



Report on the European List of Ship Recycling Facilities

3rd Edition (October 2022)

MARPROF

the marine professionals

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Introduction

This is an updated (3rd Edition) version of previous reports of the same name released by BIMCO in February 2019 and December 2020. This new version, also commissioned by BIMCO, provides updated information and observations on the establishment of the European List of ship recycling facilities (hereinafter referred to as the “EU List”), relating to Regulation (EU) 1257/2013 of the European Parliament and the Council on ship recycling (hereinafter referred to as the “EU Ship Recycling Regulation”).

This report updates the regulatory developments and status of the IMO Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships (the “HKC”).

The report further examines the declared work of the EU List facilities, the influence of Offshore Decommissioning, and examines how ship recycling in the EU plays a part of the larger strategic aims of the European Commission (the “EC”) for a ‘circular economy’, in particular keeping scarce resources, such as steel, within the borders of the EU.

This report is based on the latest EU List published in EUR-Lex on 2 May 2022 which adds new facilities, tidies the list for defunct yards, and updates details including expired certificate dates.

This report has been prepared based on current knowledge, experience, and relevant maritime media. The information and opinions provided herein are for informational purposes only and do not constitute any form of legal advice.

This report is not intended to detail economic calculations, environmental impact, or safety assessments.

Nothing in this report shall be construed as a criticism or endorsement of the EU List or the facilities and information recorded therein.

Headline updates

Overall, the EU List continues to include many facilities that provide valuable services to the existing market and the inclusion of non-European ship recycling facilities provides a limited potential for large scale recycling. The EU List continues to grow at a steady state, but the new additions do not add significant capacity compared to global demand.

Denmark and Norway have been particularly successful in adding new facilities and good capacity, but it will be seen that the most significant of these are facilities designed to concentrate on the offshore market.

However, most EU Member State facilities are not dedicated ship recycling facilities for the international market. EU Member State facilities, in general, provide either bespoke local solutions to a niche recycling market or are focused on offshore decommissioning.

The market provision continues to show that recycling in EU Member States is an unattractive proposition in the overall international marketplace, and that most facilities would prefer to dedicate their resources to either newbuilding and repair or military and offshore recycling projects.

This continues to leave Turkey as the only major ship recycling nation contributing significant capacity to the EU List, with no facilities from India, Bangladesh or Pakistan included.

As previously reported, operations at one facility in India were found to be acceptable to the EC auditors but local infrastructure items outside the yard's control (such as provision of hospitals) were not.

Industry stakeholders and shipowners continue in their support for China to re-enter international ship recycling and to ratify the HKC.

The ratification of the HKC is under serious threat, due to a downturn in overall scrapping levels in the past 10 years since the boom of 2012. It appears that if China does not ratify by May 2023, Bangladesh will be needed. Even then, Bangladesh must ratify before 2026 due to low levels of recycling in the ten years from 2016 to 2026.

The strategic importance of ship recycling within the overall strategy of the EC is becoming more clear and more important. The 'European New Green Deal' and the supporting 'circular economy' are core elements of EC attention and spending for the foreseeable future, and ship recycling has a significant role to play in these. This circular economy will need to be local, which appears to be unlikely, meaning a system of credits could be needed so shipowners get the 'circularity' benefits of recycling steel in Europe but building in Asia, for example. Further, for full 'carbon efficiency' standards for second-hand steel should be explored.

As this report was going to publication, a September 2022 draft of the EU List was published^[1]. This renews the license for a facility in Lithuania (UAB Armar), adds a facility in Bulgaria (Ship and Industrial Service), and updates details for two yards (Dales in the UK and Gardet & De Bezenac in France).

The draft edition also reports on a mid-term review of an EU List facility in Turkey (Işıksan) which identifies serious failings, and notes that a number of EU Member States flag ships destined to be

recycled at Işıksan were finally dismantled at nearby facilities not included on the EU List. It is intended therefore to remove the facility from the EU List.

Furthermore, the EC investigated two fatal accidents that occurred in another Turkish EU List yard (Simsekler). The assessment concluded that the causes of the accidents were due not only to individual actions, but rather to underlying organizational factors that the yard should focus on to improve their control of risk. The EC's request to be kept informed of the measures taken in this respect was not followed up by the facility and, consequently, the EU List should be updated to remove this facility.

This appears to illustrate an audit system that is working as intended; one that is able to identify failings in the auditable systems, react to them, identify and plan for improvements, and then to take punitive actions when not acted upon correctly.

Background

IMO Hong Kong Convention

The HKC is aimed at ensuring that ships, when being recycled after reaching the end of their operational lives, do not pose any unnecessary risks to human health, safety and to the environment. The HKC was adopted in 2009 but is yet to enter into force.

Regulations in the HKC cover: the design, construction, operation and preparation of ships, to facilitate safe and environmentally sound recycling without compromising the safety and operational efficiency of ships; the operation of ship recycling facilities in a safe and environmentally sound manner; and the establishment of an appropriate enforcement mechanism for ship recycling, incorporating certification and reporting requirements.

Once in force, ship recycling facilities will be expected to prepare a Ship Recycling Facility Plan in accordance with published guidelines ^[2]; and national authorities will be required to take measures to ensure that facilities under their jurisdiction comply with the HKC ^[3]. Effectively, this means that governments will be responsible for authorising their own facilities once the HKC enters into force.

EU Ship Recycling Regulation

The EU Ship Recycling Regulation entered into force in December 2013. It applies to ships of at least 500GT flying the flag of an EU Member State, and to ships visiting the EU flying the flag of a non-EU member state. The EU Ship Recycling Regulation is mostly aligned with the HKC but, most notably, it requires the establishment of a list of approved ship recycling facilities (the “EU List”).

EU Member States flag ships (“EU-MS flag ships”) can only be recycled at a facility on the EU List. Such facilities are required to meet design, construction and operation requirements of the EU and can be located outside of the EU.

Facilities located inside the EU are required to apply to the European Commission (the “EC”) for automatic inclusion on the EU List.

Facilities located in third countries (i.e., non-EU Member States) are expected to follow requirements and procedures published by the EC in a Technical Guidance Note ^[4]. By applying for inclusion on the EU List, facilities located in third countries accept that they will be subject to on-site inspections by the EC, or agents acting on its behalf. These facilities will need to be approved to get on the EU List.

Update to the EU Ship Recycling Regulation

In late November 2021, the EC issued a proposal ^[5]^[6] for a new regulation on shipments of waste which seeks to amend the EU Ship Recycling Regulation. Simultaneously, the EC has also launched a study to evaluate the EU Ship Recycling Regulation.

One of the drivers for these related changes is The Basel Ban Amendment, which officially entered into force in December 2019 ^[7]. The unamended Basel Convention ^[8] does not ban export of hazardous wastes. It requires notice and permit approval from the exporting country and the importing country in addition to other regulatory requirements as enacted in national legislation. The Basel Ban Amendment is an agreement taken by Basel Convention Parties to prohibit the member states of the

OECD and EU from exporting hazardous wastes as defined by the convention to non-OECD countries. Non-OECD countries include Bangladesh, China, India, Pakistan, Malaysia, Singapore, and many others including those in the Middle East and Africa.

The Basel Convention, including the Basel Ban, is implemented in EU legislation via the existing European Waste Shipment Regulation (Regulation (EC) No 1013/2006; WSR). At present, one of the central themes of the EU Ship Recycling Regulation is that it excludes ships from the WSR^[9].

Therefore, part of the new proposed waste shipment regulations (Article 14) explains that now the Basel Ban amendment is in international force, the EU Ship Recycling Regulation needs to ensure that ships which become waste within European waters are not exported to non-OECD countries and are only disposed of in facilities on the EU List. The exemption for ship from the WSR, (or its successor) will no longer be in effect.

The evaluation of the EU Ship Recycling Regulation is in parallel to this, as is the proposal for a new Waste Shipment Regulation, and both are clearly coordinated.

Regarding the evaluation, a 'call for evidence' was issued with a feedback period in June 2022. 16 submissions were received including ICS / ECSA, ISRA, The NGO Shipbreaking Platform, IACS, shipowner representatives, and others. This will be followed by a period of public consultation in the 3rd Quarter 2022, followed by EC adoption of the changes in the 3rd Quarter 2023.

One solution under discussion is that ships within EU waters which declare they are going to be scrapped will be subject to waste shipment regulations and the Basel Ban on export from OECD to non-OECD locations. EU-MS flag ships outside EU waters and in non-OECD waters will be able to scrap their ships in non-OECD locations, provided those facilities are included on the EU List.

Non-OECD facilities applying for inclusion on the EU List is therefore likely to continue.

Ship recycling and EC policy

It is important, in trying to understand the EC and possible future developments, to appreciate how ship recycling fits within the overall aim and objectives of the EC. This section attempts to explain this.

The EC is responsible for proposing new laws and regulations and their enforcement, managing policy, allocating EU funding, and representing the EU internationally^[10].

The EC defines priorities and strategies. For ship recycling, the 'connected strategy' is the 'Circular Economy Action Plan', and the 'connected priority' is the 'European Green Deal'. These are amongst the most important strategies and priorities within the EC and are certainly the most important environmental initiatives^[11].

The European Green Deal

The European Green Deal is the primary EC environmental priority. As stated on the EC website:

“Climate change and environmental degradation are an existential threat to Europe and the world. To overcome these challenges, the European Green Deal will transform the EU into a modern, resource-efficient and competitive economy, ensuring:

- *no net emissions of greenhouse gases by 2050*
- *economic growth decoupled from resource use*
- *no person and no place left behind*

The European Green Deal is also our lifeline out of the COVID-19 pandemic. One third of the 1.8 trillion-euro investments from the NextGenerationEU Recovery Plan, and the EU's seven-year budget will finance the European Green Deal."

The 'Circular Economy Action Plan' was announced on 11 March 2020 and is one of the main building blocks of the European Green Deal:

"...the new Plan focuses on the design and production for a circular economy, with the aim to ensure that the resources used are kept in the EU economy for as long as possible."

These plans will therefore place a significant responsibility on recycling. They will also ensure that design and operation is important since these are core to efficient recycling.

The benefits of recycling can be improved and become more transparent and traceable through recycling-focussed design and operation. A key element here is to identify the recycling value in the design and operation and to make amendments to make this more efficient.

The simplest example of this is steel. The production of steel is a heavy energy and, therefore, a carbon intensive industry. The World Steel Association indicates that, on average, 1.9 tonnes of CO₂ are emitted for every tonne of steel produced. This can be reduced by recycling steel through ship recycling. Melting scrap steel in India, for example, can result in roughly three times fewer emissions depending on the electricity source. Further, scrap steel input is not just a modern carbon reducing concept but, historically, more of an economic consideration. The top 5 ship recycling nations have an inherent steel demand with minimal last-mile costs; often making up to 85% of a ship, steel is not only the primary material but the primary driver of price for a vessel sold for recycling^[12].

One of the key problems with reusing scrap steel is insufficient or unreliable supply. Whilst a Basic Oxygen Furnace can operate on just heavy scrap, a normal blast furnace does not work on optimum efficiency and predictable inputs are therefore needed.

The ultimate value in second-hand steel is to reuse it as much as possible 'as is'. That is, without melting it. This presents problems since second-hand steel is not typically regarded as an engineering material. In its simplest terms, an engineering material is one that can be reproduced, and has certain understood and reliable properties, such as strength and elasticity. This is normally represented by conforming to internationally accepted standards. No such standards exist for second-hand steel.

In reality there are exceptions to this, notably concrete reinforcement bar (rebar). However, the actual legality of its use is open to question. Since it is a composite, reinforced concrete is not a homogeneous material and, as such, minor inconsistencies with the steel may not be critical.

Designing and writing standards for second-hand steel is thus very difficult. It may, in reality, even be impossible. Unless a project is undertaken to try to design such standards, whether it is possible or not will remain hidden. It is clear that research is needed to at least examine the basic concepts.

EU List: Approval of recycling facilities

The EU List

The European List was first established on 19 December 2016 and the latest version of the EU List, dated 28 April 2022, was published in the Official Journal of the EU on 02 May 2022. A total of 46 facilities are now on the EU List, which will continue to be updated as and when applications are successful. Since the previous report, 5 facilities have been removed from the EU List and others have been sold and renamed.

EU Member State facilities

The EU Ship Recycling Regulation lays out the process whereby a facility must comply with Article 13 and be authorised as such by the competent authority. Under Article 14, the individual EU Member States keep a list of authorised facilities and communicate this to the EC. Effectively, this means that governments are responsible for authorising their own facilities, similar to the HKC. It is evident that facilities located in the EU are subject to varying degrees of audit and assessment.

Facilities located in third countries

12 facilities located in a third country (i.e., non-EU Member State facilities) are listed in Part B of the EU List. In their Technical Guidance Note, the EC included a graph detailing the main steps for the inspection and verification process for facilities located outside the EU (reproduced below).

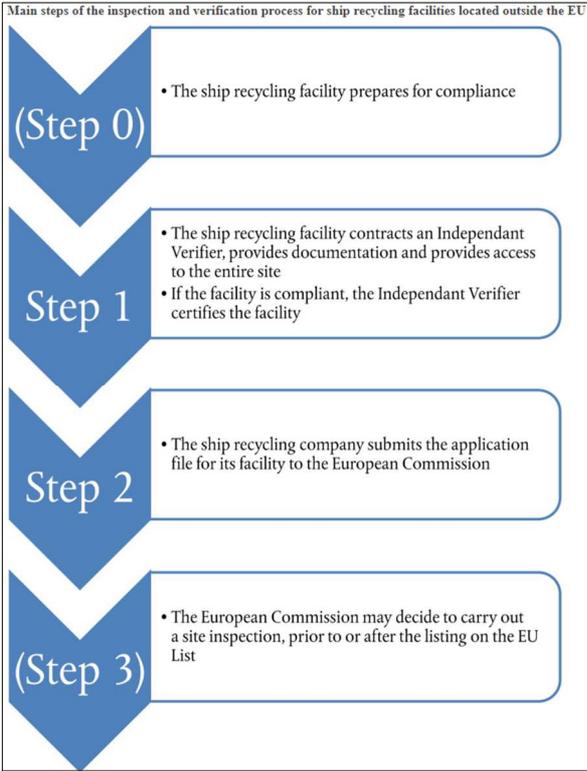
As of an update published October 2021, facilities located in third countries (below) had completed 'Step 2' of the EC graph and submitted application files for inclusion on the EU List ^[13]:

Total applications

Bahrain	1
China	4
India	27
Turkey	16
USA	2
UK	3

Successful applications

Turkey	8
USA	1
UK	2



The fact that 16 Turkish facilities have applied to the EU List is a good indicator that continued improvement projects are underway in Aliaga. However, not all applicants have been added to the EU List. The published list of applicants is chronological, meaning that some of the Turkish facilities are struggling with their applications while other more recent applicants have completed the process. Indeed, a brief examination of one of the latest Turkish facility inspections (dated January 2021) shows several major areas with outstanding concerns and, despite further applications to the EC auditors, matters have not been resolved to their satisfaction.

Such a situation should not happen. Step 1 of the application process shows that facilities are not allowed to apply to the EU List unless they are already certified by an Independent Verifier as compliant with the EU Ship Recycling Regulation. The requirements of the EU Ship Recycling Regulation, and the interpretations of the EC auditors, are well known and therefore the Independent Verifiers should not be issuing certificates to yards that will struggle to be accepted by the EC auditors.

Chinese facilities are known to have applied for inclusion on the EU List. However, following Beijing's announcement that the import of foreign-flag ships for recycling was to be banned ^[14] it is understood that on-site inspections by EC Agents have been suspended.

Expired and updated EU List facilities

The first edition of this report noted that some EU Member State facilities had not completed preparation or started operations, others had changed owners, and one facility did not exist.

Since then, some of these problems have been addressed and the EU List now seems to be actively updated, although anomalies still exist. These include several facilities where websites, satellite imagery, and other available documentation shows no evidence of ship recycling activity since inclusion on the EU List, and facilities which are incomplete or have not started ship recycling activities yet.

Brexit and the EU List

The UK is formally not a member of the EU and, therefore, its facilities are located in third countries, except Northern Ireland which is listed in Part A as a Member State due to the peculiarities of the exit arrangements. In reality, due to the very small, performed ship recycling in the UK according to IMO figures, this has had very little effect on the number of ships scrapped on the EU List.

However, the UK still provides large theoretical capacity to the EU List through facilities such as Harland & Wolf and Kishorn Port. The UK now maintains its own list of approved facilities (the 'UK List') ^[15]. This is because the UK fully implemented all elements of the EU Ship Recycling Regulation before Brexit and in effect has an identical system to the EU. The UK List includes 3 yards not on the EU List (Able UK and Swansea Drydocks Ltd., both of which were previously on the EU List, and Inchgreen Dry Dock).

Part B of the UK List (facilities located in third countries) includes all the other facilities on the EU List.

Turkey

Turkey has shown itself to be the only country with one large scale area with multiple EU List facilities capable of recycling a large number of Panamax (or greater) sized ships at a profit to the shipowner.

Aliaga consists of around 21 plots of which 8 have now achieved EU List status and several more are applying.

Aliaga uses the 'landing method'. With a very small tidal range (normally around 60cm), ships can be controlled onto a concrete slipway extending down to the water and with a bunded drain system along the seafront so that cutting can all take place above the drain on impermeable surfaces with protection to the water and soil.

Given it is such an important location, Marprof were fortunate to be given an interview with Mr. Pamir Taner, Purchasing Manager of Ege Celik San. Tic. A.S. (Ege Celik), one of the recent additions to the EU List and a yard very active in the present recycling of EU-MS flag passenger ships:

The facility does good business with EU-MS flag ships, and this has increased post COVID-19 especially due to passenger ships. The yard has only one plot so one ship is in now and the sister ship is awaiting entry. Mr. Taner confirmed that there is no financial mark up for EU-MS flag ships. This may be seen as a disappointment if there is no financial incentive to achieve EU List status.



Passenger ships being recycled, courtesy Ege Celik

The biggest problem at the moment is local steel prices. Whereas only a matter of four months ago the yard received around \$600 per tonne for steel, that figure has reduced to around \$330 or lower. Although these are historically high figures, they are not properly attainable. This is because all their steel is sold locally and, due to high energy prices and other economic effects, the local steel yards are running at about 10% of their normal capacity. The problem is rumoured to be

exacerbated by the Ukrainian conflict since the steel yards are able to source Russian steel ingots at very low price and in sufficient number to fulfil their reduced requirements at the moment.

This is one of two huge challenges, since Ege Celik does not have space to stockpile steel until the market rebounds and obviously the sister ship that is due was negotiated when the steel price was high. But Ege Celik believe in continuing their business as a priority rather than slow or stop work. This clearly makes bidding for future tonnage very difficult.

This is compounded by the second challenge; the local authorities have decided that the plots in Aliaga will be sold at auction towards the end of the year. All plots are leased and so any infrastructure investment is completely at the lessee's risk. Indeed, on expiry of the lease the facility should remove all upgrades and return to normal coastline. The ability to purchase the plot is seen as very positive since it means that infrastructure investment will not be lost and so the facility looks forward to substantial upgrades.

However, all plots will be sold at public auction. This huge uncertainty is slightly offset by the stipulation that only licensed ship recycling facilities will be able to bid. Even in ordinary times this was likely to be one of the biggest upheavals in Aliaga's recent history but, with steel prices and economic conditions as they are now, the economic calculations of how and where to pitch a bid is very complicated. The government has issued a guide price of 5,000 Turkish Lira per m² (\$270/m², at the time of writing). If an average plot is 50m wide by 500m deep this equates to \$6,750,000.

Of concern is the competition from other industrial land users in Aliaga. The headland houses several heavy industries all of whom have substantially greater economic power than a ship recycling company. There is a concern that other industries may take Aliaga ship recycling plots.

Another aspect of high-profile EU-MS flag ships, such as passenger ships, is that the shipowner often wants further assurances about safe and environmentally sound ship recycling. For Ege Celik this often means that the shipowner requests an independent expert company have a permanent presence in the yard overseeing operations. The shipowner pays for this, and the independent company and Ege Celik seem to have an excellent relationship. The authors have visited other yards and spoken to one of the companies involved directly and can confirm this.

The yard has good and ongoing relationships with relevant government departments such as environment, transportation and harbourmasters.

A discussion was had about recent incidents in Aliaga. The facility is concerned about rising incident rates and has put in place several new initiatives to avoid further incidents. These include ship-specific briefings on vessel arrival and an increase in supervisory staff, such that all work areas are supervised at all times.

In conclusion, Mr. Taner stated that he was fully supportive of the extensive audits and inspections required for facilities located in third countries to attain EU List status and feels that all facilities should have to go through the same process, regardless of their location.

BIMCO and Marprof extend thanks to Mr. Taner for his time and valuable insight.

COVID-19, Passenger Ships and Turkey

COVID-19 had its largest visible shipping impact on passenger ships. Many EU-MS flag cruise ships are still being sold or are going for recycling. Most of these ships are going to Turkey. It can be deduced that the Turkish facilities successfully tendering for these ships are full already as satellite imagery and news reports show ships clearly vying for position. It is also known that ships are slated for demolition in Turkey but are having to await a slot elsewhere. In 2022, given the existing backlog, this situation continues. The number of ships concerned is highly significant for the cruise industry, but not so much relative to the size of the global fleet.

Interestingly, a proportion of ships awaiting a recycling slot will have been contracted prior to joining the queue and will have been signed before the war in Ukraine and the recent energy crisis. Some facilities in Turkey say that for these reasons it is almost impossible to sell steel for the expected price, because the local steel mills are only running at ten per cent capacity due to the cost of electricity and the market is flooded with cheap Russian steel ingots. People familiar with Aliaga will know that most yards have very little storage space. There is no room to stockpile steel and await better prices, and the steel must be moved and sold as it comes off the ship. Therefore, the glut of passenger ships is actually causing losses for Turkish facilities due to the present exceptional market conditions.

India, Bangladesh, and Pakistan

Since 2016, 27 Indian ship recycling facilities have applied to the EU List, but none have been accepted. Despite this, several facilities have newly applied indicating that India still regards inclusion on the EU List as important to their business. The EU website does not show any update to Indian yard inspections since the last report, so the information from the previous 2020 edition of this report still applies:

'A further two inspections by the Commission have taken place, in India, in October 2019.

The first report of findings states that *"...the applicant appears to have a well running facility with a suitable organisation... [But] compliance could not be confirmed for demonstration of the control of leakage in particular in the intertidal zone."* Amongst other items, the report also notes that wastes are sold for re-use without sampling for hazardous materials.

The second report indicates no major failures at the facility itself.

However, both reports indicate that the local infrastructure in terms of hospitals and the downstream waste management outside Gujarat are unsuitable.

It is unclear how these are to be resolved, but the following extract from the second report must be seen as a step forward, from the perspective of Indian facilities:

"The main concerns of the evaluators related to the cutting of the ship's double bottom in the intertidal zone. In response to this, the [facility] updated the relevant instructions and procedures. During the second inspection, the evaluators verified implementation of the new procedures. It was found that the facility had implemented a good practice and good instructions for the prevention of spills and leakages to the intertidal zone in way of debris control, tank cleaning and slag collection, rendering the topic of protecting the intertidal zone satisfactory to the evaluators."

It may be concluded therefore that the facility itself is acceptable.’

For the purpose of this report, contact was made with 2 facilities in India who have applied to the EU List to ask for an update on their applications and their thoughts on the EU Ship Recycling Regulation, generally:

	Facility A	Facility B
Job title / Position	Managing Director	Management Representative
How many ships have you recycled since January 2021?	5 ships	4 ships
What is the largest ship recycled since January 2021?	8,880t	Total 36,427 LDT Largest = FSO, 14,483 LDT
What is your estimated % of the ships’ lightship weight that is recycled / re-used / disposed of?	Recycled 82 – 85 % Re-used 15 – 18 % Disposal 1 %	Recycled 55 - 65 % Re-used 30 - 35 % Disposal 1 - 2 %
What % of steel is ‘cold’ recycled vs hot?	‘cold’ 72 – 75 % ‘melt’ 25 – 28 %	‘cold’ 80 – 90 % ‘melt’ 10 – 20 %
Do you calculate your CO ₂ / GHG / environmental impacts? If yes, do you report this to shipowners (please provide details)?	CO ₂ calculations have been started with recent projects. Environmental monitoring for air, water and soil carried out at regular intervals. We would be happy to provide the details to shipowners.	No
When did you apply to the European Commission for inclusion on the EU List?	February 2018	October 2018
Have you had independent assessment(s) by EC Agents? If so, please provide month and year of the visit(s).	Yes, 2 x inspections: March 2019 October 2019	Yes: October 2019
When did you last receive feedback from the EC with an update on your EU List application and what did they say?	At this stage there is no clear support within the EU for having a bilateral agreement / arrangement between the EU and India on ship recycling. Discussion on resolving the legal conundrum arising from Basel Convention / Basel Ban Amendment is still ongoing. Nevertheless, the Commission has recently adopted a legislative proposal on the revision of the current EU regime on shipments of waste. This proposal aims to fully align the EU’s legal regime with the EU’s international obligations	December 2021 “However, we would like to clarify already now that following the international entry into force of the Basel Ban Amendment it seems very unlikely that we will be able to propose the inclusion of any facility located in a non-OECD country in the next few years.”

	stemming from the recent entry into force of the Ban Amendment. Therefore, the proposal clarifies that ships falling under the scope of the EU SRR which become waste in the EU shall also be subject to the Ban Amendment. At the same time, the proposal leaves the door open for the dismantling of ships becoming waste outside the EU in compliant non-OECD facilities. In other words, the proposal would make it possible to include EU SRR - compliant non-OECD facilities on the European List in the future.	
Do you personally expect your facility will be placed on the EU List within the next 2 years? Please provide a brief explanation of the reason for your answer.	We completely expect our facility to be on the EU List when they decide to go ahead and approve Indian yards.	YES. We strongly believe that we will be able to clear all Non-Conformances relating to all recycling activities and processes being undertaken inside the yard. The only concern is clearance of Non-conformances for activities for outside the yard premises. E.g., Hospital having trauma centre near to the facility and 3rd party sub-contractor for disposal of PoP's.
Do you feel that the EU Ship Recycling Regulation as a whole and the Independent Verifier / EC Agents inspections have had a positive impact on working practices at your facility? Please provide a brief explanation of the reason for your answer.	Yes, it has indeed had a huge positive impact on improving the practices at our facility. Complete avoidance of the inter-tidal zone by not dropping anything into it surely makes the marine life much safer. Wearing certified and approved PPE's make the health of workers better than before. Conducting a proper Environmental analysis keeps us in the know of the progress for implementing better practices.	YES. Since the 1st audit by EU inspectors and upon their findings, we have started to upgrade the recycling practices (E.g., Complete elimination of falling of blocks into the intertidal area, collection of slag etc) and implemented changes in the work practices (E.g., Comprehensive health check-up of workers, Use of providers of certified IHM / Gap Analysis subcontractor, Accredited Environment testing labs etc.)
In addition to HKC, did you have to make further financial investment in your facility to attain your EU certification – and, if so, can you estimate how much?	An additional investment of around 1 million USD has already been incurred to improve the yard and reach the levels mentioned in the EU SRR.	Rough estimate: Infrastructure – 880k USD Social welfare – 190k USD Additional costs <i>per ship</i> – 90k USD
Has the delay in placing your facility on the EU List had any business / reputational impacts on your facility?	Business impacts surely - We are deprived to be able to work with any of the EU flagged global fleet.	YES. The impact of not having the EU revisit and list our facility, has definitely impacted our recycling. While aspiring for inclusion in EU List

<p>Please provide a brief explanation of the reason for your answer.</p>		<p>and wanting to adhere to all EUSRR stipulations, we are unable to bid for vessels which are stipulated for recycling according to HKC standards. Leaving aside the infrastructure costs which have already been borne by us, the per vessel recycling recurring costs for maintenance of dormitory, medical check-ups according to EU standards, certified IHM / GAP analysis sub-contractor, NABL certified Env. Monitoring Lab for all EUSRR parameters including PoP's in sea water and intertidal soil are cumulatively so high that we are unable to compete with yards which recycle vessels according to HKC standards. We have not recycled a vessel in last 12 months because of the above.</p>
<p>Are you still hoping to be included on the EU List?</p>	<p>We are definitely hoping to be included in the EU List and going forward we will continue to recycle our ships in accordance to EUSRR.</p>	<p>YES, we have forwarded all our corrective actions to the EU auditors which have been acknowledged by them and are awaiting their 2nd visit to our yard.</p>

One of the facilities concluded as follows:

“Until the EU Commission clears their mind and lets us know whether or not they would like to certify Indian yards, we are in a big dilemma: We will not be able to be competitive in bidding for vessels for recycling according to HKC standards and, as we are committed get ourselves on the EU List, we will have to continue to recycle vessels according to EUSRR standards and bear additional expenses to continue recycling activities at yard.”

Note: For ease, we have kept the responses anonymous, but one facility did say we could attribute information to them; BIMCO and Marprof would like to thank Mr. Raja Jain, JRD Industries, for his response.

With regards to Bangladesh and Pakistan, no facilities have applied for inclusion on the EU List as per the last update on 28 October 2021 ^[16].

The influence of offshore decommissioning

Decommissioning is the process the operator of an offshore oil and gas installation goes through to plan, gain government approval, and implement the shutting down, decontamination, removal, and environmentally sound disposal or re-use of a structure when it is no longer needed for its current purpose ^[17]. It includes the process of tidying the seabed, known as plug and abandonment (P&A), which is often the most expensive portion.

The latest authoritative report commissioned by the UK Government was published in 2018. It remains the most thorough and detailed document available and so the following text from the previous report continues to be substantially relevant:

‘As of 2018, more than 1,300 offshore installations were situated in North Sea waters of the Netherlands, Norway, and United Kingdom. Given the maturity of many fields nearing the end of production, coupled with stagnant commodity prices, a vast increase of decommissioning activities is expected.

Numerous reports have been published analysing the decommissioning market and presenting forecasts relating to associated expenditures, including removal of offshore installations and subsequent onshore recycling activities.

More than 600 offshore installations are likely to be decommissioned in the next 10 years. This amounts to approximately 3.4 million tonnes of North Sea offshore infrastructure (topsides and steel substructures) to be brought onshore for recycling and final disposal, all of which is subject to legislative frameworks ^[18].

These include international treaties, regional conventions, and national legislation. Considering that so many parties are involved and that the legislative frameworks are routinely followed and enforced, the selection of a suitable recycling facility is paramount. A suitable recycling facility will need to be in a highly industrialised area, with a mature transport network, a robust and certified downstream waste management network, and all necessary regional and national licenses in place.

It is also likely that, due to the cost of equipment required to transport topsides and substructures to shore, the location of onshore recycling facilities relative to offshore structures as well as the yard’s ability to receive the largest offshore lifting vessels are important factors in developing competitive bids for any onshore recycling projects.

Total estimated onshore disposal and ongoing remediation and environmental monitoring costs amount to more than €1.3 billion over the next decade; the onshore recycling cost to the offshore installation operator, or indeed the taxpayer, is estimated to be between €370 and €435 per tonne ^[19]. It is therefore expected that EU List recycling facilities meeting the criteria above will favour offshore decommissioning projects, rather than base their business model on winning commercial ship recycling bids.’

The above has not substantially changed since written for the first edition. However, there have been developments which lend far greater evidence towards the bias of offshore decommissioning.

The latest example of an approved project is Brae B. This was submitted in 2016 and updated as approved for the upper jacket decommissioning in June 2022. The latest proposal submitted to the UK Department for Business, Energy and Industrial Strategy (BEIS) gives a similar vision of timescales:

- First project draft 2016
- Cessation of production in 2022
- Abandonment over a 7-year period (until 2029) when subsea work and onshore dismantling will be carried out in parallel over a foreseen period of 4 to 7 years

These figures show the planning time that a tendering facility has. Given the size and scale of most projects, a facility could conceivably birth itself and die in this timescale and make a healthy profit on one project alone.

To add to these timelines there needs to be a vision of scale. This year, in the UK-administered North Sea alone, there have been 10 individual draft projects submitted to BEIS for consideration:

1. 12,874t production platform and subsea installations
2. 3 platforms (approx. 13,000t) plus pipelines
3. Unattended platforms, approx. 4,000t plus subsurface
4. 21km pipelines
5. 20km (4,718t) subsea manifolds, pipelines, umbilicals and 1,300t concrete
6. 40km (4,500t) subsea manifolds, pipelines, umbilicals and 1,500t concrete
7. 33,000t FPSO
8. 15,719t platform and 10t of NORM/HAZ
9. 27 wells, 420 piles, approx. 80km pipeline and 200t concrete
10. 24km pipeline, 800t concrete

It is clear from the above that the demand for suitable sites on land must increase and, in terms of demand only, this explains the nature and size of the recent Norwegian, UK and Danish additions to the EU List; they are using EU Ship Recycling Regulation standards to provide a technical basis for their activities.

Visit Report – Modern American Recycling Services (MARS) Frederikshavn, Denmark, May 2022

BIMCO and Marprof personnel visited the new MARS facility in May 2022 on the invitation of the Chief Executive Officer, Mr. Kim Thygesen.

After a good safety briefing and detailed PPE checks we were immediately escorted into the main facility.

The facility is very large and entirely made of reclaimed land.

The facility was purpose built from ground up with a suitable foundation and then an impermeable membrane at 1.5m depth, with welded seams and a self-sealing property (water swelling). The facility is provided with an extensive drainage system. Each drainage system was provided by rock drainage linked to a system of separately isolatable pipelines throughout the yard.

This system also solves any problems with surface water drainage and run off due to storms; the 1.5 metres of rock down to the membrane was sufficient for the hardest of storms as a 'water reservoir' to retain and treat surface run off. The water treatment plant can cope with 36m² per hour. Average rainfall in Frederikshavn is up to 90mm per month in August, but in October 2014 192mm of rain fell.

Gas cutting facilities are provided from a distributed system through the facility. There is a large gas bottle storage in an area remote from work and then lines are stated to have been laid under the subsoil to 8 substations, each of which can service 20 individual gas cutters giving a total of 160 potential cutters distributed around the facility. Individual gas cutters were noted to be working with gas hoods and personal gas filtration systems.

We visited the hazardous material handling facility. All items in the warehouse were allocated to projects, well identified, and stored on bunded protected pallets. Asbestos is stated to be dealt with and removed by sub-contractors, so permanent facilities for asbestos are not required.

Hoses are cleaned and tidied after every shift. Indeed, the facility has a working practice of two shifts, with the second shift being engaged in tidying up – and since most of the tidied material is steel scrap, this makes both good housekeeping and economic sense.

Approval for ship entry into the facility follows an Inventory of Hazardous Materials (IHM) and Ship Recycling Plan (SRP) pre-inspection process, and a contract with the shipowner. The facility's intentions are made known to the authorities who have agreed that if they do not respond in a very short time, then 'tacit approval' may be understood.

We saw the slipway; this is approximately 90 metres wide, is clearly reinforced concrete, and extends to the full 14 metre draft at an angle of 15 degrees. Two large winches are available with a capacity of 1000t each, and photos were seen of the subsoil anchoring arrangements, which looked very robust. Units are tugged at high tide onto the slipway and then winched up. A drainage bund was seen approximately 5 horizontal metres above the tide mark.

We then entered a large semi-submersible unit, afloat and in the early stages of preparation for dismantling. A typical 't card' system was in operation, with cards left at the foot of the gangplank.

Multi gas detectors were not required. The Site Project Manager stated that all spaces had been risk assessed and found not to be at risk. This was noted satisfactory given the limited operations onboard and the open nature of accessible structure.

The facility has an extensive fixed fire-fighting system which is stated to be able to provide the pressure head and flow needed for such a large 45-metre-high unit.

Emergency access and egress was noted by floor painted signs. The boarding ladder was suspended by a series of wires from the platform of the unit due to the effects of tide and sand on

roller supports. The ship we visited next had a standard steel plate and roller support on the sand / stones.

It was noted that health, welfare, and sanitation arrangements were provided onboard the semi-sub.

It was noted that the facility had ISO 9001, 14001, and 45001 certification and was also investigating ISO 30000 certification.

Both BIMCO and Marprof would like to extend thanks for arranging such an extensive and informative visit.

Offshore pricing versus conventional ships

A semi-submersible, or similar, is defined within the EU Ship Recycling Regulation as a “ship” and thus may be recycled in any applicable EU List facility and receive a competitive payment for its steel.

It appears that the majority of North Sea assets will be scrapped locally, on the boundaries of the North Sea and associated Exclusive Economic Zones. In these areas, the pricing is likely to be different. It is known in these areas that positive prices for ships have been offered, possibly in the range of \$50 to \$150 per tonne.

However, it is likely that risk-averse companies will be willing to pay to have the project completed to a high standard, especially considering that the cost is typically less than 5% of overall project costs.

This provides an opportunity for other price and liability schemes to come into play, for example nominal purchase of the unit by a facility, followed by additional charges for decommissioning services. Effectively, offshore recycling is more attractive and lucrative for certain facilities, as they can generate income from both the dismantling and the steel.

Kishorn Port - Interview

Kishorn Port Ltd (KPL) is one of the latest additions to the EU List and is of particular interest as a high capacity, ex-offshore fabrication yard, situated on the high potential decommissioning boundaries of the North Sea. Kishorn dry dock was originally built in the 1970s for large gravity base structures – explaining its odd, almost circular shape.



Kishorn during recent upgrades including concrete access ramp to drydock bottom

In 2013 planning was granted for new development which anticipated that the port would support offshore renewables and for oil and gas fabrication and decommissioning.

The port is a joint venture between Ferguson Transport & Shipping and Leiths (Scotland) Ltd., one of the largest independent construction materials producers in Scotland which operates a quarry on site. We spoke to Mr. Frank Davidson, Head of Safety and Environmental Quality of KPL and Fergusons.

Despite already being a substantial dock of 160m by 160m with a draught of 13.8m, KPL intend to extend this another 100m x 60m further inland creating a keyhole like shape in order to accept large ships, such as FPSOs, up to 250m long.

Despite being a new facility, KPL have already recycled the MV Kaami (IMO 9063885) which had grounded on the Little Minch on the west coast of Scotland on 23 March 2020, about 6 miles

away. KPL was the most suitable port to dispose of her. The ship was 90m long and was recycled in partnership with John Lawrie Metals Ltd (John Lawrie), which was the first project of its kind for them and took 13 weeks. There are some interesting photos and very instructional videos available on their site (<https://kishornport.co.uk/projects/recent/mv-kaami>).

KPL will look to, in future, work with companies such as Liberty Industrial or John Lawrie, allowing them to be flexible and rapidly expand their workforce for larger projects. The facility has extensive accommodation and welfare on site.

On the recycling front, KPL always knew they wished to demonstrate the highest compliance and therefore set out to gain EU List recognition since this is recognised as a 'gold standard'.

To achieve this, Kishorn had plenty of work to do, but Fergusons are an old established logistics, shipping and marine services support company and therefore had a suitable background to do this. KPL were extensively audited, first by the Scottish Environmental Agency (SEPA) and Health and Safety Executive (HSE), and then were independently verified as being in compliance with the EU Ship Recycling Regulation by Bureau Veritas Marine & Offshore, and then by the EC auditors for inclusion on the EU List.

KPL and its port agents Ferguson Transport & Shipping are very much in favour of external audits as these provide a fresh look at their critical systems and allow them to both satisfy themselves with what is right and also identify areas for potential improvement.

KPL and the port infrastructure it owns and operates intend to provide services to the offshore market, including ships such as FPSOs and support vessels, but also to the broader market of shipowners if they are interested. KPL is unlikely to offer similar steel prices as SE Asia or even Turkey.

As part of a medium-sized port and dry dock, KPL is only expected to account for 5-10% of the decom business in the UK, but this should represent significant business and recycling activity in Kishorn is expected to grow due to demand from decommissioning of the North Sea. However, the facility is extremely well situated and equipped for offshore wind projects and with the recent success selling the licenses to develop offshore wind in the local area, this, and similar projects, represents a parallel and competitive business opportunity for KPL.

BIMCO and Marprof would like to thank Mr. Davidson and KPL for the opportunity to discuss their facility in such detail.

Analysis of EU List approved facilities

Study method

A structured investigation was performed on each facility using historical satellite imagery, company website information, and IMO recycling capacity figures. Using this information, a file was created for each facility against its EU List entry, and an assessment made. These files were then summarised against common criteria to get an overall view of all facilities.

It is vital to understand the context of the shipowner for the EU Ship Recycling Regulation and the EU List. Shipowners see ships as assets. Shipping is a global business and decisions are made on a legal and commercial basis. To be attractive to a shipowner, the EU List should therefore provide ‘economically viable commercial ship recycling’.

This report considers a commercial ship recycling facility to be one where the focussed activity prioritises the demolition of commercial ships as opposed to other activities such as construction, ship repair, and offshore decommissioning. As such, for the purpose of this report ship recycling refers to pure ships.

The past few months have seen historically high scrap values, with an all-time high of more than \$700 per LDT in April 2022. The figures in Turkey are also impressive and Turkish facilities on the EU List pay similar prices to those shown in the Table below. Such levels are unheard of in other European yards and some sources expected further surcharges for EU-MS flag ships ^[20], although this does not seem to have materialised.

Statements made by some cash buyers and shipowners indicate a general market expectation that ‘green’ ship recycling offered, for example, in some facilities in India, may lead to a price reduction of around \$50 per LDT. However, there is no substantiation of these figures nor a common acceptance of what ‘green’ ship recycling actually is.

Country	Dry Bulk	Tankers
Pakistan	570	580
Bangladesh	600	610
India	590	600
Turkey	260	270

US Dollar prices per LDT, 11 August 2022 (source <https://www.gmsinc.net/>)

China is no longer included in the above figures as it has decided that it will no longer handle any foreign waste and so ship recycling for internationally trading foreign flag ships has ceased. This is disappointing since the facilities were well known and recognised as not only of extremely high standard, but also of exceptional capacity.

On this basis, it appears impossible for any EU List facility to meet the economically viable commercial ship recycling criteria, as expecting shipowners to pay a regional penalty to recycle a ship is not sustainable. Even in Turkey, the \$300 per LDT price differential equates to approximately \$5 million for a 17,000 LDT ship. However, it should be recognised that recycling facilities are operating in the EU and in Turkey, and therefore other considerations must be being taken into account.

The economics of smaller recycling facilities are normally very flexible. There is evidence that many EU List facilities offer a service that is seen as economically viable for both the facility and the shipowner, but this does not represent the needs of large scale economically viable commercial ship recycling.

Facilities with imbalanced economics or specialised projects (i.e., military recycling and Costa Concordia, as explained in previous editions) are not considered to be able to provide competitive prices. Where this is further supported by lack of advertising, activity, or other evidence of economically viable commercial ship recycling – and if the facility is clearly focussed on other forms of income – then this has been highlighted in the summary table that follows.

How does the EU List work in practice?

The EU List has been in full force since December 2018.

During the writing of this report, experts responsible for ship recycling at the EC provided information dated to October 2021. This was an update to an earlier EMSA study on the impact of the EU Ship Recycling Regulation, and it is expected that EMSA will be asked to do a more thorough update soon.

The EC reported that ship recycling has been in a permanent downturn since 2012 with a slight increase in 2016. Similarly, there has been an increasing decline in the percentage of EU-MS flag ships recycled as a percentage of the global total. Despite some statistics saying that EU businesses have controlling interests in over 35% of the world fleet ^[21] the scrapping percentage is only 5.6%.

But it is the following text that catches the eye:

“Until 2018 the number of ships that changed flag to a non-EU one before being recycled, was constantly ranging between around 24% to 64% of the number of ships recycled under all EU-MS flags. From 2019 onwards this value increased to values above 100%.”

2018 is, of course, the year the EU List became mandatory.

The EC continues:

“This is more notorious however in the LDT, meaning that the ships recycled in 2019 that moved from EU to a non-EU flag had higher LDT values than the ships in similar circumstances in the other years.

It shows that the EU ships being recycled in authorised facilities as EU flags, at the end of their life, were on average becoming smaller in size along the past few years. Conversely, it appears that an increasing number of bigger ships have changed their flag to non-EU states before being recycled.”

The final technical paragraph of the study contains the following information:

“2019 exhibits an extraordinarily low value in the EU recycled LDT, hence the high percentage of the EU changing LDT. In fact, observing the ships recycled in the year 2019 one can note the absence of

large size ships such as Containerships, Bulk Carriers or Tankers (with an exception to a small Shuttle tanker and some Replenishment tankers). The recycled ships with an EU MS Flag at the time of recycling in 2019 are, with few exceptions, Fishing vessels, Service ships and small General cargo."

The conclusion therefore is that the EU List provides good recycling for small and local ships, but it fails to provide significant attraction for large ships. Indeed, from the change of flag statistics, we see exactly what was predicted; the EU Ship Recycling Regulation is a negative driver for recycling larger EU-MS flag ships. The reason for this cannot be financial since the prices are the same in an unregulated market no matter what flag the ship flies and, therefore, the reason must be legislative.

EU List ship recycling facility questionnaire

A brief questionnaire was sent to all the facilities on the EU List in May 2022, asking simple questions regarding their operations, the impact of the EU List on their existing and future business, and the relative importance of ship recycling and related activities to their business.

The checklist has been expanded to explore questions of steel reuse and circular economy effects. Information was received from 9 facilities, and this is considered to be a reasonable response considering that, as is being identified in this report, ship recycling is not necessarily the major activity of the majority of yards on the EU List.

The majority of replies were from Turkey. These were positive about the impact of the EU List on their business and reported between 20% and 50% of their business was from EU-MS flag ships. The facilities who responded gave an average of about 100,000 LDT since the EU List came into effect. Turkish yards sell most, if not all, of their steel locally since there are several steel production facilities nearby. They acknowledge that some of their steel is likely reused 'cold', but they have no control over this. Figures given are around 10%.

CO₂ calculating and carbon-offsetting is possible but uncommon. It has been asked for by some owners and the facilities are certainly aware of it.

Offshore recycling is a possibility in several facilities, but it appears that non-EU List yards in Turkey are more successful in tendering for offshore units than those on the EU List, and semi-submersibles are a common sight in Aliaga now. This is not so surprising as it seems since the local Mediterranean offshore market appears less sophisticated than either the EU-MS flag ship or North Sea offshore markets. It may be noted that according to Clarksons Research Online, the Mediterranean and Caspian Seas include 3,262 producing fields, with the top three countries being Azerbaijan, Egypt and Libya ^[22].

The evidence shows, as expected, that Turkish facilities pass the 'Panamax test' and that 100% of their business is dedicated to ship (and offshore) recycling. The Turkish facilities, in general, have little or no interest in ship repair, ship conversion or general engineering.

The low number of replies from facilities located in EU Member States possibly reflects their lack of dedication to ship recycling. The replies that were received were from major facilities or new entrants, all of whom have ship recycling as their significant or only business interest.

For most of the facilities the majority of the steel is recycled locally or within the EU, but one facility reported up to 50% exported outside the EU. Europe has a wide mix of small, family run local scrap

dealers in many ports, whereas there are also organisations, such as Veolia and ArcelorMittal, operating across the region. The diversity and range of scale, operation and influence of the European scrap steel market is clearly highly complex. One facility reported a very high percentage of cold used steel which is surprising but, again, may be down to the complexity of local markets.

EU Member State facilities, and those in the UK and Norway, reported less involvement in CO₂ emission calculations and carbon-offsetting than the Turkish facilities. This may be due to market confidence that EU facilities are inherently ‘greener’ than non-EU yards. However, for the circular economy to work, this needs to change rapidly.

Virtually all facilities responded that they were not aware of “*local government or other initiatives for port infrastructure investment for recycling steel or other strategic raw materials in a circular economic strategy*”. Due to the aforementioned central EC strategy, and the equivalent investment strategies in the UK and Norway, countries have significant investment potential, and much is known to already have taken place. It is suspected that the investment has been indirect or not properly identified. Whatever the reason, all facilities are recommended to approach their local government and enquire.

All facilities responded that the EU List was a significant help to their business and all established yards reported an increase in EU-MS flag ship business.

Study findings

The findings of the detailed analysis can be found in the table that follows and have been broken down into several headings in order to best display conclusions:

<i>Yard</i>	All facilities have been anonymised and allocated a number in random order.						
<i>Active</i>	Does the facility presently provide ship recycling services, or is it capable of doing so? Facilities that can demonstrate reasonable capability (i.e., repair yards) can accepted, but facilities which are incomplete, not open for business at end of May 2022, insolvent, or sold to new owners with different business priorities are not considered to be active.						
<i>Panamax Test</i>	This test is to ascertain whether the facility has the physical capacity for such a size of ship and has any historical evidence for recycling this size of ship. Satellite imagery can be useful here, since if a facility regularly recycles Panamax it would be expected to show up on the satellite imagery.						
<i>Size</i>	This is a relative assessment of the facilities on the EU List: <table border="0" style="margin-left: 20px;"> <tr> <td style="padding-right: 20px;">Small</td> <td>Ship length < 100m and annual throughput < 25,000 LDT</td> </tr> <tr> <td>Medium</td> <td>Ship length 100m - 200m and annual throughput < 75,000 LDT</td> </tr> <tr> <td>Large</td> <td>Ship length > 200m and annual throughput > 75,000 LDT</td> </tr> </table>	Small	Ship length < 100m and annual throughput < 25,000 LDT	Medium	Ship length 100m - 200m and annual throughput < 75,000 LDT	Large	Ship length > 200m and annual throughput > 75,000 LDT
Small	Ship length < 100m and annual throughput < 25,000 LDT						
Medium	Ship length 100m - 200m and annual throughput < 75,000 LDT						
Large	Ship length > 200m and annual throughput > 75,000 LDT						

It should be noted that the industry changes units depending on priority, from Length, to gross tonnage, displacement, lightship, etc. There are no consistent conversion factors since the relations change for ship type, size and design.

Main Function The actual function of the facility, easily derived from their own description on the company website. Further evidence such as case histories has also been used.

Primary Business This is important because it hints at the ability to change or be flexible. If a facility is a busy repair or construction yard, is it not likely to change to long-term dedicated ship recycling activities, despite its inclusion on the EU List.

In the previous edition the table showed that 17 facilities on the EU List display a variety of sizes and capabilities and demonstrate themselves to be dedicated and viable concerns through their existing ship recycling activity. Research in this edition shows that 2 of these yards are not active and so this number is reduced to 15. Luckily, these 2 yards were not considered Panamax capable and so the EU List still contains 8 facilities that pass the Panamax test. All of these are located in Turkey.

Probably the most significant finding of this and previous reports remains consistent; only Turkish facilities are likely to be attractive to an internationally trading shipowner with a fleet of ships, who has a regular demand to dispose of larger vessels.

The table indicates that the remainder of the facilities do not display the necessary requirements of a primary full-time ship recycling business, capable of handling a large shipowner's end of life fleet of Panamax sized or greater ships, with reasonable economic benefit. Furthermore, 6 facilities are considered to not be active or involved in the ship recycling market. For several yards this is because they appear unfinished or there is no record of starting ship recycling. For others it is because their website or company information shows no recycling activity.

Despite the above, overall, the findings show that there is a good stock of existing, and even planned, ship recycling facilities providing a high standard of service to the European market. Such services are provided by large, medium and small yards, as befits the existing and ongoing demands in the region.

Other than Turkey, however, the large and medium facilities are predominantly repair or offshore yards. The smaller facilities are also dominated by repair or other non-ship recycling business. The good distribution of small facilities around Europe is an asset to the EU List since they can flexibly provide ship recycling services to the local market. This is particularly useful when it comes to small, uneconomical old ships that have been abandoned and left in a harbour at the public expense. With no beneficial owner to arrange for their disposal, it often falls to the taxpayer. Since these ships are waste, even moving them in the harbour can be a difficult process and so having experienced facilities nearby that can take these vessels from the harbour authority's hands for a reasonable sum is a useful public service. The problems these ships can cause are illustrated by one case whereby a national company successfully tendered for an abandoned ship in the same country, but then the authorities refused to let them transfer the waste 60 miles down the coast to the facility without extensive paperwork, a process that took many months.

There is a noticeable concentration of repair yards that are also certified as recycling facilities in the Baltic region. It should be a very simple operation for a repair yard to become a ship recycling facility. In reality, there is nothing that a recycling facility does that an active repair yard does not do or is capable of doing. A repair yard cuts ships up, replaces old with new, and throws the old away. The old will contain the same hazards as a ship being recycled and should be disposed of in the same manner.

It is concluded that the close examination to detail and associated preparation for audit that normally entails acceptance for the EU List is not balanced by the potential financial incentives of ship recycling. The logical extension of this is that repair yards are not scrutinised as thoroughly as recycling facilities.

The EU List does provide a number of other facilities whose primary business may not be ship recycling but can extend their services in this direction if necessary. These facilities are well placed for 'one-off' high profile recycling projects or for military work.

There are also facilities in Europe, some of them very large, which cater to the demands of the offshore industry, although the economics of this business appear to be very different. The same can be said of the military market. It also appears that the proportion of offshore yards to recycling facilities in EU Member States, and in Norway and the UK, is increasing.

Finally, the EU List facilities give excellent geographical spread for the local market of EU. However, it also shows the lack of global provision. The one facility in the US is not known to have recycled a significant number of EU-MS flag ships, if any. Satellite imagery of that yard continues to appear to show good activity in the US military and offshore markets.

In previous editions of this report a map of facilities has been produced. There are now too many facilities on the EU List for this to be useful and the EC interactive map of facilities is recommended instead ^[23].

Yard	Active?	Panamax?	Size	Main Function	Primary Business
1	Y		M	Ship recycling	Ship recycling
2	Y		M	Ship recycling	Ship recycling
3	Y		M	Ship recycling	Ship recycling
4	N		M	Ship recycling	Ship recycling
5	N		M	Ship recycling	Ship recycling
6	Y		S	Ship recycling	Ship recycling
7	Y		M	Ship recycling	Ship recycling
8	Y		M	Ship recycling	Ship recycling
9	Y	YES	L	Ship recycling	Ship recycling
10	Y	YES	L	Ship recycling	Ship recycling
11	Y		S	Ship recycling	Ship recycling
12	Y	YES	L	Ship recycling	Ship recycling
13	Y	YES	L	Ship recycling	Ship recycling
14	Y	YES	L	Ship recycling	Ship recycling
15	Y	YES	L	Ship recycling	Ship recycling
16	Y	YES	L	Ship recycling	Ship recycling
17	Y	YES	L	Ship recycling	Ship recycling
18	Y	YES	L	Recycling	Offshore recycling
19	Y		S	Port / repair	Port / repair
20	N		M	Ship recycling	Military
21	Y		M	Repair	Repair
22	Y		M	Repair	Repair
23	Y		L	Repair	Repair
24	Y		M	Recycling	Recycling
25	Y		L	Repair	Offshore
26	Y		S	Construction	Construction
27	Y		S	Repair	Repair
28	N		L	Repair	Repair
29	Y		L	Ship recycling	Military
30	Y	YES	L	Repair	Repair
31	Y		S	Repair	Repair
32	Y		M	Recycling	Scrap
33	Y		S	Recycling	Scrap
34	Y		S	Recycling	Recycling
35	Y		M	Repair	Repair
36	N		L	Recycling	Offshore recycling
37	N		L	Recycling	Offshore recycling
38	Y		M	Repair	Repair
39	Y		L	Recycling	Offshore Recycling
40	Y		L	Recycling	Offshore Recycling
41	Y		L	Recycling	Offshore Recycling
42	Y		M	Recycling	Offshore Recycling
43	Y		L	Construction	Construction
44	Y		L	Recycling	Offshore Recycling
45	Y		L	Recycling	Offshore Recycling
46	Y		S	Repair	Repair

Capacity

The main figures for recycling capacity are published by IMO based on information provided to them in the middle of each year. The latest figures were received from IMO, on direct application, in July 2022. However, the Secretariat warned that these figures are from September 2021, and so only cover 2020.

There are therefore several different numbers regarding the capacity of the EU List.

The main figure in the table of the EU List is the *“maximum annual ship recycling output, calculated as the sum of the weight of ships expressed in LDT that have been recycled in a given year in that facility.”* This number does not necessarily agree with the IMO figures. Since the EU Ship Recycling Regulation is not subject to ratification concerns this number is not expected to be an updated 10 year rolling maximum.

The second number is an estimate, provided by the facility, that gives the theoretical maximum annual ship recycling capacity in LDT. This tends to vary considerably, especially for offshore facilities which tend to have large plots with high unused capacity.

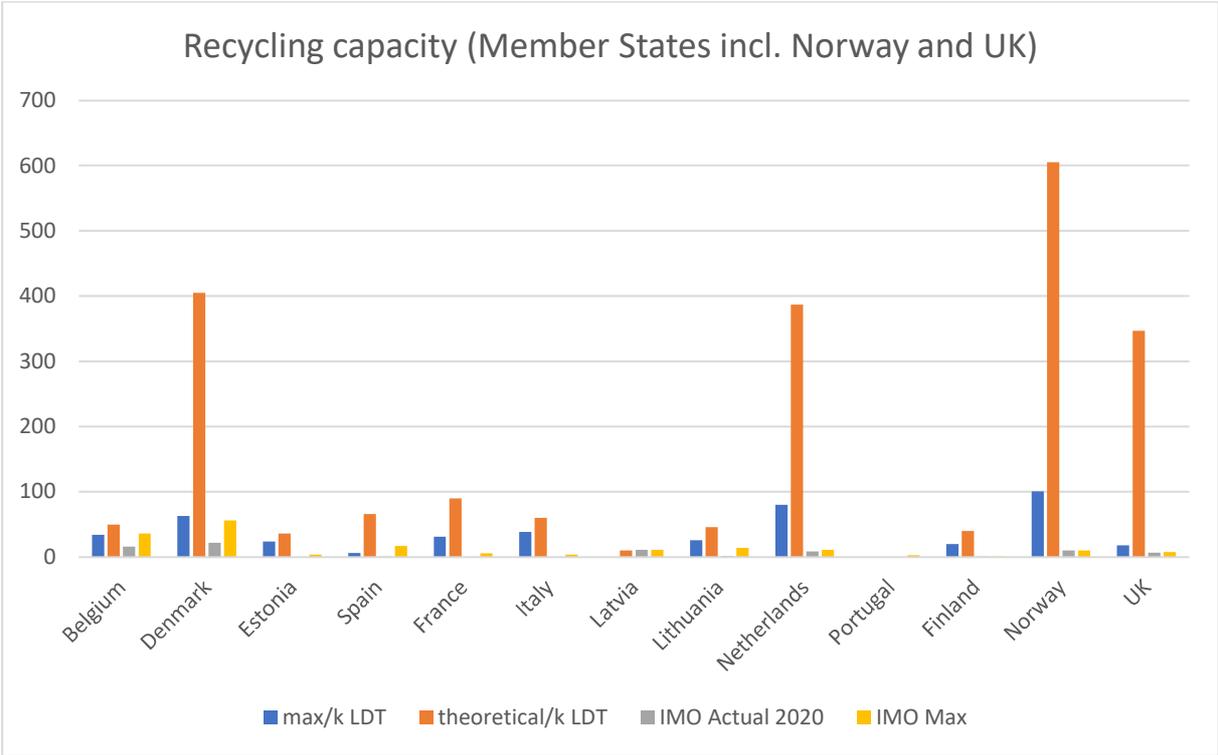
Norway has clearly worked hard on licensing facilities in the past few years, but again it is clear that the drive for this is the offshore industry. This is obvious from the location, company websites, and from satellite imagery. There is no doubt that these facilities can also recycle a number of offshore support vessels as well, but that would be an expected offering to large integrated offshore companies. The figures show that Norway had a record year in 2020 of 10,489GT. Whilst this is positive and expected to increase it still places Norway behind, for example, Korea, Nigeria, Latvia, Azerbaijan, and neighbours Sweden.

Key to all graphs:

max/K LDT	Maximum capacity claimed by the facility in the EU List (1000s of tonnes LDT)
Theoretical/k LDT	Theoretical maximum capacity included in the footnotes of the EU List
IMO Actual 2020	Actual ship recycling carried out as recorded by IMO in 2020
IMO Max	Maximum ship recycling capacity in any given year, over a 10-year period, recorded by IMO; this is the official IMO HKC calculation figure.

The Vertical axis always shows 1000s of tonnes. The EU tends to use LDT (the traditional scrapper’s unit), and the IMO uses GT (the traditional HKC unit). Since the numbers are consistent within either the EU or the IMO their relationship can be seen; trying to have a meaningful conversion across ship types and ages is essentially impractical.

Graph 1

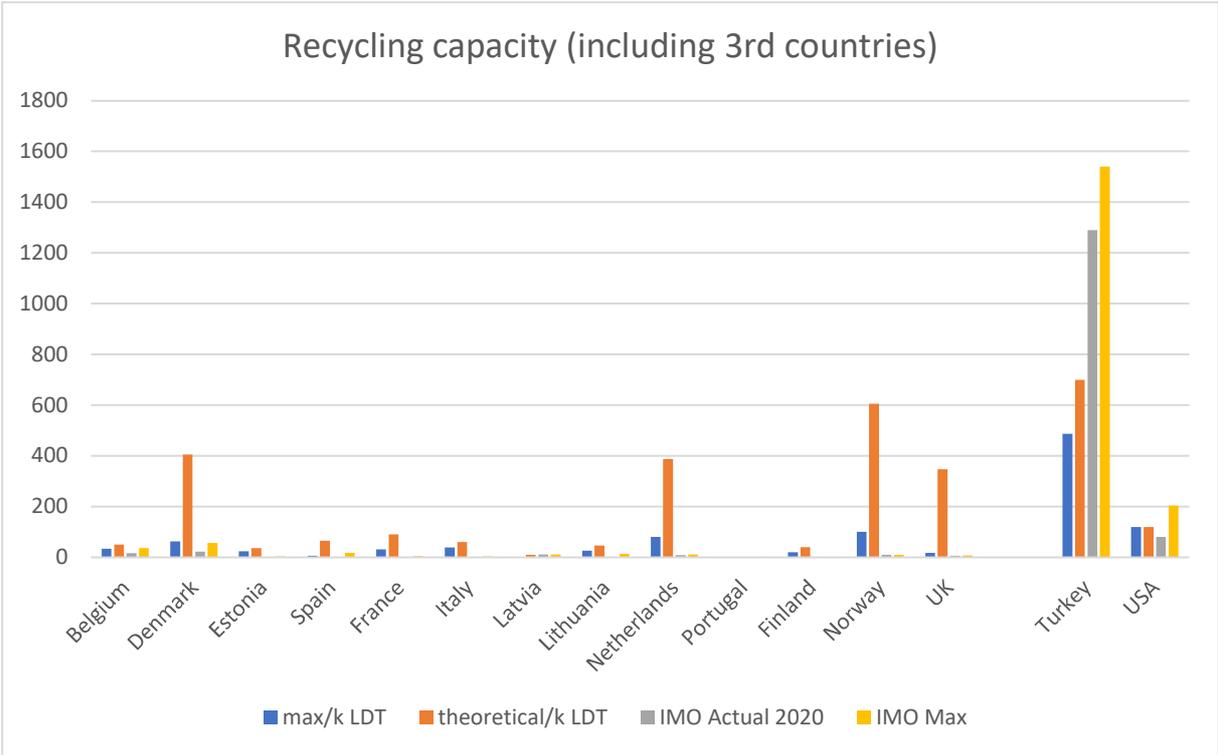


The first thing to notice is that the IMO Actual 2020 figures and the IMO 10-year Max figures are barely visible.

This is the first and biggest indication of the reality of the EU List; the annual total EU Member State recycling, as recorded by IMO for ratification of the HKC, is negligible.

This graph also illustrates the work that Norway has been doing, with considerable extra capacity. Denmark and Netherlands have also had significant increases.

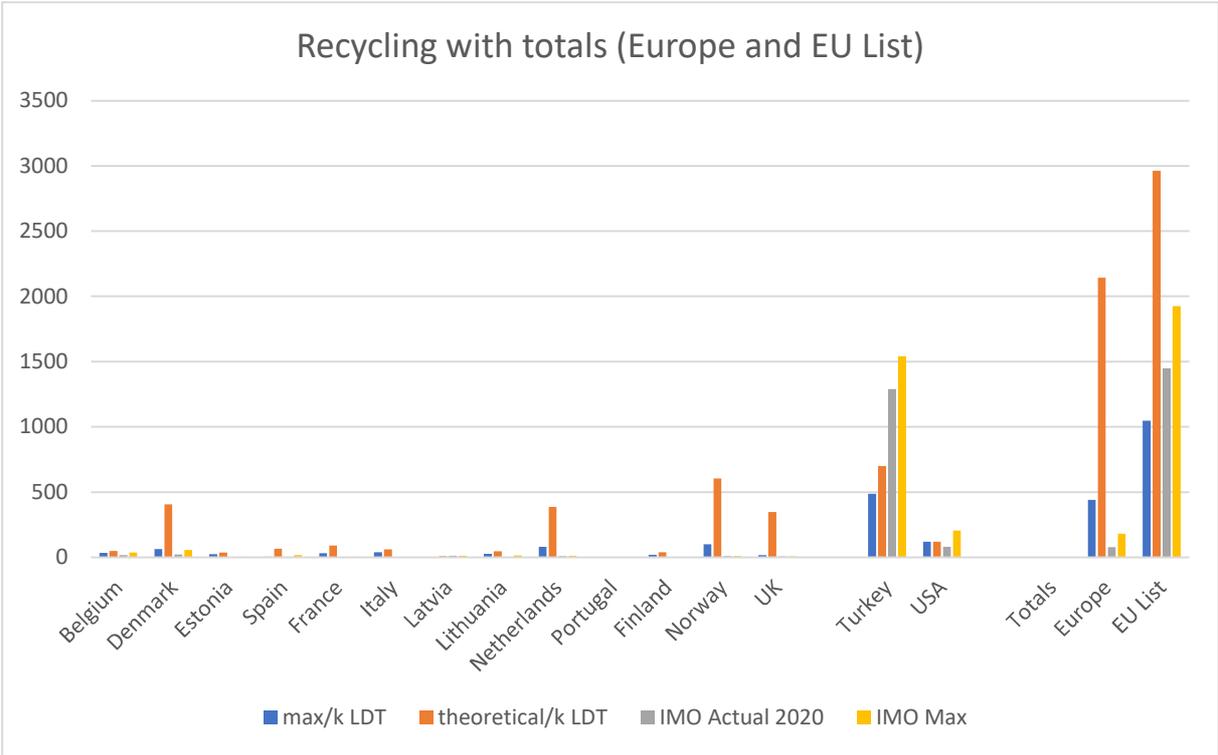
Graph 2



With the inclusion of EU List facilities located in third countries the effective scale has increased almost tenfold. The contribution of these facilities outside the EU provides capacity far in excess of the IMO totals for all the EU List Member State facilities combined.

With the inclusion of more Turkish facilities, the theoretical capacity of Turkey has risen considerably. However, since only 8 of the 22 Turkish facilities are on the EU List, and most of these yards are busy, the IMO numbers are considerably in excess of the EU capacity estimates (since IMO includes all 22).

Graph 3



This shows information on Graph 2 with totals added for EU List Member State facilities and for the EU List (including facilities located in a third country) as a whole. This clearly shows a gulf between EU List theoretical capacity and IMO actual capacity.

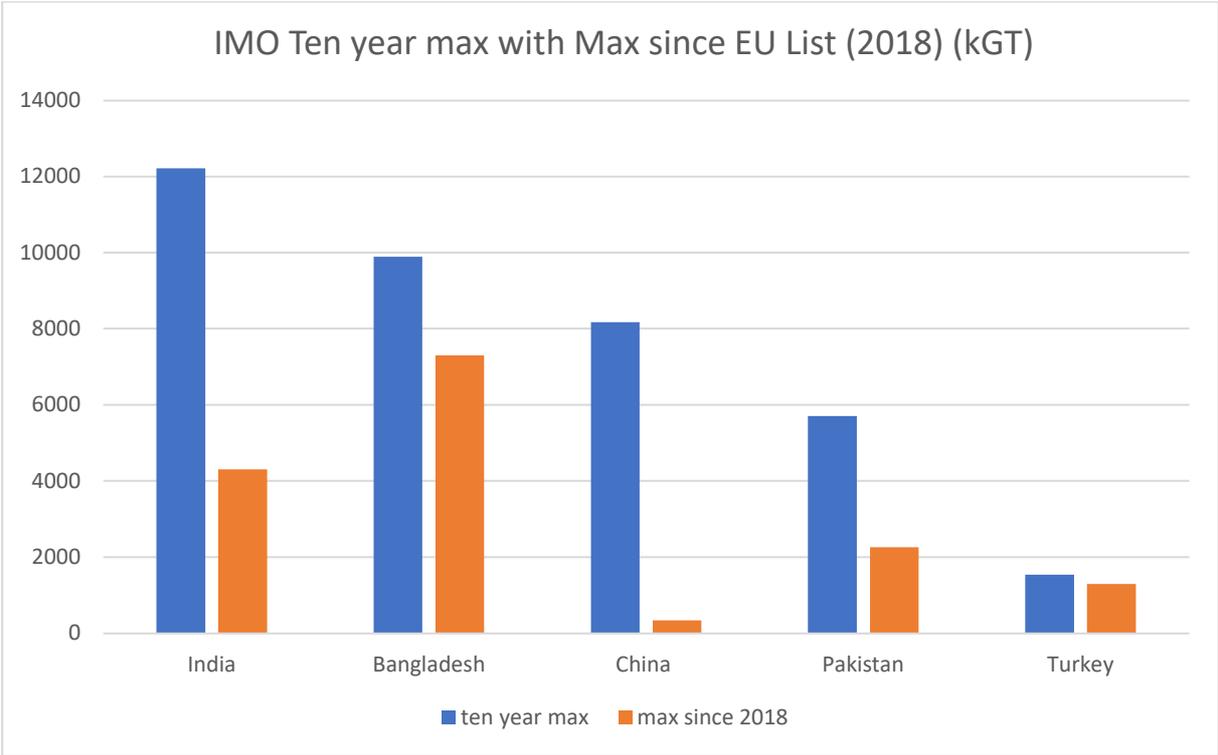
These latest figures stand to reinforce the ongoing hypothesis that EU facilities, especially those in northern Europe, are taking advantage of the EU Ship Recycling Regulation and its procedures to invest in offshore recycling. This is good for the circular economy but continues to be misleading to shipowners.

The EU List vs the Top 5 recycling nations

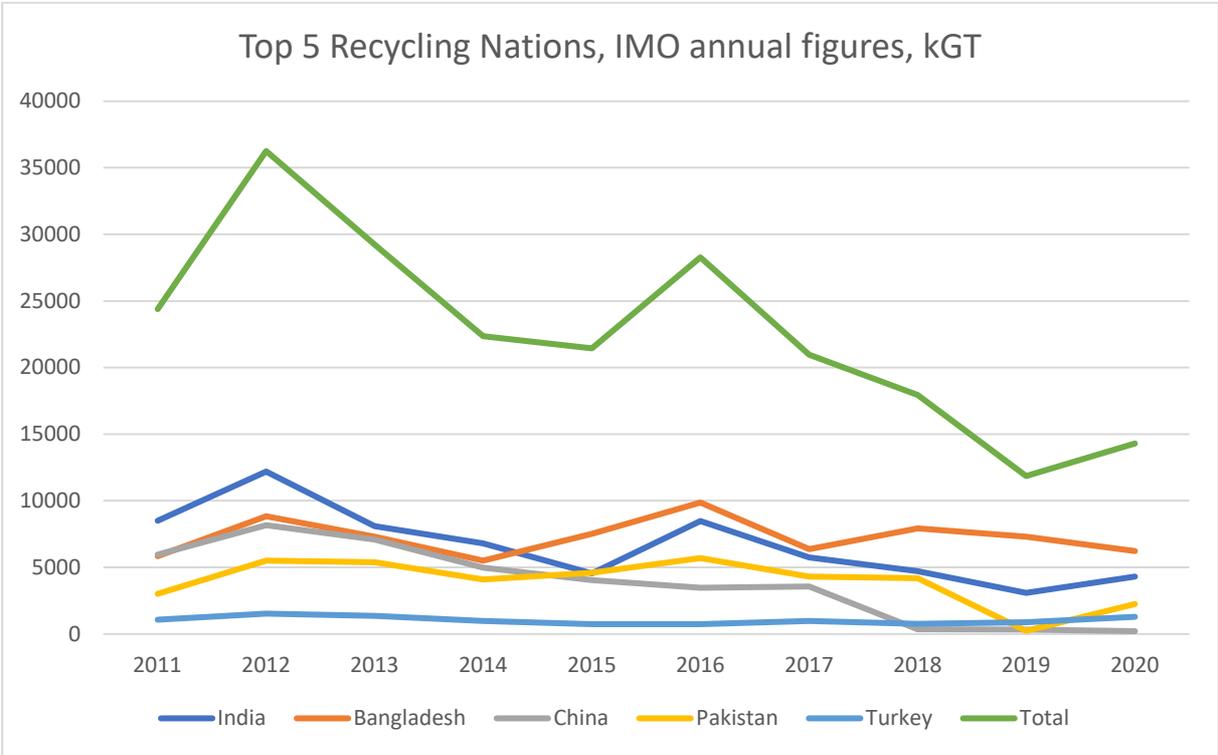
In the above discussion about capacity, maximum theoretical, and IMO values, this report often states that EU Member State contributions are negligible and even Turkish contributions are not highly significant. This is because 98% of global recycling is carried out by the top 5 recycling nations and although Turkey is included in that, the contribution of Turkey to the top 5 is small. Furthermore, although China was, at times in the past 10 years, the second biggest international recycler, it is now less than a one fifth of the size of Turkey.

This is shown in the following graphs, which also highlight the gradual decline in total recycling since the high of 2012 and the small peak in 2016. The low levels of recycling are not supportable and represent a serious long-term problem. This is supported by information published in August 2021 which shows that the average age of ships scrapped between 2016 and 2020 had grown from 23 years to 27.7 years ^[24].

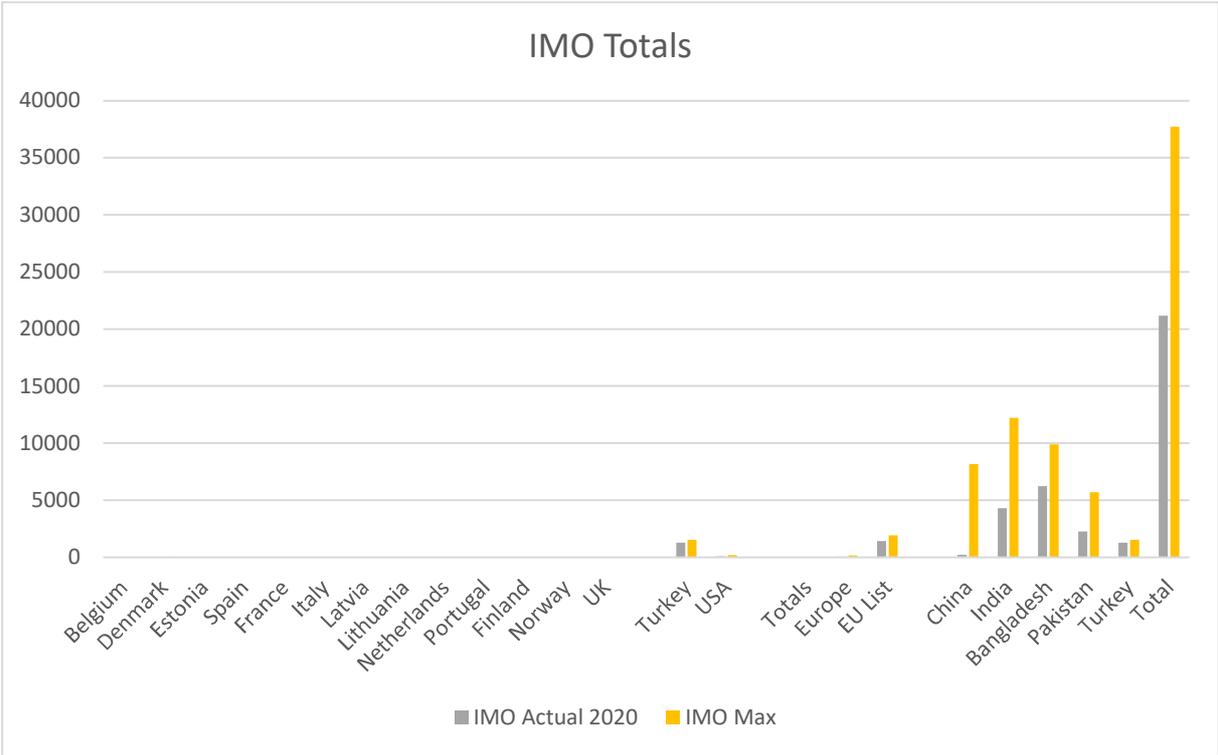
Graph 4



Graph 5



Graph 6



This graph shows the global context of ships recorded by IMO as recycled in all EU List countries versus the top 5 recycling nations.

The IMO 10-year rolling maximum number has been included as well, since this is the number that the ratification of the HKC will use and gives a relative indication of the country as a ship recycling nation.

This is now giving the IMO and ratification of the HKC a potentially large headache. Unsuspected as it was at the time, the years from 2008 to 2012 were bumper years for ship recycling on the back of the 2008 financial crisis and the single hull tanker phase out. The major countries (and especially China) had huge scrapping peaks and the IMO could be confident that, if India and China ratified the HKC, the capacity they provided would fulfil the minimum required.

Furthermore, the world fleet in 2011 was 1.04 million GT, requiring 12.5mGT capacity. The fleet has now grown by 40% to 1.43mGT and, according to the 2020 figures, required 17.2mGT.

Now, in 2022, those bumper years are a decade ago and so will not count towards the capacity statistics. The best year of all was 2012 with record scrapping of 36mGT and this will be behind us in a matter of months; the minimum in 2019 was only 11.8mGT, significantly below the 17.2mGT required in 2020 by the size of the world fleet at that time. Thus, in both 2019 and 2020 the actual scrap figures for the entire world fell below 3% of fleet capacity.

The figures for 2016 were high, but if the fleet continues to grow (in 2020 growth was 1.7%), there may only be a 4-year period to ratify the HKC before it, effectively, becomes impossible. This is a clear paradox, but one that reinforces that scrapping capacity and size of facility capability must increase.

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About Marprof Environmental Ltd.

Marprof Environmental Ltd. was formed in 2018. With combined marine consultancy experience amounting to over half a century, both Partners specialise in ship recycling legislation and providing practical solutions – for shipbuilders, shipowners, recycling facilities, flag states, and the legislators themselves.

Get in touch

Tel +44 (0) 7498 522460 / +44 (0) 7771 505420

Web <https://marprof.net/marprof-environmental-ltd/>