

Towards a Safe and Sustainable Industry of Ship Breaking: International Initiatives and South Asian Response

Ishtiaque Ahmed, J.S.D.*

I INTRODUCTION

Ship breaking is a process of dismantling End of Life vessels after their useful lives are over. This is an inseparable part of the global shipping industry.¹ Around the world, annually, almost 1800 sea going ships over 500 GT become obsolete.² Since the middle of 1980s, almost 95% of the obsolete ship tonnage around the world is being recycled in only five developing countries; namely Bangladesh, India, Pakistan, China, and Turkey.³ Importantly, over 70-80% of these vessels are being sent to only three of those South

*Ishtiaque Ahmed, J.S.D., University of Maine School of Law, USA; LL.M. (Maritime Law), University of London in Association with Queen Mary and UCL; LL.B (Honors) University of London; Member Chartered Institute of Arbitrators, London (MCI Arb), is an Assistant Professor & Chair, Department of Law, North South University, and Non-Resident Visiting Scholar and Affiliate Faculty, Center for Oceans and Coastal Law, University of Maine School of Law. This article is an adapted version of a chapter of the author's doctoral dissertation and he would like to thank his doctoral supervisor, Professor Charles H. Norchi, J.S.D (Yale) and Readers Professor Martin A. Rogoff and Attorney Timothy Steigelman Esq. for their useful comments on that chapter; all errors or inadequacies are the author's alone.

¹World Maritime Day message of IMO Secretary-General, Koji Sekimizu. See, UNITED NATIONS REGIONAL INFORMATION CENTRE FOR WESTERN EUROPE (UNRIC) (2013), <https://www.unric.org/en/latest-un-buzz/28709-sustainable-development-imos-contribution-beyond-rio20> (last visited Mar. 4, 2017).

²K. P. Jain, J. F. J. Pruyun, & J. J. Hopman, Critical Analysis of the Hong Kong International Convention on Ship Recycling, 7 Int'l J. of Env'tl, Chem., Ecological, Geological & Geophysical Engineering no.10 684 (2013). Cited in N. Mikelis, Hong Kong Convention: The origins of a convention, World Maritime Univ. (2012) (Presentation).

³Sohanur Rahman, Aspects and Impacts of Ship Recycling in Bangladesh, MARTEC 268 (Dec. 2016), <https://www.sciencedirect.com/science/article/pii/S1877705817332952> (last visited Mar. 25, 2020) (10th International Conference on Marine Technology).

Asian countries, namely Bangladesh, India, and Pakistan.⁴ Bangladesh is currently the market leader in global ship recycling industry, dismantling the highest number of ships annually,⁵ and producing the highest amount of scrap iron from recycling End of Life ships.⁶ Almost 95% of each ship's goods and materials is utilized and consumed in the domestic markets as second-hand goods,⁷ and includes ninety percent of re-rollable scrap metals.⁸ Five percent of the total ship's mass constitutes hazardous and other wastes⁹ that are objectionable and unwelcome by everyone. In aggregate terms, these form a considerable amount and pose a severe threat to human health and the environment of ship recycling countries if they cannot be managed in a safe and environmentally sound manner.

⁴Sarraf et al., *Ship breaking and Recycling Industry in Bangladesh and Pakistan*, World Bank Report 9 (2010), <http://siteresources.worldbank.org/SOUTHASIAEXT/Resources/223546-1296680097256/Shipbreaking.pdf> (last visited Jan. 4, 2017). Some claim this to be more than 90%. See, e.g., Shreya Mishra, *Non-entry into force of the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009: An analysis from the perspective of India, Pakistan and Bangladesh*, 2 *J. Int'l Mar. Safety, Evt'l Affairs, & Shipping*, 22-30 (Aug. 14, 2018), <https://www.tandfonline.com/doi/full/10.1080/25725084.2018.1490240>.

⁵After more than a decade, in 2019 Turkey acquired the third position globally defeating Pakistan and China. See <https://www.offthebeach.org/>. See also ISH Fair play.

⁶The Daily Prothom Alo (Nov. 9, 2019).

⁷Thomas Ormond, *Hong Kong Convention and EU Ship Recycling Regulation: Can they change bad industrial practices soon?* 5 *Envir. & Internal Market*, 2 (2013), <https://www.ecolex.org/details/literature/hong-kong-convention-and-eu-ship-recycling-regulation-can-they-change-bad-industrial-practices-soon-ana-087131/> (last visited Mar. 25, 2020).

⁸Ron Hess Et Al., *Disposal Options for Ships*, 113 (Rand Corporation, 2001).

⁹R. Scott Frey, *Breaking Ships in the World-System: An Analysis of Two Ship Breaking Capitals, Alang India and Chittagong, Bangladesh*, Center for Study of Social Justice (CSSJ) 11 (May 2013), http://trace.tennessee.edu/cgi/viewcontent.cgi?article=1001&context=utk_cssjpapers

(last visited Jan. 4, 2018) (Working Papers). Cited in Sarraf, *supra* note 4.

II MIGRATION OF SHIPBREAKING INDUSTRY TO THE GLOBAL SOUTH

Ship breaking is an extremely labor intensive industry.¹⁰ Irrespective of where it occurs, whether in a developed society or an underdeveloped economy, the activity remains the most dangerous occupation in the world.¹¹ The management of the hazardous wastes produced from ship breaking has long been an intractable challenge for the global shipping community¹² because of the high costs involved in the transaction.¹³ The difference in the cost of labor also varies tremendously between the developed and developing nations.¹⁴ Sound management of ship breaking activities, with proper regard to the health, safety and the environment, raises critical questions of the economic viability of such activity.¹⁵ Ship recycling businesses have consequently been

¹⁰Ishtiaque Ahmed, *Unmasking the Critical Participants in Shipbreaking Industry for Apportioning Their Role in Law and Policy Making: A Perspective from Bangladesh*, Transp. L. J., Sturm College of Law, Univ. of Denver (2020) (forthcoming).

¹¹Elin Saltkjel, Head of QA and Business Development, Grieg Green AS and Kan Matsuzaki, Director, Industry All Union, Interviewed by Author, 2020, ACI Ship Recycling Congress 2020, Amsterdam, The Netherlands.

¹²M. Hossain & M. M. Islam, *Ship Breaking Activities and Its Impact on the Coastal Zone of Chittagong*, 12 (Advocacy & Publication Unit YPSA, 2006).

¹³U.S. Navy spent USD 20 million for cleaning and scuttling the EOL vessel U.S.S Oriskany in 2006. See Andrew Moseman, *Navy's Old Ships Get a Second Life, as Fish Residences*, Discover (Aug. 19, 2008), <http://blogs.discovermagazine.com/discoblog/2008/08/19/the-navys-old-ships-get-a-second-life-as-fish-residences/#.WsFQ3Zoh2U1> (last visited July 4, 2017). Also see Eva Grey, *Can a new financial mechanism put an end to dangerous shipbreaking?* Ship Technology (Nov. 7, 2017), <https://www.ship-technology.com/features/can-new-financial-mechanism-put-end-dangerous-shipbreaking/> (last visited July 4, 2017).

¹⁴Gary S. Fields, *Labor Market Analysis for Developing Countries*, Cornell Univ. Ilr School, 4 (2010), <https://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?referer=https://www.google.com/&httpsredir=1&article=1156&context=workingpapers> (last visited Feb. 15, 2020). See also *What is the minimum wage in Japan? 2019 Ranking by Prefecture*, (Aug. 4 2019), <https://resources.realestate.co.jp/living/what-is-the-minimum-wage-in-japan-2019-ranking-by-prefecture/> (last visited Feb. 15, 2020).

¹⁵A U.S. ship breaking yard in 2011 confirmed the cost of ship breaking as follows: Warship USD 900 to 1300 per LDT, Military vessel USD 300 to 700 per LDT and commercial vessel USD 100 to 500 per LDT. See Gopal Krishna Chowdhary, *An analysis of the creation of a global ship recycling fund in the framework of the Hong*

shifted from the industrial developed countries of the west to the impoverished developing countries of the east.¹⁶ Availability of cheap labor,¹⁷ geographical advantage, favorable weather conditions, and a huge demand for scrap metals in growing construction industries, as well as a lack of enforcement of workers' rights, and environmental and coastal laws, have all contributed to this progressive transition.¹⁸

Shipowners from predominantly developed nations benefit from avoiding the burden of expensive disposal in their own territories and instead earn a windfall profit by sending that burden to states that have weaker economies.¹⁹ The developing countries on the other hand, possessing no iron mines of their own,²⁰ desperately need scrap metals for growing development, and benefit from the easiest and cheapest way of importing iron scrap into their territories. This entails a stable savings of foreign currencies,²¹ helps in the reduction of spending energies, and provides badly needed jobs for millions of unskilled and low skilled workers.²² In

Kong International Convention for the Safe and Environmentally Sound Recycling of Ships, 2009, World Maritime University, 54 (2011), https://commons.wmu.se/cgi/viewcontent.cgi?referer=https://www.bing.com/&httpsredir=1&article=1101&context=all_dissertations (last visited Mar. 12, 2018) (MSc Thesis). According to the recent market, in 2017-2018, ships are sold by cash buyers in South Asian ship breaking yards at the rate on average USD 300 per LDT. See Xiaolin Zeng, Ship scrap prices up on higher steel prices, FAIR PLAY (Feb. 21, 2017), <https://fairplay.ihs.com/commerce/article/4282391/ship-scrap-prices-up-on-higher-steel-prices> (last visited Jan. 4, 2018).

¹⁶Greenpeace, Shipbreaking: A Global Environmental, Health and Labor Challenge, 2 (Mar. 2000), https://www.academia.edu/21487980/Shipbreaking_A_Global_Environmental_Health_and_Labour_Challenge_A_Greenpeace_Report_for_IMO_MEPC_44_th_Session (last visited Jan. 4, 2017) (A Greenpeace Report for IMO MEPC 44th Session).

¹⁷Id.

¹⁸In 1960 UK and U.S.A. were the market leaders in ship recycling See Bright Hub Engineering (2016), <https://www.brighthubengineering.com/marine-engines-machinery/63667-marine-engineering-scraping-and-recycling-ships/> (last visited Feb. 4, 2018).

¹⁹Puthucherril, Trans-Boundary Movement of Hazardous Ships for Their Last Rites: Will the Ship Recycling Convention Make a Difference? 24 *Ocean Yearbook* 53 (2010), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1908196.

²⁰Mariam Whyte & Yong Jui Lin, Bangladesh (Cultures Of The World), 61 (Marshall Cavendish Benchmark, New York, 2009).

²¹Hossain & Islam, *supra* note 12, at 10.

²²Helal Ahammad & Mohammad Sujaudin, Contributions of Ship Recycling in Bangladesh: An Economic Assessment, IMO 1 (2017), <http://www.imo.org/en/>

South Asia, Bangladesh has dedicated twenty kilometers of its coastline around Chittagong to dismantle merchant ships of global owners.²³ India has offered ten kilometers along its coastal belt of Alang in Gujarat.²⁴ Pakistan is considered to be the third largest shipbreaking state in the world,²⁵ has stretched out seven kilometers of its coastal area, Gadani, for breaking obsolete vessels.²⁶ The method of recycling used in all these developing nations is common and popularly known as beach breaking or beaching.²⁷

III

BEACHING: A CONTROVERSIAL METHOD OF SHIP RECYCLING

Beaching is the predominant method of recycling of ships²⁸ currently carried out only in Bangladesh, India and Pakistan.²⁹ The method is quite straightforward; ships are run full steam ahead against the shore during high tide³⁰ until they are finally grounded

OurWork/Environment/MajorProjects/Documents/Ship%20recycling/WP1a%20Economic%20Impacts%20Study.pdf (last visited Jan. 23, 2018) [hereinafter Economic Impact Study SENSREC Project 2017].

²³Chittagong Ship-breaking Yards, Atlas Obscura ¶ 4 (2020), <https://www.atlasobscura.com/places/chittagong-shipbreaking-yards> (last visited Mar. 7, 2020).

²⁴P.B. Jaya Kumar, The Return of Alang, *Business Today*, ¶ 9 (Apr. 13, 2017), <https://www.businesstoday.in/magazine/features/the--return-of--alang/story/249159.html> (last visited Mar. 6, 2020).

²⁵Ship Breaking Yard of Gadani, Atlas Obscura, ¶ 2 (2020), <https://www.atlasobscura.com/places/ship-breaking-yard-gadani> (last visited Mar. 7, 2020).

²⁶Sarraf, *supra* note 4, at 6.

²⁷Ishtiaque Ahmed, Unravelling Socio-economic and Ecological Distribution Conflicts in Ship Breaking in Bangladesh for Addressing Negative Externalities in Law and Policy Making, *Minn. J. Int'l L.* 161, (2020).

²⁸Khandakar Akhter Hossain, Ship Recycling Practice and Annual Reusable Material Output from Bangladesh Ship Recycling Industry, 7 *Fundam Renewable Energy* no.5, 1 (Apr. 2017), <https://www.longdom.org/open-access/ship-recycling-practice-and-annual-reusable-material-output-from-bangladesh-ship-recycling-industry-2090-4541-1000238.pdf>.

²⁹*Id.* at 4.

³⁰Also known as beaching tide.

on the tidal mudflat.³¹ Each ship is then gradually winched forward up the beach, bit by bit, with the help of semidiurnal tides while the cutting work continues.³² Thousands of unskilled, low skilled and semi-skilled workers work on the soft, wet and muddy beach, often in bare feet. They perform dismantling of ships with little in the way of protective gear or safety equipment.³³ According to media and NGO reports, the most sophisticated tool used in these South Asian beaches is the hand held blow torch.³⁴ This method of ship breaking has been acknowledged by the ILO as one of the most life threatening and dangerous occupations in the world.³⁵ Considering the nature and the degree of threat exposed in the activity, the Global Trade Union, IndustriAll, has termed ship breaking the most dangerous occupation in the world.³⁶

Because of this method of beaching, the soft and muddy land does not allow for the use of heavy duty cranes close to the ships while they are being dismantled. During full tide even a large vessel of approximately 40,000 MT LDT remains fully submerged up to the height of the tank top, but the cutting work of the vessel still continues. NGOs have reported that in many cases bunker fuel tanks are cut sideways during low tide to allow rising tides to progressively wash out the oil tanks, thereby eliminating the need for expensive cleaning.³⁷ Field surveys reveal that the strict requirements of the law are not always followed. In adverse weather conditions the scheduled inspections for gas free and hot work on tankers are rarely carried out at anchorage by the

³¹Mathesh B & Sateesh Babu P K, Energy Consumption for Ship Dismantling through Beaching Method, 1 *Iosr J. of Mech. & Civil Eng.* no.5, 65 (2016), <http://iosrjournals.org/iosr-jmce/papers/ICETEM/Vol.%201%20Issue%205/56-64-67.pdf> (last visited Jan. 4, 2017).

³²*Id.*

³³Lloyd's Register, Ship Recycling Practice and regulation today, Lloyd's Register Report, 13 (2011), http://www.shipbreakingplatform.org/shipbrea_wp2011/wp-content/uploads/2011/11/Ship-Recycling-Lloyds-Register-report-June-2011.pdf (last visited Sept. 13, 2017). See also Whyte & Lin, *supra* note 20.

³⁴Michael H. Gavshon, The Ship Breakers, Youtube (2013), <https://www.youtube.com/watch?v=PdYK2vb6McE> (last visited Sept. 13, 2017).

³⁵International Labour Organization ¶ 1 (2018), http://www.ilo.org/safework/info/WCMS_110335/lang--en/index.htm (last visited Nov. 4, 2017).

³⁶Cleaning up shipbreaking the world's most dangerous job, IndustriAll (2015), <http://www.industriall-union.org/cleaning-up-ship-breaking-the-worlds-most-dangerous-job> (last visited Nov. 4, 2017).

³⁷Michael Galley, Shipbreaking- A Convenient Washing of Hands? Solent, 100 (2008), http://ssudl.solent.ac.uk/1033/1/2008_12_2.pdf (last visited Aug. 31, 2017). However, this has not been a prevalent practice in all yards.

Department of Explosives (DoEx) officials.³⁸ Reportedly, burning to death by fire or explosion remains the most frequent accident among all the South Asian shipbreaking facilities.³⁹

Upon beaching, the bunker oil remaining on board is pumped out and sold to local vendors.⁴⁰ When the remaining level is too low and the pump loses suction, the waste oils are collected by hand pumps and stored in drums.⁴¹ These are carried manually from the ship and rolled across the intertidal zone of the beach towards the waste oil facility.⁴² The oil transfer process is carried out mostly manually without proper supervision or precautions. Spillage on the beach therefore remains unavoidable.⁴³

Until a vessel touches the beachhead, its main and auxiliary machinery must remain operational. As a result, significant amounts of oil necessarily remain in the engine room machinery and piping systems. In older ships, various leakages across the engine room piping system are almost an inevitable phenomenon. If the beaching method is used, it is almost impossible to avoid releasing used and dirty oil into the marine environment.⁴⁴

Throughout the breaking operations, workers go through a challenging process. The labyrinthine workplace exposes the workers to a non-ergonomic and toxic environment,⁴⁵ and involves

³⁸Interview with Md. Tofazzal Hossain, Inspector of Explosives, Department of Explosives, Chittagong Division Government of Bangladesh, Chittagong (Aug. 4, 2016).

³⁹South Asia Quarterly Update, NGO Ship Breaking Platform, 3 (Apr. 2016), http://www.shipbreakingplatform.org/shipbrea_wp2011/wp-content/uploads/2016/04/SOUTH-ASIA-QUARTERLY-UPDATE-9-final.pdf.

⁴⁰Interview with Mohammad Ali Shahin, Bangladesh Coordinator NGO Ship Breaking Platform, Dhaka, Bangladesh (Aug. 10, 2016) [hereinafter Shahin Interview].

⁴¹Id.

⁴²Daniel Miller, World's biggest ship graveyard - where huge tankers and cruise liners are scrapped on the shorefront and workers toil for £2 a day, *The Daily Mail* (May 14, 2013), <https://www.dailymail.co.uk/news/article-2324339/Worlds-biggest-ship-graveyard--huge-tankers-cruise-liners-scrapped-shorefront-workers-toil-2-day.html> (last visited Mar. 7, 2018).

⁴³Shahin Interview *supra* note 40.

⁴⁴Jonathan Saul & Simon Jessop, Shipping's financiers turning the tide on shipbreaking practices, *Reuters*, ¶ 46 (May 15, 2018), <https://www.reuters.com/article/us-shipping-investment-beaching-insight/shippings-financiers-turning-the-tide-on-shipbreaking-practices-idUSKCN1IG0JC>.

⁴⁵Hrudanand Misra, Skill and education in income determination: a case study of unorganized workers of Alang, 51 *Indian J. of Labour Economics*, 955, <http://www.isleijle.org/ijle/IssuePdf/c41960fa-6c3d-4d0e-9313-65eb3f2e2bc7.PDF> (last visited July 5, 2017).

great difficulty in accessing the ship with mechanical aids, even when emergency lifesaving equipment is required.

Beaching, a primitive,⁴⁶ colossally dangerous and the least expensive method of recycling, has given the ‘Giant 3’⁴⁷ a huge competitive edge in the global ship recycling marketplace. Beginning on January 1, 2019, China, the fourth largest ship recycling state,⁴⁸ completely banned importing scrap vessels for recycling from foreign countries.⁴⁹ Using beaches for dismantling of ships has been unlawful in China for a long time.⁵⁰ Turkey uses the slipway method, and relies on the depth of water adjacent to the coast instead of a tidal difference in the flat intertidal zone to get to vessels.⁵¹ There is no significant tidal difference in Aliaga, Turkey where recycling takes place, and the slipway method⁵² used in Aliaga only can be used for vessels up to around 10,000 LDT.⁵³

⁴⁶Greenpeace commented that there is at least a 200 year gap in the technology used by the ship recyclers of the global south and the international shipping operators from the global north. See Greenpeace, *Shipbreaking: A Global Environmental, Health and Labor Challenge*, 3.

⁴⁷India, Bangladesh and Pakistan dismantle almost 90% of the total world obsolete shipping tonnage. See Mishra, *supra* note 4. In 2019, Bangladesh alone has recycled almost half (47.2%) of the total tonnage recycled by the global shipping industry. See Masud Milan, *Jahaz Bhangar netritte Ekhon Bangladesh*, *The Daily Prothom Alo* (Nov. 9, 2019).

⁴⁸Jason Jiang, *Calls grow for Beijing to scrap ship recycling ban*, *Splash247.com*, ¶ 1 (Jan. 10, 2019), <https://splash247.com/calls-grow-for-beijing-to-scrap-ship-recycling-ban/> (last visited Mar. 7, 2018).

⁴⁹*Id.*

⁵⁰Xie D, *Present situation and future development of the ship recycling industry in China*, Hong Kong, (2007), www.bimco.org/sitecore/shell/Control. Cited in K Sivaprasad, *Development of best practices for ship recycling processes*, Cochin University of Science and Technology, 13 (2010), <https://dyuthi.cusat.ac.in/jspui/bitstream/purl/2353/1/Dyuthi-T0626.pdf> (last visited Mar. 7, 2020) (Ph. D Thesis). See also Gonna Ketels, *Responsible shipbreaking can secure a sustainable future for shipping: NGO*, *Sea Trade Maritime News* (June 20, 2016), <http://www.seatrade-maritime.com/news/asia/responsible-shipbreaking-can-secure-a-sustainable-future-for-shiping-ngo.html> (last visited Jan. 4, 2018).

⁵¹Turkey, *NGO Shipbreaking Platform*, <https://www.shipbreakingplatform.org/our-work/the-problem/turkey/> (last visited Jan. 4, 2018).

⁵²Slipway method/Landing: In this method, the ship is sailed against the shore or a concrete slipway extending into the sea. This method is characterized by it being conducted as a site that has little or no tide.

⁵³Neser et al., *The shipbreaking industry in Turkey: environmental, safety and health issues*, 16 *Journal Of Cleaner Production*. 352 (2008), <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.456.6708&rep=rep1&type=pdf> (last visited Jan. 4, 2018).

The maximum tide in Gadani, Pakistan only goes up to 3 meters. However, in Chittagong, Bangladesh and Alang, India, the maximum tide is over 33 feet,⁵⁴ allowing some of the largest vessels in the world to beached.⁵⁵ This *modus operandi* of beaching operations, only available because of the unusual geographical characteristics, has separated the Indian subcontinent from the rest of the world when it comes to EOL ship recycling. The remarkable difference between high and the low tide,⁵⁶ and the natural tidal force of the Bay of Bengal around Chittagong, Bangladesh and the Gulf of Khambat around Alang, India, have made it incredibly easy and offered the least expensive way to get vessels of any size, type and capacity directly onto the dry part of the beach. The natural tidal force, the power of simple hand-held blow torches and the natural gravitational force combine, and almost eliminate the need to use heavy machinery, advanced technology, expensive instruments, or powerful cranes or high capacity lifting gears for this staggeringly demanding work. With some exceptions, this is the prevalent method used for end of life vessels and is practiced only in South Asian ship recycling nations.

IV

A DICHOTOMY OF ENVIRONMENT AND DEVELOPMENT

As a notoriously hazardous and filthy industry,⁵⁷ global ship recycling began receiving media attention and public criticism soon after the business migrated from the developed shipbuilding countries of the North to the developing nations of the South in the

⁵⁴Alang, *supra* note 24. See also Press Correspondent, Shipbreaking: Call for proper waste management, *The Express Tribune* (Aug. 18, 2015), <https://tribune.com.pk/story/939892/ship-breaking-call-for-proper-waste-management/> (last visited Apr. 10, 2018).

⁵⁵Press Correspondent, Shipbreaking: Call for proper waste management, *The Express Tribune* (Aug. 18, 2015), <https://tribune.com.pk/story/939892/ship-breaking-call-for-proper-waste-management/>.

⁵⁶The difference in South Asian beaching facilities is about 35 to 42 feet for tidal advantage over developed countries. See Tide Forecast (2018), <https://www.tide-forecast.com/locations/Chittagong-Bangladesh/tides/latest> (last visited Mar. 16, 2018). Also Alang Trade Guide (2018), <http://www.alangtradeguide.com/TideTable.aspx> (last visited Mar. 16, 2018).

⁵⁷Shipbreaking—A Dirty and Dangerous Industry, *Dry Cargo Int'l*, 1 (Oct. 16, 2019), <https://www.drycargomag.com/shipbreaking-a-dirty-and-dangerous-industry> (last visited Jan. 16, 2020).

early 1980s.⁵⁸ Until it came to the developing nations like Bangladesh, India and Pakistan it was a highly mechanized industry.⁵⁹ Bangladesh remained the largest shipbreaking state from 2004 to 2008.⁶⁰ The import of ships into this country has increased at the rate of 14% per annum on average consistently since 1980.⁶¹ In 2019, Bangladesh recycled nearly half of the total obsolete tonnage of the world.⁶² However, the problems associated with shipbreaking in this country have been recurrent ones. Incidents of human casualties have increased at the same pace as the increase in the import of ships and shipbreaking activities.⁶³

Typically ship breaking industry unmasks many contrasting claims between stakeholders in the field with respect to their socio-economic contributions.⁶⁴ There is also significant debate among

⁵⁸Tridib & PJ, *Fatal Accidents in Shipbreaking Yards, Recycling Ships* (1998), <http://recyclingships.blogspot.com/p/fatal-accidents-in-shipbreaking-yards.html> (last visited Mar. 13, 2018).

⁵⁹Muhammad Muhibbullah, *Health hazards and risks vulnerability of ship breaking workers: A case study on Sitakunda ship breaking industrial area of Bangladesh*, 2 *Global Advanced Research Journal of Geography and Regional Planning* no.8, 173, http://www.shipbreakingplatform.org/shipbrea_wp2011/wp-content/uploads/2014/12/Health-hazards-and-risks-vulnerability-of-ship-breaking-works-Muhibbullah-Nov-2013.pdf (last visited July 4, 2018).

⁶⁰Gerostergiou, *Ship breaking: a study on the demolition market*, University of Piraeus, 3 (2012), <http://dione.lib.unipi.gr/xmlui/handle/unipi/4633?locale-attribute=en> (last visited Jan. 23, 2017) (Master's Thesis). See also NGO Ship Breaking Platform, *2017 List of all ships scrapped worldwide - Facts and Figures*, 1 (2018). See also N. M. Golam Zakaria & K. A. Hossain, *Underlying problems of ship recycling industries in Bangladesh and way forward*, 42 *J. Mech. Eng.* (Dec. 2012), <https://www.banglajol.info/index.php/JME/article/view/15932> (last visited May 7, 2020).

⁶¹Economic Impact Study SENSREC Project 2017, *supra* note 22, at viii.

⁶²The Daily Prothom Alo (Nov. 2019).

⁶³Devault, Beilvert, & Winterton, *Environmental Science Policy Research*, 25745. Several reports claim this to be up to 40 per year. See Mr. Ramapati Kumar, *Ship Dismantling: A status report on South Asia*, Euroconsult Mott Macdonald and WWF-India 25, http://www.shipbreakingplatform.org/shipbrea_wp2011/wp-content/uploads/2013/07/ship_dismantling_en.pdf (last visited Mar. 2, 2018). Cited in the Report by YPSA on Chittagong ship-breaking yard, 2005. The Number of deaths in 2006: 11, 2007: 8, 2008: 14, 2009: 25, 2010: 12, 2011: 15, 2012: 15, 2013: 20, 2014: 16, 2015: 16, 2016: 22, 2017: 15. See S. Karim, *Shipbreaking in Developing Countries A Requiem For Environmental Justice from the Perspective of Bangladesh*, 6 (2017) (ebook).

⁶⁴Ahmed, *supra* note 10. See also S. M. Mizanur Rahman, Chelsea Schelly, Audrey L. Mayer, & Emma S. Norman, *Uncovering Discursive Framings of the Bangladesh Shipbreaking Industry*, 9, <https://webcache.googleusercontent.com/search?q=cache:YQYeRWg2laYJ:https://www.mdpi.com/2076-0760/7/1/14/pdf+&cd=5&hl=en&ct=clnk&gl=bd&client=firefox-b-d> (last visited Feb. 23, 2020).

the scholars discussing shipbreaking issues.⁶⁵ Admittedly, the economic contributions of the shipbreaking industry were not portrayed in published literatures in enough detail⁶⁶ when compared to the discourses that described the social and environmental disasters arising from shipbreaking. Two recent reports; the Environmental Impact Study and the Economic Impact Study entitled, “Safe and Environmentally Sound Ship Recycling in Bangladesh – Phase I” (“SENSREC Project, Bangladesh”),⁶⁷ published under the auspicious of the International Maritime Organization (IMO) and the Government of Bangladesh (GOB), are worth considering.

The SENSREC Economic Impact Study has documented remarkable economic benefits from shipbreaking in Bangladesh. Its Environmental Impact Study has concluded that shipbreaking activities in Bangladesh did not cause any mentionable harm in the coastal areas of the country despite the increasing operation in Bangladesh over the last several decades.⁶⁸ While the IMO attempted to separate itself from the claims made in these publications,⁶⁹ these academic works were designed to enhance the credible information base on shipbreaking in Bangladesh.⁷⁰ Some argue these reports serve as a timely response to the “off the beach” propaganda of green activists⁷¹ opposing beach breaking,⁷² widely practiced in South Asia since 1980s.⁷³ Notably, the findings of both

⁶⁵Ahmed, *supra* note 27.

⁶⁶Economic Impact Study SENSREC Project 2017, *supra* note 22, at x.

⁶⁷Safe and Environmentally Sound Ship Recycling in Bangladesh, IMO ¶ 1 (2018), <http://www.imo.org/en/OurWork/PartnershipsProjects/Pages/Ship-recycling.aspx> (last visited Mar. 7, 2020).

⁶⁸Shahadat Hossain. M. Sharifuzzaman, & SR Chowdhury, Environmental impact of the ship recycling industry in Bangladesh, IMO 105 (2016), https://moind.portal.gov.bd/sites/default/files/files/moind.portal.gov.bd/files/854c4dd8_a716_47c6_bc2e_863c7138ba33/WP1b%20Environmental%20Impact%20Study.pdf (last visited Feb. 25, 2020) [hereinafter IMO Environmental Impact Study SENSREC Project].

⁶⁹*Id.* at 3.

⁷⁰Economic Impact Study SENSREC Project 2017, *supra* note 22, at 63.

⁷¹Shahin Interview *supra* note 40.

⁷²Off the Beach, <http://www.offthebeach.org/> (last visited Mar. 3, 2018).

⁷³Jan MÅ,ller Hansen, The Graveyard of Giants: A history of ship breaking in Bangladesh, *GCaptain 1* (Feb. 28, 2012), <https://gcaptain.com/graveyard-giants-history-ship/> (last visited Feb. 23, 2020). See also Alan Taylor, The Ship breakers, (Nov. 24, 2014), <https://www.theatlantic.com/photo/2014/11/the-ship-breakers/100859/> (last visited Feb. 23, 2020).

the reports of the IMO⁷⁴ augmented the growth of the industry by highlighting the economic merits and soft-pedaling the environmental footprints of ship recycling.

The SENSREC project calls for a closer scrutiny over the safety and health issues in shipbreaking, but the IMO and GOB have avoided an assessment of the social costs of shipbreaking in Bangladesh for unknown reasons. There is, however, no dearth of information on the matter available from reports of NGOs, at both the global and national levels, including reports from international organizations, independent researchers and the media.

Relying on academic articles favorable to the industry of shipbreaking has been a recent strategy to respond to the propaganda by green activists who oppose shipbreaking on the beach.⁷⁵ There is an unspoken kinship between the top brass of IMO, leading international cash buyers,⁷⁶ and top officials of the GOB, such that the SENSREC project⁷⁷ is subject to a reasonable

⁷⁴IMO is a specialized agency of the United Nations. It is the global standard-setting authority for the safety, security and environmental performance of international shipping. Its main role is to create a regulatory framework for the shipping industry that is fair and effective, universally adopted and universally implemented.

⁷⁵Noting the comments on pollution from beach breaking, made by the owner of the largest Cash Buyer in the world, GMS, Dr Anil Sharma in an interview taken by Maritime Executive in 2015. See W. Laursen, Interview: Dr. Anil Sharma, President and CEO, GMS, Maritime Executive, ¶ 8 (Jan. 8, 2016), <https://www.maritime-executive.com/magazine/dr-anil-sharma-president-ceo-gms#gs.6DR41xk> (last visited Apr. 5, 2018).

⁷⁶Cash buyers first pay ship owners up-front before the ship reaches its destination to be dismantled, and then re-sell the ship to the breaker that can offer the highest price, thereby making a profit with the price difference. See <https://www.shipbreakingplatform.org/our-work/the-problem/cash-buyers/> (last visited Feb. 12, 2020).

⁷⁷The Chief Consultant of SENSREC project is a non-Executive Director and senior salaried employee of GMS, the largest Cash Buyer in the world. The same person was a former head of the ship recycling division of IMO. Cash Buyer GMS in its website claims the said former high official of IMO as the father of the Hong Kong Convention because of his contribution to the drafting and adoption of the convention. See Green Experience, GMS Leadership (2011), http://www.gmsinc.net/gms_new/index.php/gms-experience (last visited Mar. 4, 2018). The IMO SENSREC report was actively supervised and directed by said chief consultant. The SENSREC Project Director and Manager are the high sitting officials of the Ministry of Industry of Bangladesh and also salaried employees of the IMO under this project. It should be noted that the opinion of the CEO of leading cash buyers expressed in 2015 October mimics the SENSREC project report: 'Environmental Impact Study.' Dr. Anil Sharma is also one of the top 100

suspicion of the state's unwillingness to acknowledge the concern of vulnerable classes. The industry's close ties with the highest strata of government,⁷⁸ together with the dominant classes taking advantage of the unprivileged members of society, are unfortunate aspects of the policy making process in all developing countries,⁷⁹ and Bangladesh is not an exception.

The SENSREC project was funded by the Norwegian Agency for Development Cooperation (Norad).⁸⁰ As a directorate of the government of Norway, it has to promote the interests of Norway,⁸¹ one of the top ten ship-owning nations in the world, by value.⁸² Norway is number three on the list of shipping nations with beneficial ownership,⁸³ and the thirteenth largest flag state.⁸⁴ After oil, shipping is considered as the largest industry in the country, and there are about four hundred fifty shipping companies involved in maritime trade in Norway.⁸⁵

influential personnel in the shipping industry according to the Lloyd's list, see Dr. Anil Sharma, GMS among Lloyd's List's Top 100 most influential people in shipping, *The European* (Jan. 18, 2017), <https://www.the-european.eu/story-11526/dr-anil-sharma-gms-among-lloyds-lists-top-100-most-influential-people-in-shipping.html> (last visited Apr. 19, 2018).

⁷⁸Ship Breakers Association of Bangladesh (BSBA) has been consistently able to overturn decisions of the Government such as the implementation of taxes and duties. Recently they have again successfully lobbied and arranged an urgent meeting directly with Bangladesh prime minister Sheikh Hasina against the increase of tax in the June 2017 Budget. See *Bursting the Budget Bubble*, 178 *GMS Weekly* no.777, 1-2 (June 2, 2017), <http://www.hellenicshippingnews.com/wp-content/uploads/2017/06/June-2nd-2017.pdf> (last visited Mar. 4, 2018). It is noted that the Tax, VAT, and traffic in Bangladesh in this sector is 5%, which is almost three times less than its competitor such as Pakistan, which is 16%, see Sarraf, *supra* note 4, at 4.

⁷⁹William Ascher, *Understanding the Policymaking Process in Developing Countries*, 6 (Cambridge Univ. Press, Cambridge, 2017).

⁸⁰Safe and Environmentally Sound Ship Recycling in Bangladesh – Phase I, ¶ 1.

⁸¹About Norad, NORAD, <https://www.norad.no/en/front/about-norad/> (last visited Mar. 4, 2018).

⁸²Infographic: Norway as a Shipowning Nation, *World Maritime News* (May 24, 2017), <https://worldmaritimeneews.com/archives/220753/infographic-norway-as-a-shipowning-nation/> (last visited Mar. 4, 2018).

⁸³Andrew McKay, *The Norwegian Shipping Industry*, *Life in Norway* (Nov. 25, 2018), <https://www.lifeinnorway.net/shipping-industry/> (last visited May 7, 2020).

⁸⁴The World's Major Shipping Flags, *International Chamber of Shipping*, <https://www.ics-shipping.org/shipping-facts/shipping-and-world-trade/the-world%27s-major-shipping-flags> (last visited May 7, 2020).

⁸⁵Business and industry in Norway - Shipping, *Government. No* (June 28, 2001), <https://www.regjeringen.no/en/dokumenter/Business-and-industry-in-Norway---Shipping/id419362/>.

According to several leading NGOs, many donations are made by those with vested interests, and channeled through governments of third world nations which remain not only grossly insufficient to deal with the magnitude of the problem,⁸⁶ but are also motivated by ill-fated initiatives.⁸⁷ On 13 December 2010 and 27 January 2011 the head of the government of Bangladesh was notified by a group of 42 NGOs to remain cautious about such attempts by IMO,⁸⁸ but the Bangladeshi government does not seem to be interested in sharing the expertise of NGOs, even if their recommendations may be based on solid information and expertise.

A. Environmental or Economic Pollution?

According to environmental economists, pollution not only depends on the physical aspect of the waste in environment, but also on the human reaction to this effect.⁸⁹ The physical effect can be chemical or biological, and the human dissatisfaction or loss of expectations in a defined geographical community signifies the psychological effect on the population.⁹⁰ The concern and anxiety of the population therefore makes geography part of the definition of economic pollution.⁹¹ There is a difference between environmental pollution and economic pollution, and the latter is not necessarily harmful to the country in an aggregate sense.⁹² Concern and anxiety, loss of amenities, and dissatisfaction depend on the standard of life, which varies dramatically between developed and developing economies. However, the optimum level of pollution for a third world nation like Bangladesh, India or Pakistan is based on their citizen's expectations or satisfaction, and the potential tolerable limit of such economic pollution is virtually unknown. The IMO-MOI SENSREC report predictably has ignored the second part of the definition of economic pollution and relied exclusively on the reference value of scientific data to

⁸⁶NGO Shipbreaking Platform, Letter to The Honorable Prime Minister of Bangladesh, (Jan. 27, 2011) [hereinafter Letter to PM], https://www.shipbreakingplatform.org/wp-content/uploads/2018/08/Letter-Bangladesh-PM_Shipbreaking1.pdf (last visited 3 May 2020).

⁸⁷Id.

⁸⁸Id.

⁸⁹David W. Pearce & R. Kerry Turner, *Economics of Natural Resources and the Environment*, 61 (Johns Hopkins Univ. Press, Baltimore, 1990).

⁹⁰Id.

⁹¹Id.

⁹²Id. at 62.

conclude whether the current level of pollution in the coastal area of Bangladesh is within tolerable limits or not.

As per the recommendations of the IMO report, there appears to be no concrete data available either to prove or disprove the actual level of pollution that physically exists in the coastal area of Bangladesh where the shipbreaking activities are mainly concentrated.⁹³ This project report is crucial and expected to play a pivotal role in the making of policy of the government of Bangladesh on shipbreaking, and also in international decision-making such as before the IMO. Be that as it may, the current determination shows severe disregard to numerous long-established principles of international environmental laws, predominantly the principle of intergenerational equity and the precautionary principle. Following these principles, it is reprehensible to allow any questionable polluting activity without taking any preventive or precautionary measures when scientific uncertainty creates an obstacle for making policy on any matter of development.⁹⁴

B. Shipbreaking Industry and Disclosure Policy

The principal purpose of the disclosure policy of any corporate entity is to guarantee the release of necessary information to the public that is not confidential in nature and does not give away trade secrets, but provides stakeholders with accurate, timely and affordable information.⁹⁵ Shipbreakers in the South Asian region have traditionally maintained an outrageous non-disclosure policy and prohibited access to outsiders into their business premises under any number of grounds.⁹⁶ These actions are evidently intended to avoid public scrutiny of exploitations of labor and the

⁹³IMO Environmental Impact Study SENSREC Project, *supra* note 68, at 106.

⁹⁴European Parliament Think Tank (2015), [https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_IDA\(2015\)573876](https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_IDA(2015)573876) (last visited Jan. 4, 2020). See also Precautionary Principle, <http://www.precautionaryprinciple.eu/> (last visited Feb. 4, 2020).

⁹⁵Disclosure Policy, ING ¶ 1, <https://www.ing.com.tr/en/ing/corporate-governance/policies/disclosure-policy>, (last visited Feb. 4, 2020).

⁹⁶Bart, Inside the World's Most Secretive Ship-Breaking Yards, Off Beat Travelling (Jan. 10, 2015), <https://www.offbeatravelling.com/ship-breaking-safe-or-suicide/> (last visited Jan. 4, 2018).

natural environment by the industry.⁹⁷ These ill-fated initiatives have oftentimes been supported by the government on the grounds of the national interest.⁹⁸ This policy is arguably a gross oversight by the government, while providing apparent relief to just a few wrongdoers, and may impact the whole business adversely by encouraging malpractice. This could be a potential barrier to the ultimate sustainability of the industry.

C. Negative Externality in Shipbreaking

An economic transaction can cause a third party to sustain a cost even though that third party has no involvement with that transaction. This spillover effect is described as negative externality or an external cost.⁹⁹ Boundless economic benefits are derived from shipbreaking in Bangladesh and India, which have potentially resulted in loss or suffering by third parties that do not directly belong to the ship recycling economic cycle and remained uncompensated. These incidents raise the question of negative externality. It appears that these external costs have potentially exceeded the point of non-optimum level and need to be corrected by government regulations. Significant controversy exists in South Asia about the optimum level of net social benefits, and the economic or private benefits deriving from the shipbreaking industry.¹⁰⁰

According to Gopal Krishna, the editor of *Toxics Watch*,¹⁰¹ global shipping industries lobby from the U.S., Japan and Europe in particular derive benefits from the shipbreaking industry at the expense of Bangladeshi citizens.¹⁰² The beaches of Bangladesh, India and Pakistan are not meant to be the dumping grounds for hazardous wastes from EOL ships who wish to avoid the costs of decontamination.¹⁰³ These developed countries have been transferring these harms to South Asian territories for decades in

⁹⁷Interview with Advocate Rizwana Hasan, Chief Executive Officer, Bangladesh Environmental Lawyers Association, Dhaka, Bangladesh (Aug. 5, 2016) [hereinafter Rizwana Hasan Interview].

⁹⁸*Id.*

⁹⁹Negative Externality, Economics Online, https://www.economicsonline.co.uk/Market_failures/Externalities.html.

¹⁰⁰Rizwana Hasan Interview supra note 97.

¹⁰¹Journal of Earth, Science, Economy and Justice, *Toxicwatch*, www.toxicwatch.org.

¹⁰²E-mail from Gopal Krishna, Editor and CEO, *ToxicWatch*, India (Oct. 9, 2017).

¹⁰³*Id.*

cooperation with myopic, gullible and complicit state officials with impunity.¹⁰⁴ According to Dr. Krishna, these developed counterparts follow the ‘Lawrence Summers Principle’¹⁰⁵ and impeccable economic logic¹⁰⁶ of transferring hazards from developed to developing countries.¹⁰⁷ There is a great likelihood that an unwarranted level of net private interest is being pursued by the polluters in the context of shipbreaking in South Asian region.¹⁰⁸ There is ample evidence to suggest that the current economic activities in shipbreaking in these third world nations¹⁰⁹ have crossed the optimum level and are not attempting to internalize the negative externalities.

Prominent environmental economists have demonstrated that, in the presence of an externality, there is a divergence between private and social costs.¹¹⁰ If that divergence is not corrected by legal measures, the polluters continue to operate up to the point that their private benefit is maximized, with the consequence that there is no social benefit and possibly even obvious environmental damage leading to a disaster.¹¹¹ It appears that there are not only social and ecological catastrophes caused by shipbreaking due to the licensing of negative externalities by the concerned agencies of the government, but there is also a potential tug of war between groups representing powerful industry on one hand, and the ecology and the toiling masses on the other. Significant vulnerabilities are readily apparent in the law allocating the burdens and benefits between stakeholders, and in the making of sound legislative policy on shipbreaking in South Asian region.

¹⁰⁴Id.

¹⁰⁵Lawrence Summers is a U.S. economist, former President of Harvard University, and former Chief Economist of the World Bank. The ‘Lawrence Summers’ Principle’ is a term coined by Martinez-Alier (1994). This ‘principle’ originates from a 1991 memo written or dictated by Summers while he was the World Bank’s chief economist. In this memo, he promoted dumping toxic waste in the Third World for economic reasons. See Lawrence Summer principal, EJOLT, <http://www.ejolt.org/2013/02/lawrence-summers%E2%80%99-principle/>.

¹⁰⁶The Global Economy’s “Impeccable Logic”, Local Futures, <https://www.localfutures.org/the-global-economys-impeccable-logic/>.

¹⁰⁷Id.

¹⁰⁸Id.

¹⁰⁹First, Second, and Third World, NATIONONLINE (2020), https://www.nationonline.org/oneworld/third_world_countries.htm.

¹¹⁰ Pearce & Turner, *supra* note 89, at 66.

¹¹¹Id.

D. Critical Participants in Shipbreaking

Attempts have been made by NGOs and independent researchers to identify and explore in detail the participants of shipbreaking industry in South Asia and their degree and nature of interests, including the contexts in which they interact with each other. It has been apparent that environmental and worker's interest groups have nearly zero participation in the governmental decision-making process.¹¹² There is a severe imbalance of power between three principal groups of stakeholders.¹¹³ The most significant stakeholders are believed to be the workers, but they have the least voice and almost zero bargaining power.¹¹⁴ Due to their ignorance, illiteracy, unprecedented economic vulnerability, and above all lack of representation through unions, they seem to have no contribution to the decision-making process in shipbreaking.¹¹⁵ This has been the case even if the issue under consideration is solely connected to the worker's interests.¹¹⁶ Inanimate objects such as the environment are represented by the ENGOs, who operate both nationally and globally. NGOs relying on foreign funds are directly involved in the action plans dictated mostly by their principals, who are based predominantly in the west. ENGOs are concerned mostly with the environment and are indifferent to the contributions made by shipbreaking towards these fragile third world economies.

E. Multiple Intermediaries with Different Layers of Liability

Among the dominant stakeholders in the shipbreaking industry there is an apparent tendency to work with multiple intermediaries in order to create a chain of layers of liability. For example, in 98% of the cases, ship owners do not deal directly with yard owners, but rely upon an intermediary paper entity called a 'cash buyer'.¹¹⁷ In

¹¹²Interview with Mohammad Nazim Uddin, Joint Convener, Ship Breaking Trade Union Forum, Chittagong (Aug. 10, 2016) [hereinafter Nazim, Uddin Interview] also Shahin Interview, *supra* note 40. Also E-mail from Nicola Mulinaris, Communication and Policy Officer, NGO Shipbreaking Platform, Brussels, Belgium (Mar. 21, 2016).

¹¹³Ahmed, *supra* note 10.

¹¹⁴*Id.*

¹¹⁵Nazim Uddin Interview *supra* note 112.

¹¹⁶*Id.*

¹¹⁷See Guest Author, *The Role of Cash Buyer in Ship Recycling*, Marine Insight (Nov. 12, 2019), <https://www.marineinsight.com/careers-2/the-role-of-a-cash-buyer-in-ship-recycling/> (last visited Mar. 31, 2020).

most cases, yard owners do not deal directly with workers.¹¹⁸ Instead, they use rootless contractors to supply workers for them.¹¹⁹ In almost 100% of the cases, contractors recruit temporary workers,¹²⁰ even though each site remains busy all year.¹²¹

More interestingly, the administration of ships by flag states is also replaced in most cases either before the ship begins its last journey, or after arrival at the anchorage in the recycling states. 40% of the flags chosen by cash buyers are either blacklisted or gray-listed by Paris MOU.¹²² The cash buyers have developed a practice of reflagging ships with the worst flags available in the market that enforce almost no or minimum maritime regulations over the ships they register.¹²³

Similarly, the ship recycling facility owners have adopted a practice of delegation of the task of recycling to unregistered contractors and subcontractors,¹²⁴ thereby shielding themselves from most liabilities. Oftentimes, ship recycling yard owners lease their facilities to questionable third parties or sham entities,¹²⁵ without putting their beneficial interest at risk. Most shockingly, all these entities who step in as intermediaries are mostly unregulated and can cut corners using many loopholes in the current system of ship recycling administration.¹²⁶

¹¹⁸Ahmed, *supra* note 27.

¹¹⁹Asbestos in the Ship-breaking industry of Bangladesh: Action for Ban, Asia Monitoring Resource Center no.61-62 ¶ 3 (Oct. 2006- Mar. 2007), <https://amrc.org.hk/content/asbestos-ship-breaking-industry-bangladesh-action-ban> (last visited Jan. 14, 2017).

¹²⁰*Id.* Also see Karim, *supra* note 63, at 31.

¹²¹Interview with Mehru Karim, Managing Director, Kabir Steel & Re-rolling Mills Ltd. (KSRM) and Director Khawaja Ship Breaking Ltd., Chittagong (Aug. 6, 2016).

¹²²Heidegger et al., What a difference a flag makes: Why ship owners' responsibility to ensure sustainable ship recycling needs to go beyond flag state jurisdiction, NGO Shipbreaking Platform, 1 (2015), http://www.shipbreakingplatform.org/shipbrea_wp2011/wp-content/uploads/2015/04/FoCBriefing_NGO-Shipbreaking-Platform_-April-2015.pdf (last visited Nov. 5, 2017) (Briefing Paper).

¹²³*Id.*

¹²⁴Shipbreaking yard accidents go unabated, *New Age Bangladesh* (Sept. 12, 2019), <http://www.newagebd.net/article/84271/shipbreaking-yard-accidents-go-unabated>.

¹²⁵M Shahin, Bangladesh Coordinator, NGO Shipbreaking Platform, Interviewed by the Author (Aug. 5, 2016).

¹²⁶Puthucherril, *supra* note 19, at 327.

V

INTERNATIONAL LAWS GOVERNING SHIP BREAKING

Ship breaking is by necessity an international industry.¹²⁷ Several international laws have relevance to shipbreaking matters. Among them, the United Nations Convention on the Law of the Sea 1982 (UNCLOS), the Nairobi International Convention, the Anti-Fouling Convention (AFC 2001), the Ballast Water Management Convention or BWM Convention, and MARPOL are mentionable. However, none of them has been found to address the issues directly and in a comprehensive manner.¹²⁸

The only enforceable international convention that materially affects the EOL ships is the *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal*, in short the Basel Convention.¹²⁹ The Basel Convention was adopted in 1992 to resist the temptation by the developed nations of the practice of exporting hazardous waste into undeveloped nations' territories simply for money in the name of recycling.¹³⁰ This convention restricts any cross-border movement of hazardous wastes either by rail, road or in seaways.¹³¹ An EOL ship is deemed to be hazardous waste in international law and is subject to this convention.¹³² However, the convention only attracts the movement of EOL ship's last journey towards the recycling facility and is not associated directly with the mainstream ship recycling activities.¹³³ Enormous controversy exists within the dominant stakeholders about its applicability to EOL ships.¹³⁴ Nevertheless, in the face of a legal vacuum to manage the threat against safety and environment from ship breaking, this instrument has consistently been used as a mighty weapon by the ENGOs.¹³⁵ ENGOs have used this law to file cases in their domestic courts

¹²⁷Ishtiaque Ahmed, *Environmentally Sound Recycling of Ships: A Stocktaking of the Current State of International Law*, *Fordham Envtl L. Rev.*, 62, 2020.

¹²⁸*Id.*

¹²⁹Ishtiaque Ahmed, *The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal: A Legal Misfit in Global Ship Recycling Jurisprudences*, *Wash. Int'l L. J.* 421, 2020.

¹³⁰*Id.*

¹³¹*Id.*

¹³²*Id.*

¹³³*Id.*

¹³⁴*Id.*

¹³⁵*Id.*

preventing journeys of EOL ships towards those recycling states that have no or insufficient capacity to recycle ships in a safe and environmentally sound manner.¹³⁶ Importantly, the convention's shore-based gateway system of control sits quite inappropriately on the typical mobile waste that is an EOL ship plying across the oceans.¹³⁷ Under this convention a ship can turn into hazardous waste at any moment, even on the high seas, as soon as its owner decides to recycle it¹³⁸ and at a time when the flag state jurisdiction over the ships at sea is entirely unknown to this convention.¹³⁹

A. The Hong Kong Convention

The International Convention for the Safe and Environmentally Sound Recycling of Ships, referred to as the Hong Kong Convention or "the HKC", is a specialized treaty adopted by the International Maritime Organization (IMO) in 2009 to regulate the global ship breaking industry, but the convention is not yet enforced due to the problem of ratification.¹⁴⁰ Significant controversy exists with regard to this convention on the allocation of burdens in the cooperative venture of ship breaking between important shareholders.¹⁴¹ Notably, considerable burdens have been imposed on the ship recyclers under the convention, including precleaning of ships in their own territories.¹⁴² With some exceptions, almost all the ship recycling facilities in South Asia that cover almost eighty percent of tonnage recycling capacity worldwide, suffer from a lack of infrastructure to carry out this work in a safe and environmentally sound manner.¹⁴³

The Convention has not reserved any provision for funding¹⁴⁴ to develop infrastructure and capacity for the recyclers who risk their workers' health and environment by employing such hazardous activities in their domestic territories. It has failed to address the practical issues like liability of polluters.¹⁴⁵ Instead of holding the

¹³⁶Id.

¹³⁷Id.

¹³⁸Id.

¹³⁹Id.

¹⁴⁰Ahmed, *supra* note 27.

¹⁴¹Id.

¹⁴²Id.

¹⁴³Id.

¹⁴⁴Id.

¹⁴⁵Id.

beneficial owners of ships accountable, the convention has assumed that the ship recyclers are the real polluters, with associated liability of mitigating pollution exclusively at their own expense. The HKC ignores that shipowners sell their obsolete vessels at the standard market price for scrap steel without any adjustment to take into account the cost of disposal of hazardous waste and the environmental degradation of the recycling states. Shipowners are left with no burden except preparing a document called Inventory of Hazardous Materials (“IHM”) which carries the list of hazardous materials available onboard throughout a ship’s life.¹⁴⁶ However, the Convention has failed to show any benefit this simple piece of document will bring to the impoverished recyclers who have no or minimum infrastructure, and use no advanced technology or equipment. Most of their workers cannot even read the document and are unable to execute the sophisticated works required to follow the information on the paper.

To offset this lopsided distribution of burden, the HKC has left the recycling states with absolute discretion in setting their own standards of safety and environmental protection, including setting the minimum standards for equipment and techniques used in shipbreaking.¹⁴⁷ The HKC does not accept any responsibility for downstream waste produced from recycling of ships at a ship recycling facility.¹⁴⁸

Breaking the tradition of other IMO conventions, the HKC has ignored all the well-established principles of environmental laws such as the polluter pays principle,¹⁴⁹ the principle of intergenerational equity, the proximity principle, the principle of prevention, common but differentiated responsibilities, and the precautionary principle. This was precisely the scenario existing in South Asian shipbreaking since the 1980s when these recycling facilities used to operate based predominantly on manual force with subsistence levels of equipment and technology. Arguably the Convention has retained this bare minimum standard and given these parochial traditions an official status.¹⁵⁰

¹⁴⁶Id.

¹⁴⁷Id.

¹⁴⁸Id.

¹⁴⁹Paridhi Poddar & Sarthak Sood, *Revisiting the Shipbreaking Industry in India: Axing Out Environmental Damage, Labour Rights’ Violation and Economic Myopia*, <https://nujlawreview.org/wp-content/uploads/2016/12/Paridhi-Poddar-Sarthak-Sood.pdf>.

¹⁵⁰Ahmed, *supra* note 27.

Many of the existing malpractices, such as shipowners bypassing responsibility by creating camouflage intermediaries, i.e. the cash buyers, have officially been endorsed by the HKC. Ship recyclers' use of "slime-ball" contractors, and the cash buyers' use of unscrupulous flag states have all been implicitly ratified by the HKC, thereby giving all these malpractices formal recognition.¹⁵¹ All of these significant loopholes, in fact, created the agitation for a new global regime on ship recycling after three decades of mobocracy and lawlessness in global shipbreaking. Because of the lower standards for safety and environmental standards in shipbreaking offered by the HKC, it may be almost impossible to avoid a race to the bottom among the cash strapped recycling states.¹⁵² In this connection the comment of the Goldman Environmental Award winner 2009 and Greenpeace representative Advocate, Syeda Rizwana Hasan,¹⁵³ on the Hong Kong Convention is noteworthy. "When the workers and the environment of developing countries desperately needed a life ring, the IMO threw them a useless paper."¹⁵⁴

B. The Hong Kong Convention and the South Asian Response

To control the domestic ship recycling activity, Bangladesh adopted a dedicated framework of regulations on ship recycling namely the Shipbreaking and Recycling Rule 2011 (SBRR 2011) and the Hazardous Waste and Ship Breaking Hazardous Rule 2011 (HWR 2011) and the Ship Recycling Act 2018 (SRA 2018), taking note of the HKC. The 2018 Act of Bangladesh has mostly dealt with allocation of plots between recyclers and constitution of the Ship Breaking Board (SBB) which is the Competent Authority for regulating the shipbreaking activities in Bangladesh.

¹⁵¹Id.

¹⁵²Id.

¹⁵³Syeda Rizwana Hasan is the CEO of Bangladesh Environmental Lawyers Association (BELA) and environmentalist. She is the petitioner of the leading case on shipbreaking; Bangladesh Environmental Lawyers Association v. Government of Bangladesh, Writ Petition (Civil) No. 7260/2008 in the Supreme Court of Bangladesh which led the Government to enact the framework regulation in Shipbreaking in Bangladesh. She was subsequently awarded the Goldman Environmental Prize in 2009 for her contribution in Ship breaking Environment jurisprudence in Bangladesh.

¹⁵⁴Sam Chambers, Shipbreaking is still a dangerous business, and a new convention has disappointed many, Ethical Corporation (Apr. 28, 2010), <http://www.ethicalcorp.com/business-strategy/analysis-shipbreaking-hopes-scuppered> (last visited Mar. 24, 2018).

Nine years have elapsed since 2011 but these measures do not seem to have made any material impact either on the growth of business in Bangladesh or on the rate of casualties.¹⁵⁵ According to the claims of the industry and the government of Bangladesh, substantial improvements in health and safety conditions of workers have been achieved since the commencement of these measures in 2011,¹⁵⁶ but the available data do not corroborate this claim.¹⁵⁷ Environmental and labor groups hold diametrically opposite views to those of the government.¹⁵⁸ Extensive reviews have been made by local and international NGOs and various researchers to find out the real scenario behind this debate targeting three study areas; the social cost, environmental impact, and the economics of shipbreaking in Bangladesh. Statistical data on increased human casualties and environmental pollution have been well documented in various publications, reports and scholarly articles from reputable journals and media reports.

The situation in India is no better than that of Bangladesh, even after the adoption of a dedicated regime by the Indian Government in 2013 titled Ship Breaking Code (Revised).¹⁵⁹

Traditionally Bangladesh remains the nearest competitor for India in shipbreaking since it gained ground in South Asia in early 1980s. To protect the industry, both countries have attempted to balance the deficiency of the international law by offering widely flexible regimes to control their domestic recyclers.¹⁶⁰ Neither India nor Bangladesh has attempted to hold the recyclers liable for

¹⁵⁵G. Seetharaman & Prerna Katiar, Can a new ship recycling law help India regain its status as the world's top dismantler of vessels?, *The Economic Times* (Dec. 22, 2019), <https://economictimes.indiatimes.com/industry/transportation/shipping-/transport/can-a-new-ship-recycling-law-help-india-regain-its-status-as-the-worlds-top-dismantler-of-vessels/articleshow/72918468.cms?from=mdr> (last visited Feb. 16, 2020). See also Death toll rises as accidents continue at Bangladesh shipbreaking yards, *Industrial Union* ¶ 1 (2018), <http://www.industrial-union.org/death-toll-rises-as-accidents-continue-at-bangladesh-shipbreaking-yards> (last visited Feb. 16, 2020).

¹⁵⁶Yasmin Sultana, National Project Director, SENSREC Project, Joint Secretary, Ministry of Industry, Dhaka, Interviewed by Author (May 30, 2016).

¹⁵⁷Karim, *supra* note 63.

¹⁵⁸A Lakshmi, Surge of Accidents in Bangladesh Shipbreaking Yards, *Marinelink* (Dec. 7, 2017), <https://www.marinelink.com/news/shipbreaking-bangladesh431885>.

¹⁵⁹The problems of ship breaking in India: An overview, *Safety4sea* [11/06/18], <https://safety4sea.com/the-problems-of-ship-breaking-in-india-an-overview>.

¹⁶⁰Ishtiaque Ahmed, Jurisdiction, Practice and Procedure of Ship-recycling: International Law and the Response of Bangladesh and India, University of Barishal, Bangladesh (Mar. 15-16, 2019) (First International Conference on Social Science and Law-2019).

negative externalities created directly by ship recycling in their respective jurisdictions.¹⁶¹ There has been no attempt to compensate for the environmental degradation. According to some leading environmental activists, the coastal belts of these countries are currently being used as receptacles for pollution free of cost by the local and foreign industries.¹⁶²

No provision exists in the law of these countries covering important stakeholders such as indigenous people, fishers, and coastal habitats, all of whose lives and livelihoods are adversely affected by rampant ship recycling operations. There are about 20,000 fishermen families who live in the coastal belt of Chittagong, Bangladesh.¹⁶³ Collectively in terms of population including their family members, the figure is no less than the total number of workers engaged in shipbreaking jobs in Chittagong.¹⁶⁴ Neither the plight of these people nor the workers in shipbreaking facilities has been considered while formulating domestic policies. This situation mimics those in all these South Asian regimes including Pakistan where, unlike Bangladesh and India, no dedicated framework regulation on ship breaking exists at all.¹⁶⁵

¹⁶¹Id.

¹⁶²Letter was written by ToxicsWatch Alliance to the Union Minister of Finance Government of India. See Gopal Krishna, Issues of concern regarding Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016, ToxicsWatch (July 2, 2016),

<http://www.toxicswatch.org/2016/07/issues-of-concern-regarding-hazardous.html> (last visited Jan. 5, 2018).

¹⁶³Prabal Barua, Sayed Hafizur Rahman, & Morshed Hossain Molla, Heavy Metals Effluence in Sediments and its impact on Macrobenthos at Shipbreaking Area of Bangladesh, 45 *Asian Profile* no.2 177 (2017), Researchgate.net (last visited Feb. 4, 2018).

¹⁶⁴There are approximate 50,000 laborers working in the ship breaking industry in Bangladesh. See Overview of Ship Breaking in Bangladesh, Ship Breaking In Bangladesh (2020), <https://shipbreakingbd.info/overview-of-ship-breaking/> (last visited Apr. 20, 2020). Noting that in Bangladesh the average size of family in the rural area is 4 to 5 people. See Bangladesh HIES: Average Household Size: Rural, CEIC (2020), <https://www.ceicdata.com/en/bangladesh/household-income-and-expenditure-survey-number-of-household-by-size/hies-average-household-size-rural> (last visited Apr. 20, 2020).

¹⁶⁵Kanwar Muhammad Javed Iqbal, & Patrizia Heidegger, Pakistan Shipbreaking Outlook: The Way Forward for a Green Ship Recycling Industry—Environmental, Health and Safety Conditions, NGO Shipbreaking Platform, 16 (2013), <https://www.shipbreakingplatform.org/wp-content/uploads/2019/01/SDPI-NSP-Pakistan-Position-Paper-For-Printing.pdf> (last visited Mar. 11, 2020).

The failures of the Hong Kong Convention to set a minimum acceptable standard in the recycling process have been a stumbling block against developing optimum framework regulations at the domestic level.¹⁶⁶ These include tacit approval in international law of manual labor as the predominant force to operate shipbreaking activities,¹⁶⁷ selection of low grade materials for handling equipment, tools, PPE (Personal Protective Equipment) and minimum infrastructure,¹⁶⁸ poor sanctions for violations,¹⁶⁹ absence of collecting bargaining,¹⁷⁰ free use of environmental resources, and brushing away the long-established “polluter pays” principal recognized in international law.¹⁷¹ Instead of setting an acceptable standard prompting the elimination of the worst forms of labor and unfair trade competition between recycling states, the convention has offered exceedingly wide discretion to the national authorities.¹⁷² In the circumstances, these developing states would hardly be expected to impose tougher measures against their ship recyclers unless they forgo their interests in business almost entirely.¹⁷³

Comparative studies of the salient provisions of the domestic laws of Bangladesh and India have revealed exciting common features. The Indian Supreme Court, in Writ Petition 657/1995, had issued a directive upon the government of India to actively negotiate an appropriate global forum for an optimum pre-cleaning regime of EOL ships.¹⁷⁴ This Order was meant to ensure pre-cleaning of ships before they are sent to Indian territories for recycling. This purpose was to save their beaches from

¹⁶⁶Ahmed, *supra* note 160.

¹⁶⁷*Id.*

¹⁶⁸*Id.*

¹⁶⁹*Id.*

¹⁷⁰*Id.*

¹⁷¹Valentina Rossi, *The Dismantling of End-of-Life Ships: The Hong Kong Convention for the Safe and Environmentally Sound Recycling of Ships*, 296, http://www.sidi-isil.org/wp-content/uploads/2010/12/Yearbook2011_rossi.pdf (last visited May 3, 2020).

¹⁷²Ishtiaque Ahmed, *Ungovernable Ships at the End of their Lives and the Response of the Hong Kong Convention: A Critical Appraisal of the Treaty on Shipbreaking from the Perspective of South Asian Ship Breaking Nations*, *Santa Clara J. Int'l L.*, 160, (2020).

¹⁷³*Id.*

¹⁷⁴Md Saiful Karim, *Prevention of Pollution of Marine Environment from Vessels: The Potential and Limits of the International Maritime Organisation*, 94-95 (Springer, 2015) (ebook),

unmanageable pollution arising from shipbreaking on the beach. The abatement of pollution resulting from such pre-cleaning in the intertidal zone is a gigantic operation,¹⁷⁵ and becomes quite expensive making the market uncompetitive if carried out in an environmentally sound manner.¹⁷⁶ Avoiding the contamination of sea water by pollutants while cleaning the ships in the intertidal zone is a nearly impossible task.¹⁷⁷ India clearly stated its position in the relevant working group meetings of IMO, but due to combined and unbearable pressure exerted by shipping companies and ship owning nations in the IMO meetings (not through flag state ownerships but predominantly beneficial owners), all attempts went in vain.¹⁷⁸ Bangladesh, the largest ship recycling nation in the world both in terms of number of ships being recycled annually¹⁷⁹ and in tonnage,¹⁸⁰ did not attend any such meetings,¹⁸¹ (although it is not clear why it did not attend) and thereby had no opportunity to negotiate this matter.

It has been apparent that the failure to negotiate by the Government of India during the adoption of the IMO convention, owing to overbearing pressure from shipping companies, shipowners, and nations with active shipping interest, has prompted the Indian judiciary to lower their domestic standard on pre-cleaning of ships.¹⁸² These same factors have subsequently led the Supreme Court of Bangladesh to retreat from their earlier resilient position,¹⁸³ not in fact due to the lack of enforceable international

¹⁷⁵Gavshon M H, *The Ship Breakers*, Youtube (2013), <https://www.youtube.com/watch?v=PdYK2vb6McE> (last visited Sept. 13, 2017).

¹⁷⁶Ship Dismantling and Pre-cleaning of Ships, Eur. Comm'n Directorate General Environment, 11, 62 (June 28, 2007), https://ec.europa.eu/environment/waste/ships/pdf/ship_dismantling_report.pdf.

¹⁷⁷Saul & Jessop, *supra* note 44.

¹⁷⁸Saiful Karim, *Environmental Pollution from the Shipbreaking Industry: International Law and National Legal Response*, 22 *Georgetown Int'l Env'tl. L. Rev.*, 214, Hein Online (last visited Jan. 2018).

¹⁷⁹Munira Munni, *Bangladesh top dumping ground for ships*, *Financial Express* (Feb. 7, 2020), <https://thefinancialexpress.com.bd/trade/bangladesh-top-dumping-ground-for-ships-1581051205> (last visited Mar. 10, 2020). See also, <https://www.hellenicshippingnews.com/bangladesh-scraps-record-156-ships-in-6-months-despite-concerns/>; <https://www.shipbreakingplatform.org/platform-publishes-list-2019/>.

¹⁸⁰Seetharaman & Katiyar, *supra* note 155 (last visited Mar. 10, 2020).

¹⁸¹Saiful Karim, *supra* note 178, at 221.

¹⁸²Ahmed, *supra* note 27.

¹⁸³*Bangladesh Environmental Lawyers Association v. Government of Bangladesh*, Order, Bangladesh Supreme Court Writ Petition (Civil) No. 7260/2008 (Mar. 7, 2011), at ¶ 14.

law, but because of an anticipation of the failure of this law. A slight attempt to curb the industry in one country has immediately brought about a severe competitive disadvantage in favor of the others.¹⁸⁴ The Indian Supreme Court's temporary restrictions to the import of EOL ships in 2003 elevated Bangladesh to the top position in the world, as evidenced by their eclipsing India for the first time in 2004.¹⁸⁵ This position has remained unchanged.¹⁸⁶

On the other hand, business in Pakistan and China was dormant until 2008, but the temporary restriction in Bangladesh by the Supreme Court in 2007 revitalized Pakistan and China and they took away a large share of business from Bangladesh.¹⁸⁷ An exceedingly lower threshold of international standards in the HKC has apparently failed to contribute toward developing a workable domestic ship recycling regime in both Bangladesh and India.

An imbalance of distribution of power among the stakeholders of shipbreaking at both the global and national levels is noteworthy.¹⁸⁸ The influential stakeholders in this industry, and the tycoons in both the domestic and international markets, have successfully manipulated the law in their favor in respective jurisdictions.¹⁸⁹ In both the global and national context, the source of power remains private capital. By using that capitalist power, the elites of both the shipping and shipbreaking industries at the global and national levels have been victorious in bringing about a social situation designed to develop, maintain and enhance their power over the large section of deprived communities, leading to a situation of oppression and extortion of weaker members of the society. Almost all the major provisions of the domestic and international laws on ship recycling reflect this fact.¹⁹⁰

The failure of the HKC to address the massive negative externality of the global business of ship recycling has resulted in

¹⁸⁴Id.

¹⁸⁵GeroStergiou, *supra* note 60.

¹⁸⁶Bangladesh alone has recycled almost half (47.2%) of the total tonnage recycled by the global shipping industry. See Masud Milad, *Jahaz Bhangar netritte Ekhon Bangladesh*, *The Daily Prothom Alo* (Nov. 9, 2019).

¹⁸⁷N Mikelis, *Ship Recycling – Will Burden Be Shared Equitably?*, *IMO 2* (Mar. 12-13, 2012), <http://www.imo.org/en/KnowledgeCentre/PapersAndArticlesByIMOSTaff/Documents/2012-0313%20%20Singapore%20Tradewinds%20Ship%20Recycling%20Forum%20-%20Sharin.pdf> (last visited Mar. 23, 2018). See also <https://shipbreakingbd.info/overview-of-ship-breaking/>.

¹⁸⁸Ahmed, *supra* note 10.

¹⁸⁹Id.

¹⁹⁰Ahmed, *supra* note 160.

the same absence of domestic jurisdiction in both Bangladesh and India.¹⁹¹ The blueprint of this convention has apparently promoted a race to the bottom among the economically vulnerable nations.¹⁹² If Bangladesh, India and Pakistan fail to meet this challenge, the situation might be repeated in other developing nations located in other parts of the world. In the future, the game might possibly be played by more impoverished nations, including the group of least developed countries, countries belonging to the fourth world, or failed states. In this current world order of lopsided economies, resource distribution, development, and political power, there appears no shortage of failed, fragile and vulnerable state entities where green development is considered no more than a fantasy and improving the lives of the poor hardly remains a priority.

Attempt has been made by the law-making authorities at the national level not to associate closely with labor and environmental activists in the consultative and law-making process.¹⁹³ The joint report of the IMO and the GOB has attempted to demonstrate that ship recycling on the beach has not proved harmful to the coastal environment, despite wide spread belief to the contrary,¹⁹⁴ without denying the fact that the state was unable to carry out a detailed scientific investigation.¹⁹⁵ The domestic recyclers do not seem to care about the issue as their domestic laws hardly impose any penalties for the degradation of the coastal environments which is caused by shipbreaking on the beaches.¹⁹⁶ In all these developing nations, the state's dependency on the ship source raw materials for production of steel remains significant.¹⁹⁷

However, the governments of these South Asian nations should not only be responsible for increasing per capita income and business, but also for safeguarding their citizens and environment from the adverse effects of coast-based activities. Notably, shipbreaking is criticized globally as a pollution haven,¹⁹⁸ and is

¹⁹¹Id.

¹⁹²Ahmed, *supra* note 172.

¹⁹³Shahin Interview *supra* note 40.

¹⁹⁴IMO Environmental Impact Study SENSREC Project, *supra* note 68.

¹⁹⁵Id. at 16, 18 & 22

¹⁹⁶Ahmed, *supra* note 160.

¹⁹⁷In the year 2011, the consumption of steel in Bangladesh, Pakistan and India compared to the total steel use by these countries was 67%, 27% and 4% respectively. On file with the Advisor, Bangladesh Shipbreakers Association (BSBA).

¹⁹⁸Stuti Halder & Indira Dutta, *Alang Shipbreaking Industry – An Ecological Distribution Conflict* (Allied Publishers, 2017). See also Frey, *supra* note 9, at 7.

widely recognized as the chief land-source marine pollution in South Asia.¹⁹⁹

A review of NGO reports,²⁰⁰ along with claims of domestic authorities of dominant South Asian recycling states²⁰¹ and critical analysis of the discourses reveal no significant differences between the HKC and the existing provisions of the ship recycling framework laws of Bangladesh and India.²⁰² Many have denounced the HKC as a legal shipwreck,²⁰³ highlighting that the current substandard practices in South Asia are almost on a par with the Hong Kong Convention.²⁰⁴ Evidently, the threshold set by this international instrument is exceedingly low.²⁰⁵ It can be said that the current global standard among the recycling states is set by a *laissez-faire* market force, and not predominantly by the HKC. Interestingly, at several beaching yards dumping hazardous waste in the intertidal zone of the beach has recently been certified as HKC compliant by a number of classification societies, which raises serious credibility issues of this international standard.²⁰⁶ Therefore, even if the convention is enforced in the future, it's

¹⁹⁹Ljubomir Jeftic, Seba Sheavly, & Ellik Adler, *Marine Litter: A Global Challenge*, United Nations Environment Programme (UNEP) 148 (2009), http://wedocs.unep.org/bitstream/handle/20.500.11822/7787/-Marine%20Litter_%20A%20Global%20Challenge%20%282009%29-2009845.pdf?sequence=3&isAllowed=y (last visited Mar. 15, 2018).

²⁰⁰Hong Kong Convention, NGO Shipbreaking Platform ¶ 3, <https://www.shipbreakingplatform.org/issues-of-interest/the-law/hkc/>.

²⁰¹Id. at ¶ 4.

²⁰²Sachin K. Pandey, Anand M. Hiremath, Anand B. Salve, & Shyam R. Asolekar, *What Difference Can Hong-Kong Convention Make to Ship Recycling in India?*, Researchgate (Apr. 2013), https://www.researchgate.net/publication/269702643_What_Difference_Can_Hong-Kong_Convention_Make_to_Ship_Recycling_in_India (Conference Paper).

²⁰³I.M.O. ship recycling convention denounced as legal shipwreck, NGO Shipbreaking Platform (2009), <https://www.shipbreakingplatform.org/wp-content/uploads/2018/07/I.M.O.-SHIP-RECYCLING-CONVENTION-DENOUNCED-AS-%E2%80%9CLEGAL-SHIPWRECK%E2%80%9D.pdf>.

²⁰⁴Hong Kong Convention, NGO Shipbreaking Platform, <https://www.shipbreakingplatform.org/issues-of-interest/the-law/hkc/>.

²⁰⁵I.M.O. ship recycling convention denounced as “legal shipwreck”, NGO Shipbreaking Platform (May 11, 2009), <https://www.shipbreakingplatform.org/wp-content/uploads/2018/07/I.M.O.-SHIP-RECYCLING-CONVENTION-DENOUNCED-AS-“LEGAL-SHIPWRECK”.pdf>.

²⁰⁶Shipbreaking Practices in Bangladesh, India and Pakistan: An Investor Perspective on the Human Rights and Environmental Impacts of Beaching, *Int'l L. & Policy Inst. (ILPI)* 5, 20 (May 18, 2016), https://www.klp.no/polopoly_fs/1.34213.1467019894!/menu/standard/file/Shipbreaking%20report%20mai%202016.pdf.

unlikely that the condition of workplace safety and the coastal environments in ship recycling facilities in South Asia will materially change given the current deficient position of the convention. By certifying the controversial beaching method in all fundamental respects, the HKC has effectively endorsed the prevailing three decades of malpractice in these developing ship recycling nations.²⁰⁷

It may also be argued that the resulting consequences by the enforcement of the HKC could lead to a practical advantage for the cash buyers, ensuring a smooth handover of scrap ships to the substandard facilities of recycling states without much accountability. This may be sustained under the HKC through a piece of paper, namely the Inventory of Hazardous Materials (IHM).²⁰⁸ For many hazardous substances such as Ozone Depleting Substances, and Radioactive Substances, the IHM has established no threshold level for importing hazardous waste into the ship recycling states.²⁰⁹ Interestingly, subject to an accurate declaration, it is permissible to export any amount of hazardous waste of the above types which leads to their gradual accumulations in the recycling state's environment. Bangladesh, India and Pakistan have recycled almost 70%-80% of the obsolete merchant ships in the last several decades.²¹⁰ However, this situation is unlikely to change any time soon because of geopolitical and economic reasons.²¹¹ To what extent a transformation of standards from the current pandemonium in ship recycling activities would come about under this newly adopted regime remains questionable.

An analysis of the legal positions of India and Bangladesh with respect to the HKC, along with the corresponding position of the Basel Convention on EOL ships, provides a significant insistence for reform. It needs to be made clear how the problematic provisions of the HKC as mentioned above could be redressed.

²⁰⁷Shipbreaking Platform, *supra* note 204.

²⁰⁸HKC Regulation 5.

²⁰⁹Compliance Regulation Requirement, CTI, <http://www.cti-ship.com/ihm-existing> (last visited Mar. 9, 2020).

²¹⁰Shipbreaking: Breaking Badly, Laufer Group Int'l (Apr. 23, 2018), <http://www2.laufer.com/shipbreaking-breaking-badly.html>. See also Press Release, Commission proposes tighter laws on ship breaking, Eur. Comm'n (Mar. 23, 2012), http://europa.eu/rapid/press-release_IP-12-310_en.htm (last visited Mar. 8, 2016).

²¹¹Interview with Captain Anam Chowdhury, Beaching Master and Advisor, Bangladesh Ship Breakers Association (BSBA), Chittagong (Aug. 4, 2016) [hereinafter Captain Anam Interview].

Given that the Basel Convention is failing to either protect the health of ship breaking workers or the environment when applied to EOL ships,²¹² any further incentive to forcefully use this convention to regulate the EOL ships could be a misuse of resources and time. It is apparent that a substantial reform of the HKC without regard to the Basel Convention in EOL ship recycling, followed by the ratification of the HKC by the ship recycling states, could be an effective way out of the current problems in ship breaking.

This article has shed light on the areas of reform the HKC needs for a meaningful ratification. Several important areas of reform have been identified, including the procedures for recycling of ships, the issue of decontamination of ships from the origin, and the allocation of financial burdens among the dominant stakeholders. These are all essentially questions of policy. Unless these policy issues are addressed, there is no credible basis to demand consent for ratification from dominant ship recycling countries. Predictably, under the enforcement of the HKC, the restrictions of the Basel Convention over EOL ships which currently, although inconsistently, act as a deterrent against unscrupulous activities of shipowners,²¹³ will wither away.²¹⁴ Ratification of the HKC by Bangladesh under the current state of law could be a political action devoid of merit, but such an eventuality may promote the business for Bangladesh, mostly at the expense of health and the environment.

VI

A CALL FOR REFORM

Every day in South Asia one person suffers a fatal accident in the shipbreaking fields.²¹⁵ These events mean a shattering of dreams for a family that diminishes the right of survival of its

²¹²Ahmed, *supra* note 129.

²¹³Ahmed, *supra* note 129.

²¹⁴IHS Maritime Interview with Dr. Nikos Mikelis, GMS, http://www.gmsinc.net/gms_new/index.php/gms-videos.

²¹⁵Chavdar Chaney, Ship Breaking-Recycling, Old Cruise Ships, Cruisemapper (Nov. 26, 2015), <http://www.cruisemapper.com/wiki/768-ship-breaking> (last visited Sept. 13, 2017).

members placed in a society with no social security.²¹⁶ Neither the international law nor the domestic laws on ship recycling in the South Asian states consider that degradation of the coastal environment has any economic value.²¹⁷ The losses the ship recycling countries sustain by offering their lands, coastal areas and environments are not compensated or adjusted from the proceeds of sale of EOL ships owned mostly by foreign owners. This article attempts to conceive an awareness to hold shipowners inescapably liable for pollution from shipbreaking in South Asia. Evidently the shipowners are not currently taking into account the costs to the environment in the ship recycling states in their proceeds of sale of EOL ships as the current international laws do not call for it. They have been able to externalize their burdens to the recyclers, who in turn have been able to do the same to the poor workers and their local environment.²¹⁸ This has been achieved with the help of domestic laws that reflect the HKC as adopted.²¹⁹ Through a proposal for reform of policy, this article attempts to scientifically ensure a fair distribution of burdens in the law in a cooperative venture of shipbreaking which currently is severely lacking.

A. Identifying the Policy Alternatives

This is not to assert that all shipping companies and ship owners of developed nations are engaged in the exploitation of unprotected environments and impoverished workers in third world nations.²²⁰ Several companies have chosen not to act unethically and make exorbitant profits.²²¹ They have instead chosen to follow their own policies on green recycling.²²² Legal reform assigning clear responsibility upon shipowners to take charge of their burden

²¹⁶Absence of social security within labour community is a stark reality in Bangladesh. See Shipbreaking, Empowering Workers Rights, Bangladesh Labour Foundation ¶ 7, <http://www.blf-bd.org/ship-breaking/>.

²¹⁷Ishtiaque Ahmed, Ship breaking regimes of India and Bangladesh: An assessment of their compatibility with international laws, Joseph B. Martin Conference Centre, Harvard U. (Dec. 10-11, 2019) (International Conference on Sustainable Development 2019).

²¹⁸Ahmed, *supra* note 160.

²¹⁹*Id.*

²²⁰Ship Recycling Transparency Initiative 2019 Report, Ship Recycling Transparency Initiative, 5, <https://d1hrjn5fk1uh7i.cloudfront.net/uploads/2019/03/SRTI-Report-2019.pdf> (last visited Mar. 11, 2020).

²²¹*Id.*

²²²*Id.*

would benefit not only the poverty stricken ship recycling states and their industry, but also the entire shipping community by ensuring fair competition and sustainability. These areas of laws are suffering from policy uncertainty and this article has pointed out at least three policy areas where reforms are badly needed. The article postulates that the goal can be achieved by ensuring direct involvement by primary stakeholders in their national policy making process, which has so far been awfully ignored.²²³ These include the adoption of a policy on the optimum method of recycling of ships, a policy on the optimum method of pre-cleaning of ships, and finally a policy on the optimum allocation of financial responsibility between the dominant stakeholders in shipbreaking.

Ship recycling is an international activity involving multinational stakeholders.²²⁴ A sound domestic policy must not ignore the interest of global stake holders, namely the cash buyers, ship owners, ship owing states, and ENGOs. In each problem area of policy, multiple alternative policy options could be suggested where each of the options would reflect a fair share of burdens and benefit the stakeholders in different combinations which the existing policies have substantially overlooked. The fairness of this distribution is intended to be judged based on the perspectives of stakeholders of dominant recycling states who seek reform of their policies. Accordingly, each of the feasible policy options has been crafted in this article partly from the findings of secondary sources and partly by consulting experts in the field of ship recycling in South Asia, predominantly in Bangladesh and India.

B. Analytic Hierarchy Process (AHP) to address Policy Uncertainty in Ship-breaking

Reform may be suggested through scientifically discovering the best aggregate policy from the alternative options recommended in this article. This may be attained by using one of the multiple attribute decision-making methods, preferably the Analytic Hierarchy Process (AHP),²²⁵ by incorporating all the major

²²³Shahin Interview, *supra* note 40.

²²⁴Ahmed, *supra* note 10.

²²⁵In AHP, values like price, weight, or area, or even subjective opinions such as feelings, preferences, or satisfaction, can be translated into measurable numeric relations, Goepel, K.D. (2018). Implementation of an Online Software Tool for the

participants in shipbreaking in the policy-making process. Using this method, developing nations like Bangladesh or India may eventually find the optimum policy which would serve their best interests redressing the issues of negative externality. The cost involved in realizing each of the policy goals is however unknown and needs further work. Once these are revealed, each of the aggregate values derived from the AHP analysis can be measured in terms of their respective costs followed by a cost-benefit analysis (CBA).²²⁶ This selection will eventually lead to the discovery of the best cost-effective policy solution for each of the South Asian ship recycling regimes in all three of the above mentioned disputed areas of policy.

This article attempts to display the exceptional importance and stake of these three South Asian nations in deciding the fate of the HKC. It is argued that the determination of a scientifically proven policy that is best for the nation, incorporating its domestic and primary stakeholders, would give the government additional bargaining power in the international forum. This may bring about a call for reform of international law, taking into account the findings and interests of these developing nations. Modeling and remodeling of international environmental laws, taking into account the interest of the developing nations, is a widely accepted norm and guaranteed by many international conventions including

Analytic Hierarchy Process (AHP-OS). Mathematically the method is based on the solution of an Eigen value problem. The results of the pair-wise comparisons are arranged in a matrix. The first (dominant) normalized right Eigen vector of the matrix gives the ratio scale (weighting), the Eigen value determines the consistency ratio. See Implementation of an Online Software Tool for the Analytic Hierarchy Process (AHP-OS), 10 Int'l J. of the Analytic Hierarchy Process, 469-487 (Dec. 6, 2018), <https://doi.org/10.13033/ijahp.v10i3.590>). For Free software on Multi-criteria Decision Making Using the Analytic Hierarchy Process (AHP), see also AHP Online Calculator, Business Performance Management Singapore (2017), <https://bpmsg.com/ahp-online-calculator/> (last visited May 7, 2020).

²²⁶Cost-benefit analysis is designed to compare the costs and benefits of an intended policy, program or project. It is often used when deciding whether to implement a policy or project decision or choosing between different decision options. It is normally applied before a project begins but can also be used for monitoring and evaluation. Social Return on Investment is an alternative tool, placing more emphasis on social and environmental benefits. See Farida Fleming, Evaluation methods for assessing Value for Money, Better Evaluation (Oct. 2013), <https://www.betterevaluation.org/sites/default/files/Evaluating%20methods%20for%20assessing%20VfM%20-%20Farida%20Fleming.pdf> (last visited May 1, 2020).

the constitution of the oceans, the UNCLOS.²²⁷ This article attempts to clarify the position of the key developing ship recycling states, their reservations, and priorities which the international shipping community may hardly ignore.

VII POLICY RECOMMENDATIONS

As the largest ship recycling state, this article tends to focus the context on Bangladesh for framing recommendations, but this may well be relevant to the other neighboring competitors in South Asia. The HKC needs to assimilate these policy issues, including those the convention has omitted outright or left for the contracting parties to decide. Being extremely important, stakeholders' direct consultation would be fundamental in three major areas of policy enumerated below:

- i) The optimum method of pre-cleaning EOL ships;
- ii) The optimum method of recycling EOL ships; and
- iii) The optimum distribution of costs among the stakeholders in shipbreaking.

A. Optimum Method of Pre-Cleaning EOL Ships

There was a failure in the negotiations between the Indian government and the global shipowners, along with states with strong shipping interests in the IMO working group meetings, during the adoption of the HKC which inhibited India from crafting a desired domestic pre-cleaning regime.²²⁸ The objective of these negotiations was to ensure decontamination of ships before they are exported to India.²²⁹ In order to maintain a competitive edge in business with other competitors, India could not implement this standard in their domestic regime unilaterally, although it tried its best to apply this pre-cleaning standard domestically until this

²²⁷UNCLOS 1982 Annex VI, at 207, https://www.un.org/Depts/los/convention_agreements/texts/unclos/unclos_e.pdf.

²²⁸IMO, Consideration of the Draft International Convention for the Safe and Environmentally Sound Recycling of Ships, (Apr. 2, 2009) (Submitted by India, IMO Doc. SR/CONF/26).

²²⁹Karim, *supra* note 174, at 95.

matter had finally been settled at the international level.²³⁰ Pre-cleaning of ships is a time consuming and arduous process.²³¹ Many vessels require more than twelve months to be pre-cleaned.²³² It is estimated that in a ship yard engaged in regular ship recycling, pre-cleaning of ships between 10,000 and 25,000 LDT may take four to seven weeks to complete.²³³ NGOs have reported that for ships entering the ship breaking beaches in Chittagong, Bangladesh, no pre-cleaning is carried out.²³⁴ India has paid the price of adopting the pre-cleaning policy unilaterally by losing business of tanker recycling to Bangladesh.²³⁵ Bangladesh has similarly failed to implement such policy for the same reasons, more specifically due to the anticipatory failure of the Hong Kong Convention as adopted.²³⁶ The Supreme Courts of both countries had to give way to the economic reality of their countries and compromise their respective standards because of the failures at the global level.²³⁷

²³⁰Id.

²³¹Ship Dismantling and Pre-cleaning of Ships, Eur. Comm'n Directorate General Environment, 62 (June 28, 2007), https://ec.europa.eu/environment/waste/ships/pdf/ship_dismantling_report.pdf.

²³²Id.

²³³Id.

²³⁴Overview of Ship Breaking in Bangladesh, Ship Breaking in Bangladesh, <https://shipbreakingbd.info/overview-of-ship-breaking/>.

²³⁵Tony George Puthucherril, *From Shipbreaking to Sustainable Ship Recycling Evolution of a Legal Regime*, 102 (Martinus Nijhoff Publishers, Boston, 2010).

²³⁶See Geoff Garfield, Scrap volumes break barriers; Bangladesh may have been closed but that has not stopped this year's demolition score from reaching at least 37 million dwt, maybe more, Trade Winds (Dec. 23, 2011), www.wirana.com/wp-content/uploads/2015/03/Tradewinds-December-23-2011.pdf (last visited Jan. 5, 2018).

²³⁷Ahmed, *supra* note 217.

Managing all types of seagoing vessels, including Floating Storage and Offshore Units,²³⁸ supertankers,²³⁹ and ULCCs²⁴⁰ in their un-cleaned conditions in the semidiurnal tidal waters of the ocean is unscientific and unreasonable to an extreme degree. The added incapacity of the developing country to guard against contingencies such as fire and spillage, together with the lack of enforceable regulations to manage hazardous waste and the lack of technological capability, are well documented.²⁴¹ States using dry-docks, piers, slipways or landing methods, do not have to face the challenge of semidiurnal tides as high as fifteen meters. Cleaning the vessels under such a hostile condition in South Asia is simply a catastrophe where unqualified prevention and reduction of pollution render the tasks nearly impossible.²⁴²

However, ensuring zero-degree pollution should not be a goal for Bangladesh at this moment.²⁴³ The degree of pre-cleaning which would enable the country to manage pollution efficiently and to be considered as optimum in the context of its socio-economic climate is a question for its policymakers to decide. This article postulates that setting an optimum level of pre-cleaning standard for ships constitutes one of the three pillars of success for the safe and environmentally sound ship recycling in the context of current beach breaking countries. Therefore, the involvement of the entire ship recycling community would be necessary for reform in all

²³⁸Offshore vessels are ships that specifically serve operational purposes such as oil exploration and construction work at the high seas. See Karan Chopra, *What are Offshore Vessels?*, *Marine Insight* (Oct. 13, 2019), <https://www.marineinsight.com/types-of-ships/what-are-offshore-vessels/>.

²³⁹Supertanker: A term originally applied to the class of tankers too large to transit international canals while carrying cargo, and currently defined by two ship classes: Very Large Crude Carriers (VLCCs) between ~200,000 and ~300,000 deadweight tons (dwt) and Ultra Large Crude Carriers (ULCCs) greater than ~300,000 dwt. See *Dictionary of Energy* (Second Edition), 2015, Sciencedirect, <https://www.sciencedirect.com/topics/engineering/supertanker>.

²⁴⁰VLCC or Very Large Crude Carriers, and ULCC or Ultra Large Crude Carriers, are the largest operating cargo vessels in the world. With a size in excess of 250,000 Dead Weight Tonnage (DWT), these giant ships can carry huge amount of crude oil in a single trip. Known as Supertankers. See <https://maritime-connector.com/wiki/vlcc/>.

²⁴¹Daniel Mmerek, Adrew Baldwin, Liu Hong, & Baizhan Li, *The Management of Hazardous Waste in Developing Countries*, *Intechopen* (Oct. 19, 2016), <https://www.intechopen.com/books/management-of-hazardous-wastes/the-management-of-hazardous-waste-in-developing-countries>.

²⁴²Saul & Jessop, *supra* note 44.

²⁴³Bangladesh domestic law currently has imposed a hard-hitting duty to zero tolerance policy in beaching method of recycling. SBRR Rule 18.8.

three identified areas of policy. Based on consultation with several experts in ship recycling, the following four possible decision options may be suggested.

- i) Importing EOL vessels after pre-cleaning from the source, removing all the hazardous wastes or materials onboard and from the ship's structure, and then towing the vessel to the recycling facility;
- ii) Importing EOL vessels after decontamination from the source to the extent possible without losing the propulsion power of the ship so that it can be beached using its own power. Cleaning all tanks except the service tank that is required for the vessel's last journey at sea and for the beaching maneuvering;
- iii) Allocating jetties or making available infrastructures in convenient places near Chittagong, Bangladesh such as nearby island in *Sandip* to decontaminate the ships entirely using professional cleaners to the standard as mentioned in para (i). The ship can then be towed to the respective beaching yards for recycling; and
- iv) Cleaning EOL vessels under the current practice on the beach but using high-grade professional cleaners to reduce the pollutants from the ship using maximum possible skill, and the most modern technology available.

These four alternatives should be based on three different criteria or objectives: environmental, economic and social. The goal under this policy would be to discover a sustainable method of decontamination of ships and the contribution of these criteria to each of these decision options would be different. These objectives or criteria can be subjectively or objectively assessed. Once a clear goal is set and the criteria to reach that goal are selected, which decision option would represent the maximum aggregate value can be found by following the Analytic Hierarchy Process (AHP).²⁴⁴

²⁴⁴Multiple attribute decision making (MADM) problem is one of the most common and popular research fields in the theory of decision science. A variety of methods have been proposed to deal with such problems. One of the processes includes AHP or Analytic Hierarchy process. See Tao Ding et al., Multiple Attribute Decision Making Based on Cross-Evaluation with Uncertain Decision Parameters, *Hindawi* (Apr. 27, 2016), <https://www.hindawi.com/journals/mpe/2016/4313247/>.

This process would involve a complex interplay between social interests, economic interests and the environment.²⁴⁵

AHP has been helpfully applied to solve numerous practical policy problems in the last few decades because of its intrinsic appeal and flexibility.²⁴⁶ In a policy decision involving environmental, economic and social dilemmas, this model has been successfully used to elicit the best choice for a specific community, while considering multiple criteria of multiple stakeholders often with conflicting interests.²⁴⁷ Once the aggregate benefit or value is obtained under each decision option, each option can be measured with the corresponding cost involved in bringing about the option into reality. A cost-benefit analysis can then be drawn for each four possible decision options. From this cost-benefit analysis, the best cost-effective decision option can then be chosen by the government of Bangladesh for final implementation.

B. Optimum Methods of Ship Recycling

The next fundamental policy gap identified is the method of ship recycling. Based on prevailing conditions it does not seem to be economically feasible for Bangladesh and other South Asian developing states to rely solely on the drydock method for recycling of ships. Drydocking is the safest and the most environmentally friendly method of recycling of ships currently available in the world, but also the most expensive one.²⁴⁸ Similarly, because of geographical reasons, the landing method practiced by Turkey is unlikely to be feasible in Chittagong.²⁴⁹

²⁴⁵Damjan Maletič, Flevy Lasrado, Matjaž Maletič, & Boštjan Gomišček, *Analytic Hierarchy Process Application in Different Organizational Settings*, Intechopen (Aug. 31, 2016), <https://www.intechopen.com/books/applications-and-theory-of-analytic-hierarchy-process-decision-making-for-strategic-decisions/analytic-hierarchy-process-application-in-different-organisational-settings>.

²⁴⁶Fuh-Hwa Franklin Liu, & Hui Lin Hai, *The voting analytic hierarchy process method for selecting supplier*, 97 *Int'l J. Of Production Economics*, Issue 3, 308-317 (Sept. 18, 2005).

²⁴⁷Analytic Hierarchy Process, *Transparent Choice*, <https://www.transparentchoice.com/analytic-hierarchy-process>.

²⁴⁸Rahman, *supra* note 3, at 270. Drydocking is the most expensive method of recycling and hardly used for commercial ship recycling.

²⁴⁹Captain Anam Interview, *supra* note 211.

However, pier breaking²⁵⁰ could be used in Chittagong as an alternative to beaching.²⁵¹ Based on consultation with different experts, several possible options have been suggested in this article as optimum recycling methods to be adopted in Bangladesh.

- i) Using upgraded beaching methods with impermeable concrete floor throughout secondary cutting areas and with appropriate drainage facilities. Use of floating cranes to hold the large cut pieces of the ship's hull to avoid them falling directly into the sea;
- ii) Changing over to basic pier breaking methods using the available facility in *Sandip* near the Chittagong area or Mangla port areas;²⁵²
- iii) Using a combination of upgraded beaching (as per option (i) above) and pier breaking method.²⁵³

Each of the above decision options includes different degrees of social, economic and environmental components in various combinations. Taking these criteria in either subjective or objective sense, it would be possible to discern the net aggregate value of the best recycling method using the AHP model. Following a cost-benefit analysis as mentioned earlier, the optimum ship recycling method could be chosen for Bangladesh by the relevant stakeholders of this country.

²⁵⁰In pier breaking, a vessel is secured alongside a wharf, quay or similar structure, in sheltered and calm waters either in a harbor or river. Pieces of ships are removed by crane, in a top down process. This process is continued until the dismantling reaches the bottom. The remaining parts are then taken out of water and taken to facilities ashore for further processing.

²⁵¹Maritime Environmental Consultant, Feasibility Study For Ship Dismantling, UNEP 4 (2013), www.shipbreakingplatform.org/shipbrea_wp2011/wp-content/uploads/2013/07/UNEP-CHW-SHIPS-WHITEP-2013ShipDismantlingStudy.English.pdf (last visited Mar. 2, 2018).

²⁵²Bangladesh has three conventional seaports: Chittagong Port, Mongla Port, and Paira Port.

²⁵³For suitability of pier breaking in Chittagong, Bangladesh see Feasibility Study, *supra* note 251, at 58.

C. Optimum Distribution of Costs Among the Dominant Stakeholders

The HKC has measurably failed to determine financial burdens of stakeholders in their collective enterprise of shipbreaking.²⁵⁴ Shipowners are one of the most significant stakeholders and beneficiaries of the transaction, but are left virtually with no cost sharing burden.²⁵⁵ The cash buyers are also left with minimum responsibility in the transaction.²⁵⁶ The ship recyclers, on the other hand, are integral to the whole financial responsibility but do not have to invest in reasonable infrastructure and overall management of the facilities according to current domestic laws of all the dominant ship recycling nations.²⁵⁷ These arrangements were made to help them avoid the responsibility and to continue to exist in the laissez-faire market. Neither regime has taken the cost of environmental degradation and workers' exploitation into account.²⁵⁸ To rectify this lopsided and unjust distribution, this article has identified the potential areas of costs involved in a ship recycling project. Broadly speaking, there are four areas where cost sharing should be recognized.

First, the cost of infrastructure for mainstream ship recycling activity, which includes establishment cost, cost of MHE (Material Handling Equipment), PPE (Personal Protective Equipment) and other logistics necessary for ship recycling. Second, the cost of waste disposal in downstream waste management facility of superior standard. Third, the cost of environmental degradation including cost of landfilling. Fourth, the human cost such as loss of life, limb or injury of workers including the persons who are potentially affected, either directly or indirectly, from ship recycling activities in coastal areas such as the indigenous and neighboring populace and fishermen in the region.

The possible stakeholders who should be required to contribute to sharing these costs are shipowners, ship recyclers, the government of the ship recycling states and the ship owning states. These costs can be calculated in two different schemes. Scheme I would involve creating a funding arrangement to develop a permanent infrastructure in selected ship recycling states, having a

²⁵⁴Ahmed, *supra* note 172.

²⁵⁵*Id.*

²⁵⁶*Id.*

²⁵⁷Ahmed, *supra*, note 217.

²⁵⁸*Id.*

proven track record of recycling, funded through contributions from ship-owning nations, flag state nations, ship recycling states, and international organizations under the principle of common but differentiated responsibilities.²⁵⁹ This list may be non-exhaustive. The fund thereby acquired may be managed and distributed by a competent authority responsible for international shipping, such as the IMO. The Scheme I may be target specific but would likely be an ongoing project.

Scheme II would be a ship specific project, with cost sharing by stakeholders on a project basis. Each ship recycling event can be considered as a single project under Scheme II, estimated in tonnage measurement, for example. The ship specific cost should be assessed, and the funds should be managed and distributed by the competent authorities of the ship recycling states. Using the same AHP model, the optimum allocation of the financial burden under the Scheme II project can be found using similar criteria from the following decision options:

- i) Government of ship recycling state 15%, ship owner, 50% the SRF owner 20% and the government of ship owning state 15%;
- ii) Government of ship recycling state 15%, ship owner, 20% the SRF owner 50% and the government of ship owning state 15%;
- iii) The government of ship recycling state 50%, ship owner, 15% the SRF owner 15% and the government of ship owning state 20%; or
- iv) The government of ship recycling state 20%, ship owner 15%, the SRF owner 15% and the government of ship owning state 50%.

²⁵⁹The concept of Common but Differentiated Responsibilities (CBDR) was enshrined as Principle 7 of the Rio Declaration at the first Rio Earth Summit in 1992. The principle holds that although all countries are responsible for the development of global society, each has a different set of capabilities that they can contribute to this project. See Policy, Brief and Proposals: Common but Differentiated Responsibilities, Int'l Movement Aid Fourth World, <https://sustainabledevelopment.un.org/getWSDoc.php?id=4086> (last visited Mar. 12, 2020).

VIII LEGAL RECOMMENDATIONS

This article has tracked down some legal vacuums that may be addressed through recommendations to the Government of Bangladesh and the IMO for immediate implementation where stakeholder consultations may not be an immediate necessity. The recommendations may be enumerated as follows:

A. Recommendations for Bangladesh

A streamline desk review procedure should be arranged before importing any ship for recycling in Bangladesh. The example taken by India in this respect can be used as an example:

- i) A measure should be implemented to turn the ship back from the territory, including penal provisions, if the vessel does not fulfill the procedures set out in domestic laws. Special consideration to be given to avoid any possible *fait accompli*²⁶⁰ of EOL ships in Bangladesh territories;
- ii) Reform of labor laws to reflect strong collective bargaining rights and trade union rights. Removal of numerical thresholds to allow the temporary workers to claim benefit under the Labor Act 2006. Otherwise, ensure a permanent pool of workers in shipbreaking industry;
- iii) Address the gaps that exist in the employment of child labor as identified in existing research and hold the owners of the shipbreaking yards liable, instead of the minor's guardian, where minors engage in shipbreaking;
- iv) Ensure regular physical inspections with direct involvement of inspectors from the competent authority instead of relying predominantly on private safety agencies;
- v) Creating swift and enhanced procedures to redress the grievance of workers at ship breaking facilities by

²⁶⁰*Fait accompli* denotes a thing that has already happened or been decided before those affected hear about it, leaving them with no option but to accept it. Beaching is a non-reversible process. A ship once taken to the beaching facility may not practically be rejected from that recycling facility for a violation detected subsequently. Similarly, a ship once permitted to arrive at the recycling state territory in its dilapidated condition may be due to its unseaworthiness unable to return to its original destination even if ordered by the recycling state authority.

introducing ombudsmen rather than relying exclusively on expensive state courts. The courts are time consuming and expensive, and ineffective in aiding workers in the shipbreaking industry;

- vi) Review penalty provisions and introduce corporate crime and strict liability regimes applicable to the shipbreaking industry;
- vii) Enhance the standard of appointment of contractors engaged in shipbreaking industry with defined responsibilities;
- viii) Ensure a precise disclosure policy for shipbreaking facilities by incorporating the policy in the ship recycling facility plan (SRFP);
- ix) Address the conflict of interest issues that arise in the administration of rules and enforcement of the laws in the ship recycling facility;
- x) Set a threshold of import by implementing the policy outlined in this article incorporating the primary stakeholders of the industry;
- xi) Consider regional cooperation between India, Pakistan and Bangladesh by using an existing cooperation scheme such as SAARC (South Asian Association for Regional Cooperation) to ensure uniform technical, financial and liability procedures for countries using beaching methods of ship recycling until a wholesale reform is initiated through a competent international organization such as IMO to reflect the interest of these developing ship recycling nations.

B. Recommendations for the International Maritime Organization (IMO)

- i) A compulsory funding mechanism needs to be developed to invest in ship recycling infrastructure in locations where ship recycling has been traditionally proved feasible, taking note of the socio-economic and geographic conditions of those states and locations. Contributions should come directly from key stakeholders including flag states, ship-owning nations, ship recycling states, donor agencies, international organizations, ship recycling and owners' associations, taking into account the principle of common but differentiated responsibilities. The competent

international organization (IMO) may be entrusted to manage and administer the funds proportionately to the ship recycling states based on their previous track record of ship breaking in terms of volume of ship recycling. The policy may be reviewed at intervals of every five years;

- ii) When a vessel is destined for recycling by its owner, under a single journey exception the flag state should issue a registration for a special end of life voyage. No cargo should be carried onboard during the last journey of a ship towards the recycling facility;
- iii) The administration of an EOL ship should be taken over by the flag of the recycling state where the ship is destined to be recycled;
- iv) Freedom of navigation should be limited to EOL vessels by prohibiting their registration with black and gray-listed flags;
- v) There should be a State to State level consent requirement before an EOL ship proceeds to the recycling facility. A streamlined communication procedure may be implemented to facilitate a Prior Informed Consent (PIC) requirement;
- vi) Distinct responsibilities should be allocated to all intermediary stakeholders namely contractors, sub-contractors, cash buyers, and leaseholders of authorized ship recycling facilities;
- vii) Separate technical and financial provisions to be introduced for beaching methods via an international ship recycling convention;
- viii) Compensation to be ensured for unavoidable environmental degradation and social and health injuries arising from shipbreaking activities in ship recycling states following the polluter pays principle. The compensation in the form of a surcharge to be collected by the recycling states from the EOL ship owners according to international laws and a standard policy set by the recycling states;
- ix) A verified publicly available online record of IHM should be maintained by each ship against its IMO number at their own cost. The information on the IHM may be updated whenever a new inspection or a structural change is made of the ship. This online information may remain available as alternative to the hardcopy of IHM kept onboard;
- x) Considering the special risk involved in shipbreaking, labor laws of shipbreaking states should be streamlined and

harmonized to avoid unfair competition in the international market. A specialized international regime like the Maritime Labor Convention may be implemented for shipbreaking workers as an alternative;

- xi) A pool of permanent workers should be maintained in all ship breaking facilities along with standardization of training requirements for shipbreaking workers;
- xii) Streamlined penalty provisions for deliberate violations of legal provisions by ships and ship recycling facilities should be adopted, along with provisions on timely disposal of the complaint procedures;
- xiii) To enhance public accountability, a streamlined disclosure policy about the activity of recycling facilities and EOL ships should be implemented in international laws;
- xiv) A mandatory liability insurance policy may be implemented against the ship recycling facilities for workers' injuries and pollution of environment;
- xv) Manual handling of work in ship breaking facilities should be minimized to the extent possible based on the feedback received from the dominant stakeholders in the ways prescribed in this article;
- xvi) Streamlined downstream waste management procedures should be included in international law to ensure environmentally sound management in ship breaking.

This article has identified three pillars of success for the safe and environmentally sound recycling of ships, namely the ship recycling method, the pre-cleaning method, and the distribution of the fair shares of financial responsibility where policy reform is necessary. Steps should be taken as soon as possible for the necessary amendments to the convention taking note of the feedback received from key stakeholders as pointed out in this article.

IX CONCLUSION

Environmental protection and economic development are closely intertwined. The global treaty on ship breaking has been a cause of intense debate over the rights of economic development, environmental protection and the allocation of responsibility for

environmental harm arising from shipbreaking between ship owning and ship recycling nations. These countries traditionally happen to be the developed and the developing countries respectively. In this global treaty, the concerns of the key ship recycling nations, namely their economic priority and desperate need for alleviation of poverty, have been overlooked. This has resulted in the progression of negative externality in the domestic jurisdictions of all key ship recycling nations. If the race to the bottom and divergence created by this negative externality between private and social costs is not corrected by legal measures, and polluters are allowed to continue to operate until reaching the maximum point of their private benefit, this may bring no aggregate benefit to society, but will result in an obvious environmental and social disaster leading to a threat to the sustainability of the industry.

In this capitalist society, the law as it exists would hardly influence the tug of war between groups representing the powerful industry on one hand and inanimate objects such as ecology and the toiling masses on the other. The HKC was adopted back in 2009 as a response to the global call after three decades of mobocracy and lawlessness in the shipbreaking industry. If the demand of greater equity in this global pact is not met as suggested in this article, sustainability of this global industry in the near term may remain far from the reality.