THE SOCIO ENVIRONMENTAL IMPACT OF SHIP BREAKING BUSINESS: AN ANALYSIS OF WORLD'S LARGEST PORT ALANG, INDIA

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Abstract: This study has been undertaken to investigate how the ship breaking business is effecting both human lives and environment, how the dismantling of ships adds various kinds of toxic substance degrading the environment beyond repair. The paper aims at highlighting how the Daily wage workers in this business coming from various parts of India is forces to work without any protective equipment’s and are being exploited, at the same time are their health is degrading due to this hazardous business. The focus is also to highlight various laws at both national and international level to regulate this industry.

Index Terms- Ship breaking, laws, Environmental Pollution. Hazardous business

Introduction

The black day of 13/02/18 took the life of five workers in a blast at the Bombay Ship breaking yard. However it was not the first time that workers have died during the course of employment at ship breaking yard, the reality remains only 10% of such accidents are reported about 90% go unreported. Ship breaking is one of the most hazardous jobs, after Astronaut, Sanitation Workers, Coal Miners, Bomb Squad, Bodyguards, Sewer Diver, Manual Scavenger, Garbage Collector, Rag picker, Sweeper.

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Alang in India is the largest ship breaking yard in the world. It was established in the year 1982. The plight of the workers engaged at Alang is very sad as the remuneration of these ship breaking workers ranges between 3000-5000/pm, which by any stretch of imagination can be sufficient to support their families. Workers in Alang typically come from the state of Bihar, odisha, and Uttar Pradesh etc.

The effect on health and life of the ship breakers are very alarming. Ship breaking causes loss of life due to continuous exposure to dangerous smokes and burn, chemical and deadly gases. Further it remains an undisputed fact that the casual attitude of management towards safety of workers engaged in ship breaking encourages the workers to compromise on safety measures like wearing of helmets, safety jacket and boots etc.

Ship breaking is the process of dismantling the ships and selling their parts for scrap. It is estimated that between 200 and 600 large ships are broken up and recycled every year worldwide. Unskilled workers at the port cut the ship, piece by piece, they reduce the world’s largest ships to individual sheets of steel in a matter of months.

**Aims and Objective of the Research Paper:**

The main aim and objective of this research paper is to bring to the surface the major problems of the workers working at the ship breaking yard with a special reference to Alang Port, one of world’s largest ship breaking yard, and to critically evaluate the available of National and International law, Conventions, treaties etc. in this area.

**Research Methodology:**

The methodology used in this paper is purely doctrinal and the main sources are the Journals, Online Newspapers, Articles, Videos, and other research papers.

**Hypothesis:**

The condition of workers employed at the ship breaking yard is deplorable because lack of safety equipment, lack of awareness and inadequate laws.

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3 Science for Environment Policy Ship recycling: reducing human and environmental impacts This Thematic Issue is written and edited by the Science Communication Unit, University of the West of England (UWE), Bristol

4 World's biggest ship breaking yard https://www.youtube.com/watch?v=6gu7yFD4oc 1/2/18

5 India’s graveyard for ships dying to get hold of customers Rebecca Bundhun November 28, 2015, https://www.thenational.ae/business/india-s-graveyard-for-ships-dying-to-get-hold-of-customers-1.14453


8 Inside the World’s Most Secretive Ship-Breaking Yards https://www.offbeattravelling.com/ship-breaking-safe-or-suicide/ 1/2/18
Origin and International Scenario of Ship Breaking

Ship breaking business first developed in the USA, UK and Japan during World War II because of increased demand for steel. In the 1960s it moved to less industrialized European countries such as Spain, Italy and Turkey. In the 1970s the business left Europe and established itself in Asia, first in Taiwan and South Korea, and then during the 1980s, it further shifted to China, Bangladesh, India, Pakistan, Philippines and Vietnam. Thus gradually the business shifted from developed to semi-developed nations mainly for the availability of cheaper labour and the existence of re-rolled steel market.

From the year 1980 large vessels started coming to China, Pakistan, Bangladesh, the Philippines and Vietnam for dismantling. Though 79 nations in the past decades have had some form of ship recycling activity, the Asian yards, which took off in the 1980s, now account for over 95% of the industry.

With the evolution of strict environmental regulations and the emergence of rights-based groups in developed countries, demanding safe working conditions and a healthy environment, ship-breaking has increasingly shifted to developing countries in Asia. Thus the business came in the hands of the developing nation.

The important factors behind migration of ship breaking business to Asia are:

- Cheap labour, as ship breaking is a labour intensive industry relying on unsophisticated techniques.
- Relatively less concerns on environmental and social standard.
- Availability of local domestic market for steel and other scrap material. In India, it accounts for 15% of the country’s total steel output.

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9 Ship breaking at Alang–Sosiya (India): An ecological distribution conflict Federico Demaria * Institute of Environmental Sciences and Technology (ICTA), Autonomous University of Barcelona (UAB), Spain

10 Coastal Zone of Chittagong, Bangladesh: Towards Sustainable Management Dr. Md. M. Maruf Hossain Mohammad Mahmudul Islam Institute of Marine Sciences, University of Chittagong, Chittagong-4331, Bangladesh. Published by Advocacy & Publication Unit Young Power in Social Action (YPSA)

11 Ship Breaking Activities and its Impact on the Coastal Zone of Chittagong, Bangladesh: Towards Sustainable Management Dr. Md. M. Maruf Hossain Mohammad Mahmudul Islam Institute of Marine Sciences, University of Chittagong, Chittagong-4331, Bangladesh. Published by Advocacy & Publication Unit Young Power in Social Action (YPSA)


13 Ship Breaking Activities and its Impact on the Coastal Zone of Chittagong, Bangladesh: Towards Sustainable Management Dr. Md. M. Maruf Hossain Mohammad Mahmudul Islam Institute of Marine Sciences, University of Chittagong,
- Suitable climate, and easy transportation of scrap to its market place.

- The proximity of the main eastbound trade routes is another reason for development of South-Asian ship breaking industry.

**Alang: The Ship Graveyard**

Alang located in the villages of Alang and Sosiya, Gujarat is the largest ship breaking yard. It employs around 35,000 migrant workers who migrate from all over India.\(^{14}\)

![Location map of Alang–Sosiya in the State of Gujarat (India).](image)

Alang provides high quality steel for various infrastructure development activities and around Rs. 70 crore revenue to the Gujarat Maritime Board (GMB) every year. The annual turnover of the industry stands at Rs. 6,000 crore. The profit margins in the ship-breaking industry are huge and big-time contractors make unbelievable profits, at the costs to workers’ health and the environment which is alarming.\(^{16}\)

In 2013, there were 12 stand posts for bathing and six toilets for 35,000 workers. Due to lack of regular government monitoring, workers in this business are under influence of the local contractors, who not encourage the workers to take advantage of governmental services implemented for the local communities.\(^{17}\) The safety facilities or working

\(^{14}\) Ship breaking Practices in Bangladesh, India and Pakistan An Investor Perspective on the Human Rights and Environmental Impacts of Beaching Published: 18/05/2016

\(^{15}\) Ship breaking at Alang–Sosiya (India): An ecological distribution conflict Federico Demaria Institute of Environmental Sciences and Technology (ICTA), Autonomous University of Barcelona (UAB), Spain

\(^{16}\) Workers of Alang-Sosiya A Survey of Working Conditions in a Ship-Breaking Yard, 1983-2013 Geetanjoy Sahu

\(^{17}\) Ship breaking Practices in Bangladesh, India and Pakistan An Investor Perspective on the Human Rights and Environmental Impacts of Beaching Published: 18/05/2016
equipment provided, are of poor quality and inadequate, and most of the time are only provided at the time of inspections or safety audits.18

Problems of Ship breaking workers At Alang/Sosiya19

Alang alone employs over 55,000 workers. Gujarat Maritime Board (GMB) is the regulatory authority for the ship breaking yards of Alang. There are a lot of problem that these workers face in their daily work some of the common problem faced by them are enumerated below:-

1. Migrant Population and mother tongue
2. Status of accommodation
3. The accidents and diseases

Other problems of the Ship breaking Industry20 includes.

- Lack of hazardous waste management
- Ship breaking is not always covered by labour law and social protection
- Ship breaking locations make the enforcement of laws and regulations difficult
- Lack of an inventory of hazardous material
- No planning for safe demolition
- Lack of recycling and safe waste management
- Occupational hazards

19 International Metalworkers’ Federation Status of Ship breaking Workers in India - A Survey IMF-FNV project in India 2004-2007 Published by International Metalworkers’ Federation South Asia Office
20 International Labour Organization Safety and health in ship breaking: Guidelines for Asian countries and Turkey Interregional Tripartite Meeting of Experts on Safety and Health in Ship breaking for Selected Asian Countries and Turkey Bangkok, 7-14 October 2003 International Labour Office Geneva
• Multiple Authorities and Committees

• Delayed Payment of Wages

• Absence of Active Trade Union

**Impact of Ship Breaking On Environment Visa-a-Vis Health of the Workers**

The issue of health and safety of the ship breaking workers makes news only when there is an Industrial disaster, especially those resulting in multiple fatalities, make global headlines. Thousands of people die from their work activities every day, and numerous fatalities goes unreported or ignored.²¹ In Asia old Ships made up of hazardous substance and materials are often cut up by hands on open beaches rather than big machines, under inhumane working conditions.²² This leads to environmental degradation and damage to the health of the workers and the natives.

The cutting of ships has major impact on environmental pollution, depletion of water resources, land use, health, education, living and working conditions of the workers, social tensions between the, immigrant workers and the local, residents, economic instability and insecurity, of the ship-breaking industry, largely due to competition from, south and south-east Asian ship breaking, yards.²³ The other hazardous impacts are:

1. **Heavy metals**

   Heavy metals are found in paints, coatings, anodes and electrical equipment of the ship which is often scrapped by workers without the correct protective equipment. Mercury, Lead, Arsenic, Chromium.²⁴ Are some of the common metals that contributes to the environmental damage and all these metals have an adverse effect on human health and land.

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²² Coastal Zone of Chittagong, Bangladesh: Towards Sustainable Management Dr. Md. M. Maruf Hossain Mohammad Mahmudul Islam Institute of Marine Sciences, University of Chittagong, Chittagong-4331, Bangladesh. Published by Advocacy & Publication Unit Young Power in Social Action (YPSA)


*Report written by: Derek Elias,*

²⁴ Coastal Zone of Chittagong, Bangladesh: Towards Sustainable Management Dr. Md. M. Maruf Hossain Mohammad Mahmudul Islam Institute of Marine Sciences, University of Chittagong, Chittagong-4331, Bangladesh. Published by Advocacy & Publication Unit Young Power in Social Action (YPSA)
2. **Pollutants discharged from ship breaking**

Depending on the size and function, scrapped ships an average weight between 5,000 and 40,000 tons (the average being 13000+), 95% of which is steel, coated with between 10 and 100 tons of paint containing lead, cadmium, organotins, arsenic, zinc and chromium. Ships also contain a wide range of other hazardous wastes, sealants containing PCBs, up to 7.5 tons of various types of asbestos and; several thousand liters of oil (engine oil, bilge oil, hydraulic and lubricants oils and grease). And when the ships are cut they mix with the environment and causes adverse effect on human lives, pushing them beyond repair.
3. Impacts on Villagers

Villagers are often affected by noise pollution. Oxen and cattle die because of eating waste, respiratory and skin problems particularly when the waste is set on fire, water scarcity and salinity, kidney diseases related to salinity and pollutants etc.

![Image of Chittagong Ship Breaking Yard](http://www.amusingplanet.com/2014/07/chittagong-ship-breaking-yard.html)

4. Impacts on Workers

Workers are continuously exposed to pollutants, from air, water and the fish that they take. Frequent accidents happen due to fire and explosion, falling objects, trapping or compression, snapping of cables, falls from heights, and lack of personal protective equipment, housekeeping standards, and safety signs. In case of injury or death, they are rarely compensated. In 2007, 12 Sarpanch and 30,000 people opposed dismantling because of the damage it was causing to the workers and villager’s health and local environment.

5. The Human Rights Impact

The most salient human rights risks are the right to life and health, including the breaches of labour standards. The Rights to Life and Health, Labour Rights Related to Occupational Health and Safety, Child Labour (Constitution of India) etc. are some rights which are being adversely affected.

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29 By Chris Foote, Breaking Bad, Uncovering The Oil Industry’s Dirty Secret, date: 27/6/2020
https://www.bbc.co.uk/news/extra/ao726ind7u/shipbreaking

6. Impact on Marine Life:-

A recent report published by the United Nations Environment Programme (UNEP) included ship breaking industries in India, Bangladesh and Pakistan among the major land-based sources of marine pollution in the South Asian Seas region. Another major threat to the environment is careless ship dismantling which causes a major threat to the marine ecosystem.

National and International Framework for Protection of Workers’ Rights

- National Statutory Framework of Workers Rights

At present, there are reportedly over 50 central and state statutes which concern the improvement of workers’ rights. Some of these include:

1. The Workmen’s Compensation Act 1923
2. The Payment of Wages Act 1936; the Factories Act 1948
3. The Employees’ State Insurance (ESI) Act 1948
4. The Minimum Wages Act 1948
5. The Employees’ Provident Funds Act 1952


32 Impact on environment and health 12:00 AM, April 23, 2011 / LAST MODIFIED: 12:00 AM, April 23, 2011 Ship breaking in South http://www.thedailystar.net/news-detail-182721Asia

33 Environmental Impacts Of Ship Dismantling – Screening For Sustainable Ways By Juho Vuori Turku University Of Applied Sciences Mechanical and Production Engineering | Product Development Completion of the thesis 15 May 2013
6. The Payment of Bonus Act 1965
7. The Contract Labour (Regulation & Abolition) Act 1970
8. The Payment of Gratuity Act 1972
9. The Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979,

- International regulations on ship breaking:-

*International Convention for the Safety of Life at Sea Convention (SOLAS) 1914*

The International Convention for the Safety of Life at Sea Convention (SOLAS) is one of the most important of all international treaties concerning the safety of merchant ships.\(^{34}\) However to enlist a few more conventions and guidelines, they are as follows:-

* IMO – Guidelines on Ship Recycling\(^{35}\)*


- New ship and equipment design, in particular to minimize the use of hazardous substances and waste generation and to facilitate recycling and removal of hazardous materials
- Preparation of a Green Passport for new and existing ships
- Selection of recycling facility and preparation of a ship for recycling, including a Ship Recycling Plan
- Roles for primary stakeholders including the flag, port and recycling States, the Basel Convention, the ILO and the shipping industry.

*Basel Convention- Guidelines on Ship Recycling\(^{36}\)*

\(^{34}\)Safety of Life at Sea (SOLAS) First adopted in 1914 in response to the Titanic disaster, its main objective is to set minimum standards for the construction, equipment and operation of ships compatible with their safety. The current version was adopted in 1974 and has been amended on numerous occasions since then. A number of other treaties have been adopted to tackle various safety aspects, including the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).

\(^{35}\) Joint Ilo/Imo/Bc Working Group On Ship Scrapping 1st Session Agenda Item 8 Ilo/Imo/Bc Wg 1/8/18 February 2005 English Only Report Of The Working Group
The Technical Guidelines were adopted by the sixth Conference of the Parties to the Basel Convention in Geneva, Switzerland, in December 2002. The guidelines are:

- The process of ship decommissioning for disposal and identification of potential contaminants and prevention of releases;
- Suggested good practice in the design, construction and operation of ship dismantling facilities;
- The principles of ESM of ship dismantling and how to achieve ESM of ship dismantling facilities.

**ILO- Guidelines on Ship Recycling**

The ILO Guidelines were adopted at an Interregional Tripartite Meeting of Experts on Safety and Health in Ship breaking for Selected Asian Countries and Turkey, held in Bangkok, Thailand, in October 2003 and endorsed by the Governing Body of the ILO in March 2004. The Guidelines were drafted to contribute to:

- The protection of ship breaking workers from workplace hazards and to the elimination of work-related injuries, ill health, diseases, incidents and deaths;
- Assisting and facilitating the improved management of occupational safety and health issues in or about the workplace.

**The Hong Kong Convention on Ship Recycling**

It is the first international treaty that intends to address all aspects of ship recycling, from shipbuilding, shipping operations and ship breaking, including concerns about working and environmental conditions at ship recycling facilities. Following were some of the suggested guidelines by this convention.

- The design, construction, operation and preparation of ships to facilitate safe and Environmentally sound recycling
- The operation of ship recycling facilities in a safe and environmentally sound manner

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36 Joint Ilo/Imo/Bc Working Group On Ship Scrapping 1st Session Agenda Item 8 Ilo/Imo/Bc Wg 1/8/18 February 2005 English Only Report Of The Working Group
37 Joint Ilo/Imo/Bc Working Group On Ship Scrapping 1st Session Agenda Item 8 Ilo/Imo/Bc Wg 1/8/18 February 2005 English Only Report Of The Working Group
38 Ship breaking Practices in Bangladesh, India and Pakistan An Investor Perspective on the Human Rights and Environmental Impacts of Beaching Published: 18/05/2016 International Law and Policy Institute (ILPI) 2016
- The establishment of an appropriate enforcement mechanism for ship recycling, incorporating certification and reporting requirements.

**International Human Rights Treaties, For the Protection of Ship Breaking Labours** 39

Below are the main International Human rights treaties that protect the rights of the workers at ship breaking yard:-

- The International Covenant on Civil and Political Rights
- The International Covenant on Economic, Social and Cultural Rights,
- ILO’s eight core convention relating to child labour, forced labour, discrimination, and the right to freedom of association and collective bargaining.

Despite the attempt of Government of India, trade unions, and the Supreme Court, there is no significant development with regard to the international agreements and guidelines. While in theory the Government of India accepts the ILO guidelines, in practice these are not strictly adhered to in the ship-breaking industries thriving at Alang-Sosiya. 40

**Prove and Disprove of Hypothesis:**

The hypothesis guiding this study was the fact that the workers at the shipbreaking yard are dying because of lack of safety equipment and awareness coupled with the existing weak laws. The hypothesis stands proved as the workers are literally dying because of lack of safety equipment’s and lack of awareness towards the hazardous substance. It also proves that the death rates of the workers are quite high, however many death go unreported because of lack of a proper shipbreaking yard authorities at the lower levels.

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39 Ibid from 38
Conclusion and Suggestions

Alang, is one of the largest ship breaking yard in the world. It is not only the ships that die but the process paves way for the death of the workers as well. It’s a billion dollar Industry prospering on the life of poor and unguided workers who ultimately meet their end in the course of employment.

From Alang, the scraps are brought at Bhavnagar for further processing. Where many workers die in the ship breaking yard, many more die at the processing place breathing the carbon and the steams. The air here is filled with chunks of metals. It is estimated that 1 in 4 of the worker will suffer cancer due to the polluted environment of the yard.

The ships that are scraped were built years ago before the asbestos and PCP’s were banned, heavy metals were used in the paints and the ship contains other radio- active materials, these substances are released with every cut causing steady death to both environment and humans. Countries like Canada have banned this toxic substance under the treaty called the Basel Accords. Ship breaking workers suffers lungs problem, decaying of body parts, and loss of eye sights. Inhaling these gasses one day is equal to taking 10-12 cigarettes a day

Suggestions

A complete ban on the ship breaking Industry would not be fair and justifiable in a country like India where a large chunk of people sleeps on the footpaths empty stomach and where getting a job is a lifetime struggle. To take a midway out we can allow the workers to work in the yard however strict adherence be observed in order to improve their conditions by:

- **Giving the proper safety equipment**
  To carry out their work safely they must be provided with equipment’s to protect their head, face and eye, Hand and foot protection, Respiratory protective equipment, Hearing protection, Protectors against radioactive contamination, Protection from falls, waterproof clothing and head coverings when working in adverse weather conditions.

- **Contingency and emergency preparedness**
  Arrangements for the training of the workers in times of emergency must be made periodically. Where the workers must be trained for the accidental situation, there must be escape routes or emergency exit plan set up before cutting

41: Shipbreakers”  https://www.youtube.com/results?search_query=shipbreakers  12/02/18
the ships. A handbook on the procedures to be followed by workers who remain to perform critical operations must be circulated periodically amongst the workers, evacuate training in case of fire or other danger should be provided without any fees. Special evacuation training must be given to the workers of the worksite, who work inside the ship’s hull and surrounding area. The means for reporting fire and other emergencies must also be established.

- **Awareness and training Camps**

Before employing any worker in the ship breaking yard, irrespective literate or illiterate, training must be provided for emergency situation and how to be safe in the ship during cutting and what precautions to take while being in the yard. Awareness camps must also be set up by the NGO’s and the contractors so as to make the workers aware of the poisons content of the metals, paints and smokes that comes out while dismantling the ship. Awareness as to the adverse effect of the ship breaking business must be disclosed to the workers, and they should be trained with the action plan during emergency and what precautions to be taken while being in the yard.

- **Welfare Committee**

Camps at a distance of the yard must be set up for the workers and facilities like sanitary and washing facilities or showers must be provided, arrangements for changing and for the storage and drying of clothing should be made, canteens or common rooms must be provided for taking meals and for taking shelter during the break time or during the adverse weather conditions. The scale of the above facilities, and their construction and installation should comply with the requirements of the competent authority. Other facilities like First aid, Drinking water Cloakrooms must also be arranged for the workers so as to provide a safe healthy environment of work. It also must be the duty of the welfare committee to ensure that no child below the age of 18 years is involved in dangerous jobs like this. Provisions for Working hours Recreation/ sufficient holidays must also be made for the workers. The welfare committee must also provide an ambulance at the yard to as to immediately rush the worker to the nearest hospitals in case of any injury or accident.

- **Employment and social insurance**

The pitiable conditions of the workers are perhaps because they are not protected by insurance of any nature either by the employer or by the government. There is no responsibility of either the state or the employer if a worker dies out of any accident or if he becomes partial or complete disable while being on duty. Thus both the government and the employer must insure the workers before getting them in the work.
• **Strong and effective trade union**

An effective and a strong Trade Union is a must for any Industry. Similarly there is a need of strong trade union in this industry that will keep a close look at the facilities provided and would stand on behalf of the worker for their rights.