

Ship Recycling Under Indian Maritime Law

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I. Introduction

As per the reports in FY24 (2023-2024), only 125 ships were beached at the Alang Ship Recycling Yard, down from 131 ships in FY23,¹ showing a 4.5% reduction. The global freight market boom is one of the critical factors, as it directly impacts the availability of ships for recycling. The competition from neighboring countries and higher compliance costs have significantly affected Alang's performance in FY24. Ship recycling is associated with facilitating the sustainable disposal of end-of-life vessels. This practice involves dismantling ships to recover valuable materials, such as steel, and repurposing them for various demands. This industry has been facing criticism for several reasons including environmental, regulatory, economic, and social concerns. To counter such problems, The Indian Government has provided a framework of laws and international conventions, including the **Ship Recycling Act, 2019** in adherence to the **Hong Kong International Convention** for the Safe and Environmentally Sound Recycling of Ships. Only 90 of the 120 active facilities in Alang have received Hong Kong Convention compliance certification, highlighting gaps in readiness and compliance. The legal implications of ship recycling are multifaceted, encompassing environmental protection, labor rights, safety regulations, and international trade obligations.

II. Ship Recycling Centres of India

- A. **Alang-Sosiya Ship Recycling Yard (Gujarat):** Alang-Sosiya, a small village approximately 30 km from Bhavnagar in the Gulf of Khambhat, is home to India's ship recycling industry. Recent data indicated a downturn in the activity. In the fiscal year 2020-2021, the Alang Ship Recycling yard recycled 196 ships, a decline from its peak of 415 vessels per year between 2011 and 2012. Sosiya serves as an overflow yard for Alang, receiving fewer resources for modernization and providing low wages for workers.
- B. **Mumbai Port and Kandla Port:** It has an annual revenue collection of around \$100-200 million annually with fewer contributors than the Alang-Sosiya Yard. They also have high logistic costs and lack modern infrastructure for ship handling.
- C. **Vizag (Visakhapatnam) Ship Recycling Yard:** Located in Andhra Pradesh, Vizag ship recycling yard is emerging as a promising sustainable and cost-effective alternative for ship recycling yards after Alang, but due to its proximity to Bangladesh, it faces huge competition from the ship recycling industry of Bangladesh.
- D. **Chennai (Tamil Nadu) Ship Recycling Yard:** It generates less than \$ 50 million annually. It operates on a smaller scale as compared to other yards with limited capacity due to a lack of modern infrastructure.

III. Indian Maritime Law & Ship Recycling

Indian maritime law governs legal issues related to navigation, shipping, and maritime safety within India's jurisdiction, including its territorial waters, exclusive economic zone (EEZ), and ports. It is a combination of national and international laws, conventions, and treaties that regulate the use and

¹ [Hellenicship](#)

protection of maritime resources, the conduct of seafarers, shipping operations, and maritime trade. Indian maritime law regulates port clearance for end-of-life ships, ensuring compliance with recycling norms before allowing them to enter Indian waters. Its Jurisdiction extends to the territorial waters (up to 12 nautical miles from the baseline), contiguous zone (up to 24 nautical miles), and exclusive economic zone (up to 200 nautical miles). Maritime laws work with state-level regulations to monitor and license shipbreaking yards. It also incorporates labor laws to protect workers' rights and safety in shipbreaking yards, addressing occupational hazards. India is a signatory to many international marine conventions and laws including UNCLOS (1982), IMO Conventions, and Maritime Labour Convention (2006).

A. The Hong Kong International Convention: It was adopted by the International Maritime Organization (IMO) in 2009, The Hong Kong Convention sets global standards for ship recycling, addressing hazardous materials, the safe dismantling of ships, and environmentally sound practices that do not pose unnecessary risks to marine organisms, safety, and the environment. India acceded to the HKC in November 2019, signaling its commitment to safer and greener ship recycling practices. It mandates the following provisions :

- a) Inventory of Hazardous Materials (IHM): The IHM ensures that all the hazardous materials on the ship must be identified, registered, and managed properly. Indian classification societies (e.g., **Indian Register of Shipping - IRS**) and private agencies are certified to inspect and prepare IHMs. Training programs have been launched to develop certified IHM inspectors, ensuring sufficient expertise to meet the growing demand Example - SOS India. Some older vessels arrive without proper IHMs. The Indian facilities conduct additional inspections and verifications for the Ship.
- b) Ship Recycling Plans: The SRPs are facility-specific documents that outline the step-by-step process for dismantling a ship and mandate the safe handling of hazardous materials and waste. The government of India has made it compulsory for recycling facilities to submit SRPs for each ship to the **Gujarat Maritime Board (GMB)**. The GMB is the regulatory authority overseeing Alang-Sosiya yards. Indian yards are adopting digital monitoring systems and advanced tools to implement SRPs effectively and ensure the safe disposal and recycling of Ships.
- c) Certification: Ships arriving in India for recycling must carry valid certificates verifying compliance with HKC standards. Indian authorities and classification societies inspect incoming ships to verify their certifications, ensuring no non-compliant ships are dismantled. A ready-for-recycling certificate shall cease to be valid if the condition of the ship does not correspond with the particulars of the certificate.

B. The Basel Convention: It was adopted by the United Nations Environment Programme (UNEP) in 1989 and India upheld the Basel Convention in 1992 and implemented its principles into national regulations such as the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. The Basel Convention regulates and reduces the movement of hazardous waste present on Ships across borders without imposing any threat to marine life.

C. UNCLOS (1982): The UNCLOS is an abbreviated form of the United Nations Convention on the Law of the Sea. It is an international treaty that establishes a comprehensive legal framework for the

use of the world's seas and oceans and its resources. It defines maritime boundaries, navigational rights, and the rights and responsibilities of states concerning marine resources. The USA is not part of this convention.

D. IMO Conventions: The convention came into force on March 17, 1958. The IMO (International Maritime Organisation) is a specialized agency of the United Nations tasked with improving the Security and safety of international shipping and preventing marine pollution from ships.

1. *Key IMO Conventions* :

- a) International Convention for the Safety of Life at Sea (SOLAS) 1974.
- b) International Convention for the Prevention of Pollution from Ships (MARPOL) 1973.
- c) Standards of Training, Certification and Watchkeeping for Seafarers (STCW) including the 1995 and Manila Amendments.
- d) Maritime Labour Convention (MLC) 2006.

E. The Maritime Labour Convention (2006): It is an international agreement that sets minimum standards for seafarers' working and living conditions. It ensures safety at sea, the security of maritime operations, and the prevention of marine pollution in the seas and oceans. According to The Maritime Labour Convention, the minimum age must be below 16 years to work on a ship, and overnight duty of below 18 years is strictly prohibited. The Maximum working hours are set at 14 hours in any 24 hours or 72 hours in any 7 days. The medical care must be available at the ship along with trained personnel.

IV. **India's Ship Recycling on the global stage**

In 2022, India dismantled 30% of the world's total retired ships, and approximately 25% of India's ferrous scrap steel demand is met through ship recycling, reducing dependence on imports from other countries. The ship recycling industry generates around 4.5-5 million tons of scrap steel annually, but its revenue has decreased in recent FY24 due to cheaper and cost-effective steel exports from other countries like China and Vietnam instead of India by foreign traders. The potential market has been drastically narrowed down to 30-40% for India in FY24. The upgrade of yards to meet the Hong Kong Convention and EU Ship Recycling Regulation (EUSRR) standards has increased operational expenses by 15-20%, making India less cost-competitive compared to Bangladesh and Pakistan. India accounts for nearly 70-80% of global ship recycling activity along with Turkey, Bangladesh, and Pakistan, where the labor is low-cost as compared to India. In 2010 India signed a Memorandum of Understanding (MoU) with Japan to improve technology, receive financial assistance, and ensure operations meet international environmental standards like the Hong Kong Convention.

V. **Ship Recycling Act, 2019 and Non-compliance**

- A. It applies to ships registered in India, Foreign ships, and ship facilities operating in India. It primarily focuses on commercial ship recycling. It excludes Warships/Naval auxiliary ships and Non-commercial government-owned ships.
- B. The overreliance on commercial ship recycling is making local economies vulnerable to fluctuations in global shipping and steel markets. The number of ships recycled annually is also reducing

significantly. The Naval/Warships should be decommissioned at ship recycling yards as this will create a valuable stream of recyclable materials, potentially boosting the local recycling industry.

- C. Section 4(1) of the Ship Recycling Act mandates that ships must carry an Inventory of Hazardous Materials (IHM), listing all hazardous substances on board.
- D. Poor enforcement at small-scale shipyards and a decrease in monitoring activities have led to the unauthorized transportation of hazardous materials and ultimately presence of unregistered heavy toxic metals like Cadmium and Lead on Ships.
- E. Under Section 7(2), The Owner must have mandatory approval of a ship-specific recycling plan before dismantling from the Director-General of Shipping (DGS). The recycling plan must include details on:
 - 1. Recycling procedures and the safe dismantling of the ship.
 - 2. Management of hazardous materials on board.
 - 3. Worker safety regulations.
 - 4. The ship recycling plan is not properly presented due to lack of training and insufficient knowledge about procedures, which delays the overall process of ship recycling. The presence of inadequate or unregistered workers on ships by appointing them at low wages illegally also poses a threat to workers' safety regulations. The presence of unauthorized recycling facilities has led to the creation of illegal ship recycling plans without proper inspection.
- F. Section 9 and Section 10 of the Act require ship recycling facilities to implement specific environmental safeguards for the safe disposal of hazardous materials. Improper waste disposal practices particularly in unauthorized facilities cause coastal pollution and soil contamination. Lack of proper training, modern techniques, and awareness of the adverse effects of hazardous materials among the workers is one of the prime reasons behind marine pollution at the ship recycling yards.

VI. Environmental Issues

A study by the **Centre for Science and Environment (CSE)** highlighted that the *Alang beaches* suffer from heavy metal contamination, including **mercury and cadmium**, due to poor handling practices. This contamination poses a long-term risk to marine life, causing the death of fish and other marine organisms. Furthermore, the disposal of polychlorinated biphenyls (PCBs) and asbestos at Alang has resulted in localized environmental degradation. The airborne asbestos fibers pose high risks to workers and local communities. The Recycling Act 2019 specifies provisions regarding hazardous material handling, recycling plan approval, or worker safety to reduce Coastal pollution, soil contamination, and the disposal of toxic substances.

VII. Legal Liabilities

Non-compliance to the legal provisions can lead to significant monetary penalties, suspension or revocation of licenses, and criminal prosecutions. A few provisions to ensure the proper functioning of The Ship Recycling process are given below:

A. Non-compliance with the Ship Recycling Plan

Section 5 of the Act mandates that shipowners must submit a Ship Recycling Plan (SRP) to the Director-General of Shipping (DGS) for approval prior to ship dismantling. Failure to obtain

approval for the SRP before the commencement of ship recycling constitutes an offense under the Act. Shipowners who neglect this requirement may face monetary penalties (ranging from Rs. 50,000 to Rs. 10 Lakh) and a prohibition on ship recycling until they submit an approved plan.

B. Failure to Maintain Inventory of Hazardous Materials (IHM)

Section 6 of the Act requires shipowners to maintain and update an Inventory of Hazardous Materials (IHM), listing all hazardous substances onboard the ship. If hazardous materials are not properly inventoried and managed, the shipowners may face fines, operational restrictions, and potential criminal liability.

C. Non-compliance with Environmental and Safety Standards

Section 7 of the Act lays down stringent environmental and safety regulations for ship recycling facilities, in line with the **Hong Kong Convention**. Non-compliance with these standards leads to significant legal consequences, including the suspension of the facility's operating license, monetary fines up to 50 thousand - 10 Lakh, and closure orders.

D. Pollution Control Violations

Section 10 of the Act enforces strict regulations on the release of pollutants (including hazardous waste) during the recycling process. Ship recycling facilities are required to manage hazardous materials and emissions in compliance with national environmental laws.

E. Suspension or Revocation of Licenses

Section 12 of the Act allows the Director-General of Shipping to suspend or revoke the operating license of any ship recycling facility that fails to comply with the regulatory framework established under the Act.

VIII. Key Legal and Operational Challenges of the Recycling Ship Act 2019

- A. **Illegal ship recycling operations:** Illegal work conducted under unlicensed or unregulated facilities, often in the informal sector, lacks the required approvals under the Ship Recycling Act of 2019. The lack of effective monitoring mechanisms allows such illegal facilities to bypass regulations, complicating legal enforcement.
- B. **The employment of underage workers:** The use of coercive labor practices in ship recycling operations is illegal under both national labor laws and international conventions. Ensuring compliance with worker safety provisions is equally challenging. Failure in safety provisions of workers results in potential legal liabilities for accidents or injuries of the workers at the yards.
- C. **Expensive logistic cost to meet International Conventions:** The ship recycling yards in India are not generating enough revenues to accelerate their technological advancements in recycling activities therefore, the costs of maintenance of shipyards are becoming a big challenge. There are no targeted interventions such as government subsidies, and centralized waste management training camps. The development of infrastructure by government funding and proper allocation of the budget can help undermine the expenses.

IX. Recommendations

- A. **Strengthen Monitoring and Enforcement Mechanisms:** The government should implement more stringent and transparent monitoring systems to ensure that ship recycling facilities comply with safety, environmental, and labor regulations. Regular inspections and monitoring should be

done to prevent illegal operations. This must be addressed by forming an inspection body that can include former advocates as their chairman. This committee must be responsible for the overall activities of the ship including worker safety provisions, law enforcement, environment regulations, and safe waste material disposal.

- B. ***Adopt Green Technological Solutions for Hazardous Waste Management:*** The use of advanced technologies and green recycling methods like **Algal mats** of *Chlorella* and *Spirogyra* should be encouraged near shipbreaking yards to absorb oil leakage. White Rot Fungi and *Aspergillus* neutralize heavy metals (e.g., mercury, cadmium, lead) and toxic chemicals like asbestos, leaching from dismantled ships. There must be a collaboration of government authorities with higher educational (research) institutes like IIT, NIT, DU, etc. to create blueprints of bio-remedies at the yards along with providing subsidies to the institutions by the government will help in the development of environment-friendly waste disposal methods and its functioning.
- C. ***Invest in Worker Training and Reporting:*** The ship recycling yards must invest in comprehensive training programs for the workers. It must focus on working with protective equipment to prevent accidents and educating about the adverse effects of improper handling of toxic metals and hazardous wastes. Regular health and safety audits should be conducted with proper **annual report submission** which will have the number of workers and their proof of active participation in the training programs. This program should cater to emergency combat tactics that will improve teamwork among the workers in case of any unalarmed situation.
- D. ***Increase Penalties for Non-compliance:*** Based on environmental impact fines must be raised for violations related to hazardous material handling, safety standards, and worker welfare, ranging from ₹ 50 lakh to ₹ 5 crore for major incidents. Heavier penalties such as long-term termination of the license must be done as a stronger deterrent.
- E. ***Ensure Accountability for Environmental Violations:*** In cases of pollution or environmental damage, the Ship Recycling Act should ensure that shipowners and recycling facilities are held directly accountable for violations with restitution and environmental restoration provisions. An auditing body must be set up under the supervision of a retired Environmentalist or environmental activist with sufficient knowledge of marine ecosystems and ship recycling facilities to carry out regular monitoring of the disposal of wastes, making proper records with dates and the cycles of the audits to ensure transparency.
- F. ***Strengthen Labor Rights and Conditions:*** Strict regulations around the use of child labor and forced labor in the ship recycling industry should be encouraged. Facilities should implement stricter labor law enforcement to protect workers' rights and improve working conditions. Digital employment records must be maintained including worker age, wages, and contract terms, to ensure transparency and compliance. A help-line number with 24x7 hour executive support must be provided to the workers to help them with their grievances.

X. **Conclusion**

The Indian Government has developed a stringent legal framework through the Maritime Law which regulates the working of legal issues related to maritime activities including shipping, navigation, marine resources, and marine commerce in India. On the other hand, The Ship Recycling Act 2019 was passed in

the Indian parliament to regulate the recycling of ships in an environmentally sound and safe manner. The Act mandates key provisions such as the submission of a Ship Recycling Plan (SRP), maintenance of an Inventory of Hazardous Materials (IHM), and compliance with strict environmental and workers' safety standards. Violations of these provisions may lead to substantial penalties, suspension or revocation of licenses, and criminal prosecution. However, challenges persist in enforcing these laws effectively, particularly concerning illegal ship recycling operations, underage labor, and the implementation of adequate monitoring mechanisms. A strengthened monitoring and enforcement mechanism must be encouraged to combat unauthorized and illegal facilities in ship recycling in India. The development of cost-effective algae-based absorbents for hazardous material should be included in the disposal of hazardous waste practices. Compliance with legal provisions is essential to avoid severe legal and financial repercussions and to foster a safe and environmentally sound ship recycling industry in India.

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