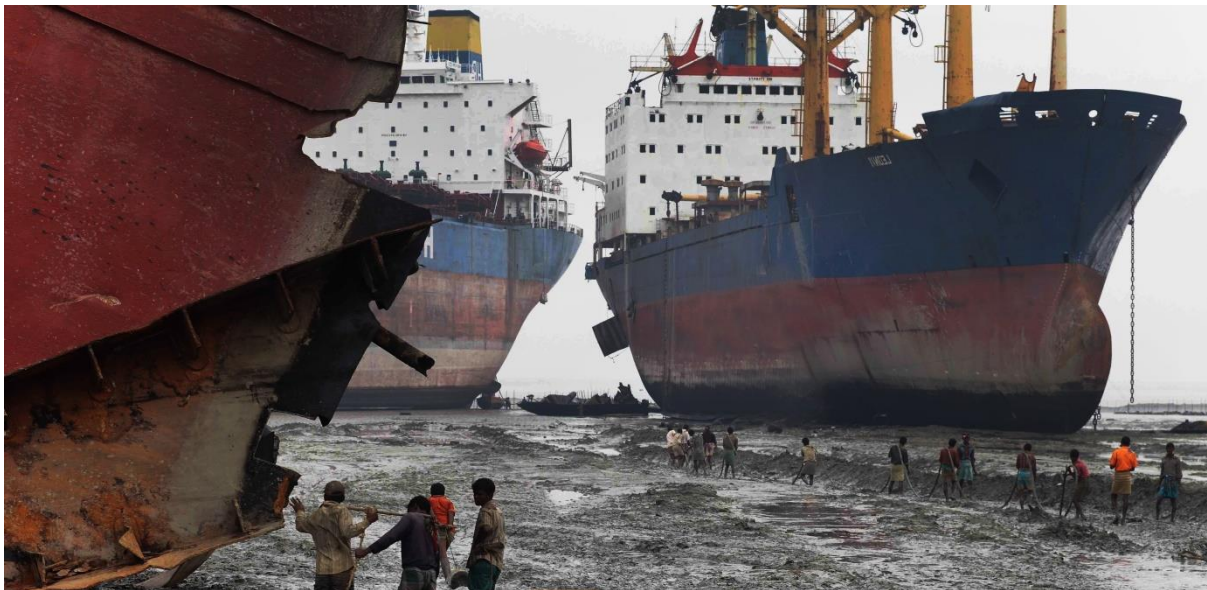


Bangladesh Ship Recycling and Marine Pollution Aspect

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Ship recycling is a viable engineering process of recovering shipbuilding material by dismantling End-of-Life (EOL) ships profitably and safely. Ship recycling activity was concentrated in industrialized countries, mainly USA, UK, Germany, Turkey, etc., until the 1960s. But from the early 1980s, old ships have been coming for recycling to India, China, Pakistan, Bangladesh, and other East Asian yards; where marine pollution is slightly neglected, health and safety standards are minimal, and workers are desperate for work. A few dozen ship-recycling yards exist along the coastal belt at Chittagong in Bangladesh. The local ship recycling industry provides the country's primary source of steel, reconditioned equipment, and machinery, create employment opportunities, generates government revenues, and contributes to the national shipbuilding industry. No doubt this industry promotes the economy of this country. At the same time, the negative image, such as environmental pollution, health hazard, and very few accidents, brings a significant challenge that should be overcome for the constancy of this industry in the long run. Shipbreaking is a

global industry, and because of the changing socio-economic scenarios of the world, it is necessary to develop the industry in such a way that it is stable and sustainable in the long run.

The worldwide ship recycling industry dismantles around 1000 large ocean-going vessels annually, such as container ships, cargo & bulkers, oil & gas tankers (LNG, LPG), passenger ships, and other types of ships, to recover steel and other valuable metals or recyclable items. However, almost all ship recycling activities are concentrated in five countries: the three South Asian countries (India, Bangladesh, and Pakistan), China, and Turkey. Further capacity is available in North America (US, Canada, Mexico) and within the European Union (Denmark, Belgium, and UK). South Asia is undoubtedly the global center for ship recycling activities. Global central recycling yards are located in India, Bangladesh, Pakistan, China, and Turkey. These countries are main ship recycling centers for annual Light Dead-Weight Ton (LDT) recycled. In 2020, around two-thirds of reported tonnage or LDT sold for recycling was in Bangladesh and India. Global ship recycles in LDT in thousand

gross tons sold in 2020, has been shown in table 1.

Ship Types	Bangladesh	India	Pakistan	Turkey	China	Rest of the world	World Total	Percentage
Bulk Carriers	5,254	1,317	1,718	34	125	61	8,509	48.9
Container	160	1,428	282	206		68	2,143	12.3
Oil Tankers	616	410	617	159	10	226	2,038	11.7
Offshore supply	125	257	4	308	3	273	969	5.6
Ferries	26	279		545	3	26	879	5.1
General cargo	176	219	175	203	47	29	848	4.9
LPG/ LNG	169	241		8		176	594	3.4
Chemical Tankers	12	125	94	1		10	241	1.4
Others	157	786		135	9	93	1,180	6.8
Total	6,694	5,061	2,890	1,598	195	962	17,401	100
Percentage	38.5	29.1	16.6	9.2	1.1	5.5	100	(%)

Table 1: Global Ship Recycles in LDT in Thousand Gross Tons Sold in 2020

In Bangladesh, an average of 200 obsolete ships is recycled annually in different yards in Chattogram. For easy understanding, the total number of different types/categories of ships recycled annually in Bangladesh between the years 2009 to 2015 is shown in figure 1. Again, from on-ground statistics of ship recycling yards in Bangladesh, an average of 2000000 LDT, different types of obsolete ships are recycled annually. The reusable material factor and average materials output per year in Bangladesh are shown in figure 2. However, the highest share increase has been observed for Pakistan, by 14.7%, and for India, by 3.2% (UNCTAD 2021).

On the contrary, there were visible reductions in Bangladesh by 15% and in China by 2%. China's market share has reduced due to the ban on international ship recycling. At the same time, Bangladesh's market share has declined due to local restrictions by government regulation.

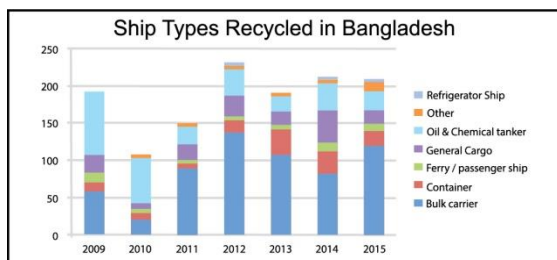


Figure 1: Number of Ships Recycled Annually in Bangladesh (From 2009 to 2015) (Hossain, 2017)

Local ship recycling in Chittagong of Bangladesh started accidentally by dismantling the Greek ship M D Alpine, which was brought to shore near Fauzdarhat by the 1960s cyclone. The abundant ship was dismantled in 1965 by

Chittagong Steel House. Subsequently, the Pakistani ship Al Abbas was salvaged, beached at Fauzdarhat, and dismantled in 1974 by Karnafully Metal Works. These incidents draw the attention of a few entrepreneurs to the suitability of the coastline near Fauzdarhat for beaching. Over the years, the ship recycling industry in Chittagong has gone through lean and boom periods to become the world's largest ship recycling industry in 2015. Now the shipbreaking and recycling industry (SBRI) spans over 20 km coast of the Bhatoary- Fauzdarhat- Baroiyawlia area. SBRI consists of over a hundred ship recycling yards in the register, where a few dozen are in regular operation. The industry directly employs over 200,000 laborers and accounts for the supply of more than half of Bangladesh's steel products. Around one million people indirectly earn their bread and butter from this industry.

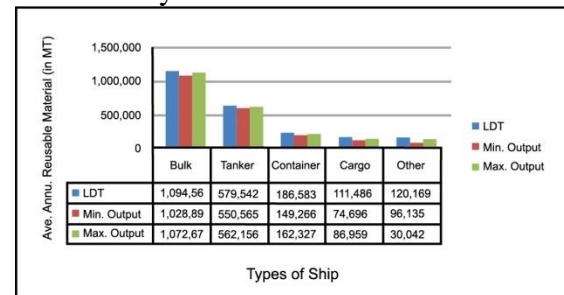


Figure 2: Average Annual LDT and Reusable Material Output of SBRI (From 2009 to 2015) (Hossain, 2018)

Several factors have pushed the growth of this sector over time which include the favorable beaching condition, which is God-gifted, the closeness of the beach to the industrial hub of Chottagram, mainly the steel rerolling mills, which consume most of the output from the industry, availability of risk-taking entrepreneurs, access to abundant labor from the northern districts of Bangladesh, the favorable legislative framework allowing the operation of the industry for decades even without it being considered as an industry. The high demand in the local market for scrap ferrous and non-ferrous metals and other cheaper items recovered from the industry, access to finance from formal

financial institutions, and informal money lenders. Again, the growth of upstream and downstream industries has formed an informal industrial symbiotic and interdependent network. The interesting point is that almost every output from the EOL ships is sold in the local market and consumed or processed by the forward and backward linkage industries closer to the recycling yards.

The main problems of SBRI are poor labor-management due to the harsh work environment for the manual labor, the lack of protective clothing and equipment, the predominance of manual processes and the rate of accidents along with environmental issues caused by poor hazardous waste management, coastal contamination, water, and air pollution, the spread of hazardous materials into the environment, forest destruction, etc. Based on these visible problems, the Bangladesh Environmental Lawyer's Association (BELA) petitioned the High Court in 2008. This resulted in the order by the Bangladesh High Court directing the expert-supervised removal of hazardous wastes from ships before dismantling. It also ordered ship recycling yards to obtain Environmental Clearance Certificates (ECC) from the Department of Environment (DoE) to be allowed to import ships and the Government to formulate regulations to control SBRI. Due to the ruling by the High Court in 2010, the import and dismantling of ships in Bangladesh were stopped. Ship recycling activities resumed a few months later in 2011, as the Ministry of Industry (MoI) implemented and issued the Ship Breaking Waste Management Rules.

Currently, the SBRI is bound by the Ship Breaking and Ship Recycling Rules 2011 under the MOI along with Environmental Protection Act 1995 and Environmental Protection Rules 1997 under the supervision of DoE under the Ministry of Environment, Forest and Climate Change (MoEFCC). Presently, the local yards' labor safety and environmental management standards have shown signs of distinct improvement after implementing those roles and regulations and taking those measures. Now, Bangladesh Government has established the "Ship Building and Ship Recycling Board" (SBSRB) as the one-stop service provider under the MoI. It provides integrated services, including granting required permissions and certificates for Shipbreaking, recycling, and other related activities in cooperation with other responsible departments and ministries. DoE is working to ensure sustainable environmental governance for pollution control. This department is solely responsible for issuing an ECC before establishing any industrial unit in Bangladesh and thus shipping recycling yards as well. It also issues authorizations for handling hazardous wastes generated from ship recycling activities. At present central recycling yards of Bangladesh are following a viable recycling technique and are almost at the door to achieving international standards for the Health Safety and Environment (HSE) aspect.

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