



Financing the environmentally sound recycling and treatment of ships

**Impact assessment of a substantive amendment to
the Proposal for a Regulation on ship recycling**

February 2013

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Abstract

An amendment to create a levy on ships calling at EU ports and a fund to support ship recycling would meet three general objectives: finance safe and environmentally sound recycling; counterbalance perverse incentives for end-of-life vessels to be sent to substandard recycling facilities; and counterbalance the risk of transfer of ships to non-EU flags. The report also reviews alternative instruments against the three general objectives as well as specific criteria set for the study. It furthermore estimates the potential size of the fund and the corresponding levy.

This document was requested by the European Parliament's Committee on Environment, Public Health and Food Safety.

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List of abbreviations

ESPO	European Seaports Organisation
ETS	EU Emissions Trading Systems
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GT	Gross tonne
IA	Impact assessment
LDT	Light displacement tonne
MS	Member State(s)
NGO	Non-governmental organisation
OECD	Organisation for Economic Cooperation and Development
RoRo	Roll-on roll-off ship
SRA	Ship Recycling Account
UNCLOS	United Nations Convention on the Law of the Sea
WTO	World Trade Organization
ITF	International Transport Forum
TEU	Twenty-foot-equivalent

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Executive Summary

The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, adopted in May 2009, is not expected to come into force until 2020 or later. In March 2012, the European Commission presented a proposal for an EU Regulation for early implementation of the requirements of the Hong Kong Convention in the EU, in particular for EU-flagged ships. This study reviews several instruments to finance environmentally sound recycling of ships. The main focus is on a levy and fund system as per an amendment by Mr Carl Schlyter, MEP, to the Commission's proposal.

The assessment indicates that a levy on all ships calling at EU ports and a fund to support safe and environmentally sound ship recycling of EU-flagged ships has the potential to meet the three general objectives considered: contribute to finance environmentally sound ship recycling, counterbalance perverse incentives for the last shipowner to go to facilities with the lowest standards, and counterbalance the risk of out-flagging.

This study considers several alternative instruments. A guarantee scheme might provide a useful complement to the levy and fund. A system of ship recycling accounts and a transitional fund also appears to meet the three general objectives. The stand-alone guarantee is not expected to meet all three general objectives. For the insurance mechanism, effectiveness in terms of the general objectives is not fully clear and further study concerning its design elements may be necessary.

The size of the levy and fund payments was analysed. To fully offset higher prices for ships paid by recycling facilities that do not meet the criteria proposed in the EU Regulation, it is estimated in central scenarios that a fund would need to pay between EUR 20 and EUR 50 per light displacement tonne (LDT). The levy on ships calling at EU ports to support such a fund would need to be in a range of EUR 0.01 to EUR 0.025 per gross tonne (GT) in central scenarios. While this is below the value set out in Mr Schlyter's proposal, EUR 0.03 per GT, there are significant uncertainties, including the volume of ships going to recycling in coming years and the prices that facilities across the world would pay for them. Extreme scenarios indicate a levy of up to EUR 0.04. If the recycling of EU ships were only allowed in OECD facilities, costs would be higher, and a levy between EUR 0.05 and EUR 0.14 per GT would be required in central scenarios.

The levy would appear to have a very limited impact on the price of goods transported by ship, as it is quite small compared to other freight costs, which are in turn a minor factor in the final prices of most imported goods. Further research would however be required regarding potential asymmetric effects in terms of specific sectors or supply chains. Traffic diversion risks also appear limited in the short term. From a long-term perspective, however, a more detailed assessment may be warranted, particularly regarding the transshipment of container traffic.

General information

Policy context

In March 2012, the European Commission presented a proposal for an EU Regulation on ship recycling. The proposal 'seeks to address environmentally unsound and unsafe practices for dismantling ships' at the end of their operating lives, by bringing into force 'an early implementation of the requirements of the Hong Kong Convention' (The Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, adopted in May 2009).¹ There is considerable uncertainty whether the conditions for entry into force of the Hong Kong Convention can be met in a foreseeable future²: as a result, the new international regime may not be in effect before 2020, and possibly later.³

The Commission's proposed regulation will establish a series of requirements on all ships flying EU (i.e. Member State) flags of 500 gross tonnes (GT)⁴ or more. The proposed regulation exempts several categories of ships, in particular warships and other ships owned by Member States for non-commercial purposes as well as ships operating exclusively in the waters of their EU flag state (Art. 3).

The requirements for ships within the scope of the proposed regulation include, inter alia, the establishment of an inventory of hazardous materials for each ship (Art. 5) and the preparation of a ship recycling plan prior to recycling (Art. 7). Moreover, ships subject to the regulation should only be recycled at facilities on a 'European list': such facilities must meet a set of requirements (Title III, in particular Art. 12). The requirements for facilities are based on those set out in the Hong Kong Convention (Paragraph 5 of the Preamble). The proposed regulation excludes ships within its scope from Regulation 1013/2006 on shipments of waste: under this existing legislation, ships essentially should only be recycled in OECD countries.⁵

Ship recycling

The European Commission's impact assessment (IA)⁶ for its proposal reports that:

- At present, 'most large commercial seagoing vessels are being dismantled in facilities using methods with significant environmental and health impacts'; and

¹ European Commission (2012a)

² Ormond (2012), p. 56.

³ European Commission (2012a)

⁴ According to the International Convention on Tonnage Measurement of Ships, 'gross tonnage forms the basis for manning regulations, safety rules and registration fees. Both gross and net tonnages are used to calculate port dues. The gross tonnage is a function of the moulded volume of all enclosed spaces of the ship. The net tonnage is produced by a formula which is a function of the moulded volume of all cargo spaces of the ship.' IMO (2013).

⁵ European Commission (2012a)

⁶ European Commission (2012b)

- ‘Large numbers of ships are expected to be sent for dismantling in the coming years as a result of an overcapacity of the world fleet which is estimated to remain for at least 5 to 10 years’.

While some capacity for ship recycling is found within the EU and additional capacity in OECD countries outside of the EU, including Turkey, a high share of global ship recycling capacity is found in Asia, in particular in Bangladesh, China, India and Pakistan. Facilities located in the EU and OECD, as well as those in China and possibly some in India, are expected to meet the requirements in the Hong Kong Convention by 2015.

Sending an end-of-life ship for recycling generates net revenue for the shipowner: the recycling facility pays for ships, typically on a per light displacement tonne (LDT)⁷ basis, and then sells the vessel’s steel, other metals and components. All other things equal, sub-standard facilities run on lower costs and can offer higher prices for end-of-life vessels than those of their counterparts that comply with environmental and labour standards, such as those set out in the Commission’s proposal. In this context, as highlighted in the Commission’s IA, there is a ‘strong economic incentive for ship owners who are not willing to act responsibly to choose recycling facilities with a particularly poor social and environmental standard’. The options for amendment of the Commission proposal seek to address this negative impact.

EU-flagged vessels

As noted above, the Commission’s proposed regulation applies to ship flying the flags of EU Member States. As noted in Table 1 below, this presents, at present, 17% of international merchant fleet tonnage (it can also be noted that about 37% of the fleet belongs to EU owners).

Table 1: Global and EU-flagged merchant fleet (ships >500 GT)

No. of vessels		Gross Tonnage (GT)	
Global	EU	Global	EU
54 310	7 128 (13% of global fleet)	993 million	165 million (17% of global fleet)

Source: European Commission, Impact Assessment, 2012

⁷ Light displacement tonnage corresponds to ‘the weight of a ship’s hull, machinery, equipment and spares. This is often the basis on which ships are paid for when purchased for scrapping.’ Maritime and Shipping Dictionary 2012 (2013).

In terms of port calls, ships flying the flags of EEA countries⁸ represent 77% of all calls at EEA ports (see Table 2 below). Ferries, almost all of which are flagged to EEA countries, account for 52% of the calls at EEA ports.⁹ EEA-flagged nonetheless represent an important share of the port calls for other key ship categories.

Table 2: Share of calls in EEA ports by EEA-flagged ships, for selected ship types

Oil tankers	LPG tankers	General cargo	Container	Ferries
63%	41%	46%	46%	94%

Source: IHS Fairplay (2011)

Roadmap to the report

This report is in response to a request from the European Parliament for an impact assessment for an amendment proposed by Mr Carl Schlyter, MEP, to the Commission's proposed regulation. This amendment would create a mechanism for 'financing the environmentally sound recycling and treatment of ships'. Section 1 provides an overview of this amendment as well as 'viable alternatives' also considered in the assessment.

The European Parliament's specifications identify specific criteria as well as overall objectives for the impact assessment: these are to be used for the assessment of the amendment as well the 'viable alternatives'. This part of the assessment was agreed at project inception to focus on a qualitative analysis. The results are presented in Section 2 of this report.

The specifications also identify specific questions to be assessed only for the amendment proposed by Mr Schlyter. These focus on quantitative issues related to the amendment. The results for these specific questions are presented in Section 3.

Section 4 provides conclusions.

This report builds on the data and analysis provided in the Commission's IA for the proposed regulation. In addition, it uses recently published studies, and supplements these with information gathered from experts and stakeholders, as well as some further research and expert judgement. A list of references and interviews is provided at the end of this report.

⁸ The European Economic Area refers to EU Member States plus Iceland, Norway and Switzerland; only Norway has a significant fleet.

⁹ IHS Fairplay (2011)

1. Overview of possible economic instruments

Key findings

- This study reviews the amendment for a port levy and an EU fund to support environmentally sound recycling.
- Four alternative instruments are also considered: a financial guarantee system (either alongside the levy and fund or as a stand-alone mechanism); ship recycling accounts together with an EU fund; and an insurance mechanism.

1.1. Identification of instruments

The specifications call for this impact assessment to consider the amendment presented by Mr Schlyter and also other possible economic instruments. This section briefly describes that amendment as well as the others considered: a guarantee system and an insurance requirement, both proposed as amendments to the Commission's proposal; as well as a mechanism put forward by a European NGO.

None of these instruments would change the scope of the Commission's proposal: notably, they would all be relevant for ships of 500 GT or greater, and would not affect warships, other non-commercial ships owned or operated by Member States or ships operating only in the waters of a single Member State.

1.2. Levy and fund to finance environmentally sound recycling

This economic instrument is presented in amendment 44 in the draft report by Mr Schlyter: the full text is provided in the box below. Briefly, the amendment sets a levy on all ships calling on EU ports: the money generated is transferred by Member States to an EU level Recycling Fund created by the European Commission. Fund resources are then spent to provide a premium for the recycling of EU-flagged ships at facilities on the European list (i.e. the list of facilities meeting certain environmental and safety standards, to be set up under the Commission's proposed regulation).

This amendment will require ships to pay the levy (i.e. a fee), to be collected by ports. Member State governments are involved only in the transfer, while the fund would be set up and operated at EU level.

Article 5a. Financing the environmentally sound recycling and treatment of ships

1. Member States shall ensure that ports collect an additional recycling levy from EU ships and non-EU ships calling at a port or anchorage within their territory from ...*.
2. The recycling levy shall be set at €0.03 per gross tonne.
For ships such as ferries that regularly and frequently call at the same port, Member States shall ensure that ports apply the same reductions for the recycling levy as they apply for the general port fee.
3. Member States shall recover the recycling levy from port administrations, preferably as part of their general system for collecting taxes and other charges from port administrations, and transfer it entirely to a Recycling Fund set up by the European Commission no later than two months after recovery of the recycling levy. The Recycling Fund shall be managed in a risk-averse manner, and apart from the costs for its administration, shall be entirely used to disburse the premiums referred to in paragraph 4.
4. The objective of the Recycling Fund is to contribute to making ship recycling which complies with this Regulation economically viable. The Recycling Fund shall provide a premium for ship recycling facilities on the European list for the recycling of EU ships that have been flying the flag of a Member State for at least two years prior to the approval of the ship recycling plan. Recycling facilities may apply to the premium in relation to contracts signed after ...**.
5. The premium shall be set at a minimum of €30 per light displacement tonne. The premium shall be payable by the Recycling Fund within two months of receiving the report of completion of the ship recycling in accordance with the form laid down in Annex III, as well as the inventory of the ship, the report documenting the quantities of waste treated, and the corresponding treatment processes, as laid down in point (ca) of Article 13(5).
6. Every year, the Commission shall publicly report on the income of the Recycling Fund, the recipients of the premiums disbursed and the amounts of those premiums.
7. The Commission shall be empowered to adopt delegated acts in accordance with Article 26 to adapt the level of the recycling levy where necessary to achieve the objective of the Recycling Fund.
8. The Commission shall assess no later than ...*** the benefits and costs of differentiating the recycling fee based on the information in the inventory of hazardous materials. If the benefits outweigh the costs, the Commission shall be empowered to adopt delegated acts in accordance with Article 26 concerning the differentiation of the recycling levy based on the information in the inventory of hazardous materials, while safeguarding sufficient funding of the Recycling Fund.

* January 1 of the year that follows one year after entry into force of this Regulation

** January 1 of the second year that follows one year after entry into force of this Regulation

*** Five years after the entry into force of this Regulation

1.3. Financial guarantee

An amendment by Mr Chris Davies, MEP, proposes the inclusion of a financial guarantee as an alternative to the payment of the port levy (see the box below). The amendment is presented as a complement to the recycling levy and fund: a ship holding such a guarantee would not pay the levy. The guarantee would be released when the ship is recycled at a facility on the EU list.

Under the amendment proposed, all ships arriving at EU ports that can demonstrate they hold a guarantee are exempt from paying the levy. The amendment refers to the role of Member States in approving guarantees and in releasing them. This implies that all ships calling at EU ports could request a guarantee, but the guarantees will only be available at EU financial institutions. Member States would need to establish specific rules for the guarantees in their financial institutions.

This instrument could also be envisioned on a stand-alone basis, i.e. without a levy and fund. Both the guarantee as proposed in the amendment by Mr Davies and a stand-alone version are assessed in section 2 of this report.

Article 2.

1. (20a) 'financial guarantee' means a deposit of funds, a mortgage on a shipowner's property, or another notarised commitment to payment of funds as required by a Member State competent authority to a sufficient amount to cover the costs incurred for compliance with the end-of-life recycling provisions in this Regulation.

Article 5b. Financial guarantee

1. By way of derogation from Article 5a, all Union and non-Union flagged vessels calling at a port or anchorage within a Member States' territory shall be exempted from payment of the ship recycling fee if they are in possession of a financial guarantee covering the costs incurred for complying with the end-of-life recycling provisions in this Regulation.
2. The financial guarantee can be a deposit of sufficient funds or a mortgage on the ship owner's property.
3. Payment of the financial guarantee may be required by the Member State competent authority in cases where the ship is not recycled in conformity with this Regulation. This includes cases:
 - (a) where the ship recycling process cannot be completed as intended; and
 - (b) where the ship recycling process does not take place in a European list designated facility.
3. The financial guarantee shall be established by the ship owner or by another natural or legal person on his behalf within one year of the coming into force of this Regulation.
4. The flagged vessel's competent authority shall approve the financial guarantee, including the form, wording and amount of the cover.
5. The financial guarantee shall be released when the competent authority concerned has

received a certificate attesting to the ship's having been successfully recycled in a European list designated facility.

6. The competent authority within the Community which has approved the financial guarantee shall have access thereto and shall make use of the funding, including for the purpose of payments to the maintenance of ship recycling facilities on the European list within its jurisdiction.
7. The collected penalty fees shall be added to the European recycling fee fund.
8. Member States shall inform the Commission of provisions of national law adopted pursuant to this Article.

1.4. Ship recycling account plus transitional fund

A study for the Ship Breaking Platform, an NGO, proposes a mechanism requiring a savings account for each ship calling at an EU port.¹⁰ Each Ship Recycling Account (SRA) would finance the incremental costs of responsible recycling. Yearly payments would be made into each SRA until it is 'fully funded' to cover the incremental costs of responsible recycling for the ship covered. These payments would be estimated based on the 'incremental cost of responsible recycling': the proposal suggests that ship classification societies could calculate the amounts based on an EU-wide method. When the ship is recycled at an approved facility, the value of the account is paid to its last owner.

The proposal also states that a surcharge would be made on the SRA deposits of all ships and transferred to a Transitional Fund: the fund would support the recycling of older ships, supplementing the resources of the SRA. The proposal indicates that the Fund could take a loan against its future resources to further support the recycling of older ships in the first years of its operations. The Fund could be managed by a financial institution, according to the proposal; it is not specified whether this would be a public body (e.g. the European Investment Bank) or a private bank.

Fund resources would be available to all ships calling at EU ports, and a minimum number of EU port calls would be needed for eligibility. It appears from the proposal that the accounts (SRAs) could only be held at EU financial institutions.

1.5. Ship recycling insurance

Under this mechanism, presented in amendments to the Commission proposal by Mr Vittorio Prodi, MEP, all EU-flagged ships as well as all ships calling at EU ports, would need to carry insurance against damages from unsound recycling, and this coverage should be part of the insurance for maritime claims under Directive 2009/20/EC. Under

¹⁰ Profundo (2013)

the proposal, upon completion of the ship's recycling at a facility on the European list, the holder of the insurance would be reimbursed by the insurance company.

The amendment refers to Directive 2009/20/EC on the insurance of shipowners for maritime claims. That Directive calls for insurance to cover maritime claims up to the maximum limits set by the 1976 Convention on Limitation of Liability for Maritime Claims and its 1996 Protocol. It should be noted that the 1976 Convention and its subsequent Protocol focus on loss of life or personal injury and property claims, and do not refer to claims related to damage to the environment or to ship recycling, for example in its Art. 2. The amendment moreover does not specify whether Member States or the EU would be competent in terms of oversight and the possible development of detailed rules for implementation.

A different insurance scheme is analysed in the report for the Ship Breaking Platform: this would follow a 'life insurance' pattern, with a payout available at the end of a ship's life, rather than a liability approach. While the 'life insurance' scheme is not a focus here, section 2 provides some notes on this alternative approach.

Article 1.

1. *The purpose of this Regulation is to prevent, reduce or eliminate adverse effects on human health and the environment caused by the recycling, operation and maintenance of ships flying the flag of a Member State while implementing the measures laid down in Directive 2009/20/EC.*

Article 2(1)

1. (20a) 'insurance' means insurance against damages to the environment or to people resulting from unsound recycling;

Article 4

1. Member States shall ensure that existing EU ships keep onboard an inventory of hazardous materials as required by Article 5, along with a recycling plan, that shall be part of the insurance certificate already foreseen by Directive 2009/20/EC, as foreseen by Article 7.

Article 6

1. Shipowners shall ensure that ships:
 - (ea) hold a valid insurance certificate against damages to the environment or to people resulting from unsound recycling, stating the facility chosen for the recycling operation.

Article 7

1. *A ship-specific ship recycling plan shall be drawn up at the same time as the issuing of an insurance certificate, required by the Directive 2009/20/EC together with a ship recycling facility which is legally entitled to receive EU end of life ships no later than 36 months after entry into force of this Regulation.*
- 2a. In the case of transfer of ownership it will be the duty of the new owner to establish the recycling plan together with the new mandatory insurance certificate. The ship owner will transmit to the national authorities a copy of the recycling plan included in the insurance contract.

Article 10

1. *After completion of an initial or renewal survey or of an additional survey conducted at the request of*

<p><i>the shipowner, a Member State shall issue an inventory certificate in accordance with the form laid down in Annex IV. This certificate shall be supplemented by Part I of the inventory of hazardous materials and also be transmitted to the insurance company indicated by the ship owner.</i></p> <p>2. <i>After successful completion of a final survey in accordance with Article 8(6), the administration shall issue a ready for recycling certificate in accordance with the form laid down in Annex V. This certificate shall be supplemented by the inventory of hazardous materials, the ship recycling plan and the insurance certificate.</i></p> <p>Article 21 <i>(c) transmit to the administration and the relevant insurance company the report of the completion of the ship recycling established by the ship recycling facility as required by Article 9(4)(f) in order to be entitled to the erogation of the relevant reimbursement, foreseen by the insurance contract.</i></p> <p>Article 23(1) <i>(d) do not have on board an inventory of hazardous materials and an insurance contract, as required by Articles 5 and 28;</i></p> <p>Note: text in the Commission’s proposal is in italics.</p>
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1.6. Overview of the options

The table below summarises the key public and private actors that would be involved under each instrument. The roles of these players are further reviewed in the qualitative assessment provided in section 2.

Table 3: Overview of the roles of key players in each option

Sector	Recycling levy + fund	Financial guarantees (alongside levy + fund or stand-alone)	Ship Recycling Account + Transitional Fund	Ship recycling insurance
Public sector: EU level	Set up and operate fund		Accredit banks offering the accounts	
Public Sector: MS level	Transfer levy proceeds to EU	Approve financial guarantees; oversight, including agreement to release guarantees		
Port Inspectors		Check that ships hold guarantees*	Check that ships have recycling accounts	Check that ships’ maritime insurance covers recycling*
Ports	Collect levy			
Ship owners	Pay levy	Obtain and pay for guarantees	Contribute to accounts	Purchase insurance

Sector	Recycling levy + fund	Financial guarantees (alongside levy + fund or stand-alone)	Ship Recycling Account + Transitional Fund	Ship recycling insurance
Financial sector		Establish guarantee system	Establish and manage accounts; A financial institution could manage the fund	
Insurance sector				Establish insurance policies
Recycling facilities ***	Apply for premium from fund **			
Other			Independent bodies could estimate incremental cost	

* These inspection requirements are presumed, as they are not specified in the amendments

** Section 3.3 below also considers the option whereby the premium is paid to ship owners

*** Under the Commission's proposal, ship recycling facilities must already undertake certain tasks, such as providing a Statement of completion of ship recycling (Annex III). Here as elsewhere in the table, only tasks additional to those specified in the Commission's proposal are listed.

2. Assessment of options against the specific criteria and the overall objectives

Key findings

- All of the instruments would involve some setup time as well as public sector costs. Those options where Member States play a key role in setting up detailed rules – the guarantee and possibly the ship recycling account and insurance options – could result in national governments moving at different speeds.
- Both the levy and fund instrument and the ship recycling accounts and transitional fund mechanism would address older ships going to recycling in the near future. A stand-alone guarantee mechanism and possibly the insurance instrument are expected to be less effective in this regard.
- The administrative costs for enterprises appear to be lowest under the levy and fund.
- Each of the instruments would create some distortions among different types of ships. The levy would create a higher burden for ships calling frequently at EU ports unless this issue is addressed in its design.
- The levy and fund instrument has the potential to meet the three general objectives considered: contribute to finance environmentally sound ship recycling, counterbalance perverse incentives for the last shipowner to go to facilities with the lowest standards and counterbalance the risk of out-flagging. Mandatory ship recycling accounts may also meet the three general objectives.
- A guarantee scheme alongside the levy and fund may provide a useful complement, for example for ships that call frequently at EU ports.
- A stand-alone guarantee would not provide additional finance for recycling or counter-balance the risks of out-flagging.
- The effectiveness of the insurance scheme in terms of the general objectives is not fully clear, and further study may be needed into its design.

2.1. Assessment steps

In this section, Mr Schlyter's amendment and the other options identified in section 1 are assessed first against the specific criteria for economic instruments set out in the EP's specifications, and then in terms of the overall objectives identified. This approach reverses the order set out in the specification: in the analysis, it was found that the results for the specific criteria provide information regarding the overall objectives.

The **specific criteria** are:

- Be effective as quickly as possible
- Require as little administrative burden as possible
- Avoid distortion in competition between EU and non-EU ships
- Be adaptable to fluctuating market conditions

Although not set out in the specifications, the analysis also briefly considers implications related to international law: this brief section does not provide in-depth results but rather highlights possible areas for further analysis.

The three **overall objectives** for analysis are to:

- Counterbalance the current perverse incentive for the last ship owner to go to (the recycling facility with the) lowest standards
- Counterbalance the risk of out-flagging by EU ships to escape the regulation
- Contribute to finance environmentally sound ship recycling

2.2. Assessment against the specific criteria

An overview of the analysis is presented in the table on the following pages. As can be seen, further specification has been developed for three criteria:

- *Effective as fast as possible* is addressed in terms of two areas: setup of policy mechanisms; and the coverage of the large numbers of ships expected to go to recycling in the near-term future (these are expected for the most part to be older ships).
- *Administrative burden* is assessed separately in terms of administrative costs for the public sector and the burden on enterprises.
- In addition to possible *distortions of competition* between owners of EU and non-EU-flagged ships, the analysis also considers possible distortions among categories of ship-owners within the EU.

The baseline for the assessment is the Commission's proposal without amendment. In particular for the assessment of *effectiveness as soon as possible* and *administrative burden*, the options propose new mechanisms in an area not directly addressed in the original proposal.

For each criterion and sub-criterion, key issues related to an option are scored on scale of (+), positive; (+/-), uncertain or neutral; and (-), negative. These scores are indicative, and are intended only to assist in understanding the results of the analysis. The scores are not intended, for example, for a multi-criteria analysis that could sum the scores for each option.

Table 4: Detailed assessment of the instruments

Criteria	Recycling levy + fund	Financial guarantee alongside levy + fund	Financial guarantee alone	Ship Recycling Account + Transitional Fund	Ship recycling insurance
Be effective as fast as possible: setup issues	Setup of levy at port level expected to be relatively quick (+); Creation of levy transfer procedures expected to be relatively quick (+); Creation of EU fund may take approx. 1-2 years (-)	Establish detailed rules and for financial institutions to setup system – both may vary across MS (-)	Establish detailed rules and for financial institutions to setup system – both may vary across MS (-)	Establish rules for accounts and transfers (EU and possibly MS levels) (-); Financial institutions could set up system of accounts relatively quickly (+); Creation of fund may take approx. 1-2 years (-)	Time needed to define insurance mechanism and establish detailed rules (EU and/or MS levels) (-); Maritime insurers need to change policies and bring adapted insurance products onto the market (+/-)

Criteria	Recycling levy + fund	Financial guarantee alongside levy + fund	Financial guarantee alone	Ship Recycling Account + Transitional Fund	Ship recycling insurance
Be effective as fast as possible: coverage of ships going to recycling in the near future (older ships)	From start of its operations, fund would pay premiums to older ships (+)	Older ships would require higher guarantees and may not participate in voluntary system (+/-)	Older ships would require higher guarantees (-)	Transitional Fund provides a mechanism to finance older ships going to recycling (+)	Older ships expected to face high premiums (-)
Low administrative burden – public sector¹¹	Low costs for collection of levy and transfer to EU level (+); Higher costs for fund set-up and management (-)	MS costs in setup phase to establish detailed rules for guarantees (-); Recurring costs for MS to approve guarantees (-)	MS costs in setup phase to establish detailed rules for guarantees (-); Recurring costs for MS to approve guarantees (-)	Costs for EU (and possibly MS) to set up account rules and fund mechanism (-); Recurring costs for EU (and possibly MS) oversight of accounts and fund (-);	Cost for EU and/or MS in setup phase (-)

¹¹Administrative burdens associated to port inspections are expected to apply to all options.

Criteria	Recycling levy + fund	Financial guarantee alongside levy + fund	Financial guarantee alone	Ship Recycling Account + Transitional Fund	Ship recycling insurance
Low administrative burden – enterprises	Comparatively low: levy could be paid along with other port fees (+)	Cost for financial institutions to set up guarantee system (-); Recurring cost of risk assessment for individual ships (-)	Cost for financial institutions to set up guarantee system (-); Recurring costs of risk assessment for individual ships (-)	Cost to set up accounts (-); If a private financial institution: costs running the EU fund (-)	Cost for insurers to develop new instrument (-); Recurring costs for insurers to assess level of insurance premiums (-)
Avoid distortion in competition: EU vs. non-EU flagged ships	Levy applied to all ships calling at EU ports (+)	EU ships may have greater access to EU-based guarantees (-)	EU ships may have greater access to EU-based guarantees (-)	EU ships may have greater access to EU-based accounts (-)	Insurance required for all ships calling at EU ports (+)

Criteria	Recycling levy + fund	Financial guarantee alongside levy + fund	Financial guarantee alone	Ship Recycling Account + Transitional Fund	Ship recycling insurance
Avoid distortion in competition: within EU	Risk of distortion for frequent visitors to EU ports vs. infrequent visitors, unless a specific mechanism developed (-)	Shipowners with greater assets may have an advantage in voluntary system compared to smaller players (+/-); Possible differences between MS related to speed establishing rules and domestic financing conditions (+/-)	Disadvantage for owners of older ships, which would face higher guarantees (-); Shipowners with greater assets may have advantage (-); Possible differences among MS: speed establishing rules and domestic financing conditions (-)	Transfer of some resources from all accounts to pay for recycling of older ships through Transitional Fund (+/-)	Older ships may face higher premiums (+/-)
Adaptable to market fluctuations	Levy adjusted by Commission delegated acts (+/-); Fund may need a capital buffer for market fluctuations (+/-)	Level of guarantee could be updated regularly by financial institutions (+)	Level of guarantee could be updated regularly by financial institutions (+)	Level of annual contributions could be updated regularly by financial institutions (+)	Level of premiums could be updated regularly by insurance providers (+)

2.2.1. Effective as quickly as possible: setup issues

Ease and speed of implementation is a crucial aspect given the current global overcapacity in merchant ships, the expected rise in the number of ships sent for scrapping in the coming years and the unlikely entry into force of all relevant provisions of the Hong Kong Convention before 2020. This section considers the speed with which the mechanism would be established and operating is considered here (section 2.2.2 then addresses the extent to which the instruments in their first years of operation can cover older ships).

All of the options would require additional institutional and financial arrangements to those under the Commission's proposal. The proposed regulation would enter into force one year after its publication in the EU's Official Journal (Art. 31); however, some setup issues for the options could be addressed before this date.

For the levy and fund, the collection of fees would employ existing mechanisms for port fees, and thus should be fairly quick to put in place. The transfer of funds from the ports to national level, and then to the EU level, is not complex; however, the development of procedures may proceed slowly in some Member States. It is not specified in the amendment whether the money should be transferred on a yearly basis or more often: the latter approach would entail higher administrative costs for Member States.

It is expected that the creation of a fund at EU level and the development of its procedures could take comparatively longer time. Setup work would include the hiring or designation of staff to manage a fund, the negotiation of agreements with recycling facilities and the development of fund management and auditing procedures. While some elements, such as contacts with recycling facilities, will be needed under the Commission's proposal, most of these requirements will be specific to the amendment. These setup activities could take one to two years, according to former Commission officials.

For the financial guarantee, setup time will be needed for Member States to establish detailed rules; moreover, this may vary across Member States. The speed with which financial institutions are ready to provide guarantees may also vary, as they will require new forms of financial analysis, i.e. assessments of the projected cost differential for acceptable recycling.

The Ship Recycling Account (SRA) and Transitional Fund would require time to establish detailed rules for the accounts, for the surcharge that supports the fund and also for the fund itself. The 2013 Profundo study suggests that the EU-level fund could be run by a financial institution: the mechanisms for the fund and the choice of the institution will also require some setup time, for example to prepare and carry out an open tender procedure to identify the institution. These setup elements might take at least a similar length of time as the creation of a fund managed by EU public bodies.

The insurance option would also require detailed rules, to be developed at either EU or Member State level (this element is not specified in the proposal and it is possible that

both levels may need to be involved). One unknown could arise in that insurance should be provided for ‘damages to the environment or to people resulting from unsound recycling’. While such damages have been documented at unsafe and environmental unsound ship-breaking facilities,¹² in the setup phase methods would need to be developed to determine their potential magnitude in monetary terms, in order to establish the insurance premiums. A further issue to be addressed is the identification of persons or entities that could claim damages, and as the damages occur outside the EU this may require new legal and policy approaches. Moreover, ship recycling insurance does not currently exist and, according to the Profundo study, it would be significantly different from the existing types of insurance for shipping (provided largely through mutual protection and indemnity associations of shipowners, called P&I clubs).¹³ Section 1.5 above also notes that environment issues are not cited in Directive 2009/20/EC. Addressing these issues will likely be complex, and would need careful study and time for the setup of the system.

This review indicates that all the options would require some setup time. One concern for the financial guarantee and possibly the SRA/Transitional Fund is that Member States may move at different speeds for the introduction of detailed rules. For the insurance instrument, design issues could require additional setup time.

2.2.2. Effective as quickly as possible: coverage of ships going to recycling in the near future

As a high number of ships are expected to go to recycling in the next 5 to 10 years, any instrument should be effective early on in terms of being available to support the recycling of older ships.

The levy and fund would provide such finance as soon as the first year’s resources had been transferred to EU level, i.e. one year after setup, assuming that the proceeds of the levy are only transferred once a year from each Member State.

In principle, the guarantee system will cover all ships once operational; however, older ships will require higher contributions, as they can be expected to be recycled after just a few years. This is not an issue for a guarantee system as a supplement to the recycling levy and fund. It could, however, create problems for the effectiveness of the financial guarantee as a stand-alone instrument: the higher costs for older ships might create an incentive to send them to substandard recycling facilities or to re-flag them before the instrument is operational.

The transitional fund, once operational, would create a mechanism to support the recycling of older ships, and thus is comparatively effective by this criterion.

Ship recycling insurance may face similar problems to a stand-alone guarantee: insurance premiums for older ships could be higher, as their recycling is imminent. Here, it can be

¹² Some data are provided in European Commission (2012b).

¹³ Profundo (2013),

noted that the Profundo study reviewed an insurance mechanism based on a 'life insurance' approach and concluded that 'it would be impossible to insure existing, older ships at a reasonable premium'.¹⁴ The insurance instrument reviewed here is different, however: while the age of a ship will be a factor in the premiums, so would the risk that the ship would be sent to a recycling facility not on the EU list. It is possible that the development of a detailed ship recycling plan may provide a strong indication that a ship, even if close to the end of its service life, will be sent to a recycling facility on the EU list. Nonetheless, as noted in section 2.2.1, several important issues concerning the design of this instrument will need to be resolved, and for this reason it is difficult to make a clear assessment of its impacts.

The fund instruments would address older ships going to recycling in the near future; the guarantee approach and possibly the insurance instrument are less effective in this regard.

2.2.3. Low administrative burden: public sector costs

The public sector will face administrative costs under each of the instruments. This section briefly outlines potential costs related to the setup of the instruments and the recurring costs related to their operation.

In addition, inspection and enforcement costs are to be expected for each option; however, a significant change is not anticipated compared to the Commission's proposal, which calls for port inspections and Member State enforcement actions of ships calling at EU ports.

For the ship recycling levy and fund, both setup and recurring costs are expected to be low for the collection of the fees, as existing port fee collection systems can be used; this is also believed to be the case for the transfer of proceeds from port to Member State and then to EU level.

The EU fund will face setup costs, including those related to the steps outlined in section 2.2.1: the hiring or designation of staff to manage a fund, the negotiation of agreements with recycling facilities and the development of fund management and auditing procedures. Recurring costs will be needed to manage the agreement and payment for each ship recycled: according to the Commission's IA, approximately 200 EU-flagged ships were sent to recycling in 2009, and the number could be higher in coming years.¹⁵ A note to the amendment indicates that the fund would be financed out of interest on money held in its accounts; an assessment of the administrative costs in detail and the feasibility of this approach is outside the scope of this report.

For the financial guarantee, administrative costs include the setup of specific rules at Member State level, together with recurring costs for the oversight of the system, including approval of each ship's guarantee. The EU fleet is comprised of approximately

¹⁴ Profundo (2013), p. 29

¹⁵ European Commission (2012b)

7000 vessels (see Table 1). For a voluntary guarantee option, only a fraction would seek a guarantee (and possibly some non-EU-flagged ships). Under a stand-alone guarantee, however, all EU-flagged ships and all ships calling at EU ports would need to obtain the guarantee. In either case, the highest costs would occur at the start of the system, when existing EU-flagged ships seek to obtain guarantees.

The SRA and Transitional Fund proposal calls for a financial institution, presumably a private bank, to manage the fund: in such a case, the public sector costs are limited to the setup and oversight of the system. While the proposal refers only to actions at EU level, it is possible that Member States will need to be involved in establishing detailed rules.

The setup of the insurance system would in particular involve the regulatory costs to set up the detailed rules; it is not clear if this would need to be done at EU level, at national level, or both.

All the instruments will create some public sector costs; the distribution between EU and Member State levels depends on specific design.

2.2.4. Low administrative burden: costs for enterprises

All options would create some additional burden for enterprises in terms of compliance costs, compared to the Commission proposal. Here it should be noted that the Commission's proposal only affects EU-flagged ships; the options reviewed here would affect all ships calling at EU ports, and thus also some ships flying non-EU flags that are not affected under the Commission's proposal. While not specified in their descriptions, it is possible that some of the instruments – in particular the guarantee, the SRA/Transitional Fund and the insurance requirement – may lead to either rules or private sector requests that non-EU ships to undertake certain requirements in the Commission's proposal, such as the development of ship recycling plans.

The burdens for enterprises appear to be comparatively low for a recycling levy plus fund. Ships would pay the levy along with existing port fees. Ships and recycling facilities may face costs at the moment of recycling; however, these do not appear to represent a significant addition to costs under the Commission's proposal.

The instruments requiring financial guarantees or ship recycling accounts call on financial institutions to play a role. For example, banks would need to assess the levels of payments by shipowners for the guarantees or the accounts. For either option, banks may turn to external expertise: the Profundo study for example suggests the use of ship classification societies to calculate the payments for the SRAs. In a similar fashion, the providers of maritime insurance would develop a new product and calculate the additional insurance premiums. For all of these options, the burdens may be highest in the first years of such systems, when new approaches are developed and introduced. It should be noted that these instruments would create business opportunities for the financial sector or the insurance sector; moreover, these setup and management costs are likely to be passed on to shipowners, for example in the price of the guarantee.

For the ship recycling accounts and transitional fund, it is also proposed that a financial institution manage the fund. This could be a large private bank. Here, the costs are expected to be similar to the administrative costs for a fund under the levy and fund instrument.

Administrative costs for enterprises appear to be lowest under the levy and fund.

2.2.5. Avoid distortion in competition between EU and non-EU ships

This section focuses on potentially competitive advantages and disadvantages created by the instruments for EU-flagged and non-EU-flagged ships. As noted in section 2.2.4, the Commission's proposal only affects EU-flagged ships, while the options under consideration would affect all ships calling at EU ports. In addition to the points discussed here, which focus on possible differences in costs for EU and non-EU ships, the options may raise issues under international law: this topic is briefly considered in the annex to this report.

The levy as designed would apply to both EU-flagged and other ships calling at EU ports. The proceeds of the fund are proposed to only go to EU-flagged ships. In an initial review, this does not appear to create a distortion among ships, as owners of EU-flagged ships would receive the same total amount from recycling as they would if they sent their ships to facilities not on the EU list.

The guarantee as an option instead of paying the levy could be used by all ships calling at EU ports, but would be available only from EU financial institutions. As a result, EU-flagged (and possibly also EU-owned) ships may have greater access to this instrument, and thus potentially an advantage over others, which would have to pay the levy. This could be addressed by establishing rules under which guarantees can be provided by financial institutions outside the EU. Here, though, establishing a mechanism for proper oversight would need to be studied.

Similar concerns regarding access arise for the requirement that non-EU-flagged ships obtain ship recycling accounts. It is possible that these issues will also arise for non-EU-flagged ships under an insurance scheme.

In sum, the levy and fund appear to create fewer distortions between EU and non-EU ships than the other instruments, in particular those that require non-EU ships to use financial institutions within the EU.

In addition, as all the instruments pose additional burdens on ships calling at EU ports, they may create an incentive to shift traffic to nearby non-EU ports. This is a concern in particular in the Mediterranean and Black Seas: non-EU ships might stop at non-EU ports and then transfer their cargo either to smaller ships that participate in the scheme or to other modes of transport. Overall, these impacts are expected to be minor as the costs are expected to be relatively low compared to other components of shipping costs, as well as the cost of trans-shipment. This issue is assessed in greater detail in section 3.4 with respect to the levy and fund amendment.

It should be noted that one possible outcome of all the options is that a share of non-EU ships calling occasionally at EU ports will choose to avoid them due to the new requirements and thus sail other routes. The risk of avoidance can be expected to be positively correlated to the relative burden of the requirements associated to each option. Section 3.4.2 discusses potential traffic diversion risks linked to the ship recycling levy and fund option. A mandatory financial guarantee mechanism and the SRA/Transitional Fund mechanism appear to pose higher costs for ships calling occasionally at EU ports; however, a quantitative assessment for these options is beyond the scope of this study.

2.2.6. Avoid distortion in competition within EU (e.g. between categories of ships)

The recycling levy could create a disadvantage for ships calling frequently at EU ports compared to those calling rather seldom. This is likely to penalise certain vessel types and trade routes (e.g. short-sea trade), that would contribute much more often to the recycling fund. To address this problem, the amendment provides that ‘Member States shall ensure that ports apply the same reductions for the recycling levy as they apply for the general port fee’. However, port fee systems are not this simple: According to port authority representatives consulted, the fact that a vessel calls on ports more frequently does not automatically entitle it to a ‘frequency rebate’. Moreover, the frequency with which ships call at EU ports can vary significantly: the table below provides information for four major ship categories.

Table 5: Average number of yearly calls to EEA ports (EU, Iceland and Norway), by type of vessels

Vessel type	Number of visits				
	1	2-6	7-12	13-24	25+
Oil tankers	1%	8%	7%	12%	73%
Bulk cargo	4%	28%	18%	11%	28%
Containers	0%	2%	4%	13%	81%
Roro	0%	1%	1%	4%	94%

Source: IHS Fairplay (2011)

The evidence gathered suggests that the option will need to specify further how ships calling frequently are addressed. An overview of four possible alternatives, including the use of the financial guarantee instrument alongside the levy, is provided in the following table.

Table 6: Alternatives for the treatment of ships calling frequently at EU ports

Fee basis	Groups at a disadvantage
Single fee per year	Ships that call rarely at EU ports
Fee for each port call	Ships that call frequently at EU ports
A sliding scale based on number of calls	Can provide equity for across categories; could increase administrative costs for collection and enforcement.
Financial guarantee system alongside levy	Older ships making frequent calls at EU ports would face higher costs under both guarantee and levy

The financial guarantee and the insurance options are expected to be less favourable for older vessels close to retirement, as described in section 2.2.2.

Another possible distortion can occur across Member States: this is seen in particular for the guarantee instrument, as both may depend on Member State implementation. First, national governments typically move at different speeds in establishing specific rules, which themselves may have differences across Member States. The latter issue could be addressed by established an EU framework for the detailed rules, but this would require additional setup time. A further potential difference across the EU is that financial sectors in different Member States may have different levels of sophistication, in particular in terms of their capacity to assess the shipping sector.

Some shipowners may have access to better terms than others; while shipowners might be able to obtain guarantees in several Member States, large owners are likely to have the greatest access to 'comparative shopping'.

These potential differences across Member States and among large and small shipowners may also be seen for the insurance scheme.

Each of the instruments would create some distortion among types of ships. For the levy and fund, the different impact on ships calling more or less frequently at EU ports could be addressed through specific rules.

2.2.7. Adaptable to market fluctuations

The objective of the different instruments is to close the gap between the costs of recycling to acceptable standards (i.e. those on the future 'EU list') and other forms of ship recycling. In general, accurate design of any option is challenging because of un-transparent cost structures and the cyclical nature of the business. Any mechanism should thus be prepared to cope with such fluctuations.

A recycling levy and fund may need to adapt the charge level, for example, if the difference in the costs of recycling at EU and non-EU changes. Under the proposed

amendment, this could be done via a Commission delegated act, and thus would be relatively quick.

A design issue for the fund is whether the amount it pays per LDT is fixed, set perhaps on a yearly basis (e.g. determined in terms of prices by facilities in the previous year), or is determined separately for each ship to be recycled. A fixed payment creates a stable mechanism for the market and would involve lower administrative costs for the fund, but the payments may be either high or low compared to needs, for example in terms of seasonal fluctuations. Payments based on the difference in prices quoted by recycling facilities would require higher administrative costs for the fund; moreover, this approach risks being exploited by market-distorting behaviour and possibly collusion on the part of recyclers.

The other instruments could be updated regularly, as the levels of guarantees or the insurance premiums are set by the financial sector. At the same time, however, regular oversight by government authorities would be needed to ensure that the system is indeed working as expected.

While all the instruments would be able to adapt to market fluctuations, the levy and fund may be a little slower in this regard, as adjusting the levy would require delegated EU acts; for the other instruments, adjustment would involve private sector action.

2.2.8. Key issues

The analysis of the specific criteria raises several issues for the options. Among these are the following:

- For the levy and fund the issue of the levy for ships needs to be addressed.
- The use of a financial guarantee alongside the fund may see Member States moving at different speeds in terms of setting up the guarantees. The system, while voluntary, would have higher costs for older ships.
- The higher cost for older ships would be a significant obstacle for a stand-alone guarantee system.
- A ship recycling fund and transitional account may require specific rules for the transfer system, and this may require further study.
- One issue raised for an insurance mechanism based on a liability model is in its design, notably concerning the determination of the monetary damages to be insured against in the event a ship is sent to a facility not on the EU list.

2.3. Assessment related to the general objectives

The review of specific criteria provides some of the background information for the assessment related to the three general objectives, which are considered here. As the assessment shows, the three objectives are closely linked: financing is considered first, as the availability of financing influences the other two objectives.

This assessment is considered against the baseline, the Commission's proposal, which requires that EU-flagged ships can only be recycled at facilities on the EU list, i.e. those meeting a set of minimum standards set out in the proposed Regulation. Moreover, the proposal requires Member States to establish penalties for violations.

2.3.1. Contribute to finance environmentally sound ship recycling

Under the Commission proposal, owners of EU-flagged ships are expected to receive a lower price from recycling facilities on the EU list than they would if they sold their ships to facilities with poorer standards.

The levy and fund would contribute to finance environmentally sound ship recycling. In particular, the fund would make resources available to cover the difference in price from facilities on the EU list compared to those with poorer standards. The fund will do so once it is operational and proceeds are received from the levy: these actions could take, as indicated in section 2.2.1, one to two years.

A system of voluntary guarantees alongside the levy and fund would not be expected to make a major change to the financing available. The guarantees would be financed by the shipowners, and thus would not provide additional support for sound recycling; nonetheless, as noted in section 2.2, some shipowners – such as those whose ships make frequent calls at EU ports – may find this system preferable to the levy.¹⁶

A stand-alone system of guarantees would not contribute additional financing.

The ship recycling account and transitional fund would create financing for recycling once operational, as the fund would draw a share of the accounts to provide finance.

The insurance scheme would not provide financing for recycling; rather, it would lead to damages assessed when ships do not go to facilities on the EU list.

2.3.2. Counterbalance perverse incentives for last ship-owner to go to the (facility with the) lowest standards

The levy and fund, by providing financing for recycling at facilities on the EU list, would compensate the additional cost compared to facilities with lower standards. The payment is linked to the ship (assuming it retains an EU flag), and thus the instrument provides a counterbalance to the perverse incentives that the last owner goes to a facility with the lowest standards. To be effective in light of projections that a large number of ships are to be sent for recycling in the short term, the fund would need to be operational relatively quickly and receive adequate resources from the levy; the level of resources required is considered in section 3 of this report.

¹⁶ If a large share of ships calling at EU ports chooses the guarantee instead of the levy, resources for the fund would decrease. If these are younger ships, then an adjustment of the levy may be needed.

The system of guarantees alongside the levy and fund would not change the overall incentives, as the guarantees would be optional. A shipowner using guarantees would have an incentive to ensure proper recycling, otherwise, it would lose the guarantee, resulting in potential action from the financial institution where the guarantee is held. The guarantee also provides an incentive for the owner to retain the ship until its recycling, or to require any subsequent owner to send the ship only to facilities on the EU list.

A stand-alone system of guarantees would not, however, counterbalance the perverse incentives, as costs are expected to be higher for older ships expected to go to recycling in a short time horizon. As a result, a stand-alone guarantee system may be avoided for older ships, through their retirement or sale before the system is in force.

The ship recycling account and transitional fund would, like the levy plus fund, provide support for recycling at facilities on the EU list.

The insurance instrument pays damages when recycling occurs at facilities not on the EU list. These damages are paid by the insurance company, not the owner; however a shipowner would likely face higher insurance premiums in the future if it faces a claim. The insurance scheme thus provides some counterbalance to the perverse incentives, though the extent of this effect will depend on the precise design of the instrument.

2.3.3. Counterbalance the risk of out-flagging

The Commission's proposal calls for Member State sanctions on EU-flagged ships that are transferred less than six months before recycling at a facility not on the EU list (Art. 23(5)): according to the Impact Assessment, these would address the risk of selling and re-flagging ships.

As noted above, the requirements under the Commission's proposal represent a potential loss of return for the owners of an EU-flagged ship when recycling a ship as well as administrative burdens: the proposal thus creates a risk that owners will transfer some EU-flagged ships to a non-EU flag. This could occur before the regulation takes effect. Another risk is that a ship could be transferred to a non-EU flag (possibly through a sale) near the end of its life, though in this case the owner would need to ensure it not be recycled for at least six months. Stakeholders consulted for the study indicated that an EU flag can bring several advantages for a shipowner, including access to finance. This suggests that few owners will re-flag before new legislation takes effect, and the greater risk is that of out-flagging close to the end of ship life.

The levy and fund would finance the expected loss of return in prices paid by recycling facilities on the EU list compared to others with lower standards, and this should reduce the risk of out-flagging, in particular as the current design would only finance the recycling of ships with EU flags. (It is possible that there may be some 'in-flagging', for example for non-EU-flagged ships with EU shipowners who place value in reputation issues, including ship recycling.) A voluntary financial guarantee alongside the levy and

fund is not expected to change this result, though it would also provide an incentive to retain the ship.

The SRA and transitional fund would also provide support for EU-flagged ships, and thus when operational would counter-balance incentives to re-flag ships.

A mandatory financial guarantee would impose higher costs on older ships: thus, this scheme would not counter-balance an incentive for re-flagging. In some cases, it may create an incentive for some owners to re-flag older ships and use them only outside the EU.

As noted in section 2.2, the insurance instrument could also present higher costs for older ships: the degree to which this is the case would need further study, also in light in the specific design of the system. Also, the design does not specify a mechanism to counterbalance the risk that a ship is sold at least six months before recycling and its flag changed to one outside the EU: in this event, the new owner might terminate the recycling insurance.

2.3.4. Key results concerning the general objectives

The levy and fund instrument appears to satisfy all three general objectives, as it would provide additional finance for recycling, and help to counterbalance perverse incentives and the risk of out-flagging.

A guarantee system alongside the levy and fund would not change this overall result, though it may, however, in provide an alternative for certain ships, such as those calling frequently at EU ports.

A stand-alone guarantee system, however, would not contribute to financing and would not counter-balance risks of out-flagging.

The ship recycling account and transition fund option appears to satisfy all three general objectives; as seen in the specific criteria, however, its design is in several ways more complex than the levy and fund.

The insurance mechanism would not provide additional finance for recycling, though it would partly counterbalance perverse incentives. Its effectiveness is not fully clear, however, and further study may be needed into the specific design for this instrument.

3. Assessment of the design of the economic instrument proposed by Mr Schlyter

Key findings

- In order to offset the higher prices available from facilities that do not meet the criteria proposed in the EU Regulation, it is estimated that the fund would need to pay between EUR 20 and EUR 50 per LDT (and as much as EUR 75 per LDT under a worst-case scenario).
- Other uncertainties include the total amount needed in a given year, due to possible fluctuations in yearly ship recycling demand. As a result, the estimated levy needed to adequately finance the fund ranges from EUR 0.005 per GT to EUR 0.04 per GT; and from EUR 0.01 to EUR 0.025 in central scenarios.
- Assuming that the recycling of EU ships is only allowed in OECD facilities, the required financial endowment in any given year may range between slightly more than EUR 300m and over EUR 1bn. A levy of between about EUR 0.05 and EUR 0.20 per GT would be required (between EUR 0.05 and EUR 0.14 in central scenarios).
- These findings are based on a range of assumptions, including that major recycling facilities do not engage in strategic behaviour in their pricing strategies (e.g. by pricing below their net costs). Moreover, the range of estimates is broad to reflect uncertainty regarding market fluctuations, yearly changes in demand for dismantling services, and volume of calls at EU ports.

The size of the levy and fund payments was analysed. To fully offset higher prices for ships paid by recycling facilities that do not meet the criteria proposed in the EU Regulation, it is estimated in central scenarios that a fund would need to pay between EUR 20 and EUR 50 per light displacement tonne (LDT). The levy on ships calling at EU ports to support such a fund would need to be in a range of EUR 0.01 to EUR 0.025 per gross tonne (GT) in central scenarios. While this is below the value set out in Mr Schlyter's proposal, EUR 0.03 per GT, there are significant uncertainties, including the volume of ships going to recycling in coming years and the prices that facilities across the world would pay for them. Extreme scenarios indicate a levy of up to EUR 0.04. If the recycling of EU ships were only allowed in OECD facilities, costs would be higher, and a levy between EUR 0.05 and EUR 0.14 per GT would be required in central scenarios.

This section addresses the specific questions outlined in point 3 of the specifications for the present study, which are presented in the box below. To the extent possible, it also addresses further requests formulated by European Parliament officials.

Specific questions for analysis

Is the level of the fee and of the minimum premium proposed in amendment 44 appropriate to achieve the overall objectives? What would have to be the level of the fee if recycling of EU ships would be allowed only in the OECD (taking into account any infrastructure adaptations that might be necessary to be able to deal with relevant ship sizes)? Would it be preferable to pay the premium to ship recycling facilities on the EU list, or rather to the last ship owner when sending his ship to a listed facility? Would a de-central operation of the fund (e.g. by port authorities or Member States) be preferable?

If the costs of the recycling levy were passed on from the ship owners all the way to the final customer of the transported goods, what would be the approximate increase in the costs for the final customers (based on three representative goods, one for industrial use, one for professional use, one for consumer use)?

Could a fund lead to a diversion of maritime cargo traffic to other means? If yes, to what extent?

Source: EP specifications for the study

This section first estimates the level of the port levy and the minimum premium to be paid in the context of the proposed ship recycling fund (i.e. to counterbalance the perverse incentive for shipowners to take their end-of-life vessels to substandard facilities). Two assumptions are considered in this regard: a) EU ships can be recycled anywhere in the world (as long as this is done at an EU-listed facility), and b) EU ships can only be recycled in OECD facilities. Secondly, it looks at implementation modalities including for the payment of premiums and the management of the fund. Lastly, this section provides a brief assessment of the risks of two potential adverse effects: increases in the price of seaborne-transported goods and diversion of maritime traffic to non-EU ports.

3.1. Level of the levy and minimum premium

A first, key question in the specifications refers to the appropriate level for the premium to be paid (and the corresponding levy to be raised) for the ship recycling fund to meet its overall objective of promoting environmentally sound management of end-of-life vessels. It is assumed here that achieving the overall objective amounts to effectively counterbalancing current incentives for shipowners to take their vessels to substandard facilities. The analysis proposed here proceeds in two steps. First, it estimates the amount required to offset the difference between the final price offered to the shipowner by the highest-paying EU-listed facility¹⁷ and the final price offered by the highest-paying non EU-listed facility. Second, it estimates the corresponding financial endowment for the ship recycling fund as well as the level of the recycling levy.

¹⁷ The final version of the EU list is still to be disclosed. All assumptions are based on expectations regarding the facilities to be included in this list.

3.1.1. Uncertainties and assumptions

Before discussing the results of this analysis, it is important to highlight the main underlying assumptions and methodological issues, in particular, those related to uncertainty.

A first, uncertainty-related remark has to do with estimates of prices paid by recycling facilities for end-of-life ships. These assumptions are not able to incorporate a number of complexities related to the ship dismantling sector within the main countries where it is carried out as well as at global scale. For example, the prices paid for end-of-life ships in different recycling countries can vary over time, due in part to changes in domestic demand for scrap steel (in turn tied to factors such as cyclical variations in the building sector). Domestic business cycles will also affect the demand for ships to be recycled. In addition, domestic inflation as well as variations in international exchange rates may alter the Euro or Dollar value of prices paid.

In addition, the potential scope for annual fluctuations in the volume of ships sent to recycling is also an area of uncertainty. This in turn affects the financial endowments required for the ship recycling fund to function effectively. A further uncertainty concerns projections of the number and tonnage of vessels calling at EU ports each year.

Moreover, the analysis does not consider whether or how the instrument itself might affect pricing strategies practised by ship dismantlers and/or middlemen. This analysis assumes that, due to competitive pressures¹⁸, prices offered to shipowners for their end-of-life vessels closely reflect the net costs of ship dismantling activities and that, therefore, there is little room for price dumping or strategic behaviour in the presence of external subsidies like the one proposed in the context of the ship recycling fund. Since some of the stakeholders consulted for this impact assessment indicated, however, that strategic behaviour can to some extent be expected (e.g. as a pre-emptive strategy to capture a growing market), this assumption may need to be backed by further research in subsequent studies, particularly in light of the current paucity of information regarding underlying cost structures.¹⁹

A further methodological limitation is the current lack of data regarding the expected elasticity of demand for EU-listed ship dismantling services with respect to the prices paid for end-of life vessels. In particular, there do not seem to be sufficient elements available to model possible threshold effects. Indeed, it can be argued that behavioural change in terms of the choice of dismantling facility may occur even if the full price differential with non EU-listed facilities has not been offset. It can also be argued that behavioural change may not occur even in the presence of fully-offsetting premiums. A noteworthy element in this regard has to do with the lack of estimates for the value attached to 'corporate image' (and thus the amount of revenue shipowners are willing to forgo to avoid reputational damage), which could be different between large, well-

¹⁸ The Commission's impact assessment talks of "fierce competition between the major recycling states".

¹⁹ See, for example, Profundo (2013), p. 19; DNV/Appledore International (2001).

known companies and their smaller counterparts. Furthermore, future changes in transport costs (e.g. due to fluctuations in fuel prices) can be expected to play a role in the arbitrage between recycling facilities. Effects related to changes in transport costs are not assessed quantitatively in this study.²⁰ The simplifying assumption is instead used here that, if offered similar prices for their end-of-life vessels, shipowners will choose to go to EU-listed facilities. In other words, it is assumed that behavioural change will take place as long as the estimated price differential is offset.

Finally, the supply of appropriate dismantling services is assumed to be perfectly elastic to demand; i.e. there are no supply constraints. This is notably based on the conclusions presented by the Commission's Impact Assessment regarding ongoing expansion of dismantling capacity in China²¹ as well as on information provided by consulted stakeholders (e.g. stakeholders indicated that additional capacity of approximately 7bn tonnes may be expected to come in line in China in the near future). It is however acknowledged that this assumption is not left uncontested, particularly regarding recycling capacity in OECD countries.²² A further assumption is that the prices paid for end-of-life vessels are not expected to change significantly in relation to the number of ships recycled in a given year.

Given the multiple sources of uncertainty associated to the underlying assumptions for the calculations performed in this study, results are presented in the form of estimate ranges.

3.1.2. Calculation of the required ship recycling premium

Research and consultations for this impact assessment have served to complement the data provided by the European Commission's impact assessment regarding prices offered by dismantling facilities in key recycling countries. These figures are presented in the table below. Please note that recycling facilities usually pay on a basis of the light displacement tonnes (LDT) of a ship, a measure that is more closely reflects the steel content of the vessel than gross tonnes. In the amendment by Mr Schlyter, the levy on ships calling at EU ports is specified in Euros per GT, while payments for ships going to recycling are presented per LDT, and this approach is followed throughout this section.

²⁰ In the context of an arbitrage between Asian countries, transport costs do not appear critical for behavioural change.

²¹ European Commission (2012), p. 18. It must be noted here that a number of stakeholders expressed concern about the actual dismantling practices in countries like China and Turkey.

²² For further details on the debate about dismantling capacity in OECD countries, see namely Basel Action Network (November 2012), Mikelis (2012).

Table 7: Prices paid to shipowners for end-of-life vessels in key recycling countries, in EUR per LDT²³

Country	EC (2011)*		DDR-vessels (2012)**	
	Lower	Higher	Lower	Higher
Bangladesh***	375	395	325	375
India	370	390	325	375
Pakistan	365	380	325	375
China	335	350		
Turkey	110		200	250
Spain			100	120

* Original figures provided in USD. A 0.75 EUR/USD exchange rate has been used for conversion purposes.

** Interview with Barredo, A. (2013).

*** As discussed later in this section, the working assumption is used here that no facilities in Bangladesh, India or Pakistan are expected to be included in the EU list.

Source: European Commission, DDR-vessels.

As shown above, data gathered for this impact assessment are broadly consistent with the ranges provided by the European Commission for Bangladesh, India and Pakistan.

Indeed, Bangladesh consistently appears paying the highest prices for end-of-life vessels. India and Pakistan follow closely behind. Additional data have been obtained for Turkey and Spain. In this sense, it is worth noting that stakeholders consulted for this impact assessment indicated that prices paid in Turkey can be expected to be, on average, about twice as high as the estimates in the Commission’s impact assessment, and that the USD 150 per LDT figure in the Commission’s impact assessment may not be representative. This is understandable as those estimates seem to be based on a single transaction.²⁴

Given the assumption discussed earlier in this section regarding the relationship between prices paid to shipowners and costs incurred by dismantling facilities, it is useful to consider the above figures alongside available estimates of the incremental cost of ‘green’ recycling. A recent study estimates the differences in costs as currently ranging from about EUR 20 (USD 25) per LDT in China to about EUR 115 (USD 150) per LDT in

²³ As discussed later in this section, the working assumption is used here that no facilities in Bangladesh, India or Pakistan are expected to be included in the EU list.

²⁴ In addition, stakeholders consulted suggested that these figures may not be directly comparable. Whereas prices displayed for South Asian countries correspond to outer-anchorage prices, prices paid by Turkish or European recyclers for navy vessels are often understood as being “at sea”.

Europe.²⁵ In the case of China, the country's ship recyclers' association estimated the incremental cost of ship recycling at a minimum of EUR 50 per LDT.

A 2010 study for the European Commission identified eleven 'green and safe' dismantling facilities in China and Turkey.²⁶ The criteria used for this purpose include compliance with de minima requirements in the Hong Kong Convention as well as additional criteria related to the management, treatment and disposal of hazardous waste. Considering these findings as well as previous assumptions on dismantling capacity in China and information provided by stakeholders consulted for this study, it is assumed that sufficient EU list-equivalent capacity will be available in that country. In the same vein, the simplifying assumption is retained that no EU list-equivalent capacity is available in Pakistan, India or Bangladesh.

In light of the above, China has been retained as benchmark for the calculation of the amount to be offset through ship recycling fund premiums. Based upon available data, the amount to be offset can be expected to range between EUR 20 per LDT (low offset scenario) and EUR 50 per LDT (high offset scenario), with a central estimate of EUR 35 per LDT (medium offset). A worst-case scenario (differential of EUR 75 per LDT) has likewise been included in our calculations to account for heterogeneity of cost drivers across recycling countries, and thus the possibility that prices paid may evolve in opposite directions. This scenario is based on a 50% mark-up on the high offset scenario.

Table 8: Estimates for price differentials at dismantling facilities to be offset by the ship recycling fund, in EUR per LDT

Low offset	Medium offset	High offset	Worst-case scenario
20	35	50	75

3.1.3. Calculation of financing requirements for the ship recycling fund

Based on the estimate ranges presented above, this section attempts to estimate the required overall annual financial endowment for the fund to be commensurate with the expected volume of ships covered by the scheme, as well as the corresponding level for the ship recycling levy.

The financial endowment for a given year will vary with each of the price differential scenarios as well as with the size and number of ships benefiting from the fund's pay-outs. Regarding the latter parameter, two main aspects need to be considered: first, the robustness of current estimates for scrap demand volumes (i.e. the volume of EU-flagged ships sent for recycling) in a context of high uncertainty and strong cyclicity; second,

²⁵ Profundo (2013), p. 19. Original figures in USD. Current exchange rates applied for conversion purposes, figures rounded up.

²⁶ BIO IS (2010), p. 11.

the difference between average projected scrap demand volumes and annual fluctuations of scrap demand volumes.

In its 2012 impact assessment, the European Commission estimates average scrap demand for EU-flagged vessels of 500 GT or more for the period 2011-2025 at 1.6 million LDT p.a. (assuming no net loss of end-of-life vessels due to reflagging). This figure is roughly consistent with estimates in previous studies and also underpins the draft amendment considered in the present study. A recent study suggests, however, that scrap demand may rise rapidly in the years to come: “total weight of scrapped ships in 2012 will be a factor of 5 higher than in 2008. This [...] is caused by a steep incline in BDI’s, which is an indication for the price of moving the major raw materials by sea due to the economic crisis. Since the crisis is not over yet, the expectation is that in the coming years more ships will be scrapped, even with lower ages (<15 years).”²⁷

Concerning annual fluctuations for the period to 2030, it is worth noting that previous studies carried out on behalf of the European Commission estimate them to be between 1.1m LDT and 1.88m LDT.²⁸ In turn, a brief from a former IMO official speculates with the possibility that scrap demand could fluctuate more strongly: from as low as 500,000 LDT to as high as 3m LDT per year p.a.²⁹ The table below shows estimates for annual required endowment calculated for three different scenarios regarding demand for ship dismantling: average annual inventory assessment (1.6m LDT), maximum potential demand in any given year according to the European Commission (1.8m LDT), and maximum potential (“peak”) demand in any given year according to the brief from a former IMO official (3m LDT).

Table 9: Estimated financial endowment required for the ship recycling fund (in EUR million per year)

Offset scenario	Average demand	High demand	Peak demand
Worst-case scenario	123	135	225
High offset	82	90	150
Medium offset	57	63	105
Low offset	33	36	60

As can be seen, the required financial endowment in any given year may range between EUR 33m and EUR 225m depending on the assumptions retained regarding price differential to be offset and scrap demand volume (EUR 33m to EUR 135m if the peak demand scenario is cast aside).

²⁷ Profundo (2013), p. 20.

²⁸ COWI/DHI for the European Commission (2007), p. 52.

²⁹ BAN (December 2012), quoting Mikelis (2012).

The current proposal for a ship recycling fund states that only EU-flagged vessels would be eligible for premiums from the fund. Should vessels with non-EU flags be declared eligible for the fund's payouts, the financial endowment requirements would be higher, although accurately assessing them would require further research. As an indication, it is worth noting that, for the period between mid-2009 and mid-2010, EEA-flagged vessels accounted for 77% of the total calls at EEA ports, and EU-flagged vessels accounted for 70% of the same total. These figures apply to both all ships of 100 GT and more and to ships of 20,000 GT and more. Assuming no major age differences between EU and non-EU fleets and a uniform distribution of tonnage, these figures would imply that the fund's capital may need to be at least 30% larger for each of the scenarios selected, if all ships calling at EU ports are covered (data are not available on year to year changes in the ships involved).

To ensure the fund's ability to deal with an expected high volume of ships for scrap in the immediate future, it may be advisable to aim for an above-average financial endowment for the initial years (e.g. on the basis of the estimated maximum potential demand) and then decrease it progressively. An alternative option would be to constitute a capital buffer that can be used is the volume of ships sent for dismantling that are eligible for payouts from the fund is above-average. In principle, this is expected to be a relatively inefficient use of financial resources.

In addition, resources would need to be budgeted to cover the fund's management costs. Estimating these costs is beyond the scope of the present study. The extent to which these costs could be covered through interest gains from the fund's capital, particularly with regard to the initial stages of implementation, can therefore not be assessed at this stage.

3.1.4. Calculation of the appropriate level for the ship recycling levy

For each of the scenarios considered, the amount of the ship recycling levy will be equal to the estimated financial endowment required for the fund's correct functioning divided by the volume of ships (in GT) expected to call at EU ports in a given year. Here, previous studies³⁰ estimate an average of approximately 4bn GT calling at EU ports (for vessels of 500 GT or more). These figures seem to be based on extrapolations from relatively old data. A more recent report also quotes the 4bn GT figure, but the underlying assumptions seem to be methodologically flawed.³¹ It may therefore be useful to consider a broader range of estimates in this regard. Based on data from IHS Fairplay and Equasis³², our own estimates point to potentially higher tonnage calling at EU ports. According to IHS Fairplay, 10.8bn GT called at EU ports between July 2009 and June 2010.³³ Given the share of vessels under 500 GT in the European fleet³⁴, a rough estimate

³⁰ For example, Milieu/COWI (2009), p. 21.

³¹ The 2013 Profundo report identifies the fee level as depending on "the gross weight of seaborne goods" handled in all EU ports". This seems to be assimilated to the volume of GT calling at EU ports every year. However, GT are different from cargo units. Furthermore, passenger traffic would be excluded from this even though ferries account for about half of the total port calls.

³² Equasis (2010) and IHS Fairplay (2011).

³³ This figure is calculated by deducting the volumes corresponding to non-EU EEA ports (i.e. in Iceland, Norway and Russia).

of 7bn GT p.a. for vessels of 500 GT or more seems plausible ($10.8\text{bn GT} * (1-0.36) = 7.2\text{bn GT}$) and is therefore retained as central estimate. A lower bound of 5.5bn GT p.a. is also used in calculations for this study. The calculations thus use recent research showing higher volumes of ships calling at EU ports compared to previous studies. The tables below present the required ship recycling levy for each of the scenarios considered.³⁵

As can be seen, the required levy may vary by a factor ten depending on the assumptions retained. As discussed in the previous section, a frontloading may warrant higher levies in the first years of the fund’s operations and then a progressively lower one.

Table 10: Ship recycling levy for central port call scenario (7bn GT p.a.), in EUR cent per GT

Offset scenario	Average demand	High demand	Peak demand
Worst-case scenario	1.8	1.9	3.2
High offset	1.2	1.3	2.1
Medium offset	0.8	0.9	1.5
Low offset	0.5	0.5	0.9

Table 11: Ship recycling levy for low port call scenario (5.5bn GT p.a.), in EUR cent per GT

Offset scenario	Average demand	High demand	Peak demand
Worst-case scenario	2.2	2.5	4.1
High offset	1.5	1.6	2.7
Medium offset	1	1.1	1.9
Low offset	0.6	0.7	1.1

It can be concluded from this section’s findings that the financial resources required for the ship recycling fund to meet its overall objective are expected to range from about EUR 30m to more than EUR 200m, depending on assumptions. This corresponds to a levy of between 0.01 EUR and 0.025 EUR (central assumptions), and 0.005 and 0.04 EUR for all scenarios. Based on these results and considering the uncertainties involved, the

³⁴ “Small ships alone represent 36% by number, although only 1% by tonnage”. Equasis (2010), p. 5.

³⁵ Under the simplifying assumptions discussed earlier in this section, a 20% to 30% mark-up would be required if non-EU vessels calling at EU ports were to be eligible for the fund’s payouts. This remark applies to all of the following calculations regarding financial endowments and levy amounts.

level for the ship recycling levy as per Mr Schlyter's proposal appears to be in the appropriate order of magnitude.

3.2. Level of the levy and minimum premium if recycling has to be carried out only in OECD countries

The Specifications request that calculations be provided for the levy and size of the fund needed in the event that the recycling of EU ships would only be allowed in the OECD.

Before presenting the results obtained in the context of this study, a number of issues ought to be mentioned with regard to ship recycling capacity. While the Commission's impact assessment highlights major market- and capacity-related limitations³⁶, other studies³⁷ suggest otherwise. In particular, significant capacity could be available in North America. Moreover, a number of shipyards and ports in the EU could, according to some of the stakeholders consulted for this study, be quickly and cost effectively put to use for ship recycling. In this sense, according to the same stakeholders, a stable framework for the required investments in ship dismantling capacity appears at least as important as any potential subsidy.³⁸

For calculation purposes, assumptions comparable to those used in section 3.1 for the benchmarking with facilities in China have been used. These assumptions include the absence of supply rigidities beyond the short term. The only substantive difference in this regard consists of a much higher amount to be offset due to a higher differential in prices paid for end-of-life vessels. More precisely, a synthetic proxy has been calculated as the simple average between price differentials between facilities in Bangladesh and, respectively, those in Spain and Turkey (see table 7 in the previous section for more details). Available data backing these estimates are scarce. Therefore, the upper bound of the estimate range has been used in both the high offset and worst-case scenarios. Corresponding estimates are presented in the following table (figures rounded up).

³⁶ European Commission (2012), p. 13 ff.

³⁷ For example BAN (2012), Profundo (2013).

³⁸ An integrated management system has for example been proposed in the framework of the *Recyship* project.

Table 12: Estimates for price differentials at dismantling facilities to be offset by the ship recycling fund, in EUR per LDT

	Low offset	Medium offset	High offset	Worst-case scenario*
Turkey	135	185	275	-
Spain	265	275	285	-
Average estimate	200	230	280	420

* As in the benchmarking exercise carried out for Chinese facilities, a 50% mark-up on the high-offset estimate has been used for the worst-case scenario.

Sources: European Commission, DDR-vessels

The above figures represent increments ranging from factor five to factor ten increases compared to the estimates for price differentials discussed in section 3.1. On the basis of these assumptions, estimates for financial endowment requirements for the different scenarios regarding scrap demand are presented in the set of tables below.

Table 13: Estimated financial endowment needed for the ship recycling fund in any given year (in EUR million p.a.).

Offset scenario	Average demand	High demand	Peak demand
Worst-case scenario	689	756	1,260
High offset	459	504	840
Medium offset	377	414	690
Low offset	328	360	600

As can be seen, the required financial endowment in any given year may range between slightly more than EUR 300m and over EUR 1bn depending on the assumptions retained regarding price differential to be offset and the volume of ships sent for dismantling (approximately between EUR 300m and EUR 750m if the peak demand scenario is cast aside). Depending on the scenarios, these figures represent a factor five to factor ten increase compared to estimates presented assuming no geographical restrictions for dismantling facilities participating in the ship recycling fund scheme. This is consistent with the construction of the range of estimates for price differentials.

The amount of the ship recycling levy would need to be commensurate to this increase. Calculations for each of the scenarios considered are presented in the set of tables below.

Table 14: Ship recycling levy for central port call scenario (7bn GT p.a.), in EUR cent per GT

Offset scenario	Average demand	High demand	Peak demand
Worst-case scenario	9.8	10.8	18
High offset	6.6	7.2	12
Medium offset	5.4	5.9	9.9
Low offset	4.7	5.1	8.6

Table 15: Ship recycling levy for low port call scenario (5.5bn GT p.a.), in EUR cent per GT

Offset scenario	Average demand	High demand	Peak demand
Worst-case scenario	12.5	13.7	22.9
High offset	8.3	9.2	15.3
Medium offset	6.9	7.5	12.5
Low offset	6	6.5	10.9

Assuming that the recycling of EU ships is only allowed in OECD facilities, under the central scenario for the volume of ships calling at EU ports, a levy of between about EUR 0.05 and EUR 0.11 per GT would be required, depending on the scenarios. Under the low call volume scenario, the required levy would need to be almost 30% higher for each of the scenarios. If the peak demand scenario is included (i.e. 3m LDT sent for dismantling in a given year), the required levy could be as high as EUR 0.18 per GT under the central port call scenario and almost EUR 0.23 under the low port call scenario.

3.3. Implementation modalities for the ship recycling fund

3.3.1. Payment: to shipowners or to ship recycling facilities

This section focuses on potential differences with regard to expected administrative costs, incentives for shipowners, and incentives for recycling facilities. As will be seen, there are advantages and disadvantages to both approaches and a detailed cost-benefit analysis may be required to better understand their potential impact.

Administrative costs: these could be significantly lower if payments are made to (accredited) ship recycling facilities, as these are far fewer than ships. Moreover, as has

been noted, the ownership structure of the shipping industry is complex and often opaque, and these factors may increase administrative costs.

Incentives to ship-owners: according to some of the stakeholders consulted for this study, making the payments directly to the ships/shipowners may increase the incentive for them to participate in the system as they would perceive the premium to be a more direct gain.

Incentives to recycling facilities: making the payments to the recycling facilities would provide the EU with a mechanism to strengthen its oversight of their operations, beyond the incentive of including or removing them from the EU list. Conversely, recyclers are concerned that payments after recycling is completed would increase pressure on a quick recycling, creating a risk that standards are not fully met. Payments via ship-owners might lengthen the payment period and increase this pressure.

In light of the above findings, it would be preferable for the fund's payouts to go directly to recycling facilities.

3.3.2. Fund operation: centralised or decentralised

This section focuses on key issues related to administrative cost, potential distortions of competition and implementation-related challenges for a centralised fund compared to decentralised funds (i.e. at Member State level).

Administrative costs: Total administrative costs are expected to be higher in a decentralised system, even with information sharing, as functions would need to be repeated across the different Member State funds. Additional costs are expected to be higher in particular at the setup phase.

Level playing field: As different Member State funds may have different operational methods. These could be addressed through a common set of rules – however, establishing these rules will lengthen setup time. Moreover, different Member States may take different lengths of time to become operational. As a result, ships are not likely to have a level playing field across the EU.

Resources: There are mismatches between the share of revenue each Member State will receive through the levy and its share of the EU fleet. As an extreme example, Luxembourg has a number of ships flying its flag but no seaports. While a system of compensating payments could be developed, this is likely to be complex and moreover would require further setup time.

For these reasons, a decentralised approach is not preferable.

3.4. Assessment of potential adverse effects

3.4.1. Impact on price of transported goods

One of the specific questions included in point 3 of the specifications refers to the potential increase in costs for the final customers of “transported goods”, assuming the costs of the recycling levy are fully passed through. In terms of the causal path, it is assumed that the recycling levy will affect freight costs, which will translate in higher import prices.

Providing a straightforward answer to this question does not seem possible within the scope of this impact assessment, as it may require rather complex modelling work. According to sources consulted for this study, actual impacts on prices can be expected to vary substantially depending on the type and size of the ship, trading patterns and type of cargo. Indeed, the relationship between a vessel’s gross tonnage (which is to be the basis for the levy) and the tonnage of its cargo varies with these factors. A set of rough estimates are however provided in the present study for illustrative purposes. These estimates refer to container vessels. This vessel type is the second largest contributor to the overall volume (in GT) of calls at EEA ports³⁹. It must be noted that the following estimates correspond to the expected impact of one single port call. Multiple calls would entail larger price increases.

According to IHS Fairplay⁴⁰ 2009 and 2010 data, the average gross tonnage of containers calling at EEA ports was of approximately 26,500 GT for the region’s top-20 ports and about 19,000 GT for the rest. By using the lower bound of the estimate range for the relationship between container vessels’ TEU⁴¹ and GT presented in the following table, it is assumed that one GT corresponds to approximately 0.075 TEU maximum capacity.

³⁹ IHS Fairplay (2011), p. 25.

⁴⁰ IHS Fairplay (2011), p. 25.

⁴¹ TEU stands for Twenty-foot Equivalent Unit. This is a standard unit for counting containers of various capacities and for describing the capacities of container ships or terminals. One 20 Foot ISO container equals 1 TEU. Glossary For Transport Statistics, Eurostat, ECMT, UN/ECE, Second edition, quoted in:

<http://circa.europa.eu/irc/dsis/bmethods/info/data/new/coded/en/gl000976.htm> - retrieved 11.2.2013.

Table 16: Overview of GT, maximum TEU capacity and calculated TEU/GT ratios for selected container vessels

Container vessel	GT	TEU	Ratio TEU/GT (full load)
Maersk E-class	170,794	12,508	0.073*
MSC Daniela Class	151,559	14,000	0.092
Meyer Swerft (average)	15,600	1,600	0.103
OOCL Asia	89,097	8,063	0.090

Sources: ISL (2011), Meyer Swerft (2012), VeriSTAR Info, own calculations.

* Retained estimate for calculation purposes. Rounded up to 0.075 TEU per GT.

Under this assumption, container vessels calling at EEA ports would respectively have a capacity of about 2,000 TEU (top-20 ports) and 1,400 TEU (other ports). As a comparison, this is slightly below, although in the same order of magnitude of, the average capacity of the world container fleet in 2011 (2,880 TEU).⁴²

The impact on the price of transported goods being is in turn inversely correlated with both the loading factor and the value/bulk ratio of cargo type. For the first of these parameters, calculations are presented for full load (100%), 75%, 50% and a worst-case scenario of only 25% utilisation of the maximum load. As to the average value of cargo with respect to its bulk, a conservative estimate of EUR 16,500 per TEU has been retained for illustrative purposes. This figure corresponds to the lowest average value per TEU as reported by Swiss Re for trade routes to and/or from European ports.⁴³

Table 17 below shows that under the abovementioned assumptions, each GT would correspond, approximately, to between EUR 300 and EUR 1,200 worth of cargo. This figure has been obtained by multiplying the TEU/GT ratio by the corresponding values (in EUR per GT for each of the different loading hypothesis).

⁴² ISL, p. 6.

⁴³ Swiss Re (2007). The figure of USD 21,663 is reported as an estimate of average TEU value for the Europe-Asia route. This has been converted to EUR by using a 0.75 EUR/USD exchange rate (EUR 16,247) and then rounded up. It must be noted, however, that these figures are slightly outdated (no base year is reported but the document dates back to 2007). In addition, the same document refers to a standard deviation of USD 89,863 for this route, which provides an indication of the potentially huge variations in the relationship between cargo and value units. The estimates provided here should therefore be considered for illustrative purposes only.

Table 17: Estimates for value of cargo per GT for container vessels, in EUR per GT, figures rounded.

Max. load	Med. Load (75%)	Low load (50%)	Worst-case (25%)
1,200	900	600	300

The impact on final prices, assuming full passing-through of extra costs to the end consumer, will in turn depend, for each loading scenario, on the level at which the port levy is set. The table below provides the approximate range of estimated price increases for a levy of, respectively, EUR 0.03, EUR 0.05, EUR 0.10 and EUR 0.20.

Table 18: Estimates for changes induced by the ship recycling levy (at each call) in the price of transported goods (container vessels only), in percentage increase.

Levy	Max. Load	Med. Load	Low load	Worst-case
3 cent	0.0025%	0.0033%	0.0049%	0.0098%
5 cent	0.0041%	0.0055%	0.0082%	0.0164%
10 cent	0.0082%	0.0109%	0.0164%	0.0328%
20 cent	0.0064%	0.0219%	0.0328%	0.0657%

The figures above suggest that the impact on the price of transported goods of the ship recycling levy raised at each port call can be expected to be low in the case of containers, even under the less favourable scenario. This appears consistent with findings presented in an IMF report, which states that “freight costs are generally a small part of the total cost of imports, around 5-10 percent, though higher, at perhaps 25 percent, for commodities”⁴⁴, and that fuel costs account for an overwhelmingly share of freight costs. However, cumulative impacts on freight costs and thus price increases of transported goods may be higher considering that container vessels tend to visit several ports to load and unload their cargo. Moreover, the impacts on cargo prices on a per call basis can be expected to be higher for vessel types that typically carry less valuable cargo (e.g. bulkers and general cargo vessels).

As a conclusion, available data and information indicate that the impact on merchandise prices is on the whole likely to be rather limited on a per call basis. Further research would however be required to more accurately ascertain these potential impacts, particularly as regards asymmetric effects in terms of sectors or supply chains. The impacts on vessels calling frequently at EU ports warrant further consideration.

⁴⁴ IMF (2011), p. 41.

3.4.2. Risk of diversion of cargo to other means (through traffic deflection)

A final question in the specifications concerns the potential risks of diversion of maritime cargo traffic to other means if the ship recycling levy and fund were to be established. Traffic diversion can take the form of either transshipment at a non-EU port and dispatch of the cargo via road or rail, or changes in import/export trade patterns. A 2011 assessment by IHS Fairplay on the potential traffic distortions introduced by carbon charges on shipping activities suggest that “diversion of traffic is likely to concern transshipment rather than import/export traffic”⁴⁵.

As an overarching remark, port and modal choices involve a multitude of factors. As stated in a 2008 joint report by the OECD and the ITF:

‘Port selection criteria are related to the entire network in which the port is just one node. The ports that are being chosen are those that will help to minimise the sum of sea, port and inland costs, including inventory considerations of shippers [...] shippers or their representatives might opt for more expensive ports or more expensive hinterland solutions in case the additional port-related and modal out-of-pocket costs are overcompensated by savings in other logistics costs’ (e.g. time costs of the goods; ‘inventory costs linked to the holding of safety stocks’; and ‘indirect costs linked to the aggregated quality within the transport chain’).⁴⁶

Traffic diversion risks, therefore, need to be assessed carefully on a case-by-case basis. This study’s remit only allows for a brief, high-level assessment.

The potential adverse effects in terms of traffic diversion are considered here by comparing the order of magnitude of the proposed ship recycling levy and that of three main parameters:

- First, average increase in tonnage fees currently paid at EU ports that would be attributable to the levy are estimated by focusing, primarily, on areas that have been identified as comparatively more exposed to traffic diversion to non-EU ports: the Mediterranean, the Black Sea and the Baltic Sea.
- Second, the proposed ship recycling levy is compared with available estimates for operational costs of vessels across different categories.
- Third, cost estimates for transshipping are considered.

A sample of port fees has been compiled on the basis of information from European port authorities as well as publicly available information. Exact port location was not disclosed, with the exception of the Freeport of Riga and the Port of Constantza, which display their tariffs online. These estimates refer to usually applied fees; rebates and other modifications may be applied. The data are presented in the table below, along with calculations of the increases in port fees that the ship recycling levy may induce. A levy

⁴⁵ IHS Fairplay (2011), p. 73.

⁴⁶ OECD/ITF (2008), p. 6.

set at EUR 0.03 per GT and another one set at EUR 0.05 per GT are used for illustration purposes.

Table 19: Fees in selected EU ports and estimates of levy-induced fee increases

Location of Seaport	Port fee (2012), in EUR per GT	Increase if levy = EUR 0.03	Increase if levy = EUR 0.05
Latvia (Riga)*	0.8	4%	6%
Spain (Mediterranean)	0.12	25%	42%
Romania (Constantza)**	0.155	19%	32%
Germany***	0.03	100%	167%
Belgium	0.0668	45%	75%

* Vessels other than tankers and “linked ships”.

** Port access fees

***For feeder vessels up to 1,600 TEU.

Source: ESPO, Freeport of Riga, Port of Constantza.

As shown in the table above, the proposed ship recycling levy is likely to represent a sizeable increase in the port fees currently paid by vessels at EU ports⁴⁷. In this sense, it is worth noting that this increase is higher in Belgium and Germany than in peripheral Member States, which have higher port fees. (Officials from some of the port authorities consulted suggested that feeder vessels for the transshipment sector, which make frequent port calls, may suffer disproportionate losses as a result of the introduction of the levy.)

Although expected increases in port fees are a useful indication, these need to be compared to typical operational costs of vessels. Table 20 below summarises the findings of a December 2011 study on ship operating costs.⁴⁸

For a container ship of between 1,000 and 2,000 TEU, such as the Meyer Swerft vessel presented in section 3.4.1, daily operating costs would be in the order of magnitude of EUR 4,000. If a EUR 0.03 levy were applied, this vessel (of about 15,000 GT) would need to pay the sum of approximately EUR 500 per call. This figure is roughly nine times lower than the additional cost of an extra day of operation. From an economic efficiency standpoint, there would arguably be no incentive for this vessel to call at a port outside

⁴⁷ It must be noted that higher port fee levels are presented in the 2009 COWI-Milieu study (p. 22) for the ports of Tallin and Rotterdam. Under those assumptions, the increase in the total port fee paid by vessels would be significantly smaller.

⁴⁸ Moore Stephens (2011).

the EU and ship its cargo by rail or road unless this could be done in the timespan of a small fraction of a day of operation.

Table 20: Operating costs estimates for selected vessel types, daily rates in EUR (2011)⁴⁹

Bulkier category		Tanker category		Container category	
Ship type	Costs	Ship type	Costs	Ship type	Costs
Handysize	4,000	Product	6,200	Feedermax (100-1000 TEU)	3,300
Handymax	4,500	Handysize product	5,800	Container ship (1000-2000 TEU)	3,900
Panamax	4,900	Panamax	6,300	Main Liner (2000-6000 TEU)	5,700
Capesize	5,500	Aframax	6,300		
		Suezmax	7,200		
		VLCC	8,000		

Source: Greiner/Moore Stephens (2011)

Costs for trans-shipping also need to be considered. A 2011 study based on data from Finland⁵⁰ estimates these costs at about EUR 3 per tonne at seaport facilities. For the abovementioned Meyer Swerft container, assuming 24t (gross) per container⁵¹ and full load, this would represent about EUR 115,000, or more than 200 times the amount of the estimated additional port charges resulting from the levy.

Findings regarding the cost of traffic diversion to non-EU ports compared to a potential increase in the port fees paid currently paid by vessels suggest that, on the whole, traffic diversion does not appear to make economic sense. These findings ought to be considered alongside on of the conclusions of the 2009 COWI-Milieu study that “there are only few suitable ports connected by land to the EU”, and that “investments to both

⁴⁹ Original figures in USD. EUR/USD exchange rate of 0.75 used for conversion. Figures rounded.

⁵⁰ Lappeenranta University of Technology (2011), p. 47. This study focuses on transshipping in the road and rail sectors. Estimates have been retained for illustrative purposes.

⁵¹ <http://web.archive.org/web/20090316180342/http://emase.co.uk/data/cont.html>, retrieved on 12.2.2013.

develop the ports and the rail and road links to facilitate large scale cargo transport by land do not seem economically justified”.⁵²

As stated earlier in this section, the risks in terms of major shifts in import/export trade patterns (e.g. of bypassing EU ports) do not appear substantial. This conclusion is also in line of with findings from the recent Profundo report that the “small increase in total shipping costs caused by this premium is unlikely to materially affect overall trade patterns and EU imports/exports⁵³”. Other stakeholder groups, however, see risks of traffic diversion to non-EU ports in the Mediterranean, the Black Sea and the Baltic Sea as being of particular significance.⁵⁴

Notwithstanding the initial findings above, as in the case of the impact of the ship recycling levy on the price of transported goods (section 3.4.1), a more detailed assessment may be warranted for some of the more exposed routes and sectors, with particular attention to container traffic in Southern Europe since this is, according to the IHS Fairplay assessment of potential traffic diversion effects induced by carbon charges on shipping activities, “the sector most likely to be impacted [...], as there are some major EEA container hubs in the Mediterranean and the situation there is fluid”⁵⁵. Further research may also be required to better understand if localised effects in terms of changes in calling patterns may be expected.⁵⁶

⁵² COWI-Milieu (2009), p. 18.

⁵³ Profundo (2013), p. 29.

⁵⁴ European Seaports Organisation (ESPO) (2013).

⁵⁵ IHS (2011), p. 73.

⁵⁶ A note recently released by the European Seaports Organisation (ESPO) expressed concern that the proposed levy may have an influence on calling patterns, and provoke a modal shift to other modes of transport.

4. Conclusions

This short impact assessment has addressed the questions set out in the specifications from the European Parliament. As such, it has focused on several issues related in particular to the potential effectiveness of the amendment proposed by Mr Schlyter and of several alternative instruments. While a few topics related to efficiency and relevance have been considered, these elements, which are commonly part of a full impact assessment, have not been addressed.

The analysis for the *specific criteria* identified issues for consideration regarding each of the instruments. Key among these are the following:

- For the levy and fund, a specific mechanism should be considered for ships that call frequently at EU ports; otherwise, these could be at a disadvantage.
- The use of a financial guarantee could complement the levy and fund and could help address the issue of ships calling frequently at EU ports; however, the approach and speed of introduction may vary across Member States. If this option is pursued, an EU-wide approach might be considered.
- Coverage of older ships would be a significant problem for a stand-alone guarantee.
- A ship recycling fund and Transitional Account may require specific rules for the transfer system, and this may require further study.
- For an insurance mechanism based on a liability model, coverage of older ships could be an issue; moreover, a mechanism to determine the damages to be insured against should be considered in the design.

The levy and fund instrument appears to satisfy all three *general objectives* for analysis: it would provide additional finance for recycling, and help to counterbalance perverse incentives and the risk of out-flagging. One concern is that the setup of the fund will require a couple of years, and thus the instrument will not be available for a share of the large number of ships expected to be sent for recycling in the near future. (A similar issues regarding setup time arises for other options as well.)

A guarantee system alongside the levy and fund is not likely to change how the system meets these objectives. A stand-alone guarantee system, however, would not contribute to financing and would not counter-balance risks of out-flagging.

The ship recycling account and transition fund option also appears to have the potential to satisfy all three general objectives.

The insurance instrument would not provide additional finance for recycling. Its effectiveness in terms of counterbalancing perverse incentives and the risks of out-flagging is not clear, and may be influenced by its specific design.

The results of the analysis related to the *specific questions* for the levy and fund show that, depending on assumptions, a levy of between EUR 0.006 and EUR 0.04 would be required for the ship recycling fund to meet its overall objective. If only central estimates

are considered, the levy would need to be set between EUR 0.01 and EUR 0.025, which suggests that Mr Schlyter's proposal is in the appropriate order of magnitude, considering the uncertainties involved. (The estimates presented here are based on recent data showing a higher volume of ships calling at EU ports than estimated in previous studies.) The levy would however need to be five to ten times higher if the recycling of EU ships were only allowed in OECD facilities. Ensuring that the fund's premiums are at an appropriate level is likely to prove challenging, particularly as cost structures in the ship dismantling business vary across facilities and remain rather opaque. Therefore, careful design of the mechanisms foreseen to set, modulate and update the levy appears critical to its overall effectiveness.

According to available data and information, no major perverse effects arising from the ship recycling levy and fund have been identified in the short term regarding increases in the price of transported goods (on a per call basis) or maritime traffic diversion, as the levied amount appears small compared to other relevant cost drivers. Further analysis may be warranted, including regarding potential asymmetric effects in certain sectors or supply chains.

Annex: A note on possible issues under international law

Possible issues for the levy and fund

The options raise several questions under international law. As this topic is not specified directly in the terms of reference, this annex simply raises issues that could be considered if a separate legal analysis were carried out. Nonetheless, these issues are noted as they could influence the effectiveness of the instruments assessed. The discussion focuses on the levy and fund, and also notes issues related to other instruments.

The amendment would impose a requirement, a levy or fee, on ships visiting EU ports. The EU in taking such a step would be acting as a port state under the UN Convention on the Law of the Sea (UNCLOS).⁵⁷ The Convention does not set limits to the rights of a port state to impose conditions for entry into its ports, and these rights thus could be wide-ranging.⁵⁸ It is possible, however, that non-EU flag states – which under UNCLOS have jurisdiction on the high seas over all ships flying their flag or registered with their registry for the prevention, reduction and control of pollution of the marine environment as long as these laws and regulations are not below the internationally agreed standards – could seek to challenge the levy or fee on ships visiting EU ports in international courts as overstepping on their port state rights under UNCLOS.

The creation of a fund could raise further questions under international law. Notably, it is possible that a system that raises funds from all ships calling at EU ports but only disburses them for EU-flagged ships might be challenged as discriminatory under international law related to trade and services. The fund could be considered in terms of its effect on recycling services, in terms of its effect on the ships as goods for recycling, and possibly also in terms of the impact on goods derived from recycling, such as steel recovered from the ships. As such, the system of payments would benefit from analysis in terms of World Trade Organization (WTO) law.

If a challenge claims that the scheme has the potential to distort trade under the General Agreement on Tariffs and Trade (GATT), the EU would need to show that the measure falls under one of the exceptions listed under GATT's Art. XX, for example that it is 'necessary to protect human, animal or plant life or health' (Art. XX(b)). In addition, the EU would need to show that it is

'...not applied in such a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade' (Art. XX chapeau).

⁵⁷ While the EU itself is not a port State, it can provide that those EU Member States that are port States are obliged to allow access to their ports only to ships that comply with certain requirements set by the EU.

⁵⁸ Ringbom (2008)

At first glance, both conditions appear to be satisfied – the fund payments are intended to protect human health and the environment, and are available for recycling at any facility that meets the minimum standards; however, it should be noted that there is a wide-ranging legal debate in WTO law concerning environmental rules and the distortion of trade. For example, while WTO law recognises the right of states to set product standards so long as they are non-discriminatory, i.e., treat domestic and imported goods the same way, it does not recognise the right of states to impose domestic standards covering how a good is manufactured ('processed') on goods that are imported.⁵⁹

A challenge regarding support for different types of recycling facilities could be subject to the General Agreement on Trade in Services (GATS), where rules are less strict than those under GATT.

Possible issues for other options

A guarantee alongside the levy and fund is not expected to raise additional issues under international law, due to its voluntary nature.

The other options – a stand-alone guarantee requirement, an obligatory ship recycling account or an insurance requirement – would be imposed on all ships calling at EU ports, based on the EU Member States' rights as port states. A stand-alone guarantee would, under the current formulation, require ships calling at EU ports but not flagged in EU Member States to obtain the guarantee in the EU: under UNCLOS, the arguments for broad port state rights cited above could be presented in favour of such a requirement; however, the need to obtain the guarantees in the EU may need further analysis in terms of WTO law. A ship recycling account mechanism would also need to be considered under WTO rules, in particular if the accounts are only available at EU institutions. The insurance approach would also establish new requirements applying to non-EU ships calling at EU ports; while the proposal cites Directive 2009/20/EC, which in turn refers to IMO agreements, the instrument would represent a type of insurance currently not addressed under IMO law – these issues would need further study under international law.

The transitional fund linked to ship-recycling accounts would operate in a similar fashion to the fund linked to a levy: as a result, its treatment under GATT and GATS is likely to be similar.

Conclusions

This brief review indicates that the proposed instruments raise issues of international law, particularly under GATT and GATS. The review identifies arguments to support the instruments, and in particular the levy and fund, though it notes that further analysis could be valuable.

⁵⁹ See for example Jackson (1993)

References

- Basel Action Network, 'Brief on ship recycling capacity issues, a rebuttal to: Brief on ship recycling capacity issues as prepared by Dr Nikos Mikelis, International Maritime Organization, 12 November 2012', 3 December 2012
- Basel Action Network, 'Industrial capabilities of North America, a report on 'Green' ship recycling capacity in the United States, Canada and Mexico ', November 2012, Available at: http://www.shipbreakingplatform.org/shipbrea_wp2011/wp-content/uploads/2012/11/North-American-Capacity_BAN_Final.pdf
- Bio Intelligence Service for the European Commission, DG Environment, 'The feasibility of a list of 'green and safe' ship dismantling facilities and of a list of ships likely to go for dismantling: Final Report', 4 January 2010.
- Convention on Limitation of Liability for Maritime Claims (LLMC), London, 19 November 1976. Available at: <http://www.ecolex.org/server2.php/libcat/docs/TRE/Multilateral/En/TRE000117.doc>
- COWI for the European Commission, DG Environment, 'Support to the impact assessment of a new legislative proposal on ship dismantling', final report of December 2009. Available at: http://ec.europa.eu/environment/waste/ships/pdf/final_report080310.pdf
- COWI/DHI for the European Commission, DG Environment, 'Ship dismantling and pre-cleaning ship', final report of June 2007. Available at: http://ec.europa.eu/environment/waste/ships/pdf/ship_dismantling_report.pdf
- COWI for the European Commission, DG Energy and Transport, 'Oil Tanker Phase Out and the Ship Scrapping Industry, A study on the implications of the accelerated phase out scheme of single hull tankers proposed by the EU for the world ship scrapping and recycling industry', final report of 31 May 2004. Available at: http://ec.europa.eu/transport/modes/maritime/studies/doc/2004_06_scrapping_study.pdf
- Cowie, A. (Swiss Re), Cargo Accumulation, presentation at the AIMU/IMUA Seminar in New York, 28 September 2007. Available at: <http://micains.org/storage/Cowie07.pdf>
- Directive 2009/16/EC of the European Parliament and of the Council of 23 April 2009 on port State control, OJ L 131, 28.5.2009, p. 57-100
- Directive 2009/20/EC of the European Parliament and of the Council of 23 April 2009 on the insurance of shipowners for maritime claims, OJ L 131, 28.5.2009
- DNV/Appledore International, 'Study on the technological and economic feasibility of ship scrapping in Europe', 13 February 2001. Available at: http://ec.europa.eu/enterprise/newsroom/cf/_getdocument.cfm?doc_id=1272
- Ecorys for DG Enterprise and Industry, 'Study on Competitiveness of the European Shipbuilding Industry', final report of 8 October 2009. Available at: http://ec.europa.eu/enterprise/sectors/maritime/files/fn97616_ecorys_final_report_on_shipbuilding_competitiveness_en.pdf
- Equasis, The world merchant fleet in 2010. Available at: <http://emsa.europa.eu/emsa-documents/download/1400/472/23.html>

- ESPO, 'Proposal for a regulation on ship recycling - ESPO comments on the Draft report of the EP ENVI committee', 22 January 2013
- ESPO, 'ESPO members feedback on the EC regulation on ship recycling and the draft ENVI report'
- European Commission (2012a), Proposal for a regulation of the European Parliament and of the Council on ship recycling, COM/2012/0118 final - 2012/0055 (COD), 23 March 2012. Available at:
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2012:0118:FIN:EN:PDF>
- European Commission (2012b), Impact assessment accompanying the document: Proposal for a Regulation of the European Parliament and of the Council on ship recycling, SWD(2012) 47 final, Brussels, 23.3.2012
- European Parliament, ENVI Committee, Amendments 124-258 on the draft report on the proposal for a regulation of the European Parliament and of the Council on ship recycling by Carl Schlyter, procedure 2012/0055(COD), 20 December 2012. Available at:
<http://www.europarl.europa.eu/oeil/popups/ficheprocedure.do?lang=en&procnum=COD/2012/0055>
- Freeport of Riga Authority, Port Dues and Charges of the Freeport of Riga, 9 February 2010. Available at:
<http://www.rop.lv/en/for-clients-a-investors/port-fees-and-charges.html>
- Greiner, R., 'Ship operating costs: current and future trends', Moore Stephens, December 2011. Available at: www.propellerclub.gr/files/Greiner.pdf
- Henttu, V. and Multaharju, S., 'Transshipment Costs of Intermodal Transport in Finnish Context' Lappeenranta University of Technology, Department of Industrial Management, Research Report 234, 2011. Available at:
http://www.kuivasatama.fi/files/download/Research_Report_234.pdf
- Jackson, John H., 'World Trade Rules and Environmental Policies: Congruence or Conflict', in D. Zaelke et al (eds), Trade and the Environment: Law, Economics and Policy, Center for International Environmental Law, 1993.
- IHS Fairplay, 'Ships visiting European ports', 31 July 2011. Available at:
http://ec.europa.eu/clima/policies/transport/shipping/docs/ships_visiting_en.pdf
- IMF, 'Market-Based Instruments for International Aviation and Shipping as a Source of Climate Finance - Background Paper for the Report to the G20 on 'Mobilizing Sources of Climate Finance'', November 2011. Available at:
<http://www.imf.org/external/np/g20/pdf/110411a.pdf>
- IMO, International Convention on Tonnage Measurement of Ship. Available at:
<http://www.imo.org/about/conventions/listofconventions/pages/international-convention-on-tonnage-measurement-of-ships.aspx>, retrieved on 20 February 2013.
- ISL Shipping Statistics and Market Review 2011, Volume 55, edition 5/6, May-June 2011. Available at: www.infoline.isl.org
- Maritime and Shipping Dictionary 2012: "Light displacement tonnage". Available at <http://maritimedictionary.org/asp/marinedictionary.asp?word=tonnage>, retrieved on 20 February 2013.
- Mikelis, N., 'Brief on ship recycling capacity issues', 12 November 2012.

- Milieu Ltd and COWI, 'Study in relation to options for new initiatives regarding dismantling of ships - Note on the ship dismantling fund - Pros and cons of the three options', August 2009. Available at:
http://ec.europa.eu/environment/waste/ships/pdf/early_transposition_note.pdf
- NGO Shipbreaking Platform/Greenpeace, 'A principled and practical solution for ship recycling: NGO Shipbreaking Platform and Greenpeace position on the European Commission Proposal for a Regulation of the European Parliament and of the Council on Ship Recycling (COM 2012/118)', 12 November 2012. Available at:
http://www.shipbreakingplatform.org/shipbrea_wp2011/wp-content/uploads/2012/11/Position-Paper-NGO-Shipbreaking-Platform-Greenpeace-EU-Nov2012.pdf
- Notteboom, T., 'The relationship between seaports and the intermodal hinterland in light of global supply chains', OECD - International Transport Forum Discussion paper n°2008/10, March 2008. Available at:
<http://www.internationaltransportforum.org/jtrc/discussionpapers/DP200810.pdf>
- Ormond, T., 'Hong Kong Convention and EU Ship Recycling Regulation: Can they change bad industrial practices soon?', Environmental Law Network International review n°2/2012, 8 November 2012, p. 54-58.
- Profundo for NGO Shipbreaking Platform, 'Financial mechanisms to ensure responsible ship recycling', 22 January 2013. Available at:
http://www.shipbreakingplatform.org/shipbrea_wp2011/wp-content/uploads/2013/01/Financial-mechanisms-for-responsible-ship-recycling-22_01_2013-FINAL.pdf
- Protocol of 1996 to amend the Convention on Limitation of Liability for Maritime Claims, 1976, 02 May 1996. Available at:
<http://www.ecolex.org/server2.php/libcat/docs/TRE/Multilateral/En/TRE001248.txt>
- Recyship report, prepared by Reciclauto Navarra S.L.
- Ringbom, H., The EU Maritime Safety Policy and International Law, Martinus Nijhoff Publishers, 2008
- UNCTAD, 'Oil prices and Maritime Freight Rates: An Empirical Investigation', United Nations publications, 1 April 2010. Available at:
http://unctad.org/en/Docs/dtltlb20092_en.pdf
- UNCTAD, 'Review of Maritime Transport 2012', United Nations publications, November 2012. Available at:
http://unctad.org/en/PublicationsLibrary/rmt2012_en.pdf

Interviews

- Balston, David, Director Safety and Environment, UK Chamber of Shipping. 8 January 2013.
- Barredo, Antonio, DDR-Vessels, Asturias, Spain. 9 January 2013
- Brunzema, Thorsten, European Commission, DG Environment, Unit C2: Waste management. 16 January 2013.
- Heidegger, Patrizia, Shipbreaking Platform. 15 January 2013

- Jimenez Juango, Jesus, Recyship, a LIFE project. 9 January 2013
- Leyers, Simone, IMO. 11 January 2013. E-mail exchanges.
- Michail, Antonis, Policy Advisor, European Sea Ports Association (ESPO). Several phone interviews and e-mail exchanges in January and February 2013.
- Olierook, Sarah, Policy Advisor, Port of Rotterdam Authority, European & International Affairs - Environmental dossiers. Several phone interviews and e-mail exchanges in January and February 2013.
- Shan, Freda, China National Shiprecycling Association. 14 January 2013. E-mail exchanges.

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