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Shipbreaking and the North-South Debate: Economic Development or Environmental and Labor Catastrophe

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Comments

Shipbreaking and the North-South Debate: Economic Development or Environmental and Labor Catastrophe?

I. Introduction

This comment is about the end of ships. It is a topic that conjures thoughts of merchant vessels torpedoed by German U-Boats in the epic Battle of the Atlantic and the tragic loss of the Titanic.[1] But the majority of ships do not die nobly in battle or ram icebergs on their maiden voyages; they grow old and fall into disrepair. After twenty to thirty years of service on unforgiving oceans, ships become un-seaworthy and dangerous for their crews and cargo.[2] A few are sunk to form artificial

1. German U-boats (Unterseeboots) sank approximately 1,200 Allied merchant vessels in 1942 alone. The Battle of the Atlantic was a race between the Allies and Axis powers to see if the Allies could produce more ships than the Germans could sink. Although the Germans won the race in 1942, ultimately they lost the Battle of the Atlantic. *See* U.S. Merchant Marine in World War II, *at* http://www.usmm.org/ww2.html. The Titanic sank on April 10, 1912 after colliding with an iceberg in the North Atlantic. Fifteen hundred of the 2,200 passengers and crew aboard perished in the tragic accident. *See* RMS-Titanic Specifications, *at* http://members.tripod.com/adm/popup/road map.shtml?member_name=rhazz&path=statistics.html&client_ip=152.163.189.104&ts=1011300036&ad_type=POPUP&category=ent&id=684994ba688e2a8a5762d56f887d377a (last visited Apr. 10, 2002).

2. William Langewiesche, *The Shipbreakers* (pts. 1-4), ATLANTIC MONTHLY, Aug. 2000, *at* http://www.theatlantic.com/issues/2000/08/lang ewiesche.htm (last visited Apr.

reefs and a few more sink to the ocean floor due to inclement weather or disrepair, but the majority are sold for scrap on the international shipbreaking market.[3]

Shipbreaking is the process in which ships are dismantled and their steel hulls, components, and parts are recycled.[4] Approximately ninety-five percent of a vessel is recycled. Most of the recycled material is scrap steel.[5] The remaining five-percent is hazardous waste: asbestos, polychlorinated biphenyls (PCBs), lead, mercury and residual oil.[6] The shipbreaking industry has existed for hundreds of years but has grown more complicated and dangerous with the advent of large modern vessels.[7] Large shipyards in the United States and Europe performed shipbreaking until the 1970s, when environmental regulations and labor costs forced the industry to relocate to Taiwan and Korea.[8] By the early 1990s these nations decided that they had more profitable uses for their shipyards and discontinued shipbreaking as well.[9] Shipbreaking moved to India, Bangladesh, and Pakistan where low labor costs and a lack of environmental regulations have allowed entrepreneurs to realize profits unobtainable in the highly regulated developed nations of the world.[10]

10, 2002).

3. Artificial reef societies, diving groups and foundations first clean ships of hazardous materials and clear them of dangers that divers might encounter before they are carefully placed in designated locations and sunk. The goal is to enhance the natural habitat and to provide interesting and safe sites for diving enthusiasts. *See* San Diego Oceans Foundation, *Project Yukon*, at http://www.hmcs-yukon.org/ (last visited Apr. 10, 2002); *See also* Artificial Reef Society of British Columbia, *Artificial Reefs in British Columbia*, *at* http://www.artificalreef.bc.ca/research/tjones.html (last visited Apr. 10, 2002). Ships also occasionally run aground or sink in violent storms. *See* University of Cape Town Marine & Shipping Law, The Cape of Storms — Ships in Trouble in Cape Waters, *at* http://www.uctshiplaw.com/capstorm.htm (last visited Apr. 10, 2002).

4. Technical Guidelines for the Environmentally Sound Management of the Full and Partial Dismantling of Ships, Preliminary Draft, Report No. APR/00AAAAS8, at 29, *available at* http://www.unep.ch/basel/meetings/TWG/twg18/TG%20SHIP%20REV1.pdf (last visited Apr. 20, 2002) [hereinafter Technical Guidelines].

5. Ataur Rahman & AZM Tabarak Ullah, *SHIP BREAKING: A Background Paper Prepared for the ILO's Sectoral Activities Programme*, INTERNATIONAL LABOUR ORGANISATION INFOCUS PROGRAMME ON SAFETY AND HEALTH AT WORK AND THE ENVIRONMENT, 1999, at 4, *at* http://www.ilo.org/public/English/protection/safework/sectors/shipbrk/shpbreak.htm (last visited Apr. 10, 2002).

6. Technical Guidelines, *supra* note 4, at 31-40.

7. ICS Key Issue, Ship Recycling, at 1, *available at* http://www.marisec.org/icskeyissues2001/ship%20recycling.htm (last visited Apr. 10, 2002).

8. Langewiesche, *supra* note 2 (pt. 1), at 6.

9. *Id.*

10. Shilpa Joglekar, *Transport Workers' Union Joins Campaign Against Shipbreaking*, EXPRESS INDIA, Sept. 22, 1999, *at* http://www.expressindia.com/fe/daily/19990922/ fec22025.html (last visited Apr. 10, 2002).

Today India controls an estimated fifty-percent of the shipbreaking industry; Pakistan, Bangladesh, and China perform the remainder of the work.[11]

Shipbreaking highlights the vast differences between the wealthy, Northern nations and the impoverished nations of the Southern hemisphere.[12] Southern, developing nations are indignant because wealthy nations criticize their methods of economic expansion yet offer no alternatives.[13] Poor nations argue that it is unfair and unrealistic for developed nations to demand equivalent environmental and labor standards from them at this stage in their development without economic and technological aid. Northern, developed nations are concerned about the environmental and labor catastrophes that result from the dismantlement of their former ships in developing nations.[14] However, Northern nations recognize that Southern nations have the right to develop their economies. The international community must find a way to allow developing nations to continue to break ships to expand their economies and protect the environment and laborers as well.

This comment examines the controversy surrounding the shipbreaking industry. The first section examines the problems shipbreaking presents to industrialized wealthy nations and explains the hazards involved in shipbreaking. The second section examines the benefits of shipbreaking for developing nations and its accompanying liabilities. The third section examines international law that affects shipbreaking and initiatives of the international community to regulate the industry. Finally, the author suggests a possible course of action for developing nations to pursue. Shipbreaking may either further alienate Northern, industrialized nations and Southern, developing nations or bring together these two groups in a mutually beneficial relationship that helps Southern nations to improve their economies and infrastructures and increase their roles in global commerce. International cooperation and management on both regional and global levels is essential to the improvement of environmental and safety conditions in this vital industry.

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11. *Id.* at 2 (India broke 70% of the dead weight tonnage (dwt) of ships in the mid-90s); *See also* Technical Guidelines, *supra* note 2, at 17 (estimating that India's market share decreased to 48% and that Pakistan's rose to 24% and Bangladesh's to 17% of world market share).

12. India, Bangladesh and Pakistan are the three primary shipbreaking nations. They are also among the poorest nations in the world. The per capita GDP of the United States is $30,160 compared to India's $384 per person based on 1997 statistics. *See* World Statistics, *at* http://www.asianinfo.org/ asianinfo/profiles/world.htm#GDP (last visited Apr. 10, 2002).

13. *See* Langewiesche, *supra* note 2 (pt. 3), at 3.

14. *See* Langeweische, *supra* note 2 (pt. 2), at 4.

II. Northern Nations Prospered through Global Trade but Environmental Hazards Accompanied Industrialization.

A. The World Fleet

The latter half of the twentieth century, a period of unparalleled economic growth and prosperity, witnessed the creation of the global economy and free trade.[15] The backbone of global trade is the merchant fleet of ships, the current size of which is 88,000 strong.[16] Japan, South Korea, and China build approximately two-thirds of all new merchant vessels, with Western European nations responsible for the remaining third.[17] There were 1,653 new merchant ships completed in 1998, the majority of which were ordered by the United States, Japan, Germany and the Netherlands.[18] In 2000, the average age of a ship in the world fleet was nineteen years.[19] In order to maintain this already high average age, approximately 1,900 aging ships must be removed from the fleet and scrapped every year, an impossibly high number.[20] It takes months, in some cases years, to completely dismantle one ship in developed nations.[21] Despite these long and uncertain timetables, seven hundred obsolete ships are scrapped annually.[22] In 2000, only seven percent of the dead weight tonnage (dwt) of OECD owned ships were broken in OECD nations.[23] The vast majority of obsolete ships were sent to poor, developing nations.[24]

B. An Unintended Legacy of Prosperity

An unfortunate byproduct of economic development in the latter

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15. *See* Professor Kym Andersen, *Centre for International Economic Studies Discussion Paper 0104: Globalization, WTO and ASEAN*, at 2, *at* http://www.adelaide.edu.au/CIES/0104.pdf (last visited Apr. 10, 2002).

16. Paul J. Bailey, *Is There a Decent Way to Break Up Ships*? at 4, *at* http://www.ilo.org/public/English/dialogue/sector/papers/shpbreak/index.htm (last visited Apr. 10, 2002).

17. *Id.* at 7.

18. *Id.* at 9.

19. *Id.* at 4.

20. *Id.*

21. Gary Cohn & Will Englund, *The Shipbreakers: The Curious Captains of a Reckless Industry 3*, BALT. SUN, Dec. 7, 1997, *at* http://www.pulitzer.org/year/1998/investigative-reporting/works/day2/1.html (last visited Apr. 10, 2002).

22. Paul J. Bailey, *supra* note 16, at 4.

23. Technical Guidelines, *supra* note 4, at 17. (The Organization for Economic Cooperation and Development (OECD) consists of a few wealthy nations that control the majority of the world economy.)

24. Paul J. Bailey, *supra* note 16, at 4.

half of the twentieth century was the production of hazardous materials.[25] Only after years of use did scientists discover that the environmental and health consequences of certain materials outweighed their social utility.[26] Among those harmful materials were asbestos, PCBs, TBT and lead, all of which are found in the superstructure of ships.[27]

1. Asbestos—Asbestos was used throughout ships as insulation, with particularly high concentrations located in engine rooms.[28] While asbestos is not harmful to the environment, it does present a serious health threat.[29] Breathing asbestos-containing material (ACM) increases the risk of mesothelioma, cancer of the chest and the abdominal lining, and asbestosis, an irreversible scarring of the lung tissue that can be fatal.[30] In the United States, asbestos manufacture and removal is closely regulated to the point that the Environmental Protection Agency (EPA) has sought to ban production.[31] Removal of ACM is performed by specially trained workers who use appropriate respirators and protective clothing such as coveralls, head coverings, gloves, face shields, and foot coverings.[32] Work places include hygiene facilities for workers with decontamination rooms, showers, and clean areas to take meals.[33] Finally, asbestos must be properly disposed of in leak tight containers and transported to landfills.[34]

2. Polychlorinated biphenyls—PCBs are toxic, carcinogenic, and persistent or bio-accumulative; they present significant environmental and health risks.[35] PCBs were used throughout ships in cable insulation, rubber and felt gaskets, transformers, capacitors, voltage regulators, electromagnets, and in various other capacities.[36] People face exposure to PCBs through inhalation, ingestion, and absorption through the skin.[37] In order to ensure safety, workers must wear protective clothing and

25. The United States produces 260 million tons of hazardous waste every year or about one ton per American. Hazardous Materials, *at* http://wings.buffalo.edu/ubgreen/content/programs/hazardous/main.html (last visited Apr. 10, 2002).

26. *See* FREDERICK R. ANDERSON, ROBERT L. GLICKSMAN, DANIEL R. MANDELKER & A. DAN TARLOCK, ENVIRONMENTAL PROTECTION: LAW AND POLICY 746 (1999).

27. Technical Guidelines, *supra* note 4, at 36-38.

28. *Id.* at 37.

29. *Id.*

30. *Id.*

31. *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991). EPA attempted to ban asbestos under § 6 of the Toxic Substances Control Act (TSCA).

32. Technical Guidelines, *supra* note 4, at 37, 38.

33. *Id.* at 38

34. *Id.*

35. *Id.*

36. *Id.*

37. *Id.*

undergo special training before removing PCBs.[38] To protect the environment, PCBs must be properly incinerated or stored in special landfills where they will not leach into the groundwater.[39] The United States banned the production of PCBs in 1979, but it still copes with the environmental legacy of their production.[40] EPA recently ordered General Electric to dredge and clean portions of the Hudson River in New York where it dumped PCBs in the 1960s and 1970s.[41] Remediation costs are estimated to reach five hundred million dollars.[42] Most European nations banned the manufacture of PCBs in the early 1980s.[43]

3. Tributyl tin—TBT is one of the most toxic compounds released into the aquatic environment.[44] TBT is found in anti-fouling paint that covers the outside hulls of ships.[45] It is an aggressive biocide that prevents the growth of marine organisms like algae and barnacles on ships' hulls.[46] Skin, eye, and lung protection is required for worker safety against poisonous TBT containing paints.[47] TBT is regulated tightly in developed nations, and the Marine Environment Protection Committee (MEPC) of the International Maritime Organisation (IMO) is working on a global legal instrument to ban TBT paints on ships.[48]

4. Lead—Lead is toxic and its deleterious effects on human health are well known.[49] Long-term exposure to lead may damage the peripheral nervous system and impair vision, hearing, and muscle control.[50] Blood vessels, kidneys, the heart, and the reproductive system

38. Technical Guidelines, *supra* note 4, at 37, 38.

39. *Id.*

40. PCBs are regulated under the Toxic Substances Control Act (TSCA) which controls clean up, storage and disposal. TSCA gives EPA the authority to exempt certain specific activities such as distribution in commerce of PCBs pursuant to certain criteria. *See* Other Laws that Interface with RCRA, at 14, *available at* http://www.epa.gov/epaoswer/hotline/training/olaw.pdf (last visited Apr. 10, 2002).

41. *See* Kirk Johnson, *G.E. Facing Order to Remove Poisons from the Hudson,* N.Y. TIMES, Dec. 6, 2000, at A1, *at* http://query.nytimes.com/search/abstract?res=F10C15F639580C758CDDAB0994D8404482 (last visited Apr. 10, 2002).

42. *Id.*

43. Technical Guidelines, *supra* note 4, at 39.

44. Johnson, *supra* note 41, at 36.

45. *Id.*

46. Judit Kanthak & Nityanand Jayaraman, *Ships for Scrap III, Steel and Toxic Wastes for Asia: Findings of a Greenpeace Study on Workplace and Environmental Contamination in Alang-Sosiya Shipbreaking Yards, Gujarat, India* 22 (2001), *at* http://www.greenpeace.org/~toxics/ reports/alang2000.pdf (last visited Apr. 10, 2002).

47. *Id.* at 23.

48. *Id.*

49. Technical Guidelines, *supra* note 4, at 33.

50. *Id.*

are also adversely affected from exposure to lead.[51] The United States Congress banned leaded gasoline as part of the 1990 Clean Air Act amendments.[52] Other sources of lead are banned or regulated as well.[53] On ships, lead is found in batteries, paints, cables, piping, and component parts of motors and generators.[54] Exposure to these sources may cause injury or illness.[55]

Asbestos, PCBs, TBT, and lead do not form an exclusive list of hazardous materials located on ships. Oil, mercury, antifreeze, solvents, epoxy resins, and other hazardous materials are present as well.[56] Proper disposal of these substances and worker safety precautions are necessary considerations before shipbreaking activity should commence.

C. Shipbreaking in Developed Nations

Shipbreaking is virtually non-existent in developed nations.[57] The plight of the U.S. Navy serves as a good example of the inadequacy of the United States' domestic shipbreaking industry. Due to the Reagan era defense build-up, the Navy scrapped only three ships between 1983 and 1989.[58] As a result, the domestic shipbreaking industry effectively shut down.[59] During the 1980s, the Navy amassed a fleet approaching six hundred vessels.[60] With the unexpected end of the Cold War in 1989, the Navy underwent a radical change and implemented a rapid downsizing program.[61] The Navy began to sell ships for scrap to domestic shipbreakers in 1991.[62] A Defense Department agency, the Defense Reutilization and Marketing Service (DRMS), was responsible

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51. *Id.*

52. Clean Air Act, 42 U.S.C. §211(n).

53. Children are particularly vulnerable to exposure to lead. High concentrations of lead in children causes mental retardation, delayed neurological and physical development and irreversible learning difficulties. Technical Guidelines, *supra* note 2, at 33. Studies showed that children who ingested leaded paint chips suffered from severe health effects. Another common source of ingested lead was from canned foods because the food absorbed lead used in the solder of the cans. The primary remaining source of body lead in American adults is cigarette smoke. ANDERSON, GLICKSMAN, MANDELKAR & TARLOCK, *supra* note 26, at 389, 390.

54. Technical Guidelines, *supra* note 4, at 33.

55. OSHA Factsheet on Shipbreaking 1, *at* http://www.osha-slc.gov/Oshdoc/Directive_data/CPL2-0129.html (last visited Apr. 10, 2002).

56. Technical Guidelines, *supra* note 4, at 40.

57. *See id.* at 17.

58. Jeffrey Paul Luster, *The Domestic and International Legal Implications of Exporting Hazardous Waste: Exporting Naval Vessels for Scrapping*, 7 ENVTL. LAW. 75, 94 (2000).

59. *Id.* at 77.

60. *Id.* at 78.

61. *Id.* at 75.

62. Cohn & Englund, *supra* note 21, at 1.

for selling off Navy ships and monitoring their dismantlement.[63] The goal of DRMS was to sell Navy ships as rapidly as possible at the best price obtainable.[64] The inadequacy of the domestic shipbreaking industry quickly became obvious.

The Occupational Safety and Health Administration (OSHA) discovered serious environmental and safety violations at shipbreaking yards.[65] One worker was killed and another seriously wounded at a scrapping yard in Wilmington, North Carolina, which was supposedly a model facility.[66] State officials shut the operation down after the discovery of asbestos, lead, and oil contamination at the site.[67] The Navy had to reclaim twelve ships sold to the scrapping facility that were never dismantled.[68] Similar instances occurred with scrapyards in Baltimore, Los Angeles, and Brownsville, Texas.[69]

The shipbreaking industry attracted unsavory characters who believed they found an opportunity to get rich quickly by scrapping Navy ships.[70] These shipbreakers lied to inspectors, mishandled hazardous substances, failed to pay their workers, and ignored safety regulations.[71] The result was accidents, environmental damage, and worker exploitation.[72] Domestic shipbreakers have been convicted of conspiracy, fraud, obstruction of justice, mishandling of asbestos, and dumping oil and debris into rivers.[73]

With a backlog of approximately two hundred ships awaiting dismantlement, the Navy gained permission from the EPA to export vessels to foreign breakers.[74] EPA permission was necessary because of an export ban on PCBs implemented in 1993.[75] The Navy viewed export

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63. *See* Luster, *supra* note 58, at 2.

64. *Id.* at 3. The Navy had only four DRMS inspectors to oversee the domestic scrapping facilities that contracted to dismantle Navy ships. These inspectors, like entrepreneurs in the fly by night shipbreaking industry, did not have an adequate understanding of the environmental dangers associated with shipbreaking. One DRMS inspector had a total of only 20 hours of environmental training before assigned to oversee ship-scrapping projects. *See* Cohn & Englund, *The Curious Captains of a Reckless Industry*, at 3, *at* http://nl12.newsbank.com/nl-search/we/Ar. . . .tart=&sdocsleft=21219 &sdocsread=-21219.

65. *Id.* at 6.

66. *Id.*

67. *Id.*

68. *Id.*

69. Cohn & Englund, *The Curious Captains of a Reckless Industry*, at 3, *at* http://nl12.newsbank.com/nl-search/we/Ar. . . .tart=&sdocsleft=21219 &sdocsread=-21219.

70. *Id.* at 1.

71. *See id.* at 1, 2, 6.

72. *Id.* at 10.

73. *Id.* at 1, 9.

74. Luster, *supra* note 58, at 4.

75. *Id.*

of these vessels as their only option because of the inadequacy of the domestic shipbreaking industry and federal law that required the Navy to obtain the best possible price for disposal of their obsolete ships.[76] However, the exportation program died before it began.[77] In 1997 *The Baltimore Sun* ran a Pulitzer Prize winning exposé that detailed the inhuman treatment of laborers abroad in the shipbreaking industry.[78] Images of gaunt, barefoot Third-World laborers tearing asbestos out of discarded ships by hand on open beaches produced a political reaction in the United States.[79] Senator Mikulski of Maryland led the successful fight against the Navy's plan.[80] Without permission to export its old ships or domestic shipbreakers to purchase them, the Navy must mothball its vessels at extreme cost.[81] Mothballing is the indefinite storage of ships. Mothballed ships continue to require maintenance to remain afloat. For the Navy this is an unattractive and costly option; for private operators it is an economic impossibility. The shipping industry, suffering from small profits and cutthroat competition, considers the sale of ships for scrap a financial necessity.[82]

The United States has not set a standard for developing nations to emulate in the shipbreaking industry. Strict safety and environmental laws and high labor costs make the shipbreaking industry unprofitable in the United States.[83] The proceeds from selling scrap metal and the remaining inventory do not cover the expenses incurred in ship dismantlement.[84] Environmental lawyers and industry experts contend that it is erroneous to view the dismantlement of ships as a profitable undertaking.[85] The costs associated with removal and disposal of hazardous waste are too high.[86] In order to comply with modern environmental and safety laws, ship owners must internalize the costs of hazardous waste removal and disposal from their vessels.[87] This is an option that shipping companies are unwilling to accept.[88] Companies

76. *Id.* at 5.
77. *Id.* at 4.
78. Cohn & Englund, *supra* note 21.
79. *Id.* at 1, 2.
80. Luster, *supra* note 58, at 21.
81. *Id.* at 3.
82. Langeweische, *supra* note 2 (pt. 1), at 6.
83. *See id.* at 5.
84. *Id.* at 8.
85. *Id.* at 10.
86. *Id.*
87. *See id.*
88. Greenpeace began a campaign against P&O NedLloyd, a major shipping company, when the company decided to sell its ship, the *Encounter Bay*, to Asian shipbreakers. The company protested first that it was unfair to single it out, but it then refused to make further comments on the subject. Due in large part to the publicity that

maintain that their decommissioned vessels have valuable, recyclable raw materials.[89] They refuse to internalize the costs of environmental remediation of their obsolete vessels because they can sell them to shipbreakers in developing nations on an "as is" basis.[90] With no incentive or obligation to change, the shipping companies of the world continue to send their obsolete vessels to the thriving shipbreakers of the Indian sub-continent.[91]

The already high demand for shipbreaking is on the rise. In response to the Exxon Valdez catastrophe in 1989, Congress outlawed the use of single-hulled oil tankers in United States waters by 2010, but it did not say what should become of these outlawed vessels.[92] The current backlog of mothballed U.S. Naval vessels alone is enough to keep the few operating U.S. shipbreakers busy for a decade.[93] The near-total lack of environmental and safety regulations in developing nations makes exportation of naval vessels a political impossibility for the United States and a public relations nightmare for international shipping corporations.[94] But with nowhere else to turn, shipping companies continue to sell these dangerous, contaminated old vessels to the few developing nations willing to engage in shipbreaking.

III. Southern Nations Struggle to Industrialize and to Develop Economically.

Many developing nations of the world, after years of European colonialism, came into existence during the latter half of the twentieth

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resulted, the EU and IMO began to initiate hearings and studies on the shipbreaking industry. *See* Langeweische, *supra* note 2 (pt. 2), at 8.

89. Hamburg Süd News, *Disposal of the Container Ships Columbus Australia and Columbus America*, at 1, *at* http://www.hamburg-sued.com/news/1999/juli/juli01e.htm (last visited Apr. 10, 2002).

90. *See generally* Technical Guidelines, *supra* note 4, at 18.

91. A few shipping companies send their obsolete ships to Chinese shipyards now because Chinese environmental and labor standards, though not at the level that developed nations require, are superior to those in India, Pakistan and Bangladesh. These shipping lines are afraid of negative publicity, especially in Europe where the populace tends to be more environmentally conscious than their counterparts in the United States. *See* Hamburg Süd, *supra* note 89, at 4-5.

92. Cohn & Englund, *infra* note 113, A Third World Dump for America's Ships, at 6.

93. Michael Rose, *Breaking Up (ships) Is Hard To Do—Safely*, THE BUSINESS JOURNAL OF PORTLAND, *available at* http://Portland.biz journals.com/ Portland/stories/1999/04/19/story2.html (last visited Apr. 10, 2002).

94. The final decision not to send US warships to India for dismantlement confounded Indians. To many it makes no sense that American merchant ships continue to flow to their shores yet for some inexplicable reason the US government will not send their old warships. This is especially disappointing because warships are made of thick high grade steel that is highly valued by shipbreakers. Warship steel sells at high prices. *See* Langeweische, *supra* note 2 (pt. 3), at 3.

century. National leaders emerged, often educated in Europe, who called for an end to colonialism and independence. After World War II, the remaining colonial powers retreated from foreign soil and acknowledged the right of self-determination. The newly formed nations, with boundaries drawn by their former masters, were fraught from inception with economic and social problems.[95] Poor, densely populated, undeveloped and abandoned, these new nations sought opportunities in the global economy.[96] Without industrialized infrastructures or educated work forces, exploitation of natural resources was their only means of survival.[97] The resources of India, Pakistan and Bangladesh include vast pools of labor and miles of beaches. Entrepreneurs determined that the shores of the Indian sub-continent were well suited for the shipbreaking industry.

A. Realities of Life in Developing Nations

The priorities of developing nations are rudimentary compared to those of developed nations. Access to the necessities of life — food, clothing, shelter and basic medical care — remains a daunting task for the majority of people in developing nations. Forty-five percent of the population of India lives below the poverty line in vast city slums where the yellow-white air is barely breathable and sewage and chemicals trickle down dirt alleys.[98] The slums of Bombay are reportedly the largest in the world.[99] Taken in the context of general living conditions in India, the living conditions at Alang in the western coastal state of Gujarat, the largest shipbreaking site in the world, are better than average.[100] Shipbreaking employs tens of thousands of unskilled,

95. Measured in millions, in 1995 India had 939.42, Pakistan 134.15 and Bangladesh 120.07 million people compared to the United States with 265.45 million. Perhaps more telling of the plight of these developing nations is a comparison of population density; Bangladesh has 834 people per square kilometer, India 286, Pakistan 169 compared to 28 per square kilometer in the United States. *See* World Statistics, *supra* note 12, at 1.

96. India, Pakistan and Bangladesh are among the poorest nations on earth. The population explosion in these nations has lead to widespread poverty which in turn lead to child labor. Children do not work out of choice but out of a need for survival. They are driven by hunger, a physical need, to work for wages barely sufficient to feed and cloth themselves. *See* Dr. Basudeb Guha-Khasnobis, Pradeep S. Mehta & Manish Agarwal, *CUTS Centre for International Trade, Economics and Environment, Eradicating Child-Labour While Saving the Child — Who Will Pay the Costs*, at 3, *at* http://www.cuts-india.org.

97. Only 1.8% of the GNP of India is spent on education. 50,000 villages in India do not have schools and many villages that do have only one teacher for all the children. *Id.* at 4.

98. Langeweische, *supra* note 2 (pt. 3), at 1, 2.

99. *Id.* at 3.

100. *See id.* at 5.

illiterate workers in India, Pakistan and Bangladesh that have nowhere else to turn.[101] Despite their obvious exploitation, these laborers are hard workers who take pride in what they accomplish.[102]

B. Shipbreaking on the Indian Sub-Continent

Developing nations do not have the mechanized infrastructures to participate in the industries commonly found in developed nations.[103] Shipbreaking provided an opportunity for a few developing nations to engage in an industry traditionally unavailable to them. The beaches of India, Pakistan and Bangladesh undergo extreme tidal changes of a quarter of a mile that peak twice a month at the full moon and new moon.[104] In order to get as far inland as possible, ships are driven under their own power onto the beaches at high tide on these two days.[105] When the tide recedes, the ships are accessible by workers on the beaches. This method requires ships to be capable of self-propulsion until the time they are dismantled.[106] For this reason, Asian shipbreakers buy ships on an "as is" basis.[107] Therefore, only rudimentary decontamination, if any, is performed prior to the arrival of ships at the

101. There are reports that children may be employed by shipbreakers in Bangladesh. *See* Tabibul Islam, *Shipbreaking Industry Puts Workers on the Scrapheap*, ASIA TIMES ONLINE, *at* http://www.atimes.com/ind-pak/BI16Df01.html (last visited Apr. 10, 2002).

102. *See* Langeweische, *supra* note 2 (pt. 1), at 7.

103. Shipbreaking is performed in large dry docks in industrialized nations where ships can be lifted out of the water and decontaminated prior to dismantlement. Dry docks are enormous structures that developing nations cannot afford. Therefore, ships are dismantled on open beaches which is made possible by extreme tidal changes. There are indications that a few shipbreakers in India now have dry docks. They are made possible with the help of outside investment. The Sumitomo Corporation of Japan is principally responsible for one such facility in Gujarat, India. *See* Shilpa Joglekar, *Pipavav Shipbreaking Facility to go on Stream in December*, INDIAN EXPRESS, April 22, 1999, at 1, *at* http://www.Indian-express.com/fe/daily/19990422/ fco22006.html (last visited Apr. 10, 2002).

104. Englund & Cohn, *supra* note 21, at 2; *See also* Technical Guidelines, *supra* note 4, at 18.

105. Englund & Cohn, *supra* note 21, at 2.

106. Technical Guidelines, *supra* note 4, at 18-19.

107. Environmental NGOs like Greenpeace demand that shipping companies decontaminate their vessels prior to exportation to developing nations for breaking. *See* Kanthak & Jayaraman, *supra* note 46, at 8. Complete decontamination would in effect shut down the shipbreaking industry in developing nations. Under the current method of beaching, ships must be able to move under their own power onto the beach. A complete decontamination process would render a ship inoperable. Ships would have to be towed to their final destinations for dismantlement. Towed vessels are virtually unbreakable by developing nations because the workers have no way to get to them. Therefore, although a good deal of decontamination such as the removal of hazards not associated with engine function is possible prior to arrival in Asia, complete decontamination would halt the breaking process. *See* Technical Guidelines, *supra* note 4, at 17-19.

beaches.[108]

Shipbreaking is a boon for the regional economy. The industry generates 2.5 million tons of scrap steel in India annually, or ten percent of the country's steel production.[109] Bangladesh has no domestic iron and it relies on ship metal to feed its steel factories.[110] As a result of shipbreaking operations, a steel re-rolling industry sprang up to turn large metal sheets from ships' hulls into rods and bars that are used as structural supports in concrete walls in domestic construction projects.[111] There is a ready market for all manner of parts and machinery recycled from old ships, including engines, generators, boilers, electrical items, furniture, plumbing, refrigerators, and air-conditioners.[112] These items are otherwise unobtainable and are absorbed quickly in the domestic market.[113] Finally, the shipbreaking industry provides a means of survival for as many as one million people in India alone.[114]

1. India — India is the leading shipbreaker in the world.[115] Indian shipbreaking is primarily conducted at Alang, in the state of Gujarat, home to 183 shipbreaking yards and 40,000 impoverished migrant workers who dismantle over 300 ships every year. Their efforts constitute roughly half of the global industry.[116] The shantytowns at Alang lack power and basic sanitation.[117] Workers travel from the distant states of Orissa and Uttar Pradesh in the hope of obtaining employment at the average daily wage of US $1.50.[118]

Alang gained notoriety as a result of *The Baltimore Sun's* exposé on shipbreaking that focused on operations there and subsequent reports by Greenpeace that documented dismal environmental and worker safety

108. *See* Kanthak & Jayaraman, *supra* note 46, at 8.

109. Dev Raj, *Labour-India: Feeble Laws Fail to Dent Shipbreaking Industry*, INTER PRESS SERVICE, May 10, 1998, at 1, *at* http://www.oneworld.org/ips2/may98/0454006.html (last visited Apr. 10, 2002).

110. Ataur Rahman & AZM Tabarak Ullah, *supra* note 5, at 12.

111. *Id.*; *See also* William Langewiesche, *supra* note 2 (pt. 1), at 6.

112. *Id.*; *See also* Technical Guidelines, *supra* note 4, at 2.

113. *See* Will Englund & Gary Cohn, *A Third World Dump for America's Ships?* BALT. SUN, Dec. 9, 1998, *at* http://www.pulitzer.org/year/1998/ investigative-reporting/works/day3/1.html (last visited Apr. 10, 2002).

114. Langewiesche, *supra* note 2 (pt. 1), at 7.

115. The shipbreaking industry in India hit a peak in the mid-1990s before international attention was drawn to the environmental and labor problems at Alang, the principle shipbreaking site. India broke as much as 70% of the dead weight tonnage (dwt) of ships but its market share has dropped due to competition. India is now estimated to handle 48% of the annual dwt, Pakistan 24% and Bangladesh 17%. *See* Technical Guidelines, *supra* note 4, at 17.

116. *Id.*

117. *Id.*

118. *Id.* at 6.

standards.[119] As a result, shipbreakers at Alang are wary of outside observers and their criticism. However, Indian shipbreakers have improved minimum safety standards as a result of international criticism.[120] Safety warnings and hard hats, absent a few years ago, can now be found at the yards.[121] But contaminated ships still arrive and unprotected workers still remove hazardous materials by hand.

Foreign pressure did result in the enforcement of national requirements for certain levels of decontamination of ships prior to arrival in India, mainly directed towards oil tankers.[122] These guidelines have allowed rival nations like Bangladesh and Pakistan to increase their market share because similar national regulations are absent.[123]

2. Bangladesh — The race to the bottom of environmental and safety standards has been fully realized in Bangladesh where regulations are non-existent.[124] Bangladesh is the second largest shipbreaker in the world and its specialty is large vessels, often oil tankers.[125] Oil tankers are the most dangerous vessels to dismantle because residual oil and trapped gases in their superstructures may ignite from the use of acetylene torches.[126] The explosions and fires that ensue result in the

119. Greenpeace took environmental samples at Alang in October of 1998 and June of 2000. An independent company analyzed the samples in laboratories in Geesthacht, Germany. They revealed various levels of contamination at Alang. Greenpeace also reported poor worker conditions in 1998 but praised the Gujarat Maritime Board (GMB), the regulatory body for the shipbreakers at Alang, in 2000 for implementing several suggestions to improve worker health and safety levels. *See* Kanthak & Jayaraman, *supra* note 46, at 9-11.

120. Indians are resentful of criticism from developed nations about their practices regarding shipbreaking. A standard argument is that developed nations had an industrial revolution that harmed the environment, they should not criticize other nations for doing the same. *See* Langeweische, *supra* note 2 (pt. 4), at 3. Among the health and safety improvements made by the Gujarat Maritime Board and individual shipbreakers are that workers wear hard hats, gloves and boots and that work sites be sprayed with salt water to cut down on the dust in the air. Other innovations appear to be purely for show, such as safety warnings written in English. The migrant workers at Alang are primarily illiterate and do not speak English. *See* Kanthak & Jayaraman, *supra* note 46, at 7, 9, 12.

121. Kanthak & Jayaraman, *supra* note 46, at 6.

122. Greenpeace, *Shipbreaking — Toxic Trade in Disguise*, Apr. 25, 2001, at 3, *at* http://www.greenpeace.org/~toxics/html/content/toxtrade/shipb.html (last visited Apr. 10, 2002).

123. *See id.* at 19.

124. *See* Technical Guidelines, *supra* note 4, at 24. Although environmental and worker safety regulations may exist, it appears that they go un-enforced. In Bangladesh the Factories Act of 1965 provides that companies test equipment and provide worker safety gear, but it does not seem to apply to the shipbreaking industry. The Inspection Department is responsible for enforcement of the Factories Act but only sixteen inspections were carried out in the three-year span from 1998 to 2000. *See* Bailey, *supra* note 16, at 6.

125. Technical Guidelines, *supra* note 4, at 24.

126. *See id.* at 40. Work on oil tankers is known as "hot work." Bangladesh scraps 52% of all vessels over 200,000 dwt. These are often the most dangerous ships to scrap

suffocation of workers trapped inside the superstructure, and death from lacerations and burns to others.[127] In one incident where a 16,000 ton ship exploded and discharged poisonous gases, one person was reported killed, fifty missing and twenty-two hospitalized.[128]

At Chittagong, the principal site of the Bangladeshi shipbreaking industry, 25,000 laborers toil under horrendous conditions.[129] Proper fire fighting equipment and safety equipment such as belts, gloves and eye protection are non-existant.[130] Workers must carry dangerously heavy loads of scrap and work long hours without overtime.[131] There are no restrooms, proper toilets, or fresh drinking water.[132]

3. Pakistan — Little is known about the shipbreaking industry in Pakistan, the third largest shipbreaker in the world.[133] Despite repeated inquiries by the International Labour Organisation (ILO) to Pakistani officials, no environmental or occupational safety and health laws have been mentioned.[134] Like Bangladesh, Pakistan specializes in the dismantlement of large ships like tankers.[135] It follows, in order for this work to be profitable, that there are probably few if any regulations in place to protect workers and the environment.[136] Like Bangladesh, Pakistan has improved its market share in the shipbreaking industry because international attention compelled India to implement safety guidelines and restrictions.[137] Shipbreakers in Pakistan are able to pay international shipbrokers more for dangerous oil tankers than their Indian competitors because they face no costly safety and environmental rules.

4. Environmental Damage — That environmental damage is occurring in these developing nations as a result of shipbreaking is undeniable. Environmental harm begins before the ships are beached. First, ships are flooded up to deck level as they lie anchored offshore in order to clean out residual oil and gas.[138] Next, the mixture of sea-water, hazardous materials, oil, and contaminants is pumped out of the ships into the inter-tidal zone. Finally, the ships are beached in a manner

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because they are former oil tankers and involve hot work. The risk of explosion is high when oil tankers are dismantled due to the presence of residual oil and gas. *See* Technical Guidelines, *supra* note 4, at 24, 57.

127. Rahman & Tabarak Ullah, *supra* note 5, at 8, 9.
128. Bailey, *supra* note 16, at 6.
129. *Id.* at 4.
130. Rahman & Tabarak Ullah, *supra* note 5, at 10, 11.
131. *Id.* at 10, 11.
132. *Id.*
133. Technical Guidelines, *supra* note 4, at 25.
134. *Id.*
135. *Id.*
136. *Id.*
137. *See* Kanthak & Jayaraman, *supra* note 46, at 11.
138. Rahman & Tabarak Ullah, *supra* note 5, at 6.

harmful to sea life and people in the vicinity: they are driven at full speed onto the beach.[139] As the ships run up against the beach, the TBT and lead containing anti-fouling paint is rubbed off their hulls.[140] TBT concentrations measured at Alang are between 10 and 100 million times higher than internationally recognized limits.[141] The levels of lead measured at Alang are comparable to those in traditional heavily industrialized areas of Europe.[142] This is all the more remarkable because prior to the arrival of the shipbreaking industry a decade ago, Alang was a pristine location inhabited by only a few fishermen.[143] TBT and lead bio-accumulate or they build up in the environment and cause damage to entire sections of the ecosystem.[144] On the beach, laborers cut holes in the ships to gain access to their interiors.[145] Unprotected workers then tear asbestos from the interior of the ships.[146] PCBs from sealants and plastics are released into the environment as a result of burning and haphazard disposal.[147] Inadequate disposal of hazardous materials plagues shipbreaking sites in developing nations.[148] Undesired hazardous materials are dumped in open pits or burned on the beach where workers inhale the toxic fumes.[149] Workers live in close proximity to these dumps and open burning sites so they breathe constantly the released contaminated dust and fumes.[150] A German government official stated publicly that one in four workers may be expected to contract cancer as a result of inadequate safeguards involving hazardous materials at shipbreaking sites.[151]

IV. The Role of the International Community

The many stakeholders with their different agendas make shipbreaking a complicated and contentious subject.[152] The one common point of agreement among all the stakeholders is that shipbreaking must

139. Langewiesche, *supra* note 2 (pt. 4), at 2.
140. *See* Technical Guidelines, *supra* note 4, at 36.
141. Kanthak & Jayaraman, *supra* note 46, at 15.
142. *Id.* at 17.
143. Langewiesche, *supra* note 2, at 7.
144. Kanthak & Jayaraman, *supra* note 46, at 4.
145. *Id.* at 20.
146. *Id.* at 4.
147. *Id.* at 18-19.
148. *See id.* at 14.
149. *See* Kanthak & Jayaraman, *supra* note 46, at 13, 14.
150. *See id.* at 11.
151. *Id.* at 6.
152. Stakeholders include the Shipping Industry, Shipbreakers, Shipbrokers, IMO, ILO, UNEP, NGOs, developed nations and developing nations. *See* Technical Guidelines, *supra* note 4, at 4-7.

continue.[153] Shipping companies argue that the sale of their old vessels is crucial to the survival of their companies.[154] Environmentalists recognize that shipbreaking is in accordance with the principle of sustainable development because 95% of a ship is recycled.[155] Shipbreaking employs tens of thousands of workers in developing nations and supplies their economies with affordable used goods and steel. Highly regulated industrialized nations have been unable to break ships in a profitable manner and are forced to export ships for scrap or mothball ships at great expense. Mothballing derelict ships serves no useful purpose and sinking ships is extremely wasteful. The few ships sunk to form artificial reefs are decontaminated prior to scuttling which means that the responsible parties incur the environmental remediation costs.[156] Ship dismantlement is the only acceptable large-scale option for the disposal of ships.

At issue is the Environmentally Sound Management (ESM) of the shipbreaking industry.[157] Article 2.8 of the Basel Convention defines ESM as, "taking all practicable steps to ensure that hazardous wastes or other wastes are managed in a manner which will protect human health and the environment against the adverse effects which may result from such wastes."[158] Developed countries recognize that the hazardous materials that they created and profited from are being disposed of in developing nations incapable of properly handling them. The International Maritime Organisation (IMO) began to study the issue of shipbreaking in 1998.[159] The UN Environmental Programme (UNEP)

153. In all my research I have not found a single party that advocates the wholesale ban of shipbreaking.

154. A basic financial requirement according to the shipping industry is the sale of their old ships for scrap. *See* Langeweische, *supra* note 3 (pt. 1), at 6. Hamburg Sud, a German shipping company, refers to its decommissioned ships as items of considerable value due to their raw materials. *See* Hamburg Sud, *supra* note 89, at 1. Vessels for scrapping are sold on the basis of their light weight tonnage (LDT). In 1999, US$120 per LDT was the international rate for sale of ships. *See* Rahman & Tabarak Ullah, *supra* note 5, at 4.

155. *See* Technical Guidelines, *supra* note 4, at 2.

156. For example, a few decommissioned Canadian warships have been sunk by the Artificial Reef Society of British Columbia (ARSBC), a non-profit organization. The Society spends seven months preparing a ship for sinking which includes removal of hazardous and toxic materials. The Canadian Environmental Protection Act requires the Society to obtain an ocean dumping permit prior to sinking the ship. The Canadian Navy also issues a Hazardous Substance Material Disposal Portfolio to catalogue hazardous materials that need to be removed. *See* Anthony T. Jones & Richard W. Welsford, *Artificial Reef Society of British Columbia — Research, at* http://www.artificialreef.bc.ca/research/tjones.html (last visited Apr. 10, 2002).

157. *See* Technical Guidelines, *supra* note 4, at 10.

158. Technical Guidelines, *supra* note 4, at 23.

159. The Technical Guidelines state that the IMO should have overall responsibility for coordinating discussions on shipbreaking issues. However, the IMO's Marine

and the International Labour Organisation (ILO) are gathering information for discussion as well.[160] These three organizations along with environmental non-governmental organizations (NGOs), the shipping industry, and maritime and shipbreaking nations must come together to create a solution that allows developing nations to continue to participate in the industry but also increases worker and environmental standards. Shipbreaking should not be allowed to continue in its current form, but developing nations should not be barred from the industry. In order to meet these goals, greater responsibility is required from both developed and developing nations.

The world is no longer divided in an east-west political division between capitalist and communist nations.[161] The division of the twenty-first century is north-south: the wealthy nations of the north differ in viewpoint from the poor, densely populated nations of the south.[162] This dichotomy of nations has always been present, just secondary in priority to the Cold War according to developed nations.[163] Shipbreaking presents a dilemma: the interests of developed and developing nations intersect, yet their differences cause distrust and misunderstanding.[164] Developing nations recognize that developed nations need ships dismantled and seem unwilling or unable to do it themselves. Developing nations engage gratefully in the process and entrepreneurs profit privately and improve their national economies with new jobs and resources. Developed nations need to dispose of old ships and realize

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Environmental Protection Committee (MEPC) is still investigating the matter. At the moment the IMO is unsure of even the correct name for shipbreaking. On their website three different terms all link to the same information, they are "Scrapping," "Ship Scrapping," and "Ship Recycling." *See* International Maritime Organisation, *at* http://www.imo.org/ HOME.html (last visited Apr. 10, 2002).

160. *See* Technical Guidelines, *supra* note 4, at 5.

161. The internal collapse of the Union of Soviet Socialist Republics effectively terminated the Cold War. Terrorism and regional instability due to ethnic and religious differences are now the primary threats to international peace.

162. The North-South division is also known as Over-consumption vs. Over-Population. In terms of commercial energy consumption, an American family of four consumes as much electricity as ninety Africans. Principle 8 of the Rio Declaration addresses both over-population and over-consumption, "To achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies." See DAVID HUNTER, JAMES SALZMAN, & DURWOOD ZAELKE, INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 58, 59 (1998).

163. The superpowers spent billions of dollars waging wars in developing nations like Vietnam and Afghanistan to support or create capitalist or communist regimes. Developing nations were pawns in the struggle between the superpowers.

164. Indians are resentful that Greenpeace points out the environmental problems at Alang, yet does not seem to acknowledge the overwhelming poverty and environmental problems that result from overpopulation throughout that country. *See* Langeweische, *supra* note 2 (pt. 4), at 3-4.

that the most cost-effective way to do so is to export to developing nations. However, environmental groups raise concerns about the long term environmental and health consequences of ship export.[165] But it is a mistake to think that developing nations are unconcerned about their own environments. According to developing nations, environmental protection is outweighed when balanced against the economic development necessary to combat overwhelming poverty.[166] Developing nations view demands from developed nations to improve their environmental and worker safety standards as outside meddling in purely domestic issues and an attempt to prevent them from improving their economies.[167] They believe that environmental NGOs often focus on isolated problems like environmental damage and refuse to see the big picture of nationwide or region-wide poverty. This is why the IMO, ILO, UNEP, environmental NGOs, shipping companies, shipbreakers, and individual countries all must come together to share their views to create a big picture. Only then can positive movement be made towards a resolution that incorporates the views of all stakeholders.

A. Convention on Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention)

The international community came together in 1989 to address the alarming rate of hazardous waste transfer from developed nations, where the costs of disposal are high, to developing nations where the materials could be dumped at minimal expense.[168] The goal of the Basel

165. Groups like the Basel Action Network (BAN) and Greenpeace have environmental agendas. They are willing to go to extreme measures to promote their policies. While this raises awareness of environmental issues, their over-zealousness is at times irresponsible and may diminish their credibility. Greenpeace made unfounded allegations regarding the Brent Spar, an oil storage platform in the North Sea. It claimed that the platform had far more residual oil than it actually contained. The allegations brought environmental advocates to a fury in Germany where property owned by the Brent Spar's owner, Shell UK, was vandalized. *See* Environmental News Service, *Dismantling of Brent Spar Oil Rig Begins*, Nov. 27, 1998, *at* http://ens.lycos.com/ens/nov98/19981-11-27-03.html (last visited Apr. 10, 2002).

166. Developing nations have been very effective in promoting their pro-development agendas at international conventions over the past decade. Collectively, developing nations form a powerful block in international meetings. One example of the result of their lobby is the Rio Declaration, an international instrument filled with pro-development as well as pro-environment provisions that reflect the differing viewpoints in the North-South debate. *See* Rio Declaration on Environment and Development, 31 I.L.M. 874 (1992).

167. *See* Langeweische, *supra* note 2 (pt. 4), at 3.

168. The United States is a signatory to the Basel Convention but it has not ratified it. The US signed the Basel Convention on March 22, 1989 and the convention entered into force in 1992. However, the US is a non-party to the convention because it has not ratified. See Luster, *supra* note 58, at 9.

Convention is to require nations to internalize the disposal costs of their own hazardous waste in their own countries.[169] Article 4, the General Obligations section of the Convention, obligates Parties to prevent the export of hazardous waste to Parties that cannot manage the material in an environmentally sound manner.[170] Article 11 allows Parties to enter into bilateral and multilateral agreements to continue to transfer hazardous waste, but those agreements cannot derogate from the environmentally sound management principles of the Basel Convention.[171] Therefore, a multilateral agreement between developed nations and developing nations to continue to export ships for dismantlement may be a violation of the Convention.[172]

The Basel Convention was a reaction to the practice of developed nations dumping hazardous waste in developing nations without explaining the true nature of the hazardous material.[173] This practice allowed businesses to avoid high disposal costs in regulated nations. The resulting hazardous waste dumps caused pollution, environmental contamination, and death with minimal benefits to the developing nations.[174] The Basel Convention was a needed instrument to prevent this irresponsible and unscrupulous behavior. But it would be a severe blow to struggling economies in developing nations to eliminate their shipbreaking industry in order to cease completely the flow of contaminants from industrialized nations.

It is generally agreed that the Parties did not consider the

169. Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 1989, Preamble para. 3, *reprinted in* 57 Fed. Reg. 20,602 (1992), 28 I.L.M. 649 (1989) [hereinafter Basel Convention].

170. Basel Convention art. 4. para. 2(e).

171. Basel Convention art. 11.

172. However, a number of these multilateral and bilateral agreements exist which indicates that there Article XI is a loophole in the Basel Convention. *See* HUNTER, SALZMAN, & ZAELKE, *supra* note 162, at 869.

173. In 1988, a ship left Philadelphia with a cargo of 4,000 tons of hazardous incinerator ash that contained heavy metals like lead and cadmium. After being turned away from several ports around the world, the hazardous cargo was finally dumped in Gonaive, Haiti. Workers hired to transport the ash from the ship to shore have since died, likely due to exposure to the waste. They were never provided proper safety equipment. After pressure from environmentalists and international outrage, the toxic material was finally removed from Haiti. It was last reported sitting on a barge off the Florida coast. The Basel Convention is designed to prevent this irresponsible behavior. *See* Danielle Knight, *Environment: U.S. Seen as Retreating from Hazardous Waste Pact*, INTER PRESS SERVICE, Aug. 15, 2001, at 2, *at* http://www.lexis.com (last visited Apr. 10, 2002).

174. In 1988, eight ships transported 8,000 barrels of hazardous waste to a farm in Koko, Nigeria. The Italian company responsible paid a Nigerian $100 a month in rent for the disposal site. A number of deaths and chemical burns occurred after the waste leached into the local river. Italy was eventually forced to reclaim the hazardous waste. *See* HUNTER, SALZMAN, & ZAELKE, *supra* note 162, at 860.

shipbreaking industry when they adopted the Basel Convention.[175] While some governments do apply the Basel Convention to the industry, many do not, with the result that ships continue to flow to developing nations for dismantlement.[176] Therefore, the Basel Convention is regarded as ineffective as a legal instrument to regulate ship dismantling.[177]

An amendment to the Convention, called the Basel Ban, was proposed in 1995 to close the Convention's loopholes by prohibiting the transboundary movement of hazardous waste from OECD nations to non-OECD nations.[178] The provisions of the Basel Convention require three-fourths of the Parties present at the time of the adoption of the Basel Ban to ratify it before it may enter into force.[179] It is unlikely that the Basel Ban will enter into force in the near future.[180]

The Basel Ban has far-reaching implications. It was written from an environmental standpoint to force OECD nations to internalize the costs of their own hazardous waste disposal. But it may have unintended results. Developing nations need stimuli for their economies. It is a mistake to isolate environmental harm and refuse to take other considerations into account. The Parties to the Basel Convention and the Basel Ban should remain true to their original intentions to prevent the outright dumping of containers of hazardous waste from industrialized nations in developing nations. Broadening the scope of the Convention may stop contamination on beaches, but it will also result in unemployment for thousands of workers and denial of valuable raw materials and recycled goods to those that need them the most. Viewed in this light, the Basel Ban's objective may be worse than the problems associated with shipbreaking.[181] Environmentalists argue that the long-term benefits would outweigh the short-term losses. Developing nations counter that this generation cannot afford further denial of the right to work.

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175. Technical Guidelines, *supra* note 4, at 4.

176. *See id.*

177. *See id.*

178. *See* Luster, *supra* note 58, at 10.

179. Basel Convention art. 17 para. 5.

180. Only 19 Parties had ratified the Basel Ban in August of 2000. The minimum number is 62 before the Ban can enter into effect. *See* Luster, *supra* note 58, at 10.

181. A comparison can be drawn to the events surrounding child labor. When US NGOs boycotted the Bangladeshi garment industry because it used child labor over 50,000 children were thrown out of work. These children did not then go to school because schools are not available to them. These children who were working in legitimate jobs were forced to turn to crime and prostitution to survive. *See* Dr. Guha-Khasnobis, Mehta & Agarwal, *supra* note 96, at 3. Workers at shipbreaking yards face similarly bleak futures if they too are thrown out of work.

B. *Technical Guidelines on Environmentally Sound Management for Full and Partial Dismantling of Ships: Preliminary Draft (Technical Guidelines)*

The Technical Guidelines represent the first substantial effort on the part of the international community to address shipbreaking.[182] The Guidelines identify the stakeholders, present the current status of shipbreaking, and the ideal industry standards.[183] The primary objective is to provide recommendations and information on the environmentally sound management (ESM) of ship dismantling facilities.[184] It is not a legally binding instrument but it does provide guidance for those engaged in shipbreaking.[185] The Technical Guidelines are a necessary first step towards international regulation of shipbreaking. A survey of the views of the stakeholders, as well as their potential future roles regarding shipbreaking, provides a helpful perspective of the difficulties surrounding the issue.

1. International Maritime Organisation. — The IMO issues all international regulations regarding maritime activities, which includes ship design, construction, operation and maintenance.[186] Conspicuous in their absence, no international rules or regulations exist for ship disposal.[187] The lack of regulation in this field is not surprising considering that the majority of international maritime regulations were responses to disasters or serious problems.[188] It is also unsurprising that the IMO decided to address shipbreaking now, given the need for it and the environmental, occupational health, and safety problems associated with the industry.[189] Although shipbreaking has existed for centuries, only in the past decade have the environmental and safety problems that result from the dismantlement of large, modern steel vessels that contain hazardous materials risen to the level of a serious problem. The Marine

182. The Guidelines are the work product of experts from the International Maritime Organisation (IMO), the International Labour Organisation (ILO), the International Chamber of Shipping (ICS) and the Basel Convention Technical Working Group. *See* Daniel Pruzin, *Hazardous Waste: Basel Convention Panel Unveils Draft Guidelines on Ship Dismantling*, INT'L ENV'T DAILY, June 21, 2001, at 1, *at* http://www.westlaw.com (last visited Apr. 10, 2002).

183. *See* Technical Guidelines, *supra* note 4, at 4, 17, 29.

184. *Id.* at 1.

185. *Id.*

186. Niko Wijnolst, *Towards a Ship Recycling Industry Charter*, at 2, *at* http://www.mareforum.com/shiprecyclingcharter.htm (last visited Apr. 10, 2002).

187. *Id.*

188. *Id.* at 3. (The Safety of Life at Sea Convention (SOLAS) was created shortly after the Titanic tragedy and the Marine Pollution Convention (MARPOL) was a response to the pollution of the marine environment as a result of international shipping.)

189. *See id.* at 1, 2.

Environment Protection Committee (MEPC) of the IMO is making strides forward that will improve the shipbreaking industry. Firstly, the MEPC is studying the feasibility of banning anti-fouling paints that contain TBT.[190] Secondly, discussions are underway to promote the uniform construction of ships.[191] Uniformity of design would eliminate much of the guesswork and hidden dangers that shipbreakers face when they go to work. Shipbreakers contend that every ship is different and each presents new and unexpected hazards.[192] Uniformity of design would prevent this problem, but we must wait thirty years for the current fleet of ships to become obsolete in order to determine the effect.

The IMO will likely have overall responsibility for coordinating discussions among the several stakeholders and monitoring shipbreaking activities.[193] Certainly an initiative to transfer technology to Asian shipbreakers should be among the first joint activities of the stakeholders coordinated by the IMO.[194] Deficiencies in national regulations on worker safety and environmental protection will be studied as well.[195]

2. International Labour Organisation — The ILO, like the IMO, is a UN organization. It focuses primarily on occupational health and safety issues.[196] The ILO's goal is to improve worker safety in any way possible as soon as possible. The ILO has been concerned about standards in shipbreaking yards since the 1980s and carries out an awareness campaign on a international level.[197] Inquiries to government officials and shipbreaking industry leaders are made about standards in the industry.[198] It sponsors discussions and background papers on the subject and has an informational videotape as well.[199] The ILO proposes the creation of a comprehensive code for health and safety conditions in the shipbreaking industry and encourages governments to require their shipping lines to produce an inventory list of hazardous materials in each ship prior to sale for scrap.[200] A list of hazardous materials onboard, and their locations, would provide shipbreakers with the information they need to create plans to remove the hazardous material safely and

190. *See IMO MEPC Agrees Toxic Anti-fouling Paint Will Be Prohibited, at* http://www.imo.org/HOME.html.

191. *See* Technical Guidelines, *supra* note 2, at 5. (IMO is responsible for monitoring ship design.)

192. *See* Langeweische, *supra* note 2 (pt. 3), at 7. Cutting ships apart is an art because of the differences in the design of virtually every ship.

193. *See* Technical Guidelines, *supra* note 4, at 5.

194. *See id.*

195. *See id.*

196. *See id.* at 7.

197. *See id.* at 6, 7.

198. *See* Rahman & Tabarak Ullah, *supra* note 5, at 9.

199. Technical Guidelines, *supra* note 4, at 7.

200. *See* Bailey, *supra* note 16, at 2.

completely rather than searching blindly for hazardous materials.

3 The Shipping Industry — It could be easy to vilify the shipping industry, and this is arguably the course taken by Greenpeace.[201] But the industry is faced with a daunting task in determining what to do with its obsolete ships. The fact of the matter is that developing nations are virtually the only game in town. Ships are sent to Asian shipbreaking yards out of economic necessity and lack of other options. With that said, certainly the shipping industry needs to take far greater responsibility for the sale of ships for scrap. The International Chamber of Shipping (ICS) is taking some initiative and studying the issue. It established an Industry Working Party on Ship Recycling (IWPSR) to address concerns about ship dismantlement.[202] In August 2001 IWPSR produced an Industry Code of Practice on Ship Recycling.[203] The Industry Code is a product of the ICS and shipping companies and is not to be confused with the Technical Guidelines written by experts from several organizations. The objective of the ICS Code of Practice is to encourage ship owners to make efforts to identify "as far as is practicable" potentially hazardous materials and to minimize them.[204] The Code also encourages ship owners to deliver ships in a "gas-free condition," meaning non-essential fuel tanks are cleaned for hot work.[205]

The Industry Code does spin the issue in a manner to deflect as much responsibility for the current status of shipbreaking away from the shipping industry. The Code states that shipping companies have "little or no direct influence" over standards in recycling yards.[206] The Code states that "ultimate responsibility" lies with national governments for the status of shipbreaking yards in their countries.[207] The Code further claims middle buyers or shipbrokers are generally responsible for the final destination of obsolete ships.[208] However, the control of shipbrokers is only what shipping companies allow. Shipping companies can take a greater initiative and either sell their ships directly to shipbreakers that meet certain requirements or contract with shipbrokers to do the same. But the real issue, as it always is in business, is money.

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201. *See* Kanthak & Jayaraman, *supra* note 46, at 8; *See* Shipbreaking — Toxic Trade in Disguise, at 4, *at* http://www.greenpeace.org/~toxics /html/content/toxtrade/shipb.html.; *See also* note 88.

202. IWPSR is a participant in the creaton of the Technical Guidelines. *See* Technical Guidelines, *supra* note 4, at 5.

203. Industry Code of Practice on Ship Recycling, *at* http://www.marisec.org/recycling. [hereinafter Industry Code] (last visited Apr. 10, 2002).

204. Industry Code, art. 2.4.

205. Industry Code, art. 3.2(iv).

206. Industry Code, art. 1.4.

207. Industry Code, art. 2.4.

208. Industry Code, arts. 2.7, 2.8.

On a positive note, the shipping industry encourages the transfer of technology and funding to improve facilities and work practices in shipbreaking yards.[209] Hopefully, the shipping industry will take true initiative and implement a plan to send aid and technology to shipbreakers of their own accord.

4. Developing Nations — The Technical Guidelines identify India, Bangladesh and Pakistan as the three largest shipbreaking countries in terms of tonnage and mention a few proposed national initiatives.[210] While India has moved forward with new safety measures, largely due to outside media coverage, the other two nations' regulations remain woefully inadequate.[211] The purpose of the Technical Guidelines is to promote the Environmentally Sound Management (ESM) of shipbreaking in these nations and the instrument presents a plan to do so.[212] The first step is to create an Environmental Management Plan (EMP) that includes an Environmental Impact Assessment (EIA), a Monitoring Plan (MP), a Waste Management Plan (WMP), and a Contingency Preparedness Plan (CPP).[213] EIAs should be performed in the planning stages of shipbreaking facilities, but environmental evaluations in the form of EIAs for current facilities will still be beneficial.[214] A WMP focuses on prevention of waste generation, recycling, and proper disposal of necessary waste.[215] A proper WMP requires shipping companies to better clean their ships prior to sale for scrap, transfer of waste disposal technology to shipbreakers, and proper locations for landfills. The Monitoring Plan (MP) serves as a warning device in case unexpected impacts occur.[216] Finally, the Contingency Preparedness Plan (CPP) is designed to increase safety and to have a plan in cases of emergency.[217] The costs associated with an EMP that include all of the elements discussed in the Technical Guidelines are far more than developing nations can afford. Foreign assistance will be necessary to accomplish this goal. Fortunately, there are indications that cooperation between developed and developing nations is occurring, albeit on a limited basis. The Port Development Gujarat Program (PODEG) is a cooperative agreement between the Netherlands and India that mainly involves technology transfer.[218] PODEG objectives include

209. *See* Industry Code, art. 3.1(x); *See also* Technical Guidelines, *supra* note 4, at 7.
210. *See* Technical Guidelines, *supra* note 4, at 22-25.
211. *See id.*
212. *See id.* at 68.
213. *See id.*
214. *See id.* at 70.
215. *See* Technical Guidelines, *supra* note 4, at 70.
216. *See id.*
217. *See id.*
218. *See id.* at 23.

training, waste management plans, beaching regulations, and the improvement of worker living standards.[219] PODEG is achieving results now.

The Technical Guidelines provide a realistic view of the current shipbreaking industry. The ideal environmental and worker safety standards are presented, but the Technical Guidelines do not take the approach that developing nations should be denied the right to participate in the business or that high standards must be achieved overnight. The experts recognize that minor and inexpensive revisions of the current practices of shipbreakers in developing nations could lead to rapid and substantial improvements in environmental and labor standards.[220] A relatively low investment in worker safety gear like steel tipped boots, gloves, hard hats, safety harnesses, and cover-alls, as well as training through instructional videos, would decrease the number of worker injuries and accidents.[221] Basic rezoning of shipbreaking sites is also a relatively minor undertaking, considering the sites are open beaches, and would improve worker safety and health conditions. Although proper landfills will take years to develop, improved methods of disposal of hazardous materials (i.e., burying asbestos rather than dumping it in open pits and forbidding the open burning of residual oils and wastes that release toxic fumes) will greatly improve health conditions as well. Spraying down the worksite with seawater constantly also diminishes the hazardous dust and fibers breathed by workers. Due to international attention, the shipbreakers at Alang in India have already implemented many of these recommendations.

V. A Way Forward

The developing nations of the Indian sub-continent should negotiate a regional compact on shipbreaking to establish obtainable environmental and occupational safety goals and promote their mutual interests vis-à-vis the interests of the wealthy nations that own and operate ships. India, Pakistan, and Bangladesh provide services that are critical to the safety and vitality of the international shipping industry in the form of ship disposal. Together they dismantle 89% of the dead weight tonnage of ships scrapped annually.[222] These nations should realize that they are potentially in a position to dictate terms to developed nations and the ICS. Despite the higher costs that shipping companies

219. *See id.*

220. *See* Technical Guidelines, *supra* note 4, at 68.

221. Naturally the costs of this safety equipment would be far higher for the shipbreakers in developing countries than the shipping companies and the governments of developed nations that can afford these expenses.

222. *See* Technical Guidelines, *supra* note 4, at 17.

would face from heightened environmental remediation demands from these three countries, it is unlikely that shipping companies could find less expensive alternatives. The combination of extreme tidal changes, large labor pools, and eager domestic markets for recycled materials makes the Indian sub-continent ideal for the industry and likely could not be replicated elsewhere. Shipbreaking is a cutthroat industry that provides marginal profits for entrepreneurs willing to risk a large initial capital outlay for ships, in the hope of favorable steel prices in the future. Collectively the shipbreakers could achieve goals that are unattainable under the current regime. The three nations could enter into an agreement with the shipping industry where industry agrees to provide safety equipment, technology, and improved environmental remediation standards in exchange for the disposal of a certain dead weight tonnage at a certain rate per ton. The shipping industry would probably agree because there is no viable alternative. Unfortunately, the likelihood of an agreement between Pakistan and India is remote due to the political and military situation surrounding the contested Kashmir region.[223] This is an instance where regional instability between neighboring nations is draining limited resources and denying attention to an issue that could be mutually beneficial and lay groundwork towards peace and cooperation between rivals. Hopefully India and Pakistan will amicably resolve their differences and uphold the primary purpose of the UN Charter, to maintain international peace and security.[224]

Ships move from nation to nation throughout their lives. It is therefore difficult to control the sale of ships to shipbreakers because the ships can be moved easily to jurisdictions that permit export to Asian shipbreakers. In fact, ships are often registered in nations with minimal environmental and labor regulations, known as flags of convenience.[225] Therefore, the most efficient way to control the sale of ships is in the shipbreaking nations. Again, India, Pakistan, and Bangladesh should pool their resources and establish a regional system that places certain requirements on shipping companies and shipbrokers prior to the sale of ships for scrap. Leading maritime nations like the Netherlands, United States, and Japan — that *need* shipbreakers — should encourage this regional cooperation with financial and technological aid. Regional cooperation will not only improve environmental and labor standards but also decrease the instability that the region faces.

223. *See* The Associated Press, *War Still Brewing Over Kashmir*, N.Y. TIMES, Jan. 20, 2002, *available at* http://www.nytimes.com/aponline/ international/AP-Whither-Kashmir.html (last visited Apr. 20, 2002).

224. U.N. CHARTER art. 1, para. 1.

225. MARK W. JANIS & JOHN E. NOYES, INTERNATIONAL LAW: CASES AND COMMENTARY 546 (1997).

India, Pakistan, and Bangladesh have discovered a market where they can improve their economies and gain access to important raw materials. They should now begin an informational campaign that portrays the situation from their perspective. The ILO, UNEP, and IMO should not be mistrusted but encouraged to come and offer suggestions. These developing nations must improve conditions themselves because the shipbreakers are in their jurisdictions. If the shipbreakers do not improve their standards, developed nations will increase their own shipbreaking industries and nations with minimally higher standards, like China, will steal away market share. In order to sustain their shipbreaking industry, these three developing nations must do together what they have been unwilling or unable to do alone, achieve the goal of environmentally sound management of the shipbreaking industry.

VI. Conclusion

Many developing nations are Parties to the Basel Convention because it protects them against the dumping of hazardous waste in their countries. However, the Basel Convention, despite its noble intentions, will likely hurt the three primary shipbreaking nations if the Basel Ban ceases the sale of ships for scrap to their countries. These three developing nations should work together to improve conditions in the shipbreaking industry using the Technical Guidelines as a model. Together they can raise environmental and labor standards to benefit their workers and, in the process, ensure the future of their shipbreaking industry and continued economic development.

The UN Charter implies that powerful nations may not impose their wills on less fortunate nations. The reality is that a few powerful nations dictate terms to all other nations. India, Pakistan, and Bangladesh have the rare opportunity to reverse this standard practice through the shipbreaking industry. A regional compact would promote peace between the nations and provide a sense of pride and accomplishment for millions of poor citizens.

AUTHOR'S POSTSCRIPT

After the completion of this comment and during the final editorial process, the Technical Working Group (TWG) of the Basel Convention released the Draft Technical Guidelines for the Environmentally Sound Management of the Full and Partial Dismantling of Ships. This document reflects the rapidly evolving nature of the issue. The author encourages readers to keep abreast of this and other documents that are sure to follow as the TWG works towards a final version of the Technical Guidelines.

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