SRR sets the standard for operations and safety, rather than for emissions reduction.

¹⁵⁴ E.g., Directive on safety rules and standards for passenger ships.

¹⁵⁵ As suggested by one NGO.

Figure 3.28 Stakeholders' opinion of the relevance of the SRR to several EU policy ambitions

Source: consortium elaboration based on targeted survey questionnaire.

EQ9. How well adapted is the SRR to technical and scientific progress and EU and global market developments?

Main findings:

- Since the provisions of the SRR Regulation do not specify concrete methods for ship recycling and technical developments (e.g. on mapping hazardous substances and automation) and these have not been sufficiently widespread so far, to a large extent, **they have not affected the relevance of the SRR Regulation.**
- The growing forecasts for the ship recycling market could be interpreted as **indications that the SRR Regulation will become even increasingly relevant in the future.**

EQ 9.1: What are the technical developments and market trends that occurred in the field of ship dismantling since the entry into force of the SRR?

Market trends

Market trends in the ship dismantling industry are influenced by the age of the shipping fleet, as well as by fluctuations in the price of scrap (e.g. steel parts), the conditions on the freight and second-hand markets, and regulations (or technological developments) leading to the phase-out of specific types of ships¹⁵⁶. In general, ship demolition volumes increase during economic recession, when global fleet utilisation rate tends to be lower, and instead decreases in moments of economic growth¹⁵⁷.

As noted in the response to EQ1.4, global trends in ship recycling from 2014 to 2021¹⁵⁸ show a noticeable decrease in recycling volumes from 2016 to 2019, and then again, a

¹⁵⁶ Ship Breaking Market – Global Industry Analysis, Size, Share, Share, Growth, Trends and Forecast 2017-2025. Report preview. Available at: <https://www.transparencymarketresearch.com/ship-breaking-market.html>.

¹⁵⁷ OECD (2017) Ship Recycling – An Overview. See: [https://one.oecd.org/document/C/WP6\(2017\)14/en/pdf](https://one.oecd.org/document/C/WP6(2017)14/en/pdf).

¹⁵⁸ See also https://unctadstat.unctad.org/wds/TableViewer/tableView.aspx?ReportId=89492&IF_Language=eng.

slight increase in 2020 and 2021, though not comparable to the levels prior to 2016. Asia, and in particular southern Asian countries (e.g. Bangladesh, Pakistan), continue to be the main responsible for the highest volumes of ship recycling. In 2021, more than half the world's recycling by tonnage was in Bangladesh. Together with Pakistan, India and Türkiye, it accounted for 96% of ship recycling¹⁵⁹. According to the NGO Shipbreaking Platform, in 2022, the South Asian shipbreaking yards experienced the lowest turnover in over a decade, with a significant drop in terms of the number of ships scrapped. This appears to be due to various factors, including high ocean freight rates that made it profitable to continue operating older vessels and banks' shortages in providing credits to companies for the purchase of end-of-life assets¹⁶⁰.

In terms of costs and revenues from the actual demolitions, the OECD notes a decrease in demolition/scrap prices between 2014 and 2017. As the largest share of revenues from ships comes from the steel content, scrap prices are strongly correlated with steel prices. These have also been declining in the period 2013-2017¹⁶¹ (see also EQ2). Following the observations of declining demolition/scrap prices and correlation with steel prices from 2013 to 2017, the subsequent period from 2018 to 2022 shows a contrasting pattern. The data show a recovery and growth trend in USD per LDT for shipbreaking in Bangladesh, India and Pakistan, and Türkiye.

In terms of future market trends, UNCTAD informed in 2020, that if recent ship recycling patterns persist, it can be expected that by the end of 2030 (i.e., beginning of 2031), 17% of the current dry bulk carrier fleet and 43% of container ships will have been demolished¹⁶². This is mostly linked to the fact that a large number of ships in operation were built between 2005 and 2015 and are closer to their average age for scrapping¹⁶³.

It is important to note that the actual age at scrapping of many ships may differ from what would be expected based on past behaviour. This is due to technological developments, possible changes in the geography of trade, energy prices, alternative fuel options, decarbonisation measures established at IMO level and other relevant regulations affecting ship operations, and scrapping conditions, all of which will affect shipowners' future decisions on when to sell their ships for demolition.¹⁶⁴

Technological developments

Limited and sporadic information about technological developments in the field of ship dismantling since 2013 has been uncovered. According to a recent report from the NGO Shipbreaking Platform¹⁶⁵, new technologies for cutting, cleaning and coatings have recently been developed, mainly in Europe, and could significantly reduce environmental hazards and improve worker safety linked to ship recycling. Where these measures allow to significantly improve efficiency, they could lead to lower costs of ship recycling in the EU.

For instance, new techniques have been developed to cut through vessels' bulkheads. The traditionally used torch-cutting method uses heat for this purpose, and it leads to the release into the atmosphere of hazardous gases (i.e. from the heating of ship paints). Abrasive water jet cutting instead, is a method that relies on the release of high-pressure

¹⁵⁹ UNCTAD (2022) Review of Maritime Transport – Navigating stormy waters.

¹⁶⁰ See also <https://shipbreakingplatform.org/platform-publishes-list-2022/>.

¹⁶¹ OECD (2017) Ship Recycling – An Overview. See: [https://one.oecd.org/document/C/WP6\(2017\)14/en/pdf](https://one.oecd.org/document/C/WP6(2017)14/en/pdf).

¹⁶² See also <https://unctad.org/news/decarbonizing-maritime-transport-estimating-fleet-renewal-trends-based-ship-scrapping-patterns>.

¹⁶³ Sant Ana, J. F., et al (2023) Identification of sustainable practices applied to ship recycling. Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0959652623002081>.

¹⁶⁴ See also <https://unctad.org/es/node/2349v>.

¹⁶⁵ Shipbreaking Platform (2022) Breaking out – Anchoring circular innovation for ship recycling.

water mixed with natural abrasive substances (e.g. sand) through a small nozzle, and can be used for a variety of metals, including steel. Unlike traditional cutting systems, water jet cutting machinery does not require cooling or lubricating oils, thus reducing the need to buy, maintain and dispose of chemicals. Most innovative machinery can be configured with a closed-loop system, that allows for the reutilisation of the water. Different companies have produced and supplied water jet technology to numerous industries, including within the maritime sector¹⁶⁶. Similarly, pulsed laser technologies allow to cut ship-steel with lower environmental impacts and have proven to be as fast and even more economic compared to traditional gas cutting¹⁶⁷.

Innovative systems to improve the automation of the ship recycling process have also been developed by Finnish, German and Dutch companies and universities. Such systems rely on heavy robotics and other technologies and aim to reduce the number of workers needed in the yard to perform the recycling process. Methods to monitor and reduce oil pollution generated by ship recycling have also been identified in recent studies. These include the use of satellite image analysis for monitoring this pollution in seawater. Other studies proposed to filtrate oily seawater using aerogel membrane, or to bio-remediate diesel, iron, PHC, and PAH-contaminated seawater using bacteria and fungi¹⁶⁸.

Other innovations aim to improve waste management and waste recovery, both at the design stage and at the recycling stage¹⁶⁹. A study proposed to implement a recyclability analysis during the ship-design stage to decrease cost and increase safety during dismantling operations¹⁷⁰. In Germany a start-up provides digitised solutions to map hazardous materials on a ship, with little involvement of its crew and owners. This process is said to facilitate the development of IHM for shipowners. Other innovative techniques are being invented to allow for sustainable coat stripping prior to cutting¹⁷¹, and for the safe and efficient recovery and removal of materials. Another study informs that plasma gasification technology can be used to ensure more environmentally friendly waste reuse¹⁷².

Technologies to accelerate the shift to efficient and cost-effective shipyards are also under development¹⁷³. In the Netherlands, the UK, South Africa, environmentally friendly ship recycling facilities are being developed, recovering pre-existing dry docks.

Finally, important innovations aim to reduce the environmental impact of shipbuilding and operation, for instance, applying circular economy and resource efficiency principles in shipbuilding or implementing alternative fuels. This is a broad field, including lightweight design, the use of sustainable materials, eco-responsible coatings etc. The implementation of such innovations can also have an impact on the environmental impact of ship

¹⁶⁶ Shipbreaking Platform (2022) Breaking out – Anchoring circular innovation for ship recycling.

¹⁶⁷ Dey, A. (2021) Sustainability challenges and enablers in resource recovery industries: A systematic review of the ship-recycling studies and future directions. Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0959652621039627>.

¹⁶⁸ Dey, A. (2021) Sustainability challenges and enablers in resource recovery industries: A systematic review of the ship-recycling studies and future directions. Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0959652621039627>.

¹⁶⁹ Shipbreaking Platform (2022) Breaking out – Anchoring circular innovation for ship recycling.

¹⁷⁰ Dey, A. (2021) Sustainability challenges and enablers in resource recovery industries: A systematic review of the ship-recycling studies and future directions. Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0959652621039627>.

¹⁷¹ Carrying out sustainable coat-stripping prior to cutting could reduce emissions of hazardous pollutants. Dry ice blasting, which is recognised as the most effective technique for this, uses dry ice pellets to replace chemical cleaning solvents in a procedure that emits neither CO₂ nor toxic fumes.

¹⁷² Dey, A. (2021) Sustainability challenges and enablers in resource recovery industries: A systematic review of the ship-recycling studies and future directions. Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0959652621039627>.

¹⁷³ Shipbreaking Platform (2022) Breaking out – Anchoring circular innovation for ship recycling.

recycling^{174, 175}. The adoption of alternative shipping fuels is also likely to have an impact on the ship recycling process, as this might imply that ships are built in different ways and that remaining alternative fuels need to be recycled with different methods.

EQ 9.2: Are the SRR provisions still fit and in line with these developments?

The growing forecasts for the ship recycling market could be interpreted as indications that the SRR Regulation **will become even increasingly relevant in the future**. As more ships will need to be recycled in the future, it is desirable that this will increasingly be done in a sustainable way.

Concerning technological developments, the level of uptake of these innovations, in particular large-scale, real-world implementation, remains unclear to date. This is true when looking at the countries where most ship recycling is currently being performed. For this reason, the impact that such technological developments on the continued relevance of the SRR Regulation is likely to be low, at least in the short-to-medium term.

Most of the technological developments aim to improve the ship recycling process, and to further reduce its environmental and social impacts. If such technologies and processes become widely applied in ship recycling facilities worldwide, and this leads to more of these facilities being designed, constructed, and operated in a safe and environmentally sound manner, this could potentially widen the number of yards that could apply to be included in the European list. As such, the implementation of **these developments would not have negative impact on the continued relevance of the SRR Regulation, but rather potentially enlarge its application to more recycling yards** (if those are authorised by competent authorities).

Furthermore, technological developments will also likely reduce the **carbon footprint of ship recycling activities**. While such climate objectives are currently not factored by the provision of the SRR, the carbon footprint of ship recycling activities can decrease if recycling yards are designed and built with these considerations in mind. This entails notably the development of less carbon intensive recycling methods and the electrification of recycling infrastructure and machinery. For example, the German ship recycling company Leviathan has developed new recycling techniques based on heavy robotics and water cutting technologies powered by clean electricity to mitigate the climate impact of its activities.¹⁷⁶ Encompassing the climate dimension of ship recycling would therefore increase its relevance and coherence with the EU's GHG emission reduction targets.

New cutting techniques and automated technologies could also potentially impact some current provisions of the SRR, in particular the requirement in Art.6, Art.7, and Art.15 for certification as 'safe-for-hot work'. This could be the case if this would be interpreted as a difficulty for a ship to be "safe-for-hot-work" even if it is being disassembled in a facility that does not use hot work.

If improvements in the processes of developing and maintaining inventory of hazardous materials become widely implemented, this could facilitate the implementation of the SRR Regulation, in particular Art. 5 on the Inventory of hazardous materials (IHM). These improvements, even if widely applied worldwide, would however not affect the continued relevance of the provisions in themselves, as these do not prescribe specific methods or processes for the development of IHM, nor for the actual recycling of ships. The SRR, nor

¹⁷⁴ Shipbreaking Platform (2022) Breaking out – Anchoring circular innovation for ship recycling.

¹⁷⁵ See also <https://www.sustainableshipping.org/wp-content/uploads/2022/02/Ship-lifecycle-report-final.pdf>.

¹⁷⁶ See <https://shipbreakingplatform.org/wp-content/uploads/2022/10/Breaking-Out-Magazine.pdf>

the IMO guidelines that the Regulation refers to, prescribe specific technologies to be used for the recycling process to be considered safe and environmentally sound. They rather indicate principles that need to be followed. The non-prescriptive approach of these documents appears to imply that the SRR Regulation, as well as the IMO Guidelines it refers to, should be able to adapt to technological advancements in the ship recycling process, without the need for those to be modified.

If **circular economy principles and alternative fuels become more widespread in the long term, this could have implications on the type of hazardous materials hosted in such ships** (i.e. these could be different from existing traditional ships), or these could have implications for the processes and technologies to be implemented for the recycling. If this is indeed the case, this might require an adaptation of Annex I of the SRR Regulation, potentially including additional types of hazardous substances. This can be done in a relatively flexible way through a delegated act. As mentioned above, the provisions on the ship recycling process (and IMO Guidelines) (referred to in Art. 13 of the SRR) are sufficiently non-prescriptive that they would allow for the use of innovative methods for ship recycling (adapted to new types of ships coming to the market), without needing to be revised.

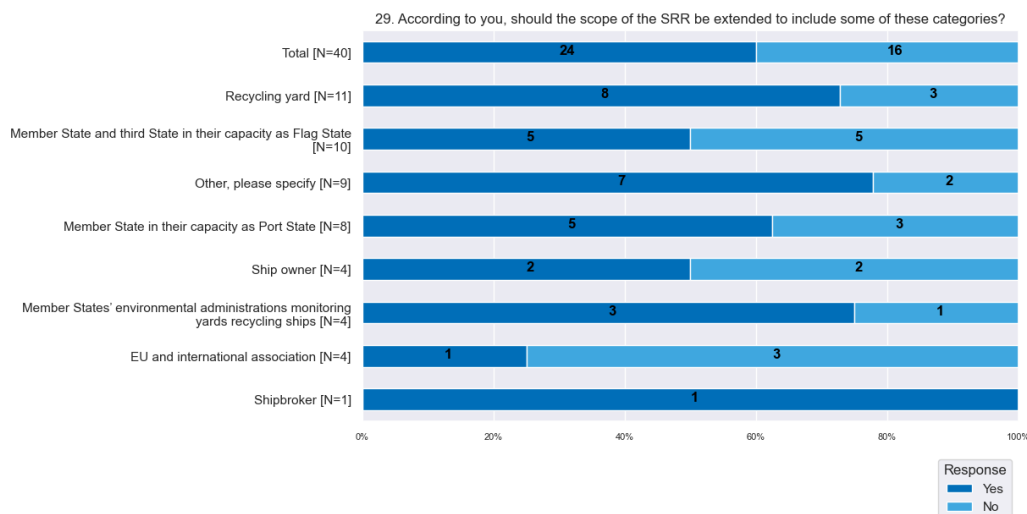
EQ10. Is the scope of the SRR still appropriate?

Main findings:

- Some stakeholders **suggest extending the scope to non-EU flagged vessels (although complexity is recognised), smaller vessels, and naval vessels.** However, there is no general agreement on this issue, and detailed justifications or problem statements for these proposed changes are not explicitly highlighted by the stakeholders;
- There is some support for including responsibility for **beneficial ownership in the SRR to improve accountability**, but concerns are expressed about the complexity of its implementation;
- As concerns **the relevance of a financial incentive** (as per Art.29 of the SRR, under the form e.g. of a ship recycling licence for all ships calling at an EU port), the majority of those that responded to the survey questionnaire either strongly agreed or agreed that a financial incentive (completely or partially) bridging the revenue gap **may be helpful to encourage safe and environmentally sound recycling.**

Overall, stakeholders consulted during the targeted survey agreed that the current scope of the SRR could be extended. Those who answered the targeted survey believe that **the scope of the SRR should be extended** to include the following categories, with over 60% in agreement (n=40): warships, naval auxiliary, ships owned or operated by a state and used only on government non-commercial service; ships of less than 500 gross tonnage; and ships only operating in waters of the Member State whose flag the ship is flying. The stakeholders most in favour of this extension are recycling yards (8 yes, n=11), Member States in their capacity as Port State (5 yes, n=8), shipbrokers (1 yes, n=1), and 'others' (7 yes, n=9), as seen in Figure 3.30. EU and international associations were generally not in favour of extending the scope to these categories (3 no, n=4), while Member States and third States in their capacity as Flag States (n=10) and Ship owners (n=4) were both split at 50%. Thus, **there is no agreement between stakeholders on the need to extend the SRR to include additional categories of ships.**

Figure 3.29 Stakeholders' opinion on extending the scope of the SRR177, by stakeholder type.



Source: consortium elaboration based on targeted survey questionnaire.

Stakeholders at the workshop discussed the recycling of ships of less than 500 gross tonnage and noted that **smaller ships are often recycled within the EU**. This trend may be due to the lower financial and logistical burden compared to the recycling of larger ships (over 500 gross tonnage). These observations are supported by data on ship recycling and re-flagging, where **the majority of re-flagged ships are larger vessels**. This indicates that ships below 500 gross tonnage are already recycled in the EU, i.e. in recycling yards that are already compliant with the EU environmental and health regulations, suggesting that the added value of **extending the scope of the SRR to these smaller ships may be limited**. Thus, currently it seems unlikely to have a significant impact on or benefit to the SRR and its objectives.

The current scope of the SRR was chosen to mirror that of the HKC. The Commission has however stated that the recycling of ships – regardless of their flag – in the EU should be carried out according to the same standards of environment and human health protection as the recycling of EU-flagged ships. Furthermore, the objectives of the SRR would be undermined if EU recycling facilities not in compliance with Article 13 of the SRR were recycling ships not covered by the scope of the SRR, in particular non-EU flagged ships of 500 GT or more¹⁷⁸. As a result, the majority of stakeholder opinions on expanding the scope of the SRR focused on the inclusion of non-EU flagged ships in order to facilitate the harmonisation of legislation for all ships within Europe.

Several stakeholders suggested that the scope of the SRR should be extended also to non-EU flagged ships leaving EU ports, although they also recognised the legal complexities involved or did not provide details on how this should be done. On the other hand, those who were not in favour of this extension cited the complications which could arise when harmonising multiple international legislations, and how this may trigger other countries to

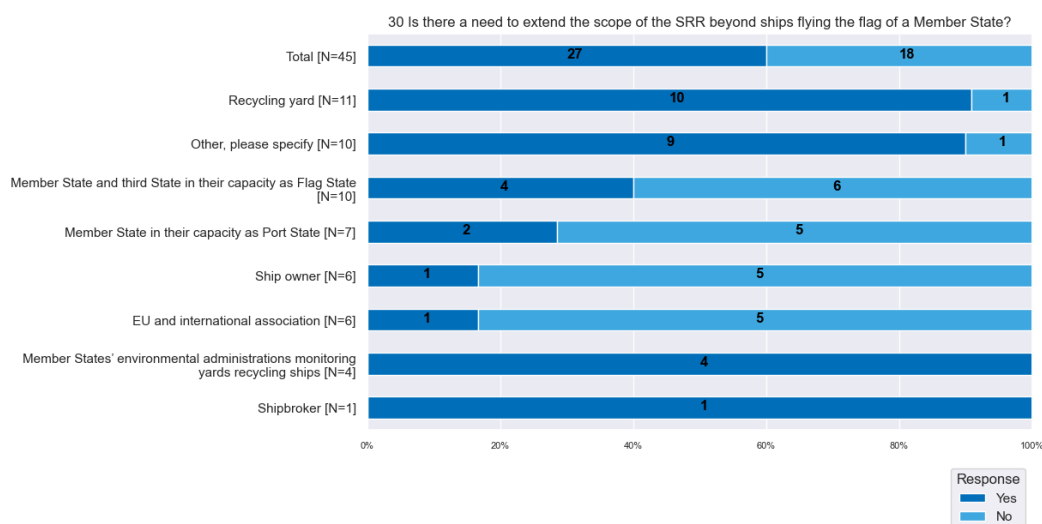
¹⁷⁷ The question was general and referred to the possible following categories warships, naval auxiliary, ships owned or operated by a state and used only on government non-commercial service; ships of less than 500 gross tonnage; ships only operating in waters of the Member State whose flag the ship is flying.

¹⁷⁸ Minutes of the 10th meeting of the Experts Group on ship recycling.

develop similar measures, **convoluting the situation for shipowners and international maritime governance in general.**

The majority of the participants in the stakeholder survey agreed that **the scope of the SRR should be extended beyond ships flying the flag of a Member State** (27 yes, N=45). Recycling yards (27 yes, n=11), Member States' environmental administrations monitoring yards recycling ships (4 yes, n=4), shipbrokers (1 yes, n=1), and 'others' (9 yes, n=10) largely agreed with the statement. In contrast, those not in favour of extending the scope included Member States and third States in their capacity as Flag States (6 no, n=10), Member States in their capacity as Port State (5 no, n=7), Ship owners (5 no, n=6), and EU and international associations (5 no, n=6). The diversity of views on this issue across the different stakeholder groups also shows the **lack of agreement as to if the SRR scope should be extended to cover non-EU-flagged vessels.**

Figure 3.30 Stakeholders' opinion on extending the scope of the SRR beyond ships flying the flag of a Member State, per stakeholder category



Source: consortium elaboration based on targeted survey questionnaire.

A specific issue raised during the consultation process was the **abandoned vessels without flags**, which need to be recycled. There is data by EMSA¹⁷⁹ on the number of abandoned vessels, which does not show a clear trend in the number of ships abandoned in the period from 2014 to 2021 -209 vessels. While more than half of the abandoned vessels are fishing vessels, there are also instances of cargo and passenger ships. There is however no data on how many of these vessels can/need to be recycled, which is why the magnitude of the problem could not be assessed during the evaluation. However, one public authority suggested that there is a need for the scope of the regulation to be clarified regarding its application to vessels without flags but falling under the definition of a ship. The reason for exploring expanding the scope of the SRR to cover this issue is that it could be a problem if those end-of-life ships are not dismantled in a safe and environmentally sound manner and/or are abandoned on the EU territory without further action.

Interviewees also gave support to the concept of beneficial ownership liability within the SRR to improve accountability, thus reducing the issues of reflagging and so contribute to make the SRR more effective. However, several stakeholders also emphasised that it

¹⁷⁹ EMSA (2022). Annual overview of marine casualties and incidents 2022. 15th October 2022. Available at: <https://www.emsa.europa.eu/newsroom/latest-news/download/7362/4867/23.html>

would be a complex expansion of the scope of the SRR. They express concerns about the complexity within the maritime industry in identifying the 'beneficial owner', and how there is a need for clear definitions and a hierarchy of responsibilities for effective enforcement, especially in jurisdictions with hidden ownership structures. To make this at EU level is even more challenging. As discussed during the workshop on the SRR, examples from international conventions (such as the International Convention for the Safety of Life at Sea – SOLAS and the International Convention for the Prevention of Pollution from Ships – MARPOL) of shared compliance responsibilities between flag states and companies could provide ideas on regimes addressing complex liability issues.

Another element that was addressed under this evaluation because of its relation with the scope is the **financial incentive** envisaged in Art. 29 of the SRR. The objective of such an incentive would be to lower the revenue gap that exists for safe and environmentally sound ship recycling, which has led the shipowners to opt for more lucrative substandard ship recycling, eventually incentivising circumvention of the SRR's provisions through changing the flag flown by the vessels. The studies carried out by Ecorys (2005),¹⁸⁰ COWI and Milieu (2009),¹⁸¹ Profundo (2013) and Milieu (2013)¹⁸² identified different financial instruments, such as the Ship Recycling Guarantee, the Ship Recycling Escrow Account, the Ship Recycling Insurance, and a Port Levy/Ship Recycling Fund option. The study that Ecorys, DNV-GL and the Erasmus School of Law carried out in 2016 also analysed non-financial measures, re-assessed the options previously analysed, provided insights into the main shortcomings of each of these options and, in conclusion, proposed to introduce a Ship Recycling Licence (SRL), which included the previously proposed instruments' strong elements while eliminating the shortcomings. Such a ship recycling licence would apply to all ships (regardless of their flags) calling at an EU port or anchorage.

The parallel study on such a financial incentive, which is an update of the 2016 study, concluded that **the majority of those that responded to the survey questionnaire either strongly agreed or agreed that a financial incentive (completely or partially) bridging the revenue gap may be helpful to encourage safe and environmentally sound recycling**. Overall, the stakeholders providing an opinion to the survey questionnaire believe that introducing a financial incentive would have a positive impact. A different opinion has been expressed, during the targeted interviews programme as well, by the shipowners' representatives. They would not recommend introducing a financial incentive, because from their perspective, it would not be necessary and produce a negative impact on the maritime sector. They argue that it would be applied only on a regional scale, whereas the maritime sector operates on a global scale. They believe also that this situation might trigger political tensions between regions. In general, the **respondents to the survey questionnaire agree that a financial incentive would be still relevant with the HKC in force**.

¹⁸⁰ Ecorys (2005), The Ship Recycling Fund.

¹⁸¹ COWI and Milieu (2009), Study in relation to options for new initiatives regarding dismantling of ships.

¹⁸² Milieu (2013), Financing the environmentally sound recycling and treatment of ships.

4 Conclusions and lessons learned

Regulation (EU) No 1257/2013 is an ambitious tool, which aims to ensure that EU-flagged ships are dismantled in safe and environmentally sound facilities worldwide.¹⁸³ One of its specific objectives is to contribute to the proper management of hazardous materials on ships. The Ship Recycling Regulation does not only implement the requirements of the Hong Kong Convention¹⁸⁴ and aims at facilitating its entry into force, but also adds more and stricter rules. The evaluation results show that **the SRR has contributed to all these objectives, but its effectiveness is hampered by significant challenges, such as circumvention of the obligation to recycle end-of-life vessels in EU-listed yards because of the re-flagging of vessels**, as well as, to a lesser extent, the insufficient compliance with the requirements for the Inventories of hazardous materials (IHM). Specific aspects addressing the SRR achievements and challenges are presented below.

The SRR has contributed to its high-level objectives of protecting human health and the environment by establishing criteria for ship recycling facilities, but the standards need further clarification: The overall opinion of the consulted stakeholders is that the SRR has **contributed to mitigating adverse health and environmental impacts in the ship recycling sector**, by establishing stringent criteria for ship recycling facilities. A significant majority of stakeholders recognise the effectiveness of the SRR in this regard, while the available health data shows that, e.g., the average deaths per year in Turkish recycling facilities decreased from 7.1 fatalities per year in the period 2010-2018 to 2.3 in the period 2020-2022. A few stakeholders interviewed (notably recycling yards) point out the clear guidance the SRR gives to the ship recycling industry on what can be considered sustainable ship recycling or not. The most recent NGO report on Türkiye¹⁸⁵ highlights **the EU inspection reports' pivotal role in driving yard improvements**. At the same time, stakeholders expressed **the need for further clarification of the standards for establishing compliance and inclusion in the EU list of ship recycling** to ensure a better level playing field.

Through the European List of Ship Recycling Facilities, the SRR has ensured sufficient current capacity for EU-flagged ships to be dismantled in safe and environmentally sound facilities worldwide, but the capacity needs to keep growing: The number of **facilities on the European list has nearly doubled**, going from 25 in 2018 to 48 as of August 2023. The list records a **historically high annual output of 1.3 million LDT** and a theoretical recycling capacity of close to 3 million LDT. The list also shows a **diversified capacity in terms of size**, with 15 yards capable of recycling very large vessels (i.e. vessels with the following dimensions: $\geq 294\text{m}$ in length and $\geq 48\text{m}$ in width), accounting for 33.3% of the total facilities¹⁸⁶. The **List exceeds the existing recycling needs for EU-flagged and EU re-flagged ships** (1 year prior to dismantling) for the period analysed between 2018-2022. As concerns the forecasted needs, most stakeholders agree that the EU-listed recycling yards **do not have sufficient capacity to meet future demand for recycling**. This consensus on the future capacity is confirmed by the forecasting exercise performed within the assignment - the demand for recycling EU-flagged vessels

¹⁸³ 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 Text with EEA relevance.

¹⁸⁴ The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, more information available at: <https://www.imo.org/en/About/Conventions/Pages/The-Hong-Kong-International-Convention-for-the-Safe-and-Environmentally-Sound-Recycling-of-Ships.aspx>

¹⁸⁵ NGO Shipbreaking platform (2023). Ship Recycling in Turkey Challenges and Future Direction. 20 December 2023. Available at: <https://shipbreakingplatform.org/wp-content/uploads/2023/12/Turkey-Report-2023-NGOSBP.pdf>.

¹⁸⁶ This does not include floating platforms.

is expected to peak in 2032 to almost 2.5 million LDT, which is more than the currently available recycling capacity of active facilities.

The effectiveness of the EU SRR has been substantially undermined by the practice of re-flagging ships. The entry into force of the SRR has exacerbated the practice of re-flagging, where shipowners change the flag of their vessels shortly before dismantling. There was a significant spike in the number of cases of re-flagging in 2012, the year preceding the adoption of the SRR. In 2019, the **LDT volume of EU reflagged ships that were recycled was almost four times higher than the LDT volume of recycled EU-flagged ships.** In 2022, the latest year for which complete data are available, a total of 37 ships that had been flying an EU flag one year prior were dismantled. Of these, 10 were re-flagged within one year before being dismantled. Nine of these ten re-flagged vessels were scrapped in non-EU listed dismantling facilities. Moreover, the **9 re-flagged ships scrapped in non-EU listed facilities accounted for 54.4% of the total EU LDT dismantled that year.** After reflagging, these vessels often reach the end of their service life in South Asian countries like Bangladesh, India, and Pakistan, **effectively circumventing the obligations** imposed by the EU Ship Recycling Regulation. The principal consequence of circumvention through re-flagging is that it undermines the effectiveness of the SRR in ensuring that EU-flagged ships are dismantled in facilities worldwide that are safe and environmentally responsible.

To a certain extent, the SRR contributed to reducing disparities between EU and third country facilities, but there the health and environmental record of South Asian yards remains alarming: About 45% of respondents agreed that the SRR has been effective in **reducing disparities in standards between facilities in the EU and those in third countries.** Furthermore, **interviewees generally expressed the opinion that the SRR has influenced ship recycling yards in third countries** in improving their standards, even if they are not yet on the EU SRR list, thus having a global impact. This can be linked to some extent to investments in **applicant** facilities to meet the criteria for listing, even if they do not fully meet the required safety levels and have not been included in the EU List. **This said, the general situation in the region remains worrying.** The Shipbreaking Platform documented **425 deaths and 329 injuries in South Asian shipbreaking yards between 2009 and 2022.** Particularly Bangladesh's record of fatalities and injuries remain very high: 78 deaths and 127 injuries in the period 2018-2022. The fatal accidents in EU-approved installations are from a much lower magnitude (three fatalities in Türkiye¹⁸⁷ in 2020-2022, one fatal accident in the USA approved yard and another one in the Netherlands in 2022). Moreover, stakeholders indicated that in third countries (such as Bangladesh, Pakistan and India) the management of the waste **resulting from recycling** often does not meet the strict requirements set by the laws of these countries.

The requirement for an Inventory of Hazardous Materials (IHM) contributes to the proper management of hazardous materials on ships, but its compliance and enforcement are insufficient: The requirement for preparing and maintaining an Inventory of Hazardous Materials (IHM) on ships, which was introduced by the SRR, is **assessed positively by all stakeholders.** The SRR has **triggered many efforts aimed at standardising** the development and maintenance of IHM and providing standard procedures for vessel inspection. Despite efforts by the European Commission and EMSA to support enforcing IHM-related obligations, data from EMSA reveal ongoing challenges in ensuring compliance with this regulation. The numbers of non-compliance for 2021 and

¹⁸⁷ The Isiksan and Simsekler shipyards in Turkey are no longer on the EU-approved list.

2022 show that in **50% of the cases (668 out of 1,347 inspections), ships were non-compliant with the SRR.**

The SRR has been successful to a significant extent in facilitating the ratification of the HKC: The European Commission encouraged EU Member States to prioritise ratification, based on a Council Decision in 2014 that explicitly focuses on the objectives of the SRR, including facilitating ratification of the Convention. **There has been a significant increase in the number of ratifications after the SRR became applicable in 2018.** Almost fifty percent of the countries that have ratified the HCK are EU Member states. Thus, the SRR contributed to the Hong Kong Convention's entry into force on 26 June 2025.

The MS reporting obligations are not fully abided: Member States' commitment to the process of improving the implementation and enforcement of the SRR has differed from country to country. While some have actively participated in the meetings and fulfilled their reporting obligations, some reporting have been markedly succinct and late. The Member States' reports under Article 21 were not comprehensive. By November 2023, ten Member States, including Norway, submitted reports providing specific details on the RFRCs for 90 vessels and Statements of Completion (SOC) issued. As concerns the remaining fourteen Member States - six of them provided a specific statement that no RFRC had been issued, while the others left the form blank. Three countries provided reports much later after the deadline and two did not respond at all. According to the EMSA analysis, at least 9 additional vessels should have been reported by the MS, but were not included in the reporting, further underlining the **lack of completeness of the reports.**

The enforcement of the SRR is challenging and not uniform: It should be noted in the first place that enforcement of the provisions of the SRR related to obligation of the shipowner to have the vessel dismantled in an EU listed facility is often just not possible due to the re-flagging practice mentioned previously. In that case, enforcement action in relation to illegal ship recycling might need to be pursued under the Waste Shipment Regulation. Cooperation between Member States is in all cases particularly challenging due to **jurisdictional complexities.** For instance, when a ship is owned by a company domiciled in one country, flagged in a second, located in a third and then recycled in a fourth. In such cases, determining which set of regulations applies can be problematic and identifying the authoritative body responsible for enforcement further complicates the process, potentially resulting in a scenario where non-compliance slips through the cracks. EU Member States enforcement authorities encounter the challenging task of conducting intricate investigative operations **at international level** to trace the journey of EU vessels that have been sold to cash buyers, serving as intermediaries on their way to the ultimate recycling destinations. The sanctions for SRR infringements differ across countries, and it is widely perceived that **the existing administrative penalties for violations of the SRR in Member States are inadequately low** to effectively discourage non-compliance.

Stakeholders, including national competent authorities and recycling yards, **consider the costs of the SRR to be proportionate or outweighed by the benefits in pursuing the above objectives.** There is a consensus that the **costs entailed by the SRR requirements are low to moderate for most stakeholders.** The authorities that provided data, indicated 1-4 full-time equivalents (FTEs), with on average 2 FTEs, per country working on issues related to the SRR (excluding Port State control inspections). Member States' competent authorities report relatively low costs for reporting to the European Commission on the state of ship recycling (less than 5% of an FTE), i.e. **the administrative costs of the SRR are low for MSs.** Similarly, costs are considered as low for the cooperation with other national authorities, which however may also suggest a relatively limited number of initiatives and activities conducted in this regard.

For recycling yards (both listed and non-listed), direct regulatory costs linked to the development of a ship recycling plan are considered low, but most of the recycling yards surveyed and some interviewees **indicate high costs associated with complying with the requirements set in the SRR to be included in the European list**. While compliance costs are considered high, half of the recycling yards surveyed, seconded by shipowners and the steel industry, also stress that the **SRR was a decisive factor in the evolution of revenues of the ship recycling facilities**, because the SRR plays a role in stimulating investors' funding to upgrade recycling facilities, so that they can attract more customers. In other words, the SRR can bring **reputational benefits**.

Overall, the SRR is internally coherent and consistent within its provisions. Stakeholders were positive about the coherence/consistency between the provisions of the SRR. This is also clear in the intervention logic of the SRR and the specific result pathways, which show clear and logical links and no inconsistencies. To a large extent, **the SRR is coherent with other existing EU environmental and maritime legislation**, such as the Waste Shipment Regulation, the Waste Framework Directive and other EU waste legislation, the Port State Control (PSC) Directive and the Flag State requirements Directive. There are also clear **synergies between the SRR and the Basel Convention and the IMO Hong Kong Convention**. At the same time, some concerns were raised regarding the clarity/scope of the **definitions** for "waste", "shipowner", "ship recycling", and the lack of a definition of "End-of-Life" vessels. Particularly the lack of a clear definition for "End-of-Life" vessels poses a challenge for enforcement authorities in identifying ships ready for recycling and detecting breaches of the obligation to recycle in EU-listed yards.

The SRR **corresponds to the needs** identified in many EU policy documents such as the EU Green Deal, Circular Economy Action Plan, Zero Pollution Action Plan. The reduction of pollution is considered well-addressed by the SRR, with 27 (out of 40) respondents believing it sufficiently addressed the policy ambition either to a moderate or large extent. On the contrary, the **circular economy and the management of GHG emissions were not considered by the survey respondents to be sufficiently addressed by the SRR**. Due to the core nature of the SRR being the recycling of materials for reuse, several stakeholders also acknowledged the role the regulation plays in addressing the needs of the circular economy in the EU. While the SRR aligns with the overall objectives and principles of the European Green Deal, the Regulation has a weaker relevance with respect to the EU's **GHG emissions reduction ambition** as it sets standards on the safety and environmentally sound recycling of ships but does not target GHG emissions resulting from these activities.

Until the ratification of the HKC and its entry into force, issues related to the safe and environmentally sound recycling of ships have continued to be unaddressed at the international level. In this regard and in the absence of effective implementation at the international level until, problems related to ship recycling **have continued to justify the efforts conducted at the EU level**. In light of the recent ratification of the HKC, **the SRR continues to play a role by establishing higher standards and sets the example globally**. There is consensus among stakeholders and stakeholder groups that the SRR has a positive EU-added value compared to what Member States could have achieved alone. The SRR **established a number of coordination mechanisms at the EU level that contribute to raising awareness among stakeholders and advancing efforts to better recycle ships**.

Finally, **the relevance of the SRR will increase with the expected growing needs for ship recycling**. Even though there has been a slight decrease in recycling volumes over time, it is expected that ship recycling volumes will grow significantly in the coming years,

due to the ageing of the current fleet. As more ships will need to be recycled in the future, it is desirable that this will increasingly be done in a sustainable way.

Regarding the **scope** of the SRR, there is some support to extend it to non-EU flagged ships and to ships of less than 500 GT, although stakeholders recognise the legal complexity in the first case and limited EU added value in the latter (as smaller ships are often recycled within the EU). There is support for including responsibility for **beneficial ownership** in the SRR to improve accountability, but concerns are expressed about the complexity of this extension. As concerns the relevance of a **financial incentive** (as per Art.29 of the SRR), the majority of those that responded to the survey questionnaire either strongly agreed or agreed that a financial incentive such as the ship recycling licence applying to all vessels calling at an EU port bridging the revenue gap may be helpful to encourage safe and environmentally sound recycling.

The **key lessons learned** that would merit from further attention in the design, implementation, and enforcement of the SRR are summarised in the table below:

Lesson learned/issue	Details
The practice of re-flagging resulting in circumventing the SRR, undermines its effectiveness	According to EMSA data, for the period 2018-2022, the percentage of EU LDT re-flagged prior to dismantling (ending up mainly in South Asia) is above 60% of the total of all the LDT that had an EU flag at least one year before dismantling ¹⁸⁸ . The principal consequence of circumvention through re-flagging is that it undermines the effectiveness of the SRR in ensuring that EU-flagged ships are dismantled in facilities worldwide that are safe and environmentally responsible. The price paid to shipowners (determined mainly by scrap steel price, labour costs and compliance costs related to social and environmental standards) is among the main factors impacting the choice of locations for ship dismantling and therefore the progress and enforcement of the SRR. The price range for South Asian countries is consistently above \$500 per LDT in 2023, the prices in Türkiye are in the range \$280-340 per LDT, while in the EU they are reported to be even lower (about a third of the price in Türkiye).
The IHM requirements are not uniformly applied, which reduces the effectiveness of the SRR	Despite the establishment and standardisation efforts, the effectiveness of the IHMs is diminished due to notable gaps in compliance with the IHM requirements. Overall, across 2021 and 2022, 50% of the performed 1,347 inspections resulted in non-compliance findings, largely involving missing or incomplete Statements of compliance (for third countries) and Inventory certificates (for EU MS). According to stakeholders, the reason for this lack of compliance is the relatively light penalties for non-compliance, along with inconsistent enforcement, which have led many shipowners to bypass the IHM as a cost-saving measure. Several stakeholders raised the issue of loose qualifications criteria for experts preparing IHMs as a cause for

¹⁸⁸ The sum of LDT volume of EU flagged and EU re-flagged (1 year before recycling).

Lesson learned/issue	Details
	<p>concern, as it potentially undermines the quality and reliability of the IHM and the need for more specialised investigation tools and trainings.</p> <p>At the same time, IHM checks do not mobilize significant resources – approx. 5% of the inspection costs during Port State control and between USD 4,000 and USD 6,500 per ship, depending on the type/size of the ship and the quality of the inventory provided. These costs, however, vary across countries, and it should be noted that the more in-depth an inspection is, the more expensive it is, but this is not necessarily a negative effect of the SRR as better IHM inspections would likely lead to better management of hazardous materials.</p>
Future capacity and geography of the EU list	<p>There is a consensus on the need to keep expanding the European List to accommodate the shipping industry's future recycling needs, which is backed up by ship recycling needs projections. The European List of Ship Recycling Facilities is geographically diverse, featuring 45 yards across 15 countries within and outside the EU. However, there is a notable absence of facilities from South Asia, a significant player in the global shipbuilding industry, also due to the Basel Ban amendment, which has de facto frozen the application process for non-OECD countries in 2020.</p>
Possibilities to clarify the SRR definitions	<p>There are certain articles or provisions within the SRR text, which may lead to incoherence and inconsistencies. In particular, there is a need in providing clear definitions of: 'waste'; 'End of life vessel'; 'shipowner'; and 'ship recycling'.</p>
Further cooperation in enforcement needed	<p>The general enforcement of the SRR provisions is one of the main dimensions continuing to require EU-level coordination. A few public authorities interviewed refer to the difficulties in enforcing the rules uniformly as maritime and environmental authorities may have conflicting interpretations. Furthermore, a couple of public authorities interviewed mentioned exploring through separate processes the consequences of the entry into force of the HKC, which indicates a need for further cooperation between national administrations to assess the implications of the HKC and potential inefficiencies in its interaction with the SRR.</p>
Strengthening the link to the circular economy and GHG objectives / a life cycle approach for vessels	<p>While the definition of 'ship recycling' in the SRR mentions the recovery and reuse of materials, the Regulation does not include any concrete requirements for the amount or proportion of materials required to be reprocessed or reused versus disposed. A few stakeholders from the ship recycling industry interviewed echoed this concern, stressing that most non-steel materials are incinerated instead of recycled. They identified the current lack of information on the ship equipment's maintenance history as the main cause of this issue. Interviewees also acknowledged the potential for the SRR to have a vital role in promoting a circular economy, particularly given</p>

Lesson learned/issue	Details
	<p>the large amounts of high-quality scrap steel which is made available from recycled ships.</p> <p>Stakeholders mentioned that in most cases the dismantling of EU-flagged ships still use carbon-intensive methods per ton of recycled steel compared to low-carbon methods available. At the same time, others acknowledged the lack of a direct link between the SRR and the European Green Deal's climate ambitions, explaining that the SRR sets the standard for operations and safety, rather than for emissions reduction.</p> <p>Furthermore, important innovations aim to reduce the environmental impact of shipbuilding and operation, for instance, applying circular economy and resource efficiency principles in shipbuilding or implementing alternative fuels. This is a broad field, including lightweight design, the use of sustainable materials, eco-responsible coatings etc. The implementation of such innovations can also have an effect on the environmental impact of ship recycling and increase the pertinence of a life cycle approach for vessels.</p>
<p>Consideration for the concept of beneficial ownership in the SRR and a financial incentive</p>	<p>There is significant support for including responsibility for beneficial ownership in the SRR to improve accountability, but also strong concerns are expressed about the complexity of introducing such concept, in particular in identifying the beneficial owner in the maritime sector.</p> <p>As concerns the relevance of a financial incentive (as per Art.29 of the SRR), the majority of those that responded to the survey questionnaire either strongly agreed or agreed that a financial incentive such as a ship recycling licence applying to all ships call at an EU port and bridging the revenue gap may be helpful to encourage safe and environmentally sound recycling.</p>

Annex I – Overview of costs and benefits

Type	Name	Description	One-off / Recurrent / Long-term	Stakeholder		
				Shipowners	Recycling yards	MS / EU administrations
Direct compliance costs	Inventory of Hazardous Materials costs	Costs to develop a IHM	One-off	Between EUR 4,000 and 8,000 per ship, meaning a total of between EUR 88.6 and 177.2 million ¹⁸⁹	/ ¹⁹⁰	/
		Costs to keep the IHM updated	Recurrent	Between EUR 500-1,500 per ship per year, meaning a total of between EUR 11-33.2 million per year ¹⁹¹	/	/
Direct compliance costs	Ship recycling plan costs	Costs to develop a ship recycling plan	One-off	/	From EUR 2,300 in the United Kingdom to EUR 100,000 in Norway.	/
Direct compliance costs	EU list management costs	EU resources mobilised to manage the EU list and ensure enforcement	Recurrent	/	/	EUR 1.4 million spent between 2016 and 2020 EUR 1.5 million spent between 2020 and 2022 (with budget ceiling of EUR 4 million)
Direct compliance costs	Ship recycling plan approval costs	Costs associated with the approval of	Recurrent	/	/	7~10% of the total time dedicated by national administrations to the SRR

¹⁸⁹ Conversion rate: USD 1 = EUR 0,95. Total estimate based on the number of EU and non-EU individual vessels (i.e., 22,146) calling on EU ports in 2019 according to AIS data.

¹⁹⁰ When vessels do not come with a proper IHM, recycling yards may face additional costs to assess the hazardous materials on the ship and prepare the necessary documentation.

¹⁹¹ Conversion rate: USD 1 = EUR 0,95. Total estimate based on the number of EU and non-EU individual vessels (i.e., 22,146) calling on EU ports in 2019 according to AIS data.

Type	Name	Description	One-off / Recurrent / Long-term	Stakeholder		
				Shipowners	Recycling yards	MS / EU administrations
		ship recycling plans				
Direct compliance costs	Survey costs	Costs to perform surveys of ships	Recurrent	+/- EUR 2,100, meaning a total of around EUR 20 million ¹⁹²	/	30% of the total time dedicated by national administrations to the SRR (Typically it is outsourced to recognised organisations, but their pricing is not available)
Direct compliance costs	Certificate costs	Costs associated with the issuance and endorsement of inventory and ready for recycling certificates	Recurrent	+/- EUR 5,500, meaning a total of around EUR 3.7 million ¹⁹³	/	10% of the total time dedicated by national administrations to the SRR (Typically it is outsourced to recognised organisations, but their pricing is not available)
Direct compliance costs	Ship recycling facilities approval costs	Costs associated with the authorisation of ship recycling facilities	Recurrent	/	/	Between 5% and 20% of the total time dedicated by national administrations to the SRR
Direct compliance costs	Port State control	Port State inspections (Article 11)	Recurrent	/	/	Less than 5% of the time needed for a Port State control inspection
Administrative costs	Reporting costs	Costs to report to the European Commission	Recurrent	/	/	<5% of the total time dedicated by national administrations to the SRR

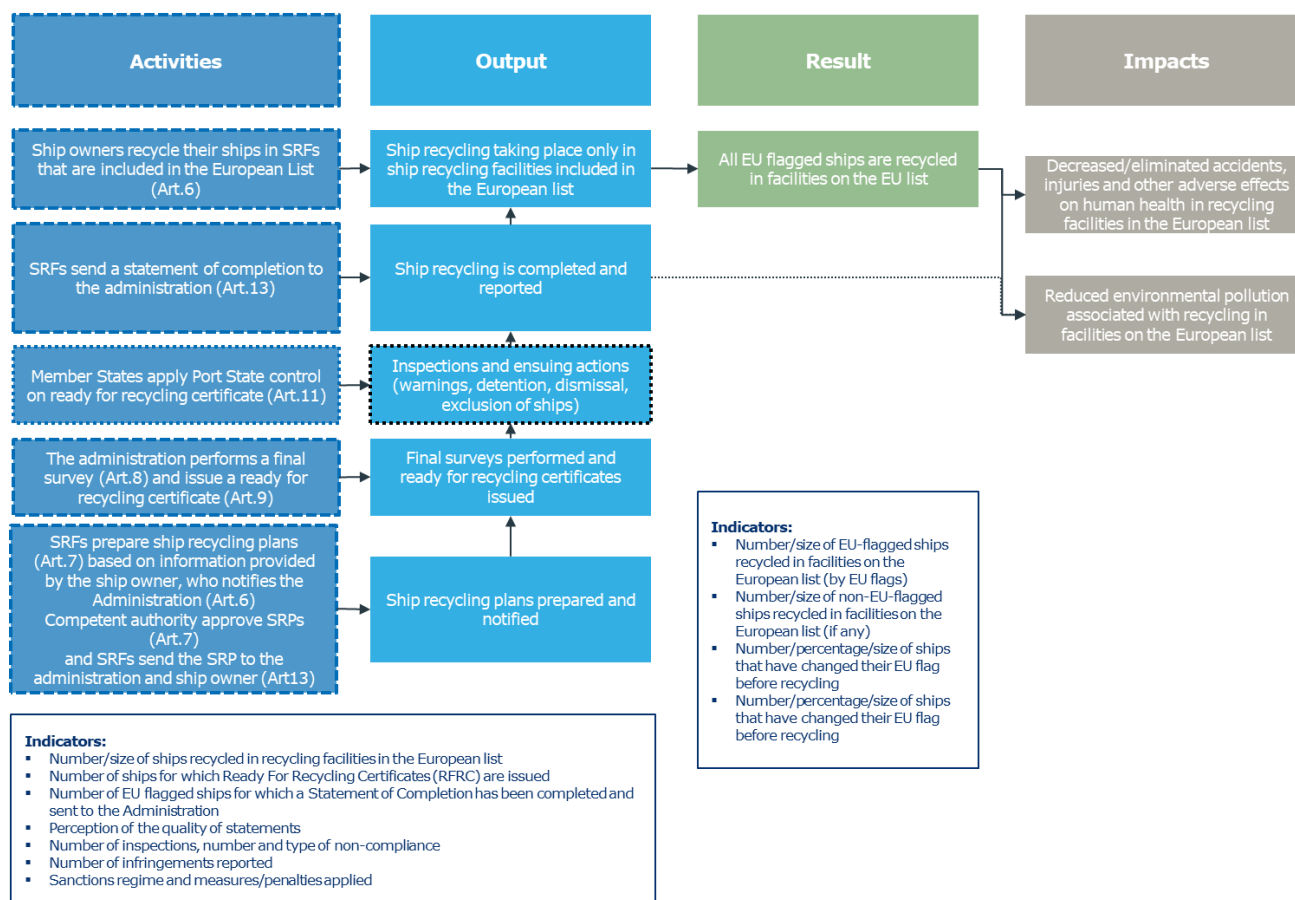
¹⁹² Total estimate based on the number of EU-flagged individual vessels (i.e., 9,523) calling on EU ports in 2019 according to AIS data.

¹⁹³ Total estimate based on the number of individual vessels (i.e., 678) recycled in the EU in 2019 according to EMSA data.

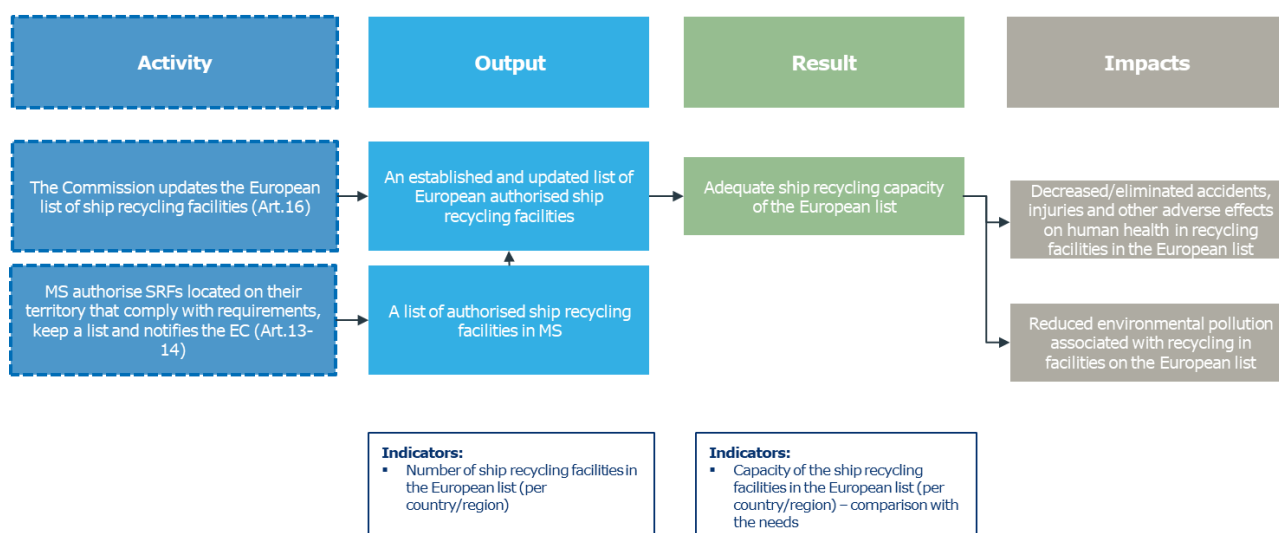
Type	Name	Description	One-off / Recurrent / Long-term	Stakeholder		
				Shipowners	Recycling yards	MS / EU administrations
Enforcement costs	Costs related to applying penalties, sanctions, monitor for infringements	Costs to monitor and ensure that the SRR provisions are applied	Recurrent	/	/	Between 3%~50% of the total time dedicated by national administrations to the SRR
Direct benefits	Improved welfare	Decreased environmental damage from ship-recycling, improved health and working conditions	Long-term	The improved welfare benefits (less environmental damage and improved health and working conditions) cannot be quantified. Nevertheless, they affect positively all stakeholder groups, in particular workers in ship-recycling facilities.		

Annex II – Intervention logic (causal pathways)

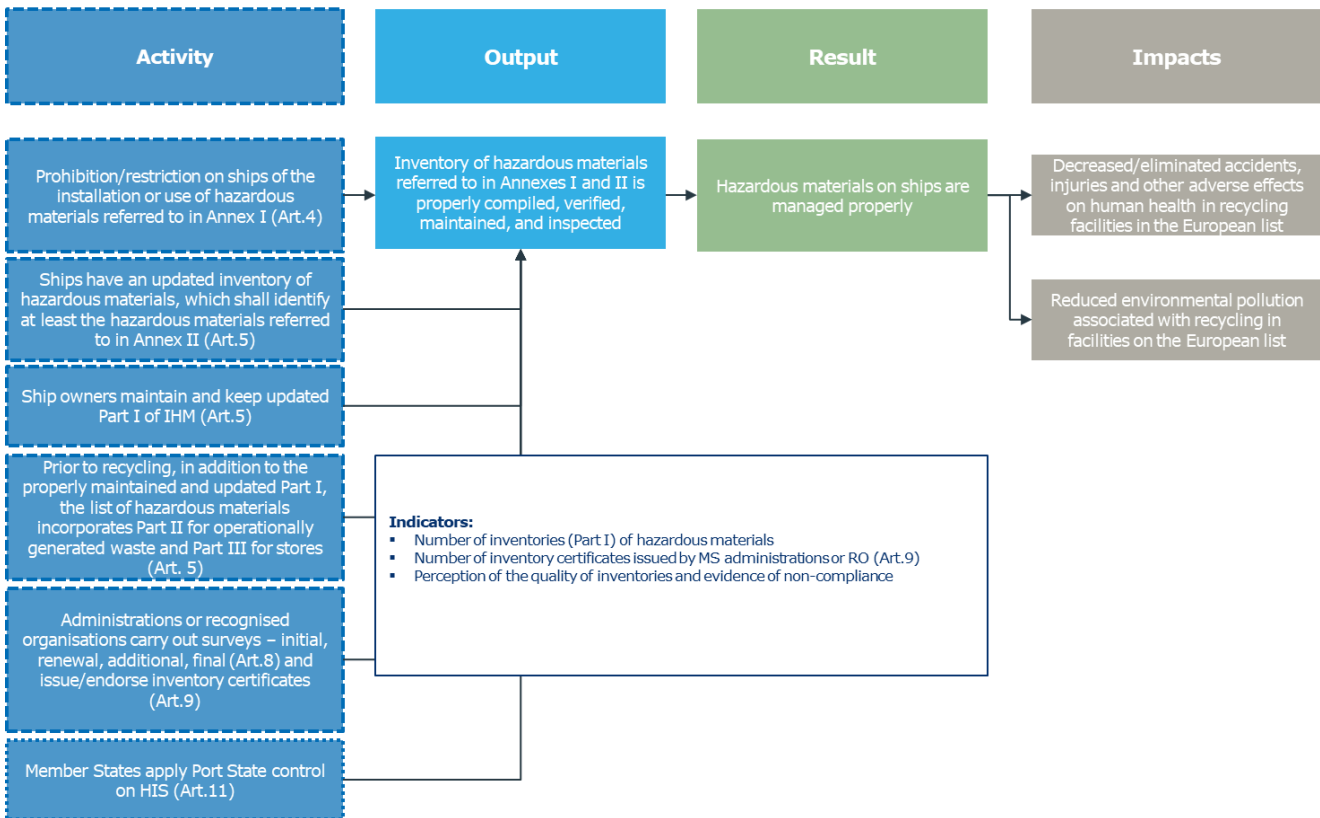
Ship-recycling – requirements for EU-flagged ships (Art.6-9 +13)



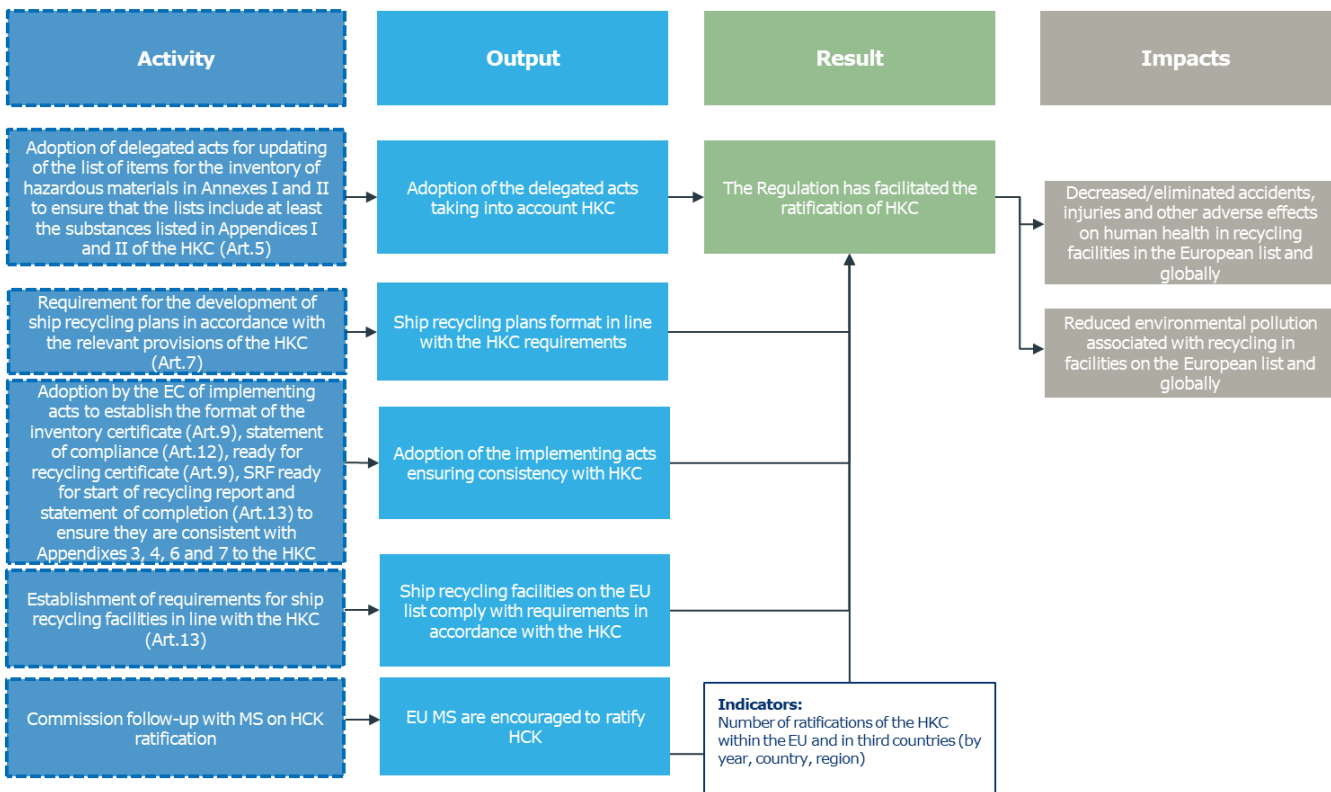
Requirements for authorisation of EU ship recycling facilities (Art.13-14, 16)



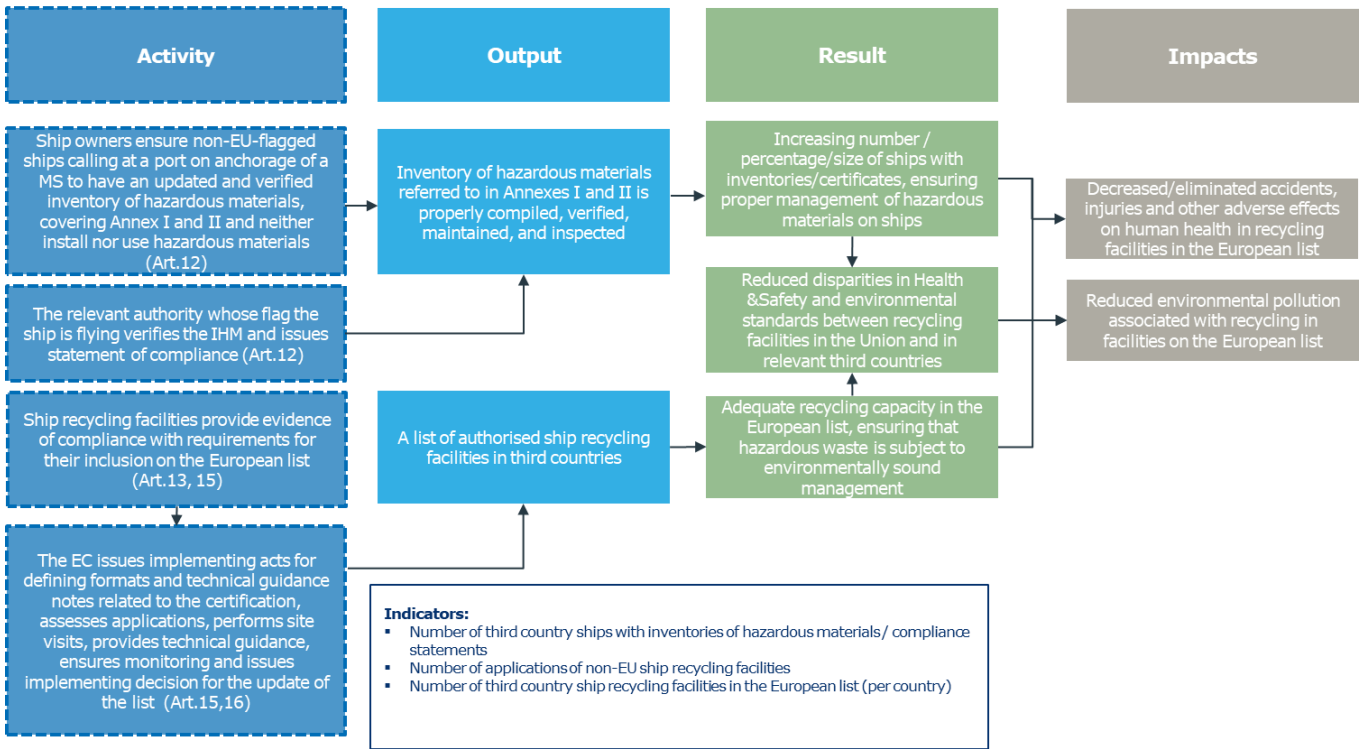
Control, inventory, maintenance and verification of hazardous materials



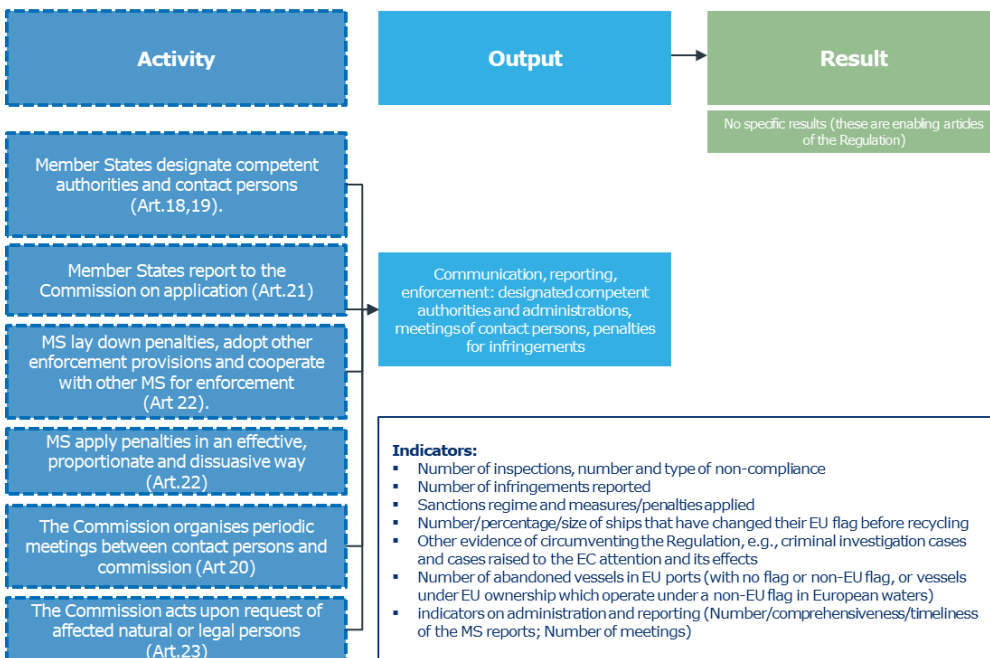
Facilitation of ratification of the HKC



Requirements for third-country ship recycling facilities and ships flying the flag of a third country (Art.12-13, 15)



Communication, reporting, and enforcement (Art.18-22)



Annex III – Evaluation matrices

General questions	Specific questions	Judgement criteria	Indicators	Data sources
Effectiveness				
1. How successful has the SRR been in achieving (or progressing towards) its objectives?	<p>EQ1.1: How successful has the SRR been in preventing, reducing, minimising and eliminating accidents, injuries, and other adverse effects on human health (e.g. occupational disease) and the environment caused by ship recycling?</p> <p>EQ1.2: How successful has the SRR been in ensuring the proper management of hazardous materials on ships?</p> <p>EQ1.3: How successful has the SRR been in facilitating the ratification of the Hong Kong Convention?</p> <p>EQ1.4: How successful has the SRR been in ensuring that EU flagged ships are dismantled in safe and environmentally sound facilities worldwide?</p>	<p>EQ1.1: Decreased rate and severity of accidents, injuries and other adverse effects on human health (e.g. occupational disease) caused by ship recycling</p> <p>EQ1.1: Decreased rate and severity of adverse effects on the environment caused by ship recycling</p> <p>EQ1.1: Increased number/size of EU-flagged ships recycled in facilities on the European list (by EU flags)</p> <p>EQ1.1: Decreased number/percentage/size of ships that have changed their EU flag before recycling</p> <p>EQ1.1: Increased values (number) of the output indicators (statements, facilities, recycling plans, etc.)</p> <p>EQ1.1: Perception of high quality of the outputs related</p>	<p>EQ1.1: Trends in the numbers and severity of accidents, injuries, occupational disease, etc. inside and outside the EU after the Regulation has been applied</p> <p>EQ1.1: Trends in the numbers and severity of environmental pollution accidents in ship recycling facilities inside and outside the EU after the Regulation has been applied</p> <p>EQ1.1: Trend in the number/size of EU and non-EU flagged ships recycled in facilities on the European list</p> <p>EQ1.1: Number/percentage/size of ships that have changed their EU flag before recycling</p> <p>EQ1.1: Trends in the output indicators (statements, facilities, recycling plans, etc.), including: Number of ships for which Ready For Recycling Certificates (RFRC) are issued; Number of EU flagged ships for which a Statement of Completion has been completed and sent to the Administration</p> <p>EQ1.1: Perception of the quality of statements, recycling plans, etc.</p> <p>EQ1.2: Output indicators on inventory of hazardous materials (Number of inventories (Part I) of hazardous materials; Number of</p>	<p>EQ1.1: Desk research on health and environmental impacts and sustainable management of hazardous waste, including:</p> <ul style="list-style-type: none"> E3 modelling (2021) EU Reference Scenario 2020, Energy Transport and GHG Emissions – Trends to 2050; COWI (2009) Support to the impact assessment of a new legislative proposal on ship dismantling; Wei-Te Wu (2016) Science for Environment Policy, Issue 55 on ship recycling; NGO Shipbreaking Platform (quarterly updates); IMO (2016) Evaluation of

General questions	Specific questions	Judgement criteria	Indicators	Data sources
		<p>to the regulation (e.g. statements, recycling plans)</p> <p>EQ1.2: Increased values (number) of the output indicators on the inventories/certificates of hazardous materials</p> <p>EQ1.2: Perception of high quality (i.e. compliance) of the inventories</p> <p>EQ1.3: Increased ratifications of the HKC</p> <p>EQ1.4: Reduced disparities in Health & Safety and environmental standards between recycling facilities in the Union and in relevant third countries</p> <p>EQ1.4: Adequate ship recycling capacity in the European list</p> <p>EQ1.4: Increased number of applications of non-EU ship recycling facilities</p> <p>EQ1.4: Increased number of third country ship recycling facilities in the European list</p>	<p>inventories of hazardous materials and number of inventory certificates issued by MS administrations or RO (Art.9); Number of third country ships with inventories of hazardous materials / compliance statements)</p> <p>EQ1.2 Perception of the quality of inventories and evidence of non-compliance (if any)</p> <p>EQ1.3: Number of ratifications of the HCK</p> <p>EQ1.4: Perception of the stakeholders on the disparities in Health & Safety and environmental standards between recycling facilities in the Union and in relevant third countries</p> <p>EQ1.4: Ship recycling capacity in the European list compared to the needs</p> <p>EQ1.4: Number of applications of non-EU ship recycling facilities</p> <p>EQ1.4: Number of third country ship recycling facilities in the European list</p>	<p>Environmental Impacts of Ship Recycling in Bangladesh;</p> <ul style="list-style-type: none"> • Ship Recycling Transparency Initiative – 2020 Report and SRTI database; • SSI (2021): Exploring shipping's transition to a circular industry; • European Commission (2022), Updated list of ship recycling facilities; • European Commission, desk assessment and inspection reports of third country ship recycling facilities; • UNCTAD Statistics on Ship Recycling. <p>EQ1.1: Data from ship recycling facilities on accidents during ship recycling and on occupational diseases</p> <p>EQ1.1-1.4: EMSA report</p>

General questions	Specific questions	Judgement criteria	Indicators	Data sources
				<p>EQ1.2: Data from EMSA on Port State control checks</p> <p>EQ1.3: IMO, Ratification by Treaty</p> <p>EQ1.1-1.4: Stakeholder consultations</p> <ul style="list-style-type: none"> • Online public consultation; • Targeted survey / Bespoke survey; • Interviews; • Workshop. <p>1.4 Studies on capacity....</p>
2. What factors have affected (positively or negatively) progress towards the objectives and its enforcement?	<p>EQ2.1: What factors have positively affected the progress towards each of the objectives?</p> <p>EQ2.2: What factors have negatively affected the progress towards each of the objectives? Objectives as per the Intervention logic: Ensure EU flagged ships are dismantled in safe and environmentally sound facilities worldwide;</p>	<p>EQ2.1: There are identifiable factors that have (had) a positive impact on the progress towards the objectives</p> <p>EQ2.2: There are identifiable factors that have (had) a negative impact on the progress towards the objectives</p>	<p>EQ2.1-2: Evidence of factors having positive/negative impact on progress towards objectives</p> <p>EQ2.1-2: Stakeholder opinion on factors having positive/negative impact on progress towards objectives</p> <p>External factors may include, for example: Ship recycling price (determined mostly by the price of scrap metal and labour and regulatory compliance costs) Technological advances, incl. digitalisation MS and third country priorities MS and third country enforcement capacity Russian war in Ukraine COVID-19 pandemic</p>	<p>EQ2.1-2: Desk research on factors</p> <ul style="list-style-type: none"> • Zhou et al. (2021): Factors influencing green ship recycling: A conceptual framework and modelling; • Solakivi et al. (2021): The European Ship Recycling Regulation and its market implications: Ship-recycling capacity

General questions	Specific questions	Judgement criteria	Indicators	Data sources
	Ensure the proper management of hazardous materials on ships; Facilitate the ratification of the Hong Kong Convention.		The entry into force of the Basel Ban Amendment	and market potential; <ul style="list-style-type: none"> • B van Werven (2019): European Ship Recycling Regulation: can we make a difference towards safe and environmentally sound practices? • N. Mikelis (2019), The Recycling of Ships; • EMSA data on fleets and change of flags. EQ2.1-2: Stakeholder consultations Interviews; Workshop.
3. Are there unexpected or unintended effects that have occurred (for example, have there been harmful circumvention of the obligations of the SRR)?	EQ3.1: Are there unexpected / unintended effects? EQ3.2: What are the causes and effects of circumvention through re-flagging?	EQ3.1: There are identifiable unexpected / unintended effects EQ3.2: There is evidence of circumvention through re-flagging	EQ3.1: Evidence of unexpected / unintended effects contributing to or hindering the progress EQ3.1: Stakeholder opinion on unexpected / unintended effects contributing to or hindering the progress EQ3.2: Number/percentage/size of ships that have changed their EU flag before recycling EQ3.2: Other evidence of circumventing the Regulation, e.g., criminal investigation cases and cases raised to the EC attention and its effects	EQ3.1: Desk research on effects <ul style="list-style-type: none"> • Lin et al. (2022): Unexpected side effects of the EU Ship Recycling Regulation call for global cooperation on greening the shipbreaking industry; • EMSA statistics on ship recycling. EQ3.1: Stakeholder consultations

General questions	Specific questions	Judgement criteria	Indicators	Data sources
				Online public consultation; Interviews; Workshop. EQ3.2: EMSA information, Shipbreaking platform data, IMPEL, IMO Abandonment of Seafarers database
4. To what extent Member States and stakeholders have been engaged in the process of improving implementation and enforcement of the SRR?	EQ4.1: To what extents have Member States been engaged in the process of improving implementation and enforcement of the SRR? EQ4.2: To what extent have stakeholders been engaged in the process of improving implementation and enforcement of the SRR?	EQ4.1: Member States and other relevant stakeholders consider that MS have been engaged in the process EQ4.1: Increased values of the relevant output indicators on administration and reporting EQ4.2: Stakeholders consider that they have been engaged in the process	EQ4.1-2: Stakeholder perception of their own and others' engagement in the process of improving implementation and enforcement of the SRR EQ4.1: Output indicators on administration and reporting (Number/comprehensiveness/timeliness of the MS reports; Number of meetings) – also a link to the indicators on enforcement	EQ4.1: EMSA report, minutes of Committee/Experts groups meetings EQ4.1-2: Stakeholder consultations Online public consultation; Surveys;
Efficiency				
5. Are the costs related to the SRR proportionate to the benefits (overall and for different stakeholder groups)?	EQ5.1: What are the costs related to the SRR for the key activities (see below the activities, the costs are in the Indicators column)? EQ5.2: Can they be considered proportionate	EQ5.1: Exploratory question (no need for a judgement criterion) EQ5.2: The benefits outweigh the costs / stakeholders consider benefits to outweigh the costs	EQ5.1: Costs for: For shipowners - to keep a list of hazardous materials (Art.5), provide information/conditions and have their ships dismantled in facilities on the EU list (Art.6), shipowners of third countries to keep an inventory (Art.12)	EQ5.1: Desk research on costs • European Commission (2012) Commission Staff Working Document on the impact assessment accompanying the

General questions	Specific questions	Judgement criteria	Indicators	Data sources
	<p>to the benefits for the key activities (see below)?</p> <p>Key activities, as per the developed Intervention logic:</p> <p>Meeting the requirements for ship recycling of EU-flagged ships;</p> <p>Meeting the requirements for authorisation of EU ship recycling facilities;</p> <p>Inventory, maintenance and verification of hazardous materials;</p> <p>Facilitation of ratification of the HKC;</p> <p>Meeting the requirements for third-country ship recycling facilities and ships flying the flag of a third country;</p> <p>Communication, reporting, and enforcement.</p> <p>Beyond the key activities/objectives, benefits for some stakeholders in addition to the main objectives pursued (e.g., reputational value of the EU list)</p>		<p>For administrations¹⁹⁴ or a recognised organisation¹⁹⁵ – to verify the list (Art.5), to approve the ship recycling plan (Art.7), to perform surveys (Art.8), issue certificates (Art.9)</p> <p>Port state control costs (Art.11)</p> <p>For ship recycling companies¹⁹⁶ – to develop a ship recycling plan (Art.7), to be included in the European list (Art.13), in third countries (Art.15)</p> <p>The European Commission – to establish and update the European list of ship recycling facilities (Art.16), other costs related to the SRR (adoption of formats / implementing acts / delegated acts / actions requested of affected parties)</p> <p>For Member States to authorise ship recycling facilities (Art.14), to participate in meetings (Art.20), to report (Art.21), enforce (Art.22), to cooperate between each other (Art.22)</p> <p>EQ5.2: Stakeholder assessment on the costs/benefits ratio (incl. e.g. reputational benefits of being on the EU list)</p>	<p>legislative proposal for the SRR (SWD(2012) 47 final);</p> <ul style="list-style-type: none"> European Commission (mission costs, contracting); OECD (2019) Ship recycling: An overview; OECD Science, Technology and Industry Policy Papers April 2019, No 68. <p>EQ5.1-5.2 Stakeholder consultations</p> <p>Online public consultation;</p> <p>Targeted survey / Bespoke survey;</p> <p>Interviews;</p> <p>Workshop.</p> <p>EQ5.2: Effectiveness assessment</p>

¹⁹⁴ 'administration' means a governmental authority designated by a Member State as being responsible for duties related to ships flying its flag or to ships operating under its authority.

¹⁹⁵ 'recognised organisation' means an organisation recognised in accordance with Regulation (EC) No 391/2009 of the European Parliament and of the Council.

¹⁹⁶ 'ship recycling company' means, the owner of the ship recycling facility or any other organisation or person who has assumed the responsibility for the operation of the ship recycling activity from the owner of the ship recycling facility.

General questions	Specific questions	Judgement criteria	Indicators	Data sources
6. Are there significant differences in terms of costs (or benefits) for Member States and different stakeholder groups, and if so, what are the underlying causes?	EQ6.1: Are there significant differences in costs across MS and/or stakeholder groups? EQ6.2: In case of differences, what is causing them?	EQ6.1-6.2: exploratory questions (no need for judgement criteria)	EQ6.1: same as for EQ5.1 EQ6.2: Stakeholder opinion on the causes of differences in costs	EQ6.1: same as for EQ5.1 EQ6.2: Stakeholder consultations Targeted survey / Bespoke survey; Interviews.
7. Are there opportunities to simplify the legislation or reduce unnecessary regulatory costs/burden without undermining the intended objectives of the intervention?	-	EQ7: Available opportunities for simplification and cost/burden reduction without hampering effectiveness	EQ7: same as for EQ5.1 EQ7: Stakeholder opinion on the opportunities for simplification and cost/burden reduction	EQ7: same as for EQ5.1 and: International Chamber of Shipping (2022) Industry Guidance to Ship Suppliers and Shipowners on Materials Declarations for Inventories of Hazardous Materials. EQ7: Stakeholder consultations Online public consultation; Interviews; Workshop.
Relevance				
8. To what extent is the SRR still relevant and does it correspond to the needs within the EU, in particular as regards the new	EQ 8.1: To what extent the SRR corresponds to the needs relevant to the sustainability principles included in the Circular Economy Action Plan, such as improving product	EQ 8.1: SRR provisions are in line with the EU needs stemming from the sustainability principles, such as the Circular Economy Action Plan	EQ 8.1: Assessment of comparability between the provisions of the SRR and the needs related to the Circular Economy Action Plan EQ 8.1: Stakeholder opinion on the correspondence between the provisions of	EQ 8.1-3: Desk research (review of the mentioned EU initiatives) EQ 8.1-3: Stakeholder consultations

General questions	Specific questions	Judgement criteria	Indicators	Data sources
policy ambitions (as set out, for example, in the European Green Deal, the Circular Economy Action Plan, the Zero Pollution Action Plan, the Sustainable and Smart Mobility Strategy and the Sustainable Blue Economy)?	<p>durability, reusability, upgradability and reparability, addressing the presence of hazardous chemicals in products, and increasing their energy and resource efficiency?</p> <p>EQ 8.2: Does the SRR contribute to addressing the EU Green Deal needs to reduce by more than 55% (by 2030) the health impacts of air pollution?</p> <p>EQ 8.3: To what extent the SRR contributes to addressing the needs identified in the Zero Pollution Action Plan, the Sustainable and Smart Mobility Strategy and the Sustainable Blue Economy?</p>	<p>EQ 8.2: SRR provisions are in line with the EU needs embodied in the EU Green Deal</p> <p>EQ 8.3: SRR provisions are in line with the needs embodied in the Zero Pollution Action Plan, the Sustainable and Smart Mobility Strategy and the Sustainable Blue Economy</p>	<p>the SRR and the ones of the Circular Economy Action Plan</p> <p>EQ 8.2: Assessment of comparability between the provisions of the SRR and the needs identified in the EU Green Deal</p> <p>EQ 8.2: Stakeholder opinion on the correspondence between the provisions of the SRR and the ones of the EU Green Deal</p> <p>EQ 8.3: Assessment of comparability between the provisions of the SRR and the needs identified in the Zero Pollution Action Plan</p> <p>EQ 8.3: Stakeholder opinion on the correspondence between the provisions of the SRR and the ones of Zero Pollution Action Plan, the Sustainable and Smart Mobility Strategy and the Sustainable Blue Economy</p>	<ul style="list-style-type: none"> • Online public consultation; • Targeted survey; • Interviews; • Workshop.
9. How well adapted is the SRR to technical and scientific progress and EU and global market developments?	<p>EQ 9.1: What are the technical developments and market trends that occurred in the field of ship dismantling since the entry into force of the SRR?</p> <p>EQ 9.2: Are the SRR provisions still fit and in line with these developments?</p>	<p>EQ 9.1: Identifiable technical developments and market trends occurred after the entry into force of the SRR</p> <p>EQ 9.2: SRR provisions are considered fit for purpose in light of technical/market developments</p>	<p>EQ 9.1: Market trends in the ship dismantling industry after 2013</p> <p>EQ 9.1: Technical developments in the ship dismantling industry after 2013</p> <p>EQ 9.2: Stakeholder opinion on the relevance of the SRR provisions in light of market trends and technical developments in the ship dismantling industry after 2013</p>	<p>EQ 9.1: Desk research</p> <p>EQ 9.1-2: Stakeholder consultations Interviews; Workshop.</p>

General questions	Specific questions	Judgement criteria	Indicators	Data sources
10. Is the scope of the SRR still appropriate?	<p>EQ 10.1: To what extent are the objectives of the SRR relevant to the current problems and needs of the ship dismantling industry?</p> <p>EQ 10.2: Are there any newly emerged or increasingly important needs which are currently not (adequately) covered by the SRR?</p> <p>EQ 10.3: Should the SRR scope be extended, e.g. by covering all ships without any size and class limitation?</p> <p>EQ 10.4: Should the SRR scope be extended beyond ships flying the flag of a Member State¹⁹⁷?</p>	<p>EQ 10.1: SRR objectives match the current problems and needs of the ship dismantling industry</p> <p>EQ 10.2: Identifiable emerging needs that are not adequately covered by the SRR</p> <p>EQ 10.3: Identification of the needs for an extension of the scope of the SRR by ships size and class</p> <p>EQ 10.4: Identification of the needs for an extension of the scope of the SRR by flag</p>	<p>EQ 10.1: Stakeholder opinion on the correspondence between current problems and needs of the ship dismantling industry and SRR objectives</p> <p>EQ 10.2: Stakeholder opinion on the emergence of new needs within the ship dismantling industry which are not adequately covered by the SRR</p> <p>EQ 10.3: Stakeholder opinion on the need to extend the scope of the SRR to cover all types of ships by size and class</p> <p>EQ 10.4: Stakeholder opinion on the need to extend the scope of the SRR beyond ships flying the flag of a Member State</p> <p>EQ 10.4: Number of abandoned vessels in EU ports with no flag or non-EU flag, or vessels under EU ownership which operate under a non-EU flag in European waters</p>	<p>EQ 10.1-4: Stakeholder consultations</p> <ul style="list-style-type: none"> • Online public consultation; • Targeted survey; • Interviews; • Workshop. <p>EQ10.4: Data from EMSA</p>
Coherence				
11. To what extent is the SRR internally consistent and coherent?	<p>EQ 11.1: To what extent are there inconsistencies among the requirements and provisions of the SRR?</p> <p>EQ 11.2: Do these inconsistencies create overlaps between different</p>	<p>EQ 11.1: Identifiable inconsistencies between different SRR provisions</p> <p>EQ 11.2: Identifiable overlaps between different SRR provisions resulting in a lack of coherency</p>	<p>EQ 11.1: Stakeholder opinion on the existence of inconsistencies between different SRR provisions</p> <p>EQ 11.2: Stakeholder opinion on the degree of coherence of the SRR due to overlaps between different SRR provisions</p>	<p>EQ 11.1-4: Stakeholder consultations</p> <ul style="list-style-type: none"> • Interviews; • Workshop.

¹⁹⁷ As specified in the ToR, for example, abandoned vessels in EU ports with no flag or non-EU flag, or vessels under EU ownership which operate under a non-EU flag in European waters, both of which cases currently fall outside the scope of application of the SRR, in order to take into account the possibilities for ownership transfers to offshore companies.

General questions	Specific questions	Judgement criteria	Indicators	Data sources
	provisions, resulting in a lack of coherence of the SRR? EQ 11.3: To what extent are there synergies among the requirements and provisions of the SRR?	EQ 11.3: Identifiable synergies between different SRR provisions	EQ 11.3: Stakeholder opinion on the existence of synergies between different SRR provisions	
12. To what extent is the SRR coherent with other existing EU environmental and maritime legislation (such as the Waste Shipment Regulation, the Waste Framework Directive and other EU waste legislation, the Port State Control (PSC) Directive and the Flag State requirements Directive)?	EQ 12.1: Is the SRR coherent with the Waste Shipment Regulation, in light of the entry into force of the Basel Ban Amendment (i.e. an export ban outside the OECD)? EQ 12.2: Is the SRR coherent with the EU Directive on environmental crime, the Waste Framework Directive and the other EU waste legislations? EQ 12.3: Is the SRR coherent with the Port State Control Directive and the Flag State requirements Directive?	EQ 12.1: SRR is coherent with the Waste Shipment Regulation EQ 12.2: SRR is coherent with the EU Directive on environmental crime, Waste Framework Directive and the other EU waste legislations EQ 12.3: SRR is coherent with the Port State Control Directive and the Flag State requirements Directive	EQ 12.1: Assessment of coherence between the provisions of the SRR and the ones of the Waste Shipment Regulation EQ 12.1: Stakeholder opinion on the coherence between the provisions of the SRR and the ones of the Waste Shipment Regulation EQ 12.2: Assessment of coherence between the provisions of the SRR and the ones of the EU Directive on environmental crime, Waste Framework Directive and other EU waste legislations EQ 12.2: Stakeholder opinion on the coherence between the provisions of the SRR and the ones of the EU Directive on environmental crime, Waste Framework Directive and other EU waste legislations EQ 12.3: Assessment of coherence between the provisions of the SRR and the ones of the Port State Control Directive and the Flag State requirements Directive EQ 12.3: Stakeholder opinion on the coherence between the provisions of the	EQ 12.1-3: Desk research of the mentioned legislation EQ 12.1-3: Stakeholder consultations Interviews; Targeted surveys; Workshop.

General questions	Specific questions	Judgement criteria	Indicators	Data sources
			SRR and the ones of the Port State Control Directive and the Flag State requirements Directive	
13. To what extent is the SRR coherent with other relevant international policies and instruments such as the Basel Convention and the IMO Hong Kong Convention?	<p>EQ 13.1: Are there synergies or overlaps (potentially leading to inefficiencies) between the SRR and the Basel Convention?</p> <p>EQ 13.2: Are there synergies or overlaps between the SRR and the IMO Hong Kong Convention?</p> <p>EQ 13.3: Are there any potential synergies or overlaps between the SRR and other international initiatives, policies and instruments?</p>	<p>EQ 13.1: Identifiable synergies and overlaps (with examples of inefficiencies) between the SRR and the Basel Convention</p> <p>EQ 13.2: Identifiable synergies between the SRR and the IMO Hong Kong Convention</p> <p>EQ 13.3: Identifiable synergies between the SRR and other international initiatives, policies and instruments</p>	<p>EQ 13.1: Assessment of synergies and overlaps between the SRR and the Basel Convention</p> <p>EQ 13.1: Stakeholder opinion on the synergies and overlaps between the SRR and the Basel Convention</p> <p>EQ 13.2: Assessment of synergies and overlaps between the SRR and the IMO Hong Kong Convention</p> <p>EQ 13.2: Stakeholder opinion on the synergies and overlaps between the SRR and the IMO Hong Kong Convention</p> <p>EQ 13.3: Assessment of synergies and overlaps between the SRR and other international initiatives, policies and instruments</p> <p>EQ 13.3: Stakeholder opinion on the synergies and overlaps between the SRR and other international initiatives, policies, and instruments</p>	<p>EQ 13.1-3: Desk research</p> <p>EQ 13.1-3: Stakeholder consultations Interviews; Workshop.</p>
EU added value				
14. To what extent do the needs/problems addressed by the SRR continue to require action at EU level? Should they	EQ14: To what extent global initiatives (such as the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships) are	EQ14: Global initiatives like the HKC have identifiable effects in addressing the needs/problems covered by the SRR	<p>EQ14: Stakeholder opinion on the extent to which the HKC and other global initiatives are ensuring or able to ensure adequate environmental and safety standards</p> <p>EQ14: Number of ratifications of the HCK</p>	<p>EQ14: Desk research</p> <p>EQ14: IMO, Ratification by Treaty</p> <p>EQ14: Stakeholder consultations</p>

General questions	Specific questions	Judgement criteria	Indicators	Data sources
be better addressed at global level?	effective in addressing the needs/problems within the scope of the SRR?			Online public consultation; Targeted survey; Interviews; Workshop.
15. What has been the EU added value of the SRR compared to what could have been reasonably achieved by Member States acting alone?	<p>EQ 15.1: To what extent could the SRR's outputs/results/impacts have been achieved without EU intervention?</p> <p>EQ 15.2: Could the objectives of the SRR have been achieved by each Member State acting alone? If yes, are there any efficiency/effectiveness gains by doing so at EU level?</p> <p>EQ 15.3: To what extent is EU level coordination needed in each of the areas covered by the SRR?</p>	<p>EQ 15.1: Identifiable evidence that the SRR's effects could have been achieved without EU intervention</p> <p>EQ 15.2: Identifiable evidence that Member States acting alone met equivalent objectives to the ones of the SRR</p> <p>EQ 15.2: Identifiable evidence that the SRR ensures efficiency/effectiveness gains compared to Member States acting individually</p> <p>EQ 15.3: EU level coordination is needed to meet the objectives of the SRR</p>	<p>EQ 15.1: Stakeholder opinion on the extent to which the SRR's outputs/results/impacts could have been achieved without EU intervention</p> <p>EQ 15.2: Stakeholder opinion on the possibility for Member States acting alone to meet the same objectives of the SRR</p> <p>EQ 15.2: Stakeholder opinion on efficiency/effectiveness gains driven by the SRR compared to Member States acting individually</p> <p>EQ 15.3: Stakeholder opinion on the need for EU level coordination</p>	<p>EQ 15.1-3: Stakeholder consultations</p> <ul style="list-style-type: none"> • Online public consultation; • Interviews; • Workshop.

Annex IV – Synopsis of the stakeholder consultations

This Annex provides an overview of the consultation activities carried out in line with the consultation strategy for this evaluation, as well as the responses and results received.

Consultation strategy

The stakeholder consultation strategy aimed to complement the information collected through desk research in policy documents, reports, literature and databases. It included the use of the following consultation tools:

- A call for evidence: to gather views from the public and stakeholders on the SRR as a starting step in the evaluation process.
- **A Public consultation:** to complement the evidence collected with targeted tools to support the analyses by asking questions to a larger audience, granting them the possibility to contribute to the evaluation and future review process of the Regulation.
- **Targeted consultation:** to collect specific evidence from a variety of groups that represent the enforcers and addressees of the Regulation, as well as other parties that play a role in the ship recycling system. This included notably the running of:
 - **Targeted surveys:** to collect (to the extent possible quantitative) information, which cannot (easily) be found in written sources.
 - **Targeted interviews:** to collect more qualitative insights and complement the inputs collected through the public consultation and surveys.
- **General workshop:** to complement primary data collection (from research and other consultation activities) as well as to validate the initial resulting analysis performed.
- **Dedicated workshop:** to complement the data on ship recycling capacity
- **Expert group meeting:** to validate findings.

The table below presents an overview of the stakeholder groups targeted through the different consultation activities.

Table A.1 Overview of stakeholder groups consulted per consultation activity

Stakeholder group	Call for evidence /Public consultation	Targeted consultation		Workshops	Expert group meeting
		Survey	Interviews		
1. Member State and third state authorities (in their capacity as Flag State, Port State, environmental administrations monitoring yards recycling ships)	√	√	√	√	√
2. Shipowners	√	√	√	√	√
3. Cash buyers	√			√	
4. Recycling yards	√	√	√	√	√
5. Steel industry	√	√	√	√	
6. Classification societies	√	√	√	√	
7. Banks financing the shipping sector	√				

Stakeholder group	Call for evidence /Public consultation	Targeted consultation		Workshops	Expert group meeting
		Survey	Interviews		
8. Maritime Law offices	√	√			
9. EU and international associations / organisations	√	√	√	√	√
10. Academia, research institutions and civil society	√	√	√	√	√
11. Citizens	√				

0. Call for evidence

A call for evidence¹⁹⁸ for the evaluation of the Ship Recycling Regulation was launched on the Have Your Say website between 02 and 30 June 2022 to gather views from the public and stakeholders on the SRR as a starting step in the evaluation process. A total of 16 responses were submitted from stakeholders representing different groups such as businesses (4 respondents) and business associations (4 respondents), NGOs (2 respondents), citizens (2 respondents) as well as one public authority and trade union. Inputs provided by respondents across evaluation criteria were analysed and integrated into each evaluation criteria of the study. These inputs were triangulated with inputs provided through the public and targeted consultations and contributed to the evidence base of the evaluation analysis.

1. Public consultation

An open public consultation was published on the [Have Your Say website](#) and made available in all EU languages to gather opinions and evidence on the key elements (effectiveness, coherence, relevance and EU-added value) of the SRR for 12 weeks between 15 March 2023 and 7 June 2023. The questionnaire was targeted at a broad range of stakeholder groups, including the general public, public authorities and bodies responsible for the enforcement of the Regulation, shipowners and recycling facilities, industry and sectorial associations, environmental organisations and NGOs, universities and research institutes.

Respondents' profile

A total of 63 responses were received from 18 EU Member States and 7 non-EU countries. No duplicates nor campaigns were identified among the answers provided by respondents. Most contributions to this public consultation came from respondents identifying as businesses and business associations (44%, 28 out of 63 respondents), followed by public authorities (27%, 17 out of 63 respondents), EU and non-EU citizens (13%, 8 out of 63 respondents) and non-governmental organisations (11%, 7 out of 63 respondents). A large majority of respondents (83%, 52 out of 63 replies) replying to the public consultation indicated being very familiar or familiar with the Ship Recycling Regulation.

Inputs received

¹⁹⁸ [EU Ship Recycling Regulation – evaluation \(europa.eu\)](#)

Effectiveness

Most respondents consider that the EU Ship Recycling Regulation has been successful in achieving its objectives compared to a situation without any EU legislation. Overall, 86% (54 out of 63 replies) of respondents consider that the Regulation was to a large or some extent successful in ensuring the proper management of hazardous materials on ships and in preventing and reducing adverse effects on human health and the environment. This opinion was globally consistent across all stakeholder groups. However, it is noteworthy that 67% of NGO respondents hold a different point of view, stating that the Regulation had no effect.

Over two-thirds of respondents (67%, 42 out of 63 replies) also consider the Regulation successful in ensuring that EU-flagged ships are dismantled in safe and environmentally sound ship recycling facilities. Within the group affirming the effectiveness of the regulation, stakeholders identified as NGOs, EU citizens and others are the most favourable in their views, demonstrating support for the regulation's ability to ensure safe and environmentally sound ship dismantling practices.

Less than half of respondents (46%, 29 out of 63 replies) consider that the Regulation reduced disparities in health, safety and environmental standards between recycling facilities in the EU and in third countries, while 35% (22 out of 63 replies) indicate that the Regulation had no effect in this regard. When analysing the responses of the different stakeholder groups, it was found that companies, business associations and public authorities are more likely to support the effectiveness of the Regulation in this respect. In contrast, stakeholders among NGOs and academic and research institutions state that the regulation had no effect or negative effect.

A majority of respondents (78%, 49 out of 63 replies) think that the Regulation's requirement to develop and maintain an Inventory of Hazardous Materials (IHM) was very effective or effective, while 49% consider the control and enforcement of IHM as such. The opinion is shared across the different stakeholder groups.

Almost two-thirds of respondents (65%, 41 out of 63 replies) think that the safety and environmental standards requirements for ship recycling facilities to be listed on the EU list were very effective or effective. However, it is important to note that the assessment of effectiveness was less favourable among certain stakeholder groups. Specifically, business associations and companies/businesses were less likely to consider these standards requirements effective.

Respondents' views on the effectiveness of the requirements to monitor ship recycling facilities differ, with only 37% of respondents considering the monitoring of EU ship recycling facilities as very effective or effective and 38% for the monitoring of third countries' facilities. These views are consistent among the various stakeholder groups.

When asked about the European List of ship recycling facilities, almost two-thirds of respondents (63%, 40 out of 63 replies) strongly or somewhat agree that the list has been an effective tool in preventing and reducing adverse effects on human health and the environment. Additionally, a majority of respondents (73%, 46 out of 63 replies) think that the list has a brand value and increases the reputation of the facilities included on the list. These opinions are consistent across all stakeholder types.

Nevertheless, around half of respondents do not consider that the European List has sufficient recycling capacity to cover current and future needs. 43% of respondents (27 out of 63 replies) strongly or somewhat disagree that the list has sufficient capacity to cover current needs and 57% (36 out of 63 replies) disagree that it has sufficient capacity for

forecasted needs. These opinions are particularly shared among businesses and business associations, notably shipowners (9 out of 9 replies).

Coherence

With regards to the coherence of the Ship Recycling Regulation, less than half of respondents consider the Regulation as very coherent or coherent with other EU priorities. About 44% of respondents think that the Regulation is very coherent or coherent with the EU's transition towards a circular economy (27 out of 63 replies) and its ambition to achieve zero pollution for air water and soil (28 out of 63 replies).

However, 46% of respondents (29 out of 63 replies) think the Ship Recycling Regulation is not coherent or not coherent at all with the EU's sustainable and smart mobility strategy and 37% of respondents (23 out of 63 replies) do not consider it coherent with the EU's strategic autonomy policy. When perceptions are analysed according to stakeholder groups, two distinct categories emerge. Academic and research institutions tend to consider regulation to be more coherent in all these areas. In contrast, NGOs, business associations, businesses and public authorities show more mixed views. The different opinions between the two groups remain when considering the priorities individually.

Relevance and EU-added value

A majority of respondents consider the Ship Recycling Regulation as relevant and recognise its EU-added value. 87% of respondents (59 out of 63 replies) consider the Regulation to be a relevant piece of legislation and to bring better results than if Member States were acting alone. The opinion is shared across the different stakeholder groups.

However, 46% of respondents (29 out of 63 replies) do not consider the scope of the Ship Recycling Regulation to be appropriate. In this regard, the suggestion was particularly made for enlarging the scope of the Regulation to go beyond the flag of the vessel and studying the possibility of covering vessels below 500 GT. When examining responses across stakeholder groups, it was observed that all groups demonstrated a similar pattern of response except for the NGO respondents. In this group, the view was unanimous: none of the NGO respondents considered the scope of the regulation to be appropriate.

On the articulation of the European List with an entry into force of the Hong Kong Convention, over two-thirds of respondents (68%, 43 out of 63 replies) consider that the European list should not automatically include ship recycling facilities having received a Hong Kong Convention certification, considering the stricter requirements of the EU regulation. About a fifth of respondents (22%, 14 out of 63 replies) consider that the European list should include all ship recycling facilities, while 3% think that the European list should be removed if the Hong Kong Convention enters into force. These views remain consistent across all types of stakeholders.

2. Targeted surveys

The survey questionnaire was open for about a month, with an official launching date of 3 March 2023. The survey has been formally closed on 31 March 2023. Together with the European Commission, a long list of respondents (i.e. 514 individual contacts) was selected and invited to participate in the survey questionnaire. The questionnaire aimed to collect inputs on the key elements of the SRR (effectiveness, efficiency, relevance, coherence and EU added value) as well as inputs feeding the study on a potential financial incentive.

Respondents' profile

The distribution of the questionnaire led to a total of 148 registered results. Out of those 148 responses, many have been found incomplete (i.e. only introductory questions answered) or duplicates (i.e. multiple entries under the same name and/or organisation). After the cleaning process had been completed, the team ended up with a sample of 79 respondents, of which 69 reached the end. Respondents answering the survey represented national competent authorities (20 respondents), recycling yards (17), EU and international associations (8), shipowners (7), classification societies (6) and other stakeholder groups such as maritime law offices, academia, cash buyers, the steel industry.

In parallel, **another targeted survey** was conducted between 03 March and 12 April 2023 to collect inputs on **enforcement procedures** and sanctions in place in Member States for infringements and circumvention of the SRR. After the cleaning process was completed, 17 responses from respondents originating from 9 MS (FR, PL, MT, LT, LI, SK, LU, BE, NL) were analysed. Responding stakeholders involved competent authorities responsible for recycling facilities; administrations responsible for duties related to ships flying their flag or to ships operating under their authority; Port State Control Inspectors; Environmental Inspectors/ Police Environmental agencies; Prosecutors officers, and NGOs. Inputs provided for this survey were directly included in the study on enforcement procedures and sanctions in place related to the SRR.

Inputs received

Effectiveness

A large majority of stakeholders surveyed consider that the SRR contributed to a large or some extent to prevent and reduce the adverse effects of ship recycling on the environment (62 out of 67 responses) and on human health (57 out of 69 responses). These responses are shared across all stakeholder groups.

Additionally, most respondents surveyed (52 out of 60 responses) also indicate that the SRR contributed to a large or some extent to reducing disparities in environmental and health & safety standards between recycling facilities in the Union and in third countries. This opinion is shared across stakeholder groups except for academic and research institutes and international organisations. Among respondents indicating the SRR had no or a negative effect in reducing disparities, two stakeholders (one shipowner and one recycling yard) pointed out the difference in standards between European (higher standards) and Asian yards (lower standards).

Respondents to the survey disagree on the question if the ship recycling capacity currently included in the list can cover the current needs or not. Most participants in the survey disagree that the capacity is sufficient (17 out of 29 responses to the question). Looking at the group of recycling yards (n=14), 7 consider the capacity insufficient, while 4 consider it sufficient (with 3 neutral answers).

As concerns the forecasted needs, out of 28 respondents, 16 strongly disagree that the European list of ship recycling facilities has sufficient capacity to cover future needs. Responses provided among recycling yards particularly differ, showing different points of view among the stakeholder group - 6 out of 14 strongly disagree that the capacity is sufficient, while 3 strongly agree.

Efficiency

Overall, around half of the stakeholders surveyed (18 out of 39 responses) consider the SRR efficient, with benefits outweighing (by far) the costs associated with the requirements.

This opinion is particularly shared among recycling yards (9 out of 15 responses), competent authorities such as Member States in their capacity of Port State (3 out of 5 responses) and classification societies (3 out of 4 responses). A fourth of stakeholders (10 out of 39 responses), particularly Member States in their capacity as Flag States (5 out of 9 responses) consider the costs of the SRR proportionate to the benefits.

Another fourth of respondents (11 out of 39 responses) however indicate that the SRR is inefficient or very inefficient. This opinion is notably shared among a majority of academic, research and civil society organisations (2 out of 3 responses), half of the shipowners surveyed (2 out of 4 responses) and a minority of ship recycling yards (4 out of 15 responses).

On costs associated with the SRR, a majority of shipowners (associations) surveyed (4 out of 5 responses) indicate low costs for shipowners flying the flag of a Member State associated with the SRR requirement to provide and notify ship recycling facilities operators and Member States with all the necessary information to recycle. Similarly, costs associated with establishing and maintaining a list of hazardous materials are considered moderate to low for ships flying an EU flag as well as for ships flying the flag of a third country (4 out of 5 responses).

Administration and competent authorities consulted through the survey indicate low costs for some of the SRR requirements. This is notably the case for costs associated with cooperation with other Member States authorities to prevent and address potential circumventions (6 out of 9 responses) and for the reporting to the EC on the state of ship recycling (5 out of 8 responses). Most of the administration and competent authorities indicate moderate costs associated with granting ship recycling facilities authorisations and performing the monitoring of those authorised (5 out of 9 responses), issuing inventory and ready-for-recycling certificates (6 out of 11), approving ship recycling plans (4 out of 7 replies) and performing surveys to ensure compliance with the list of hazardous materials and ship recycling plans (5 out of 9).

Administration and competent authorities indicate low to moderate costs associated with the control and inspection of inventory, ready-for-recycling certificates and statements of compliance (3 out of 6 responses each).

Quantifications of the costs associated with the development of a ship recycling plan are provided by a few recycling yards but are very different and range from GBP 2,000 in the UK to EUR 100,000 in Norway. While half of the recycling yards – both listed and non-listed – in the EU consider costs to develop a ship recycling plan as low (4 out of 8 responses), a majority of them indicate high costs associated with compliance with EU requirements to be included in the European list (5 out of 8 responses). The scope of these costs is currently unknown, with one yard claiming they could reach EUR 500,000.

High costs are also identified by ship recycling companies (8 out of 12 responses) to apply to the European list and meet the requirements. These views are shared by both non-listed and listed yards.

Regarding benefits brought by the SRR, half of the recycling yards, shipowners and the steel industry surveyed (7 out of 13 responses) indicate that the SRR was a determining factor in the evolution of their revenues. One recycling yard mentioned the role of the SRR in stimulating investors' funding to establish recycling facilities. Another recycling yard mentioned that the SRR incentivised the facility to use better quality personal protective equipment which reduced workers' injuries and therefore resulted in lower costs.

Coherence

A majority of stakeholders surveyed do not see inconsistencies between the SRR and the Flag State requirements (11 out of 14 responses), the Port State Control (9 out of 13 responses) or the Waste Framework Directives (7 out of 10 responses). However, a majority indicates elements of inconsistencies between the SRR and the Waste Shipment Regulation (11 out of 17 responses), the Basel Convention (11 out of 16 responses) and the Hong Kong Convention (13 out of 19 responses).

Some stakeholders clarified their answers stating that inconsistencies with the HKC (2 responses) lie in the difference of hazardous materials covered and in the management of downstream waste. With regards to the WSR and the Basel Convention, one respondent highlighted a potential contradiction in that the WSR implements the Basel Ban Amendment into EU law where it prevents waste from OECD countries from being recycled in non-OECD countries, which would subsequently exclude non-OECD countries from the European List of ship recycling facilities under the SRR.

EU added value

Stakeholders' responses to the targeted survey indicate a positive EU-added value of the SRR compared to what Member States could have achieved alone for all three points. A large majority of stakeholders surveyed (46 out of 57 respondents) think that the SRR brings an added value compared to what Member States could reasonably achieve alone in the absence of the entry into force of the HKC. A fifth of the stakeholders surveyed (11 out of 57 respondents, which mainly represent recycling yards, shipowners and two Member States) disagree with this statement.

A few stakeholders (2 out of 57 responses) see the SRR as a solution to avoid the multiplication of national legislations and act faster than what Member States alone could achieve. However, more than half of the survey respondents (31 out of 45 responses) also see opportunities to simplify the legislation or reduce unnecessary regulatory burdens.

A wide range of stakeholders consulted (16 out of 68 respondents representing ship recycling facilities, classification societies, consultancies and academics) also values the role of the SRR in setting minimum standards for ship recycling. One stakeholder recognises the role of the SRR to ensure the required level playing field for the maritime industry and recycling yards operating in the EU. However, three stakeholders also mention the need to not limit the level playing field at the EU level only and take instead a global approach as initially foreseen with the HKC.

Relevance

A majority of stakeholders surveyed (27 out of 45 responses) consider the need to extend the scope of the SRR beyond ships flying the flag of a Member State. However, views differ according to the stakeholder group. While a majority of recycling yards (10 out of 11 responses) and environmental authorities (4 out of 4 responses) are in favour of extending the scope of the SRR, a majority of shipowners (5 out of 6 responses), Flag States (5 out of 7 responses) and Port States (5 out of 6 responses) are against.

Arguments in favour of a scope extension brought by stakeholders suggest including all types of ships (fishing vessels, yachts, inland navigation), including ships of less than 500 gross tonnage. Suggestions to extend the scope to the ownership of the ship instead of the flag the ship is flying were also made by one public authority. On the other hand, arguments against it point out the existing limited capacity of the EU list to absorb existing ship recycling needs as well as the misalignment with the scope of the HKC it would create.

As concerns the relevance of a financial instrument, the majority of stakeholders surveyed either strongly agreed or agreed that a financial incentive (completely or partially) bridging the revenue gap may be helpful to encourage safe and environmentally sound recycling. Overall, the majority of respondents surveyed across stakeholder groups, except for shipowners and EU and international believe that introducing a financial incentive would have a positive impact. However, stakeholders' views on the impacts of introducing a Ship Recycling Licence for smaller vessels differ. The stakeholders in favour indicate that this would be consistent with the broadening of the scope of the EU SRR. They indicate that the same rules should apply to all vessel types, including pleasure yachts and ship owners that often adjust tonnage to circumvent regulation.

The stakeholders that disagree with the extension are often also not in favour of the financial instrument. The other arguments against the extension of under 500 GT vessels are that (i) it would cause market distortion, given that the scope of SRR Regulation would be wider than the one of the HKC, (ii) it would unreasonably add a disproportionate burden to small shipping companies and thus would not be in line with the principle of proportionality.

3. Targeted interviews

During the targeted interviews, questions were asked to assess how well the regulation has achieved its objectives, and whether it continues to deliver in terms of effectiveness, efficiency, relevance, coherence and EU-added value, as well as areas for future improvement. Some interviews also touched upon the likely evolution of the current situation in the absence of a potential financial incentive and the impacts stemming from its implementation. As a follow-up to the interviews, **written feedback** was provided by a few Member States on issues related to SRR administrative costs and burdens. This input was used for the analysis of Efficiency.

Respondents' profile

A total of 48 organisations were interviewed and/or provided written feedback between May and September 2023. These included stakeholder groups such as EU and international associations, Member States' competent authorities, shipowners, recycling yards, businesses, classification societies and representatives from the steel industry.

Inputs received

Effectiveness

Stakeholders interviewed have different views on the effective **role the SRR has in ensuring that EU-flagged ships are safely dismantled**. Two environmental administrations recognised that the SRR allowed to establish good standards for the dismantling of ships and a couple of stakeholders (one classification society, one shipowner association and one shipowner) consider that the SRR has contributed to setting higher standards than the HKC would have. One shipowner association, one consultancy and one recycling yard however point out the lack of effectiveness of the SRR due to the existing circumventions of the regulation where ships are being re-flagged before being sent for recycling, while two shipowners refer to the lack of available capacity (with difficulties to host larger vessels and with recycling yards already occupied with other activities such as the recycling of offshore oil and gas facilities) as hampering factors. One public authority also indicated low levels of ship recycling requests as an indicator of the limited effectiveness of the SRR.

Views on the **evolution of health and safety and environmental standards in EU ship recycling facilities** are positive across most stakeholders interviewed. One classification society and one consultancy interviewed note the positive impacts of the regulation to establish recycling standards. They notably referred to the inclusion of requirements for safety incident reporting and follow-up (corrective measures), the provision of personal protective equipment to workers, the use of fit-for-purpose machinery to move the ships into the dismantling surfaces, emergency response (availability of firefighting equipment, medical services) and environmental monitoring procedures in listed yards. Additionally, one recycling yard, one classification society and one organisation from the steel industry considered that the SRR contributed to creating a business case and establishing a market – even if currently limited – for ship recycling in Europe.

Stakeholders' views are split on the effectiveness of the SRR to **ensure the proper management of hazardous materials**. On the one hand, two environmental administrations stress the poor management of hazardous waste afterwards and notably the persistence of health and environmental risks linked to the presence of asbestos and PFOS in extinguishing systems on tankers which remain insufficiently addressed. On the other hand, one consultancy considers that the SRR had a positive impact, requiring shipowners to establish an inventory of hazardous materials.

On the **role of the SRR in facilitating the Hong Kong Convention**, one public authority interviewed considered that the regulation did not contribute to facilitating the ratification of the convention.

When asked about potential changes to **improve the regulation's enforcement**, most stakeholders (one shipowner association, one consultancy, one organisation from the steel industry and one NGO) agree with the idea of introducing the **concept of beneficial ownership liability**. One shipowner association also suggests additional solutions: these include for example the extension of the SRR's scope to include all ships that have, at some point within their lifetime, flown an EU flag. Another suggestion put forward is to require a temporary restriction to obtain a recycling licence (e.g., for a couple of years) for EU vessels having reflagged to a non-EU flag, to discourage re-flagging practices just before sending the vessel to waste/recycling.

While public authorities do not necessarily object to the idea of introducing the concept of beneficial ownership liability, two of them mention that it could complicate enforcement due to legal difficulties. They notably refer to the complexity of identifying ownership and the necessity of agreeing on a clear definition of "beneficial owner" and suggest that introducing a hierarchy of responsibilities is essential. One consultancy also has more nuanced views on the introduction of the concept which is not perceived as a comprehensive solution for improving enforcement but did not specify further its reasoning.

On whether current **sanctions** are sufficient to ensure an effective enforcement of the regulation, a couple of stakeholders (one consultancy, one recycling yard) consider that the current administrative sanctions in case of infringement are too low to be effective while one public authority considers them adequate.

Efficiency

Interviews with stakeholders show differences in **costs for public authorities** in charge of implementing the SRR. One public authority mentioned that the enforcement costs of the SRR were minimal for their administration as the national legislation is already well aligned with EU standards. Another public authority estimated enforcement costs to be about 10% of an FTE to monitor ship recycling facilities and up to 5% of an FTE for other reporting and monitoring activities. Finally, a third authority indicated that the SRR requires significant

resources, mobilising at least 8 to 9 FTEs. However, these costs can also vary across competent authorities of the same jurisdiction depending on their level of responsibility to enforce the regulation.

Costs associated with the development and maintenance of IHM also vary according to stakeholders interviewed. Three consultancies and one shipowner association explained that many shipowners use external companies to develop and maintain their IHM as these activities can entail important administrative tasks to cope with.

Coherence

A few concerns related to the **internal coherence** of the SRR were raised by a couple of stakeholders. One NGO emphasised the challenges arising from the regulation's current definition of 'ship recycling', which is considered too narrow to be sufficiently aligned with broader sustainability goals. One public authority also raised concerns about the **ambiguity in the definitions** within the SRR, HKC, Basel Convention, and Waste Shipment Regulation. The lack of a specific definition of when a ship becomes "waste" is identified as a significant issue affecting both supervision and enforcement efforts. Another public authority identified procedural gaps within the SRR as an internal coherence concern, noting the absence of explicit requirements for maintaining Part I of the Inventory of Hazardous Materials.

Regarding **external coherence**, one NGO recognised some progress in aligning the SRR with the circular economy objectives and other environmental legislation, especially concerning high-quality scrap steel recycling from ships. However, they also identified areas for improvement, considering that the SRR and the Waste Shipment Regulation overlap. One public authority also considered that the SRR is not consistent with the Waste Shipment Regulation, supporting simplification measures to enhance overall external coherence, such as extending the approval period for EU facilities and limiting the number of entities under obligations.

EU added value

Stakeholders interviewed recognise **the EU added value of the ship recycling regulation**. One public authority mentioned the added value of the SRR in setting stricter rules for ship recycling and setting an example for ship recycling practices beyond the EU. This opinion is shared by other stakeholders (one organisation from the steel industry and one consultancy) who stress the role of the SRR in providing clear guidance for the industry on the direction to follow to adopt and implement sustainable ship recycling practices.

A few stakeholders (one public authority and one consultancy) consider that having a regulation at the EU level rather than at national levels allows to reduce discrepancies and inconsistencies. They considered that the SRR avoids the multiplication of different legislations across countries and sets a **harmonised approach and standards**.

Relevance

Stakeholders offer diverse perspectives on the relevance of the SRR. Two consultancies expressed concerns about the **coexistence of dual regulatory frameworks**, such as the HKC and European regulations, which could pose challenges in Europe, and stressed the importance of aligning these regulations for consistency. They suggested exploring synergies with complementary sectors and expanding the SRR's scope to include non-EU flagged ships, irrespective of their ownership or flag.

From a shipowner's perspective, limitations in the geographical distribution and size capacity of the EU list of recycling yards' have posed challenges. According to them, the

current capacity, the pricing constraints and underquoted vessels in approved yards make it difficult for stakeholders to meet the SRR standards. Questions on whether the SRR's impact stems from its effectiveness or diplomatic efforts were raised, suggesting focusing on **enhancing global regulations like the HKC instead**.

4. General workshop

The workshop included three sessions: one related to the evaluation of the SRR which touched upon issues related to capacity, control of hazardous materials and the extension of the regulation's scope; another one discussed the enforcement of the regulation and included exchanges of views on the definition of end-of-life vessels, transfer of liability, and effects of sanctions; a third session dealt with the introduction of a potential financial incentive to facilitate safe and sound ship recycling. The key points raised per topic are presented below for the three sessions.

Respondents' profile

Organised in June 2023, the workshop gathered 62 stakeholders and 26 representatives of Member States. Out of these 88 participants, 36 joined the meeting in person and 52 online via a teleconferencing platform.

Session 1 – Evaluation of the Ship Recycling Regulation

The first session focused on the evaluation of the Ship Recycling Regulation. The participants expressed different opinions on two main aspects: the capacity of the EU-listed yards to handle the current and future demand for ship recycling and the control of hazardous materials that are present or generated during the recycling process. Some stakeholders argued that there is enough capacity on the EU-listed yards, while others pointed out the limitations and challenges, especially for larger ships. Some stakeholders also raised concerns about the enforcement and monitoring of the regulation, the quality and availability of the inventory of hazardous materials, and the level playing field between the EU and non-EU ship recycling facilities. There was a debate on whether to extend the scope of the regulation to other vessels, such as fishing vessels, inland waterway vessels, and military vessels, and under what conditions.

Session 2: Enforcement

The second session discussed the challenges and solutions for the effective enforcement of the Ship Recycling Regulation. The participants highlighted the role of different actors, such as flag states, port state control, classification societies, and financial institutions, in ensuring compliance with the regulation. They also addressed the issues of transfer of liability, reflagging, and beneficial ownership, which can be used to circumvent the regulation or avoid responsibility for ship recycling. They stressed the need for more transparency, cooperation, and harmonization among the relevant authorities and stakeholders, as well as the use of incentives and sanctions to promote responsible ship recycling practices.

Session 3: Financial instrument

The third session debated the pros and cons of a financial instrument, such as the Ship Recycling Licence, to support the implementation of the Ship Recycling Regulation. The participants expressed doubts about the feasibility, effectiveness, and fairness of such an instrument, and raised concerns about its possible negative impacts on the EU ports and shipping industry.

5. Dedicated workshop on capacity

A dedicated workshop on the capacity of recycling yards was held in Brussels on 3 August 2023 and involved representatives from the ship recycling industry and ship owners. The main topics discussed were:

- The current ship recycling capacity in the EU-listed yards and how it compares to the demand from EU-flagged ships;
- The future ship recycling capacity and the impact of the Hong Kong Convention (HKC) on the competitiveness and compliance of the EU-listed yards;
- The data needs for further analysis on the impacts of the regulation and the potential incentive to recycle ships in an environmentally sound and safe manner.

Overall, participants expressed different views on the adequacy and availability of the ship recycling capacity, the role of the price and the reflagging issue, the influence of the HKC and the ESG policies, and the projections and assumptions for future scenarios. The meeting also allowed for the exchange of respective quantitative data available.

6. Expert group meeting

Findings of the evaluation of the SRR were presented to the expert group on ship recycling during a meeting organised in January 2024. The presentation was followed by discussions. This meeting gathered representatives from national competent authorities, the NGO Shipbreaking platform, ISRA and ECSA. Downstream waste management costs (linked to the costs of management of hazardous materials) and corporate costs (eg insurance) were mentioned as important factors in the determination of the recycling price. Member States also highlighted that the fact that the SRR allows for independent inspection of yards, which the HKC does not, should be considered as an important EU added value. In relation to the efficiency/costs aspects, it was underlined that controls of ships by inspectors are currently mainly documents checks but there is a need for more training, resources, and investigation tools for better enforcement. Finally, the actual impact of the SRR on the ratification of HKC and the concept of beneficial ownership was also questioned.

On enforcement specifically, a few competent authorities raised the possibility of using new tools to enforce compliance and bring evidence of cases where ships are being illegally recycled. They noted the challenges of Port State Control Officers to verify and check some elements such as hazardous materials.

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