CREATIVE DESTRUCTION: BREAKING SHIPS, BUILDING THE ECONOMY, CLEANING THE ENVIRONMENT

Liberty Institute Working Paper,
In association with the Danish Center for Political Studies (CEPOS), Copenhagen

Barun Mitra*
Director, Liberty Institute, New Delhi†

Executive summary

Well-meaning groups in the West are in danger of having a negative impact on the lives of hundreds of thousands of workers in the shipyards of the developing world. While seeking to impose First World environmental and safety standards on the ship-breaking industry through the Basel Convention, they have not taken account of the realities of life in India. The shipyards – a harsh environment, where workers receive a pittance by western standards – provide both a livelihood for the rural poor and their families, and make a significant contribution to the steel and construction industries. This paper argues that free market principles will provide the economic growth which will benefit both the poor and the environment.

Introduction

Denmark and India have got embroiled in what seems a very unusual debate. An old Danish ferry, Kong Frederik IX (now renamed as simply the Frederik), is waiting to be broken up at Alang,, in the western Indian province of Gujarat, the world's busiest ship-breaking area. An Indian court is expected to rule whether or not the ferry can be dismantled. In a separate development, the government in Denmark has asked India to return the ferry so that it can be "decontaminated" before scrapping.

Environmental groups like Greenpeace are up in arms, both in Denmark and India.

This debate over ship-breaking has attracted public attention in many other countries, both rich and poor. For instance, there is a transatlantic argument over a US navy ship that has been waiting a year or more to be reprocessed in a properly-licensed English dock meeting all European safety standards. But this whole debate got a fresh impetus and renewed focus on the developing world in 1997, when a series of articles was published in the Baltimore Sun newspaper on the state of the ship-breaking industry in the US and around the world. The newspaper went on to win the Pulitzer Prize a few months later.

But, although the arguments rage, the real issues behind the headlines are rarely examined.

---

* Barun Mitra is Founder and Director of the Liberty Institute (India). Mr. Mitra has a bachelor's degree in electrical engineering, and a post-graduate degree in marine engineering. He has just won the Julian Simon Award 2005 from the Competitive Enterprise Institute, Washington DC. Earlier, he won the Freedom Torch medal 2004, awarded by the International Society for Individual Liberty (USA). Mr Mitra has been published in a wide range of national and international publications and is Editor of the book "Population: The Ultimate Resource".

† This paper is partly based on research done by Mr Prasanna Srinivasan the implications of Basel Convention on Hazardous Waste for India. Mr Prasanna is a visiting research scholar at the Liberty Institute.

For example:

- What do we mean by waste? Is an old ship useless rubbish to be shunned, or should it be seen as a valuable, recyclable resource?
- Critics of the industry point to the hazardous materials that many of the older ships contain. But does the hazard lie in the materials themselves, or does it only become risky because of the way such materials are handled?
- Is the ship-breaking industry just an exercise in waste management? Or is it an economically efficient way to extract, recycle and reuse scarce resources?

There are other, broader, issues involved as well, such as international trade, of which ship-breaking is one very visible component. Will this trade remain economic if higher labour and environmental standards are imposed through the pressure of environmentalists? What would be the implications for the recycling industry if its costs are forced up? In a higher cost environment would the low cost recyclers of India be able to afford to modernise? Would lower volumes and higher costs help improve the environmental quality or place further strain on the environment?

Labour costs have been a significant factor in inducing the ship-breaking industry to move from richer industrialised countries to poor countries in the past fifty years. . According to one estimate, the labour cost to dismantle a sophisticated naval vessel in the USA could be in the range of $35-40 per hour. Compare this with 25 cents to one dollar prevailing in poor countries. Why are workers in poor countries willing to work for such low wages in a harsh working environment? What is the alternative for these workers? What would be the consequence of trying to raise the wages of workers in this sector, independently of the wider economic conditions?

Environmental considerations also play an important role. Is ship-breaking an intrinsically dirty operation? Is that the reason for it to shift from countries with higher environmental standards to those with lower standards? And what is the relationship between environmental standards and economic development? Could the higher environmental standards become affordable and accessible naturally with greater economic growth?

The seen and the unseen

The purpose of this paper is to raise some of the seen and unseen issues concerning the ship-breaking industry. The objective is to help develop a better understanding of the relevant issues in the broader context of economic development.

The Economic Significance of Ship-breaking

Currently, India produces about 30 million tonnes of steel annually. Today, between 10 to 15% of this comes from the steel recycled from ship-breaking activities. According to estimates, 75 to 80% of the extracted steel goes to make steel rods used in the construction sector. So any reduction in the supply of recycled steel is likely to have a significant impact on the housing and commercial building sector. The recent rise in international steel prices because of sharp

increases in demand in China and India, has already affected the supply of scrap metals. And there is a slump in the number of old ships that Indian recyclers are able buy, due to increased competition among recyclers from different parts of the world.

India had lost its lead in the global ship-breaking business to Bangladesh in 2001, regained the Number 1 position in 2002. The battle has become quite intense among major ship-breakers in the developing world.

Table 1: Countries with major shipbreaking facilities[‡]

Country	Million LDT in 2001	Million LDT in 2002
India	7.9	10.5
Bangladesh	9.4	9.0
China	5.7	5.1
Pakistan	3.7	1.7

Note: Light Displacement Ton (LDT)

In 2001, the Indian government made attempts to regulate the unorganised ship-breaking sector. According to agents, the decision to ban tankers that were not made 'gas-free for hot work' – ie, pre-cleaned before sending to the breakers' yard – had a very negative effect on the business in Alang. At the same time, Bangladesh had stepped up its aggressive campaign for old tankers, including VLCCs (very large crude tankers), and won most of them. The issue is of even greater economic significance for Bangladesh. The labour-intensive process of ship-breaking for scrap has developed to the point where it now meets most of the country's domestic steel needs, says a US State department report.[§]

Ship-breaking at Alang in India

Ship-breaking in India expanded after the early 1980s. This trend has accompanied the growth of the domestic iron and steel industry as well the availability of surplus ships following the second oil shock in 1979-80. While ship-breaking activities are carried out at various places on the Indian coast, the largest concentration is on the West Coast at Alang, Gujarat.

Today, there are about 80 active yards along a 10 km coastline. This represents a substantial rationalisation of the nearly 200 small yards that operated in the early 1990s. Today, Alang represents possibly the single largest concentration of ship-breaking industry in the world.

The trend in terms of tonnage broken is shown in the table:

[‡] The Economic Times, New Delhi, 4 January 2003
[§] Profile of Bangladesh, US Department of State, August 2004.
http://www.state.gov/r/pa/ei/bgn/3452.htm

Table 2: Ship-breaking in Alang[**]

YEAR	No. of Ships	LDT
1982-83	5	24716
1983-84	51	259387
1984-85	42	228237
1985-86	84	516602
1986-87	61	395139
1987-88	38	244776
1988-89	48	253991
1989-90	82	451243
1990-91	86	577124
1991-92	104	563568
1992-93	137	942601
1993-94	175	1256077
1994-95	301	2173249
1995-96	183	1252809
1996-97	348	2635830
1997-98	347	2452019
1998-99	361	3037882
1999-00	296	2752414
2000-01	295	1934825
2001-02	333	2727223
2002-03	300	2424522
2003-04	294	1986121
2004-05 UP To Jan-05	**164**	**785304**

*Year ending March 31, Indian financial year

In the late 1990s, ship-breaking provided direct employment to between 40,000 and 50,000 people. Today the number is about a third less. About 60% of the ships broken are dry cargo ships, while wet cargo, tanker and specialized ships constitute the rest.

The primary materials obtained from ship-breaking are:

- Recyclable steel (2 – 3 million tonnes or more per year)
- Engineering and spare parts
- Appliances
- Wood
- Cables
- Lead Acid Batteries
- Oils
- Glass wool and thermocole

[**] Gujarat Maritime Board, India, March 2005.

During its peak in 1998-999, the recyclable steel accounted for about 20-25% of inputs to the steel and foundry industry in India, according to estimates made by a financial institution.[††] Today this figure is also down by around a third. In the secondary sector, important downstream industries have developed including re-rolling mills, foundries, oxygen plants, transport and recycling and resale of a wide range of items, from turbine engines to washbasins and furniture. At the height of its operations in the late 1990s, the iron and steel industry combined with secondary activities was estimated to be worth in excess of $500 million per annum, contributing significantly to the local economy and local government revenues.[‡‡]

Perhaps it is not a coincidence that the international attention turned towards Alang, and other ship-breaking facilities in poor countries around the same time when these facilities had reached their peak. It may not be too far fetched to speculate if the relative success of shipbreaking industry in Alang, and elsewhere, gave rise to the protectionist tendencies among special interest groups in the rich countries.

The economics of ship-breaking operations

The price of salvaged ship steel is determined by two independent trends:

- Excess tonnage in different sectors of the global shipping industry. Oil tankers and general cargo ships were generally in oversupply during the late 1980s onwards, when owners found it more viable to dispose off their ships than operate them, so increasing the supply of scrap steel.
- Relative input costs for domestic steel production. Ship steel is a major source of raw material and costs are related to prices of finished steel and ore as an alternative input.

Broadly, the importers of ships for scrapping have a gross margin of $25-30 per tonne within which to earn a profit. The Indian industry is not subsidized in any way by the government.

Wage earners at these ship-breaking yards earn about $2 to $ 8 (roughly INR 100 to Rs 400) per day. This compares very favourably with the rates for any semi-skilled daily wage jobs in India, which are mostly in the unorganized or informal sector. It is several times the rate for workers in rural agricultural belts such as in Orissa, Andhra Pradesh etc where wages, besides being seasonal, are closer to Rs 20-30 day. Consequently, many of the shipyard workers come from such interior regions to earn a living at Alang. They are able to send home a part of their earnings to support their families.

The Legal Environment in India

The Gujarat Maritime Board has passed a number of measures to protect the rights and safety of workers. These include The Gujarat Maritime Board (Prevention of Fire and Accidents for Safety and Welfare of Workers and Protection of Environment during Ship-breaking activities) Regulations, 2000 in addition to other laws under industrial acts, common law, and environmental legislation including the coastal zone regulations.

[††] Industry note from ICICI Ltd, an Indian financial institution, 2000
[‡‡] UNESCO, 2003

Ship-breaking is regulated by the Maritime Board, the state Pollution Control Board and the Coastal Zone Regulation authorities. Beaching of ships and other related activities are also regulated by Port Authorities.

Many of the measures of the Gujarat Maritime Board have been in response to a Supreme Court directive in April 2000 requiring that ships should be properly decontaminated before breaking in India.

Workers' Safety and the Environment

A diverse range of interested parties, including environmental activist organizations such as Greenpeace, high powered government committees and independent observers generally agree on the following:

- The conditions under which ship-breaking is undertaken at Alang are harsh. Estimates vary, but some environmental groups suggest that, on average, one shipyard worker dies each day. Official industry estimates place the figure far lower, at about 40-50 workers per annum.
- There is some environmental degradation at Alang caused by various waste materials, some of which are hazardous.

Implications for Alang of the Basel Convention on ship-breaking

The Basel Convention seeks to ban the export of ships for disposal. The USA, not a signatory of the convention, already has a ban on export of government owned ships for disposal. Consequently about 200 ships lie unbroken, awaiting disposal. No American contractors are willing to do the work, as the activity has been made uneconomic by the requirements of US environmental laws.

The Basel Convention, supported actively by Greenpeace and other environmental groups, seeks to place the onus for decontaminating ships for "safe" disposal on owners. Its intention is also that the ships should be disposed off within the home country rather than exported.

Ships constructed up to the end of the 1970s used several potentially hazardous substances, in particular asbestos, lead and PCBs. Ships constructed after 1983/84 do not generally have the same handicap. The life of an average ocean-going ship is about 20 years, and many of the ships currently being scrapped date back to the pre-1983 vintage.

The Basel Convention proposes a ban on export of hazardous material from rich to poor countries. ships for ship-breaking. Some environmental groups and western governments think that this restriction extends to hazardous material that may be present in some of the ships sent for recycling. The direct impact would be a loss of livelihood for 40,000 workers from the poorer sections of Indian society plus their dependant extended families in their home towns and villages. Such a ban could be a construed to be an unilateral non-tariff trade barrier, and potentially fall foul of the WTO rules as well..

The supporters of Basel Convention would like to see international standards of environmental practice for ship-breaking: imposing First World standards on Third World countries. Such a measure could eventually render the Indian ship-breaking industry economically unviable.

Without recycled ship steel, an additional amount of ore would be mined for the steel industry on a continuing basis. The economic and environmental cost of extraction and prospecting for ore deposits is likely to be much higher than at present. This would give a competitive advantage to the richer countries, which would be better placed to afford and absorb such costs.

Ship-breaking would either migrate to other countries with less stringent rules, or continue as a subsidized activity in developed countries. This would eventually lead to a loss of technology gains on recycling steel in countries like India.

The Convention assumes that the cost of environmental degradation along the Alang coast is the same as the costs in, for example, California. The Convention ignores the domestic laws that protect worker safety, handling and disposal of hazardous substances and the environment.

Skewing development of technology

Developed countries, because of their earlier industrialization and more advanced stage of economic development, are large producers and consumers of goods and services, and consequently, they generate high volumes of by-products and wastes. Developing countries, on the other hand, because of their lower level of economic development, have lower levels of production and consumption, and consequently less waste. Recycled waste products typically provide cheaper inputs for production in a variety of industries.

The development of technologies to increase waste recovery (or for that matter development of technology per se) is linked to the availability of the resource to which the technology is applied. Hence, the concentration of information and communications technology firms in the USA, or concentration of bamboo products technology in China.

By denying poor countries access to industrial wastes, the Convention is reducing their ability to develop appropriate technologies. Such technology may now be developed in "rich" countries, in all likelihood through government subsidized programmes, something that is already happening with ship breaking in the US.

The ban on access to recyclable waste materials because of their supposed hazardous nature will restrict access of such waste in developing countries while increasing access in developed countries. Developed countries by virtue of their own environmental laws will not be able to export the waste. Domestic environment laws will make much recycling economically unviable. For example, the US Government has a ban on the export of ships owned by it for disposal. There are no domestic buyers for the used ships. At present an estimated 180 ships of the US government[§§] are lying around awaiting disposal. A government subsidy to third parties in the US for "safe" disposal seems to be the only way out. This would provide some gains for the domestic economy, especially in times of economic slowdown, but through a discriminatory trade practice.

The availability of large quantities of waste that have no competitive value (as they cannot be traded) or domestic value (due to strict environmental laws) will require government-subsidized development of "safe" disposal technologies in developed countries. The US Congress, in September 1999, approved a pilot project for four ships to be disassembled and

[§§] William Langewiesche, "The Shipbreakers", Atlantic Monthly, August 2000

recycled on a “cost plus” basis by shipyards in Baltimore, Brownsville, Philadelphia, and San Francisco[***]. The contracts involved a total fee award of $13.3 million. This is contrary to the principles of free trade and a clear instance of protectionist policy and government subsidy.

In the long run, developed countries will own “safe disposal” technologies because of such trade interference. Developing countries will yet again have to acquire these technologies from developed countries.

Understanding the Unseen

In order to understand the ship-breaking industry in India, it needs to be placed in the context of the socio-economic conditions prevailing in the country. In this section, the aim is to look at the labour and health aspects of ship-breaking.

There are 11 recognized categories of worker in the shipyards:

- Jodiwala – workers who move the heavy iron plates from one place to another
- Battiwala – workers who cut the ship with oxygen torches powered by liquid petroleum gas cylinders
- Helpers – workers primarily assisting the Battiwala plus other duties as required
- Common labourers – workers with no particular skills, who undertake many of the menial tasks
- Mukadam – contractors who function as managers and place workers at appropriate stations
- Supervisors
- Winch operators – skilled workers
- Crane drivers – skilled workers
- Fitters – skilled workers
- Carpenters – skilled workers
- Foremen – usually relatively educated and enterprising skilled workers, after having gained some years of hands-on experience, rise to the post of foreman

There are 10 villages in a radius of 12 km around Alang village. According to census estimates, the population of this area was 7-8,000 people in 1961. By 1991, the population had increased to 20,000 and recent estimates put the number at over 60,000. This increase is far in excess of natural growth rates and reflects the substantial number of people who have moved into this area, attracted by the economic activity surrounding ship-breaking and related secondary activities in Alang.

Migrant labourers from some of the poorest regions of India – in particular the states of Bihar, Orissa, eastern Utter Pradesh, Madhya Pradesh – provide 90% of the workforce at Alang. About 80% of workforce are illiterate, and being migrants, are relatively young (mainly in their twenties). Most of them stay within the Alang area in rented shanties, without adequate water, electricity or drainage.

The monthly income from ship-breaking activities ranges from a low of Rs. 2,100 ($50 approximately) for an inexperienced helper, to Rs. 9,000 (about $200) for a yard supervisor/foreman, with an average of Rs. 3,000 (roughly $65) for an experienced but

[***] ibid

unskilled worker. By Indian standards the average wages are quite good for such manual and hazardous work and help to explain the attraction of employment at Alang.[†††]

Gujarat is one of the more prosperous provinces in India. There are more employment opportunities for the local labour force, who therefore are not attracted to jobs as labourers in the shipyards. However, it is estimated that perhaps another 200,000 people, mostly from Gujarat province, work in ancillary industries and as providers of various kinds of services to the ship-breakers, in the surrounding districts.

To appreciate the reasons why migrant labourers are willing to accept work in such a harsh environment as Alang, one needs to look at the scale of the unemployment and under-employment problem in India today. This is one of the major unseen components of the equation.

Indian Workforce facts -

- 420 million strong workforce
- 90% in the informal or subsistence sectors
- 60% in agriculture and related rural economic activities
- 10% in organised public and private sectors
- The 7% official unemployment hides gross underemployment and very low productivity
- Only 32% of the unorganised workforce has primary level education
- Only 5% of the workforce in age group 20-24 years has some vocational skill

Jobless growth -

- 8.7 million entered the workforce every year between 1991 - 2001
- 79 million have found work in the unorganised sector
- 1.4 million have found employment in the formal public and private sectors
- 360,000 have entered the public sector
- 1.1 million have been employed by the private sector
- For every percentage growth in GDP, the economy generates only a third as many jobs today, as it did in earlier decades

There is an increasing gap, for the same level of skills, between those who are employed in the formal sector, and those outside of it. Organised labour, with higher political and economic bargaining power, seem to have priced most of the Indian labour force out of the formal marketplace. Consequently, wages are seriously depressed and the work environment very poor in informal sectors, such as the Alang shipyards.

In such a situation, there is also the problem of labour productivity. For instance, in the last fifty years, agriculture's share of GDP has shrunk from 70% to 24%, while the agricultural labour force has declined relatively less, from 75% to 60% of the total. Clearly, labour productivity in agriculture has remained low, and poverty has become synonymous with agriculture.

This explains the tremendous pressure on marginal agriculture workers, particularly in relatively poor regions of India, to try to migrate to areas where there is some prospect of paid work. Alang, for all its problems, is one of the few oases of work for these marginal workers. The alternative for most of these workers is destitution and misery for their families in the villages.

[†††] Impacts and Challenges of a large coastal industry: Alang-Sosiya Ship-Breaking Yard, Gujarat, India. UNESCO, 2003

Critics would highlight the health and safety record at Alang.

But the risk of staying in a village is not negligible either. For the poor in rural India, one of the major environmental hazards comes from indoor air pollution. In 90% of rural households, food is cooked by burning bio-mass, such as wood, agriculture waste, cow-dung cake, etc., in a poorly ventilated, closed environment. More significantly, 88% of the female population uses these fuels for their daily cooking.[‡‡‡]
According to one estimate, over 700,000 people, largely women and children under five, died annually because of exposure to smoke and particulates from their own kitchen in the early 1990s.[§§§]

There are a range of health problems in India. For example –

- 70% of the population lacks access to modern medicines.
- 60-80% of patients seek remedies from traditional medical practitioners or use alternative medicines.
- Communicable diseases account for 42% of deaths nationally, and 50.3% in rural areas
- Amongst infectious diseases, diarrhoea alone account for 34% of deaths, while childhood diseases result in a further 20%.
- The infant mortality rate is 60 per 1000 live births
- Despite the presence of a large pharmaceutical sector, barely 1% of Indian AIDs patients are getting any treatment
- Indoor air pollution, caused by burning of bio-mass as cooking fuel, takes the lives of over 700,000 people in India each year.

There are also problems in healthcare provision –

- Governmental outlay for healthcare is only 0.9% of GDP.
- Private expenditure is nearly 4% of GDP
- There are only 43 doctors for every 10,000 people.
- There were 900,000 hospital beds in 2003
- There are 163,000 health centres and 38,000 hospitals across the whole country
- The government needs to add 80,000 hospital beds each year for the next five years to meet the demands of its population

The plight of the labour force parallels the state of health and the environment in India. This partly explains why workers have little option but to accept a harsh working and living environment. No one would deny that there is plenty of room for improvement in these vital areas. However, the usually unseen aspect of the problem is that any attempt to focus on one sector, and try to impose higher labour and environmental standards on it, are likely to adversely affect many more workers and their families.

The lesson to be learnt is that labour productivity increases as the economy grows, so further improving employment opportunities for workers. This increases competition for labourers, and employers have to improve working condition and wages in order to retain their workforce. The benefits of economic growth, in a free and competitive economy, are enjoyed by all, particularly the poor.

[‡‡‡] Jyoti Parikh, Haimanti Biswas and Shyam Karmakar (2003), "Cooking with Biofuels: Risk factors affecting health impact on rural women", Economic and Political Weekly, Vol. XXXVIII, No.26, June 28 – July 4, 2003.
[§§§] Jyothi Parekh, et al, in *Economic and political weekly, Vol.XXXIV, No.9, Feb27-March 5, 1999.*

In summary

The Basel Convention takes the moral high ground on environment and public health based on unilateral measures that completely disregard free market principles and the economic realities of developing countries. While seeking to improve peoples' lives, the measures would actually be counter-productive.

This paper argues that:

- Ship-breaking is a very significant economic activity in some developing countries, including India, and as such should be seen neither as waste disposal, nor as particularly hazardous.
- Regulations regarding hazardous products and wastes should be made locally, keeping in mind the wider economic environment of the community, and the country. It is not sensible to impose First World standards in developing economies.
- Environmental, health and labour standards are important issues directly linked with the level of economic development.
- Countries must have the freedom to decide whether they would like to trade in any particular product or not.
- Attempt to impose the standards of the rich world, on workers and industries located in poor countries, only serve the interest of the special interests in the former, at the cost of the poor located in the latter.
- Such an approach lead to economic inefficiencies, prevents technological innovation, and masks the unseen costs borne by the poor countries.
- The Basel convention is seriously flawed because it looks at specific economic activities, in isolation, and therefore completely misses the potential unseen consequences that could cause more harm than good.

This paper argues that the manner in which the Convention has been agreed and the way it has functioned in practice is completely undemocratic and in violation of the spirit of any multi-lateral forum.

By effecting unilateral measures determined by a minority of its membership, the Basel Convention is setting a dangerous precedent. But lobbying and related activities, long favoured by the organized sector in the world, could easily influence the views of the minority "empowered" member countries.

The measures proposed under the Convention will have significant and adverse impacts on many developing economies. These measures are being strengthened under the influence of groups like Greenpeace, who have no direct accountability for their actions, especially to those whose environment and health they ostensibly seek to protect. Such trends of international trade measures under the influence of non-accountable groups are dangerous and lay the Convention open to undesirable influences.

The current actions of the Basel Convention, as perceived by a developing country like India, **clearly indicate that is possible for groups with no accountability, such as Greenpeace, to significantly influence international treaties and laws that drastically affect the economies of developing and least developed countries.** Such detrimental economic effects will also have negative effects on the environment and human well-being in such countries. This is clearly unacceptable.

Further, the measures proposed are clearly discriminatory towards poorer countries both in the short- and long-term.

The focus on areas such as ship-breaking in Alang in India is disproportionate to their significance in the larger context of the global environment. Greenpeace, for example, is not accountable for the economic well being or livelihood of the thousands of workers directly employed, nor has it indicated any sense of responsibility on the subject.

More importantly the measures recommended by the Convention and its supporters are anti-market, anti-environment and certainly against the interests of India.

In summary, no one denies the desirability of improved health, labour and environmental standards for Indian workers. This debate is about the means to make these value-added qualities affordable to Indians.

It is clear that higher economic growth, increases labour productivity. This in turn allows the development of better environmental, health and safety standards. The issue of ship-breaking needs to be considered in the context of wider economic development.