

Emerging Trends in Ship Recycling Market: An Analysis of Determining Factors

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ABSTRACT

More than 90% of the global ship recycling by gross tonnage is carried out in India, Pakistan, and Bangladesh. In the international market of ship recycling, freight rates, age of vessels, and shipping regulations determine the supply of end-of-life vessels. On the other hand, the demand is determined by the scrap steel prices, the cost of ship recycling, and domestic regulations in ship recycling nations. External factors such as the existence of multiple standards of ship recycling regulations, and the absence of directives restricting the change of flags to flags of convenience have also been examined as factors influencing the gross tonnage of ships recycled in each nation. The paper analyses the roles of each of these determinants in the ship recycling market and explores the recent developments in the ship recycling industry in India, one of the leading ship recycling nations acceded to the Hong Kong Convention 2009. Since the Convention is not yet in force, the paper points out that multiple standards of ship recycling regulations across recycling nations adversely impact the competitiveness of the nations that strictly adhere to environmental standards.

Keywords: Ship recycling, Hong Kong Convention, Recycling of Ships Act 2019, Ship recycling market determinants.

Introduction

Fluctuations in the shipping market exert an impact on related markets of shipping freight, ship building, ship resale, and ship demolition. Developments in international trade directly influence shipping market services, leading to up-or-down shipping market cycles.¹ Generally, an increase in the demand for shipping services raises the freight rates, bringing economic prosperity to ship owners, who are less inclined to demolish ships at these times. During an economic downturn, freight rates drop, impacting the revenue of ship owners, making it difficult to even recover the operating cost of the vessels. At these times, they prefer to sell their obsolete and inefficient vessels to ship recycling yards to make up for lost revenue. Besides the technical and physical obsolescence of ships, the lifespan of vessels as determined by international and national regulations on shipping also determines the journey of end-of-life of vessels to demolition yards.

A majority of the end-of-life vessels end up in the ship recycling yards of Alang in India, Chittagong in Bangladesh, and Gadani in Pakistan for dismantling and demolition. Ship recycling in these locations ensures jobs and supply of scrap steel besides contributing to the respective nation's GDP. The recycling yards directly employ many unskilled labourers

migrating from interior parts of the country on a temporary or contractual basis and indirect job opportunities are also generated in allied activities.² However, the ship recycling industry has attracted severe criticism for being insensitive to environmental protection and being indifferent to workers' safety and security during recycling operations. Studies have highlighted more risk and danger for workers in ship recycling yards than those who work in mines, which is considered to be the riskiest job.³ Also, poor living conditions of the workers impact their health and quality of life.⁴ This dire situation has impelled national and international organisations to issue guidelines and policies to regulate ship recycling operations so that they are human-centric and environmentally benign.

As ship recycling yard owners focus on bringing down the cost of recycling and maximising revenue, they show least concern for workers' safety or environmental protection. Growing environmental awareness and heightened media attention on the deplorable working conditions have forced recycling nations to enforce regulatory mechanisms to monitor and control yard operations to prevent undue exploitation of workers and the environment. For yard owners, revenue realised from retrieved or recycled materials including scrap steel extracted from demolished vessels, cost of recycling operations, and compliance with national and international regulations of recycling are determining factors of the volume of vessels recycled. Reuse and recycling ensure the longevity of the materials in use.⁵ In the ship recycling nations, 90% of the materials are reused and recycled, thus mitigating the pressure to extract natural resources, especially iron ore. The ship recycling industry supplies 7%, 60%, and 10% of recovered scrap steel to the domestic steel industry in India, Bangladesh, and Pakistan, respectively, and its contribution to the infrastructural development of Bangladesh is commendable.⁶

Many stakeholders – ship owners, yard owners, national and international regulators, cash buyers, i.e., middlemen between ship owners and yard owners, besides a large number of yard workers without any decisive powers – influence market transactions in the ship recycling market. As the fortunes of the ship recycling market are determined by the changes in the international shipping market,⁷ it is important to examine how fluctuations in the shipping market affect the ship recycling markets in India. Along with demand and supply determinants in the international shipping markets, national and international regulations also can impact the market for ship recycling. One such factor is India's Recycling of Ships Act 2019. This Act stipulates standard operating procedures to be followed for all the ship recycling yards in India to incorporate environment-centric and worker-friendly mechanisms and measures. The additional financial investment required to upgrade the facilities of the yards results in higher costs and lowering of profits, ultimately weakening the competitiveness of the Indian recycling yards. On the other hand, the recycling yards in the neighbouring nations where these stipulations are not in force, offer their services at competitive rates to prospective customers.

The first section of this paper examines the major demand and supply determinants of the ship recycling market. This is followed by an analysis of the latest ship recycling market trends. The paper examines the prevalence of different standards of regulation on ship recycling and their impact on the competitiveness of ship recycling yards in India. It also explores the issue of change of flags of end-of-life vessels, a practice widely

considered by experts as one of the major loopholes of the Hong Kong Convention. The paper concludes with the suggestion that uniform measures may be administered internationally for the long-term sustainability of the marine environment and also for the safety of the workers.

Determinants of Supply in the Ship Recycling Market

Ship owners are highly vigilant about the fluctuations in freight rates as they have a direct impact on their profitability. The age of the vessels is a significant concern as it affects the performance and obsolescence of ships. Additionally, they closely monitor and update themselves to comply with international maritime regulations that affect their operations. A favourable market for international trade reduces the supply of ships to the recycling market, and the opposite is true in the case of an unfavourable market.

Freight Rates

Knapp et al. (2007)⁸ observed a negative relationship between earnings from ships and the rate of scrapping of ships. When freight rates are soaring, all rational ship owners look to utilise the existing shipping services intensely, either by prolonging the life of the existing ships or by adding new or second-hand ships to their fleet. In a booming economy, ship owners may be least interested in selling their ships to cash buyers, the intermediaries of the recycling market for demolition. In other words, ship owners send their obsolete ships to recycling yards if the costs of their operations exceed the revenue earned.

Freight indices vary for different shipping markets and Baltic freight indices for containers, dry bulks, and dirty tankers represent the major trends in the shipping market. Table 1 shows the freight rates for the last six years, which signify a global demand for shipping services.

Table 1: Freight Market Indices (USD)

Years	Container index	Dry bulk index	Dirty tanker index
Jan 2017	1524	1356*	835
Jan 2018	1203	1152	664
Jan 2019	1414	668	848
Jan 2020	1461	487	882
Jan 2021	3452	1452	517
Jan 2022	9293	1418	689

*Indicates figure in Sept. 2017.

Source: Compiled from Baltic Dry Index, 2022, investing.com;⁹ Baltic Dirty Tanker, 2022 investing.com;¹⁰ Freightos Data, 2022;¹¹ Statista Research Department (b), 2022.¹²

Container and dry bulk markets improved since January 2021 after experiencing a severe fall during the pandemic. However, the market for dirty tankers that transport petroleum products that were contracted in 2021 is slowly picking up. The slump in the

global economy at the beginning of 2020 lowered the demand for shipping services, leading to drop-in freight rates. The lockdowns and travel restrictions curtailed demand for oil tanker services, lowering the index for dirty tankers in 2021. Restricted logistics operations, caused by the pandemic, led to a shortage in equipment and containers, unreliable services, congested ports, longer delays and dwell times, but indices of container and dry bulk markets moved up in 2021 and 2022. Logistics operations suffered further delays due to the closure of Suez Canal following the grounding of Ever Given, one of the largest container ships owned by Taiwanese company Shoei Kishen Kasha, widening the gap between shipping demand and the realised ability of the market to cater to the demand¹³ and causing an increase in freight rates. The new ship building market also could not furnish the demand positively as shortages in labour supply plunged the delivery of new vessels by 12%.¹⁴ Thus, an inelastic supply from new building market to meet the increased demand for shipping services led to an increase in freight rates, consequently causing escalation of rates in the resale vessels market too. Thus, after the pandemic, recycling market saw a scanty supply of end-of-life vessels.

Age of the vessels

The physical and technical efficiency of ships to function competitively is an important factor determining their physical obsolescence and there is a positive correlation between age of the vessel and scrapping. The average life of a vessel is over 20 years but varies for different categories of ships; general cargoes have a higher lifetime of 26 years.¹⁵ In 2021, 42% of the ships were aged more than 20 years globally, with the average life of the vessels being 21.6 years (21.2 years in 2020).¹⁶ A sizeable number of older ships in the global shipping market likely pushes up demand for recycling operations. Ship owners are less incentivised to invest on vessels nearing end-of-life to enhance safety standards and on other maintenance and repair works.¹⁷ Older vessels entail a higher operational and maintenance cost, so owners prefer to recycle ships if the earnings do not cover the cost of operations. Moreover, older ships display a poor performance and cause enhanced greenhouse gas (GHG) emissions.¹⁸

Shipping Regulations

Both operating and to-be-demolished ships are required to comply with the International Maritime Organization's (IMO) regulations on the sulphur content of ship fuel oil and those on decarbonisation, and Conventions on Ballast Water Management.¹⁹ As part of the IMO's initial strategy to reduce GHG emissions from ships, IMO members agreed in 2018 to reduce annual GHG emissions from shipping by at least 50% by 2050 compared to the 2008 levels. Decarbonisation can be achieved only if zero emission ships enter the global fleet by 2030 by either through technology change or fleet renewal.²⁰ Considering the heavy investment required to replace the old technology for lowering GHG emissions, ship owners generally prefer to demolish vessels that do not meet regulatory requirements. Thus, the ships are sent for recycling, if the capital expenditure required to convert the existing into environment-friendly ships exceeds the expected future cash proceeds.

Determinants of Demand in the Ship Recycling Market

More than 90% of the global shipping recycling operations are handled by recycling yards in India, Bangladesh and Pakistan. Recyclers realise revenue from scrap steel and other retrieved materials. They incur expenses in the form of labour charges, tax paid to the government, and cost of recycling operations. Recycling yards in the Indian subcontinent resort to several cost-cutting measures to enlarge their profits compared to yards elsewhere in the world. They save on operations cost because of cheap labour, lack of environmental safety standards, absence of medical insurance for temporary and contract workforce and lack of proper waste disposal and management practices. Ship owners sell off their vessels to such yards with potentials to offer competitive rates.²¹

Prices of Scrap Steel and Other Recovered Materials from End-of-Life Ships

The scrap steel recovered from the recycled ships is in high demand from the steel rerolling industry operating near the yard. Moreover, domestic industries procure second-hand steel from recycling yards, reducing the burden on steel-making industry.²² For example, in Bangladesh, scrap steel supplied by ship recycling yards constitute 60% of the demand for raw material from approximately 350 local steel industries.²³ In Karachi, Pakistan, around 70% of the ship scrap steel sent to rerolling mills generated about 95% of the revenue from recycling.²⁴ Rahman and Kim's (2020)²⁵ study found that supply of scrap steel positively contributes to industrial development. Thriving second-hand markets also exist for retrieved machineries, equipment and other materials near the recycling yards of these nations.

Cost of Ship Recycling Operations

Ship recycling yard owners incur expenditure such as labour cost, cost of clean-up of environment, import duties, costs of training and protective equipment for workers besides the procedural cost of ship recycling. These costs vary between developed and developing nations, and also on the yard owners' willingness to adopt responsible recycling. Ship recyclers incur both the fixed costs (yard costs, ship purchasing costs, etc.) and variable costs (taxes and duties, waste disposal costs, labour costs, etc.).²⁶ Moreover, ship recycling operations encompass monetary costs and non-monetary costs. The externalities imposed on the workers and the marine environment are the non-monetary costs, which are not internalised into the system. After completing the final sale of ships, ship owners escape responsibility for any such costs, though the 'polluter pays principle' needs to be enforced on ship owners.²⁷

There are two types of risks in the recycling process: risks due to the toxicity of hazardous materials and occupational risks.²⁸ Ship recycling is labour-intensive, but yard owners in Alang, Chittagong, and Gadani have access to cheap labour, saving further on operations costs. Most of the workers are unskilled migrant labourers employed

on a contractual basis, not protected by labour laws. They are not provided protective equipment and formal training and therefore unaware of the potential threats of working in a hazardous environment. Those sustaining severe injuries and even meeting with fatal accidents do not receive compensation. Several studies highlight the occupational hazards of ship recycling,²⁹ but they focus only on short-term implications, leaving aside the long-term effects of recycling operations on workers' health.³⁰ Workers live in unhealthy surroundings without basic amenities, experiencing a poor quality of life. Moreover, the method of beaching in recycling operations leave the coastal areas with oil and bilge that permeate to the ground, posing a serious hazard to the marine environment and biodiversity. These costs are never internalised, and thus does not affect the final cost of recycling operations.³¹ The Hong Kong Convention on Safe and Sound Recycling of Ships 2009 (HK Convention) provides directions regarding the treatment, storage and disposal of hazardous materials. In the absence of stringent regulations to penalise such unhealthy practices, the yard owners engage in exploitative activities, resulting in the generation of negative externalities.

The external cost of recycling operations is also highly influenced by the recycling methods such as beaching, slipway, alongside/buoy and dry dock. Each method has its own advantages and disadvantages. Beaching is considered to be more profitable among them and yards in the Indian subcontinent enjoy the geographical advantage of dismantling ships during intertidal zone of the beach. However, it imposes costs on the environment and workers, but these externalities are the implicit costs of recycling that are often neglected.³²

Yard owners are not motivated to invest on capital and operations to comply with Hong Kong Convention.³³ If the recycling nations have adopted international recycling regulations, yards would be legally bound to abide by domestic laws. In India, Recycling of Ships Act 2019 mandates statutory standards in ship recycling operations and all the recycling yards operating in India are legally bound to get approval from the National Authority of Ship Recycling to perform their operations. The Act directs yard owners to invest in protective equipment and training for workers, basic hygiene and medical facilities, and proper handling, treatment and disposal of wastes to improve performance. The profitability of the yard is also affected by tax and import duties imposed on recycling operations. In India, Integrated Goods and Services Tax is high at 18% of the light displacement tonnage recycled compared to 12% and 17% in Bangladesh and Pakistan, respectively.³⁴ This naturally raises the cost of recycling operations in the Indian yards, weakening their competitiveness.

Regulations of Recycling Operations

IMO's guidelines on responsible recycling and International Labour Organisation's (ILO) labour directives have far-reaching implications on the domestic policies of IMO member states. Similarly, environmentally responsible policies of a nation can influence its domestic policies of ship recycling. Realising the environmental and health hazards of ship recycling, many developed nations moved ship recycling operations to nations with

lax laws. Ship recycling operations therefore shifted to the Indian subcontinent by the mid-1980s.³⁵ During the mid-1990s, China garnered almost 50% of the recycling market for end-of-life ships but imposed stricter national environmental regulations later, ending its import of foreign vessels.³⁶ The regulations came into force in China on 1 January 2019, following which a major share of ship recycling operations shifted to other nations. As Chinese yards took a hit, the Chinese government subsidised the recycling of Chinese-flagged ships to encourage them to continue recycling in their yards.³⁷

The Hong Kong Convention 2009 marks a significant milestone in regulating recycling operations. It will enter into force 24 months after it is ratified by 15 nations with 40% of the global merchant fleet earning a recycling capacity of at least 3% of their fleets. The RSA 2019 of India emphasises on responsible recycling and imposes punishments with penalties on yard owners deviating from the stipulated norms. Since India is a party to the Hong Kong Convention, it was expected that the UN member states would be interested in sending their ships to Indian yards. However, the additional investment incurred to improve the ship recycling standards is likely to shrink the competitiveness of Indian yards.

Though Hong Kong Convention is hailed as a breakthrough, it is not devoid of defects. The loopholes in international regulations like Hong Kong Convention and European Union Ship Recycling Regulation (EUSRR), the regulation applicable to EU ships, to penalise and prevent change of flags to flags of convenience provide opportunities to the ship owners to make financial gain during the last voyage of end-of-life ships. According to Knapp et al. (2007),³⁸ flag registrations of vessels indicate the relative importance the ship owner has placed on the safety, and security along with its journey towards scrapping. The discrepancies in the international regulations, coupled with lax domestic laws, create a favourable ground to ship owners to sell their old ships to South Asian yards. NGO Shipbreaking Platform reports that more than 75% of the ships dismantled in South Asian yards in the second half of 2021 changed their flags to grey and black registries such as Comoros, St. Kitts, Nevis, Gabon and Palau just few weeks before arriving at the yards.³⁹ Ships using these registries, which are popular among the cash buyers who purchase vessels to resell them to the recycling yards but not preferred during the operational life, earn certain discounts during their last voyage. Sheikh (2021)⁴⁰ and Alcaidea and others (2016)⁴¹ observed that by changing flags in order to recycle in non-party states, ship owners enjoy higher revenues than recycling in Hong Kong Convention complying yards. Out of 20% EU-flagged ships in their operational life, only 9% remain with EU flag when they reach recycling yards.⁴² So, two parallel ship recycling markets operate now: party states acceding Hong Kong Convention and non-party states that do not comply with the Convention.⁴³

Ship Recycling Market: Recent Trends

Bangladesh, India, Pakistan, China and Turkey are the final destinations for over 95% of end-of-life vessels. China banned importing foreign vessels for recycling but encourages recycling domestic ships with government subsidies. Recycling in China would reach

a commendable volume if Chinese ship owners prefer to recycle in domestic yards, as China is the third largest ship owning country. With the strict enforcement of the EUSR since 2019, European nations prefer EU complying yards and the relative share of Turkey in the recycling market is likely to increase, as it has many EU complying yards. Table 2 presents the annual gross tonnage of ships recycled and the annual share of major recycling nations.

Table 2: Annual Gross Tonnage of Ships Recycled ('000 GT)

Ship-recycling nations	2014	2015	2016	2017	2018	2019	2020	2021
Bangladesh	4421 (19.60)	8065 (34.34)	9530 (32.41)	6693 (28.93)	8639 (45.60)	6690 (55.60)	6996 (40.66)	7992 (52.13)
India	6928 (30.71)	5156 (21.95)	9467 (32.20)	6776 (29.29)	4649 (24.54)	3278 (27.25)	5026 (29.21)	2700 (17.61)
Pakistan	4140 (18.35)	4521 (19.25)	5480 (18.64)	4137 (17.88)	3986 (21.04)	328 (2.72)	3100 (18.01)	3028 (19.75)
China	5341 (23.67)	4492 (19.13)	3518 (11.96)	3777 (16.32)	466 (2.46)	343 (2.85)	195 (1.14)	140 (0.91)
Turkey	933 (4.14)	835 (3.55)	980 (3.33)	1325 (5.73)	782 (4.13)	1104 (9.18)	1601 (9.30)	1036 (6.76)
Others	797 (3.53)	418 (1.78)	428 (1.46)	430 (1.86)	423 (2.23)	289 (2.40)	289 (1.68)	433 (2.83)
World	22561 (100)	23487 (100)	29403 (100)	23138 (100)	18945 (100)	12031 (100)	17208 (100)	15329 (100)

Note: Figures in brackets indicate the annual share of each nation in the respective years.

Source: UNCTAD 2021. www.unctadstat.unctad.org

Currently, more than 90% of the ships are recycled in Bangladesh, India and Pakistan. The share of these nations in ship recycling and their ranking underwent significant transformations over the years. In 2014, by gross tonnage, India was ranked first in recycling operations followed by China, Bangladesh, Pakistan and Turkey. Since 2017, ship recycling volumes dropped in all recycling nations, but this reduction was noticeable predominantly after 2019. In 2020, the volumes spiked slightly due to the economic downturn at the beginning of the pandemic. The share of Bangladesh in ship recycling and recycling volume have been rising consistently over the years, and it is the top recycling nation since 2018. India, which was ranked first at the beginning of the decade, experienced a reduction in the volume and share of ship recycling, and its rank has dropped. Pakistan, another competing nation in South Asia, slightly improved its position and share after the pandemic, from third to second position. The share of China declined significantly over the years, whereas the share of Turkey increased moderately during the same period, and it is expected to increase considerably in the immediate future as many environmentally

sensitive ship owners of EU are likely to navigate their end-of-life vessels in Turkish yards due to the stringent EUSRR. Market analysis clearly shows declining volume, share and position of India in ship recycling over the years. Recently, India acceded to the Hong Kong Convention, following which many Hong Kong Convention complying recycling yards are available in the country. It is interesting to examine the role of RSA 2019 and also the pandemic on the ship recycling industry in India to gauge the reasons, especially the role of external factors, behind India's declining position.

Hong Kong Convention 2009 and Recycling of Ships Act 2019

The Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal 1989 is the first international Convention designed to regulate transboundary movement of hazardous wastes including end-of-life vessels. Under this, the state of export is bound to seek the consent of the state of import before the disposal and often ship owners contravened its clauses.⁴⁴ Ship recycling as an industry received international attention mainly because of the nature of occupational hazards and also due to its adverse impacts on the marine environment and biodiversity.⁴⁵ The member nations of ILO and IMO deliberated on the necessity of developing sustainable and sound ship recycling practices. In 2005, IMO passed a resolution requesting the Marine Environmental Protection Committee (MEPC) to propose environmentally sound methods of recycling. Further deliberations held at Hong Kong in 2009 led to the adoption of Hong Kong Convention for Safe and Environmentally Sound Recycling of Ships. The Hong Kong Convention 2009 covers different stages of the life of a ship, its design, manufacturing, operations, recycling preparation, and demolition. According to this guideline, the ship owners need to produce the certificate of Inventory of Hazardous Materials and Certificate of Compliance and recycling yards to declare the Ship Recycling Facility Management Plan and Ship-specific Recycling Plan.⁴⁶ It will enter into force 24 months after it has been ratified by 15 nations that represent 40% of the merchant shipping by gross tonnage and also it satisfies a maximum annual volume of recycling not less than 3% of the combined tonnage of the recycling nations.⁴⁷ Though it has been considered as a major breakthrough in the ship recycling operations, the guideline is not devoid of defects, including no alternatives suggested for beaching, no coverage of ships below 500 GT, unequal sharing of responsibility between ship owners and ship recycling nations, no provisions to stop change of flags of end-of-life vessels and ignored 'polluter pays principle'.⁴⁸

India, a major ship recycling nation, entered into ship recycling operations as early as 1980. The arrival of the French passenger liner Blue Lady in 2007 to Alang was opposed by environmental activists and later the matter was brought to the consideration of the Supreme Court.⁴⁹ As directed by the Court, a guideline called Ship Breaking Code 2013 to regulate the ship recycling industry was framed after drawing from the provisions of the Hong Kong Convention. India ratified the Hong Kong Convention in 2019 by enacting the Recycling of Ships Act. It is mandatory for recycling yards operating in

India to strictly adhere to standard operating procedures and practices while dismantling ships. Ahmad (2022)⁵⁰ stated that these regulations of the Act need to be complemented by India-specific rules and norms. It was expected that adherence to the Act would lead to an influx of end-of-life vessels from environmentally conscious nations.⁵¹ Rather it brought down the number of ships arriving at Indian yards (Table 2) due to the cost-efficient recycling opportunities offered by neighbouring nations. The incorporation of standards necessitated the yard owners to invest in worker-friendly and environment-friendly measures and mechanisms which brought down the competitiveness of the Indian recycling yards.

Discussion

The demand and supply determinants of the ship recycling market is uniformly applicable to all nations. Since Hong Kong Convention has not yet been in force, those nations which ratified the Convention follow stringent regulations either as ship recycling nations or as ship owning nations. The ratification of Hong Kong Convention by a few nations led to the coexistence of yards that comply to the Convention and those do not comply to the Convention in ship recycling markets. For those nations that adopt the Convention, ship recycling regulations can vary subject to the stringency of such regulations in their respective nations. In the case of the EU nations, EUSR norms are more stringent as they do not support beaching, maintain high standards for the downstream treatment of wastes, and emphasis greatly on labour rights. On the other hand, the non-compliant yards tend to maximise their profit without incurring any additional investment costs. Thus acceding to the Hong Kong Convention makes the Indian yards less attractive and competitive and this has brought down the gross tonnage of ships recycled in India.

Another issue associated with the ship recycling operations that has not been addressed by the Hong Kong Convention is the change of flags of end-of-life vessels. According to Knapp et al. (2007),⁵² flag registrations of vessels indicate the relative importance the ship owner has placed on the safety, and security along with its journey towards scrapping. The discrepancies in international regulations, coupled with lax domestic laws, create a favourable ground for ship owners to sell their old ships to South Asian yards. NGO Shipbreaking Platform reports that almost half of the ships dismantled in South Asian yards in 2023 changed their flags to grey and black registries such as Comoros, St. Kitts, Nevis, Gabon, and Palau just a few weeks before arriving at the yards.⁵³ Ships using these registries, which are popular among the cash buyers who purchase vessels to resell them to the recycling yards but are not preferred during the operational life, earn certain discounts during their last voyage. Sheik (2021)⁵⁴ and Alcaidea and others (2016)⁵⁵ observed that by changing flags to recycle in non-party states, ship owners enjoy higher revenues than recycling in Hong Kong Convention complying yards. Out of 20% of EU-flagged ships in their operational life, only 9% remain with the EU flag when they reach recycling yards.⁵⁶ The Convention does not provide any provisions to stop the change of flags of end-of-life vessels. As long as those end-of-life ships that changed their flags are welcomed by non-party states, there will be double standards and hence ship owners prefer cost-effective markets.

The ratification of the Hong Kong Convention by India through the RSA 2019 led to strict compliance with the Convention's regulations on workers' safety and the adoption of environment-friendly measures in India.⁵⁷ Since the Hong Kong Convention has not been made universally obligatory, global variations in the enforcement of recycling regulations and environmental concerns have produced parallel markets in ship recycling industry. As long as the system provides flexibility to change flags to states of convenience, even the party states prefer to recycle in non-party states. For yards to comply with the Hong Kong Convention, yard owners have to invest in a set of procedures for cleaning up the environment, impart training to workers, ensure proper protective measures, support workers with medical facilities, enforce proper treatment, handle and disposing of hazardous wastes, all of which raise the cost of recycling, cutting into the profitability of the yard operations. On the other hand, cost-effective non-party recycling yards in neighbouring recycling nations attract more ships which indirectly brings down the competitiveness of Indian yards.⁵⁸ In the absence of provisions to check change of flags under Hong Kong Convention and EUSRR, even the EU and party states of Hong Kong Convention can sell their end-of-life vessels to non-party recycling yards, further weakening India's competitiveness in the market.

Another external factor that hit the ship recycling market adversely at the beginning of this decade is closure of economic activities during the COVID-19 pandemic. Ships sold for recycling to the yards of the Indian subcontinent were not able to arrive because of restrictions on crew movements due to lockdown-induced flight cancellations.⁵⁹ The volume of recycling drastically dropped. As the migrant labour force hailing from interior parts of the countries left for their homes immediately after the lockdown, yards in Alang, Chittagong and Gadani suffered manpower shortages.⁶⁰ Further, the recycling operations at Alang were hit by shortage in oxygen supply as the government imposed restrictions on the supply of oxygen to industrial activities during the pandemic.⁶¹ Thus the number of ships sailing for recycling to the Indian subcontinent slumped which later on improved.

Conclusions

Ship recycling is a process of extracting equipment, materials, and machineries of economic value from end-of-life vessels for resale or reuse and removing hazardous materials before dismantling them for scrap steel.⁶² Freight rate variations brings out the trends in the ship recycling market. The supply-side determinants of ship recycling are freight rates, age of the vessels, and ship recycling regulations whereas the demand-side factors are earnings from recycling, cost of recycling, and ship recycling regulations. In a ship recycling market, demand depends mainly on the availability of ships for scrapping, although it is influenced by a set of demand determinants. In the light of the discussions on the factors that influence the ship recycling market operations, it has been learnt that along with the demand and supply determinants, the external factors also have decisive roles in determining the volume of ship recycling.

Since 2020, the shipping market witnessed an increase in freight rates which led to a decline in ship recycling operations in all the recycling nations. The passing of the RSA 2019 in India necessitated yard owners to invest on procedures of responsible recycling

and worker safety, which made the recycling operations expensive for Indian yards and therefore adversely affected the yard's profitability. The cost-effective competing yards in the neighbouring nations have been able to attract lucrative ship owners from non-party states as well as from party states who are keen to change their flags to flags of convenience. Summing up, the passing of RSA 2019 and the pandemic that followed had an adverse effect on ship recycling operations in India whereas in Bangladesh and Pakistan, recycling volume has gone up.

The recent fluctuations in the ship recycling markets have shown how a host of factors including national and international regulations, exigencies like pandemic and other factors play important roles in determining the demand-supply dynamics of these markets. There is no uniform commitment to adhere to international conventions on safe ship recycling practices among the ship-recycling nations and this has a direct impact on the recycling markets. Offering cheaper recycling facilities, though may be beneficial to their national economy in the short run, is neither sustainable nor beneficial to the environment and the workers of these nations in the long run. The competition among the recycling nations to attract end-of-the life ships must not be at the cost of long term commitment to the environment and human safety. There is an urgent need to bring in uniform compliance from all recycling nations on international regulations so that ship recycling will emerge as a stable, sustainable and economically productive activity.

Notes

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