Trashing Developing Nations: The Global Hazardous Waste Trade

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Trashing Developing Nations: The Global Hazardous Waste Trade

"The tragedy of mankind may prove to be the inability to adapt its modes of behavior to the products of its intellect. Twentieth-century man threatens to be a new kind of dinosaur, an animal suffering from a brain ill-adjusted to its environment."¹

I. INTRODUCTION

A. The Hazardous Export Trade

In the United States, and throughout the industrialized nations of the world, there is grave concern over the dangers associated with the management of advanced chemical technology² and its most infamous byproduct—hazardous waste.³ Citizens of industrialized countries are painfully aware of the tragic consequences and potential disasters that result when hazardous products are dealt with in a cavalier manner.⁴

² Langone, Waste: A Stinking Mess, Time, Jan. 2, 1989, at 44 (In this issue, planet Earth is recognized as Time's "Man of the Year").
³ Resource Conservation and Recovery Act of 1976, 42 U.S.C. §§ 6901-6987 (1988). The statute defines hazardous waste as any solid waste or combination of solid waste that may "cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or ... pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed." Id.
⁴ The definition of solid waste covers garbage, refuse, sludge, and other discarded material, including solid, liquid, semisolid, or contained gaseous material, resulting from industrial commercial mining, and agricultural operations. Id. § 6903(27).
⁵ Perhaps the most widely recognized and tragic example of this is the Hooker Chemical and Plastics Corporation's chemical waste dump in the Love Canal area of Niagara Falls, New York. Over a period of twenty years, Hooker Chemical dumped millions of barrels of chemical waste into the abandoned canal. The land was back-filled, houses were constructed and families moved in. By 1978, the chemical wastes had seeped into basements of nearby homes and oozed to the ground surface. Over 200 families were evacuated. Many developed serious health problems including cancer and kidney disease. See Brown, Love Canal and the Poisoning of America, Atlantic Monthly, Dec. 1979, at 33.

Unfortunately, this is not an isolated case. Woburn, Massachusetts has one of the highest rates of leukemia in America. Eleven of the seventeen children who have died from that cancer live within half a mile of two wells contaminated by a chemical dump. See Angier, Hazards of a Toxic Wasteland Learning to Cope with High-Tech Risks, Time, Dec. 17, 1984, at 32.
The tragedy of Bhopal\textsuperscript{5} demonstrates that similar horrors are increasingly a part of the life experience for citizens of lesser developed countries ("LDCs") as well.

Industry produces an estimated 400 million tons of hazardous waste annually.\textsuperscript{6} The United States is the largest contributor generating over 274 million tons.\textsuperscript{7} The Congressional Office of Technology Assessment asserts that the figure is actually twice as high, nearly 575 million tons.\textsuperscript{8} Most hazardous waste is chemical waste and every year roughly 1,000 new chemicals join the 70,000 already in daily use.\textsuperscript{9} Less than two percent have been tested for possible side effects.\textsuperscript{10} As domestic disposal facilities near capacity or are abandoned as overly dangerous, and NIMBY (Not In My Backyard)\textsuperscript{11} syndrome becomes the rallying cry for commu-

\textsuperscript{5} Bhopal has been called "the worst industrial accident in history." Robertson, Introduction to the Bhopal Symposium, 20 Tex. Int'l L.J. 269 (1985).

On December 4, 1984, methyl isocyanate vapor escaped from a pesticide plant operated by Union Carbide India Ltd. Nearly 2,500 people were killed almost immediately. Victims continue to die at the rate of one a day. The Indian government estimates the death toll has reached 3,329. See Wall St. J., Feb. 15, 1987, at A15, col. 1.

\textsuperscript{6} WORLD RESOURCES INSTITUTE 1987, MANAGING HAZARDOUS WASTE: THE UNMET CHALLENGE 201-02 (1987).


\textsuperscript{9} See Nomani, Health Risks Increased By Hazardous Waste Disposal, Study Says (Press Release by Reuters Northern European Service) (Apr. 15, 1987).

\textsuperscript{10} See Angier, supra note 4, at 32. See also McClosky, Debating the Problems that Underlie Pollution Control Problems, 18 Envtl. L. Rep. (Envtl. L. Inst.) 10413, 10415 (Oct. 1988):

Of the 600 chemicals in pesticides suspected of causing cancer or birth defects, EPA has banned only 32, and is investigating only a couple of dozen each year. With 20 percent of the drinking water supplies of this country possibly contaminated with chemicals, EPA has set limits for only 2 of the chemicals. EPA has regulated only 10 percent of those wastes recognized as hazardous under the RCRA.

\textsuperscript{11} See Bula, Toxic Waste: Whose Problem is it?, BC BUSINESS, May 1987, at 27. There is a very low degree of public trust for waste disposal facility operators. Although hazardous waste disposal is a potential economic bonanza, an intense fear of hazardous waste disasters makes the likelihood of community acceptance of a waste disposal facility highly unlikely. Bula provides an incisive analysis of the NIMBY phenomenon:

The public in B.C. has a mental image of those involved in the toxic waste business: More evil than Lex Luthor. More devious and conniving than Machiavelli. More ruthless than Stalin. Untrustworthy, sneaky, and a menace to babies, animals, plants, and the universe. . . . Those in the toxic waste business have a name for the public's allergic reaction. In the tone of voice of someone repeating a joke told many times—one that is hardly funny anymore—they call it NIMBY syndrome. Not In My Back Yard.

\textit{Id.}
nity's opposition to local disposal facilities, the developing nations\textsuperscript{12} of
the world become an attractive site for illicit disposal of hazardous waste
generated by U.S. and European multinational corporations ("MNCs").
The MNCs can avoid increasingly strict regulatory standards and growing
costs associated with proper hazardous waste disposal at home, by
shipping them to debt burdened developing countries that lack the infra-
structure and regulations necessary to handle waste yet are in desperate
need of hard currency to fuel their economies.\textsuperscript{13} Although many LDCs
have environmental protection agencies, most do not possess the regula-
tory framework, treatment and disposal facilities necessary to handle
hazardous waste.\textsuperscript{14} MNCs can externalize the costs of safe disposal by
shipping wastes to developing nations unaware of the potential for latent
disaster caused by improper disposal. One particularly insidious poten-
tial danger is seepage, which poisons soil and water, and may be linked to
cancer as well as birth defects.\textsuperscript{15}

The export and improper disposal of hazardous waste creates not
only health and environmental problems for ourselves and future genera-
\begin{footnotesize}
\begin{itemize}
\item[12.] For purposes of this comment the terms 'developing nation' or 'lesser developed country'
\textit{(LDC)} are used alternatively to encompass:
the developing States, the underdeveloped States, the non-aligned States, the poor States,
the newly-independent States, the micro-States, the afflicted States. To lump them into a
generic 'Other' such as 'Third World' is to paper over the serious problems with a pat-
ttern of convenient predisposition, to sweep their problems under a rug.
\textit{See} K. Hight, Remarks at the June Program in Foreign Law of the Parker School of Foreign and
Comparative Law at the Law School of Columbia University, note 1 (June 10, 1987) (available at
Columbia University Law Library).
\item[13.] \textit{See} Shue, Exporting Hazards, 27 ETHICS 579, 586-87 (1981); Comment, Hazardous Exports
In The Third World: The Need to Abolish the Double Standard, 12 COLUM. J. ENVTL. L. 71, 72
(1987) ("[i]ndustry, faced with the higher costs of doing hazardous business, is tempted to relocate in
Third World countries where its activities would be subjected to little or no regulation.").
\item[14.] \textit{See} Bordewich, The Lessons of Bhopal: The Lure of Foreign Capital is Stronger than Envi-
ronmental Worries, ATLANTIC MONTHLY, Mar. 1987, at 33. Most environmental protection agen-
cies in developing nations are "understaffed, underfunded, and overruled in policy debates by
economic planners who still see development and safety as mutually exclusive goals." \textit{Id.} \textit{See also}
Margarinos de Mello, General Guidelines for an Environmental Policy and a Preliminary Case Study
in a Developing Country, 4 INDUSTRY & ENV'T 53 (1983). Margarinos de Mello succinctly summa-
rized the situation in most developing nations by stating "[a]nybody can throw away anywhere at
any time and in any quantity." \textit{Id.}
\item[15.] \textit{See}, Magnuson, The Poisoning of America, TIME, Sept. 22, 1980, at 58. \textit{See also} Epstein &
L. Inst.) 10180 (June, 1987):
Much cancer today reflects events and exposure in the 1950s and 60s. Production, use,
and disposal of synthetic organic, and other carcinogens were then minuscule compared
to current levels which will determine future cancer rates for younger populations now
exposed. There is every reason to anticipate that the high current cancer rates will be
dwarfed in coming decades.
\end{itemize}
\end{footnotesize}
tions, it is also a source of extreme tension and animosity between the United States and the developing nations of the world. It carries potentially catastrophic environmental and foreign policy implications. The inevitable backlash\(^6\) to indiscriminate waste dumping by MNCs has become a burning global issue. The developing nations have exploded in scandal and rage from revelations of illicit unsafe dumps and schemes by MNCs to dump waste in their territories. The international environmental protection group, Greenpeace, has presented a list of 115 cases documenting export of hazardous waste from Europe and the United States to LDCs.\(^7\) This figure is believed to represent only a fraction of the global trade involving hazardous waste.

A plan by Detroit industrialists to export 4 million of U.S. autoindustry hazardous waste was recently discovered.\(^8\) The arrangement would have allowed Lindaco Inc. of Delaware to ship waste to Guinea-Bissau for payment of $300 million spread over five years.\(^9\) The payment would have amounted to twice the country's gross national product.\(^2\) The deal represented a potential savings of millions for Lindaco Inc. Landfilling hazardous waste in the U.S. costs more than $100 per ton and incineration can cost up to $500 a ton.\(^2\) The company would have paid less than $80 a ton to Guinea-Bissau.

On the island of Kassa off Conakry, capital of the West African nation of Guinea, children played on top of a 15,000 ton mountain of toxic ash contaminated by dioxins and heavy metals from an incinerator in Philadelphia.\(^2\) In Logos, Nigeria near Esravos and Forados,\(^2\) rusty

\(^{16}\) See Exporting Poisons, The Christian Science Monitor, Feb. 13, 1980, at 24. This editorial seemingly predicted the present dilemma. "It is not hard to imagine a future backlash from third world peoples outraged by what would certainly appear to them to be a callous disregard for their health and well-being." \(^{17}\) Id.

\(^{17}\) Greenpeace Wants Ban on Dumping Toxic Waste in Third World (Press Release by The Xinhua General Overseas News Service) (June 16, 1988).


\(^{19}\) Id.

\(^{20}\) Id.

\(^{21}\) Id. (These figures are estimates based on statements of an official with Waste Management Inc.).

\(^{22}\) See Williams, Dangerous Elements Found in Ash Shipped from Philadelphia: Dumping of Toxic Waste in West Africa Raises Concerns, L.A. Times, May 29, 1988, at 30, col. 1. "Dioxins are carcinogenic byproducts of the incineration of plastics and synthetic materials." The heavy metal concentrated in the ash includes cadmium, copper, nickel and lead. When asked about the toxicity of the ash, a European based toxicologist replied, "I certainly would not want my children playing on this dump in Guinea." \(^{17}\) Id. See also Helmore, Dumping on Africa: West Exports its Industrial Wastes, The Christian Science Monitor, July 1, 1988, at 1. This article described how A.S. Bulk
steel drums containing hazardous industrial byproducts are stacked behind a family compound. In the port city of Koko, Nigeria more than 1,000 tons of foul-smelling waste was dumped in containers too hot to touch.

Africa is not the only port of entry for the hazardous waste trade. In 1985, a Delaware transport company, Ecotherm, was hired by T.R.W. Inc. of Redondo Beach, California to ship 205 cylinders of poisonous corrosive gases to Costa Rica. The Costa Rican government denied entry to the shipment after asking U.S. Environmental Protection Agency ("EPA") officials for information about the corrosive materials. Ecotherm then sued the EPA officials for obstructing trade. The Federal court case was dismissed for lack of evidence.

As Abbott Laboratories pharmaceutical dumps in Puerto Rico reached capacity, waste containing antibiotics and fish oil were exported to the Dominican Republic for use as cattle feed and fertilizer. The Dominican Institute for Bioconservation has determined that ingestion by humans can cause hormonal disorders, birth defects, and severe intestinal illnesses, particularly among children.

The grave potential to the environment and American foreign policy are readily apparent from these shocking and tragic examples of the hazardous waste export trade. Toxic waste from U.S. MNCs has been discovered in Brazil, Haiti, Guinea, Mexico, Nigeria, South Africa, and Zimbabwe; major dumpsites have been planned for Guinea-Bissau.

Handling Inc. dumped this load as the first shipment of what was originally intended to be a delivery of 85,000 tons. The ash was marketed and sold as "raw materials for bricks" and was dumped in an abandoned quarry on Kassa. Government investigators determined the material was toxic after the island's vegetation shriveled. Guinea protested; the waste company has sent a ship to remove the ash.

23. These place names are Portuguese for "slave" and "indentured." This is sadly ironic because many citizens of developing nations view hazardous exports as part of a continuing legacy of exploitation. Brooke, Waste Dumpers Turning to West Africa, N.Y. Times, July 17, 1988, at 1, col. 2.

24. See Press Release by the Telegraph Agency of the Soviet Union (July 23, 1988). Villagers in Lagos and Forados have been warned not to harvest crops or locally grown fruits and vegetables due to contamination from the seeping barrels of waste chemicals.

25. Baldwin, Italian Ecologists Alarmed by Exports of Waste to Third World (Press Release by Reuters) (June 15, 1988). The Syrian ship Zanoobia carried the waste back to Italy in April. The waste was held by "weak, second-hand drums" and "the fumes were overpowering." Id.


27. Id.

28. Id.

29. Id. (The Dominican Republic now prohibits the importation of pharmaceutical waste, categorizing it as a human health hazard).

30. Conyers Bill To Block Export, supra note 18.
Guyana, Panama, the Congo, Guatemala, Sierra Leone, Bahamas, Ethiopia, Benin, Peru, Argentina and Venezuela.31

Dubbed "garbage imperialism"32 by leaders of developing nations, the hazardous export trade is the result of MNCs attempting to avoid rising costs associated with rigorous safety standards and disposal requirements in industrial nations. "Like water running downhill, hazardous waste invariably will be disposed of along the path of least resistance and expense. Conditions are ripe for finding 'safe havens' for hazardous waste around the globe."33 With ever increasing proclivity, MNCs have demonstrated a willingness to externalize or socialize the costs of chemically-based products.34 Consumers must share the blame for this shortsighted outlook. The driving force behind this strategy of minimizing short term costs at any price, including degradation of the human environment through mass production of hazardous waste, is the culture of consumerism—the insatiable desire for cheap, disposable products in a throw-away culture.35 Hazardous waste will be exported and disposed of in an ecologically unsound manner, and developing nations will continue to be treated as the industrial world's trash bin, as long as they continue to provide a supply of open markets for hazardous waste that allow MNCs to externalize costs and avoid disposal regulations and liability for harm caused by wastes.

B. A Strategy to Manage the Hazardous Export Trade

The developing countries of the world are autonomous, sovereign nations and must be allowed to enter contractual relations with U.S. MNCs.36 The MNCs, however, should not be able to negotiate contracts

32. See Italy Bans Waste Exports to Third World (Press Release by The Reuters Library Report) (Sept. 7, 1988) (the term was coined by Kenyan officials).
33. See Conyers Bill To Block Export, supra note 18.
34. See Calabresi, Some Thoughts on Risk Distribution and the Law of Torts, 70 YALE L.J. 499, 508 (1961) ("[n]ot charging an enterprise with a cost which arises from it leads to an understatement of the true cost of producing its goods; the result is that people purchase more of those goods than they would want if their true costs were reflected in the price."). See also Shue, supra note 13, at 586. From the perspective of an individual corporation, costs are socialized "by retaining a technology that imposes hidden costs on workers and on whoever pays their medical bills, instead of switching to a safer technology the costs of which might have to be passed on to consumers or absorbed by the firm." Id.
35. See Kidder, Abuse of the Environment, The Christian Science Monitor, July 25, 1988, at 134 (reflecting that an "obscene avariciousness" characterizes our society. In American society, "we consume material culture, use it up, waste it.").
36. See Magraw, Transboundary Harm: The International Law Commissions Study of "International Liability," 80 AM. J. INT'L. L. 305, 325 (1986) (The developing nations are autonomous
allowing them to avoid liability for harm by exporting wastes to developing nations. U.S. MNCs must be held responsible for damages caused by waste they generate. The fundamental premise of this comment is that we cannot continue to export technologically advanced petrochemical industry and hazardous wastes without also providing legal recourse for damages that result when waste is handled in an unsound manner. Presently, U.S. MNCs export these dangers without incurring any liability for harms that result. It is morally repugnant to continue to allow citizens of developing nations to confront, head-on, the grave dangers associated with MNCs' ability to externalize the costs of hazardous waste disposal. U.S. MNCs should not be allowed to escape liability for harm by shipping wastes to developing nations.

This comment will focus on the development of a comprehensive strategy to force U.S. MNCs to internalize the costs of sound waste disposal and place these expenses where they properly belong — upon the pollutor. The pollutor may in turn, pass these internalized costs onto the consumer in the form of higher prices. It is reasonable to expect consumers, as the ultimate purchasers of goods produced by high technical industry, to pay a price for products that reflects the true expenses involved in production. These expenses include the cost of responsible disposal. Currently, these costs are passed on to society, and citizens of industrialized as well as developing nations must bear these costs in the form of increasing cancer rates and birth defects from contaminated water and soil.

This comment will first consider the history and current status of U.S. regulations governing hazardous waste exports. These regulations deal primarily with disclosure and attempt to ensure that importing countries can make informed and knowledgeable decisions about the individual states. The determination of which products a country imports is well within the sovereign prerogative).

37. See Galanter, When Legal Worlds Collide: Reflections on Bhopal, the Good Lawyer, and the American Law School, 36 J. LEGAL EDUC. 292, 299 (1980). Many developing nations lack the potential to develop legal systems with the expertise to handle complex lawsuits. America has a strong remedy system centered around tort law. Thus, providing developing nations with access to America's strong remedial system provides the crucial ingredients for a decisive institutional shift toward higher standards of accountability and remedy on the part of developing nations and the MNCs conducting business with them. Id.

38. For a discussion of these grave dangers see supra notes 15-25.

39. See Calabresi, supra note 34, at 508.

wastes they chose to import. Some commentators have suggested that extraterritorial application of U.S. disposal standards is the best response to deal with the health and environmental hazards presented by illicit toxic waste disposal. The developing nations should not be allowed to import waste unless they can ensure it will be disposed of according to the American model of regulation. For a number of reasons to be analyzed shortly, this is a dubious undertaking.

Although the American model of hazardous waste regulation is not suitable for export to developing nations, certain aspects of the Resource Conservation and Recovery Act ("RCRA") and the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA") or Superfund dealing with the issue of liability are. These statutes hold generators and transporters of hazardous waste strictly, jointly, severally and retroactively liable for harm caused by their wastes. The same general principles should apply to hold U.S. MNCs responsible for harm they cause in developing countries.

The RCRA and CERCLA legislation, however, does not create a private cause of action for personal injuries that arise out of illicit waste disposal. Thus, along with multinational applicability of the general

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42. See Helfenstein, U.S. Controls on International Disposal of Hazardous Waste, 22 INT'L. LAW 775, 789 (1988) ("[t]he adequacy of the disposal facility should be no less than the exporting country's standards, including operations, management, and the appropriate worker protections.").


45. See New York v. Shore Realty Corp., 759 F.2d 1032, 1042 (2d Cir. 1985) (Congress intended that responsible parties be held strictly liable, even though an explicit provision for strict liability was not incorporated into CERCLA); U.S. v. Cauffman, 15 Envtl. L. Rep. (Envtl. L. Inst.) 20161 (Oct. 23, 1984) (Owners and operators of hazardous substance facilities as well as past owners and operators at the time of disposal are strictly liable under § 9607(a)(1) and (2) respectively).


47. See National Sea Clammers Ass'n. v. City of New York, 616 F.2d 1222 (3rd Cir. 1980) (There is no implied private right to damages for personal injury under federal environmental legislation). A compromise between the House of Representatives and the Senate resulted in the elimination of a provision allowing an individual victim to sue industry in federal court. Regarding the compromise, Sen. George Mitchell (D-Maine) stated, "we are telling the people of this country that under our value system a property interest is worth compensating, but a human life is not." 126 Cong. Rec. 30941 (1980).
principles of liability embodied in RCRA and CERCLA, foreign plaintiffs should be granted access to U.S. Federal Courts for personal injury and environmental damage arising from hazardous waste generated by U.S. MNCs. Fundamental principles of international law and basic notions of corporate responsibility justify an expanded role for U.S. Federal Courts in dealing with toxic torts committed by U.S. MNCs in developing nations of the world.

II. HISTORY, DEVELOPMENT AND CURRENT STATUS OF U.S. LAW GOVERNING HAZARDOUS WASTE EXPORTS

Export controls on hazardous waste were initially promulgated and have undergone substantial revisions in an effort to provide authorities in the importing countries with enough information to make knowledgeable, fully informed decisions concerning the potential hazards associated with waste chemicals they are importing. Congress enacted the RCRA in 1976 to regulate hazardous waste disposal in the United States. The Act established a "cradle to grave" regulatory framework to manage the generation, handling, and disposal of all hazardous waste. Congress directed the Administrator of the EPA to promulgate regulations identifying and listing hazardous waste as well as registering generators, transporters, and the owners and operators of Treatment Storage and Disposal facilities. The Act contained no provisions to control the export of wastes. Control of hazardous waste exports was administered by EPA regulations. Prior to 1980, the provisions were minimal. The EPA required four weeks advance notice before the first yearly shipment of hazardous waste to a foreign country. The regulations contained no provision for notification of foreign governments receiving the shipments. Further, the EPA lacked the authority to prohibit any export refused by a foreign country and had no control over the quantity of waste shipped, manner of transportation or treatment outside the U.S. As a result of the loophole created by the shortcoming of RCRA and

48. The foreign plaintiff may choose among the common law theories of liability available in the domicile state of the MNC.
52. 42 U.S.C. § 6923.
55. Id.
56. Id.
EPA administrative regulations, a number of U.S. companies were able to avoid the new domestic regulatory requirements by "forum shopping" among developing countries for waste disposal sites. In response to the trend toward global forum shopping by U.S. companies, the State Department established a notification and disclosure procedure to bridge the gap created by RCRA and EPA regulations. Through the notification policy, the State Department informed foreign governments to whom overtures for sale of wastes had been made that the U.S. is concerned about risks associated with the hazardous waste and is willing to share specific information and provide assistance in gathering information in order to evaluate those risks.57

In 1980, the EPA established regulations to manage hazardous waste exports.58 The exporter was required to notify the EPA thirty days prior to the first yearly shipment of a regulated hazardous waste. The agency then notified the foreign government. The exporter also had to identify the consignee who would be receiving the waste. Finally, the importer was required to confirm delivery of the shipment.59

Also in 1980, as a result of controversy surrounding hazardous exports, President Carter signed Executive Order 12,264 entitled "On Federal Policy Regarding the Export of Banned Substances or Significantly Restricted Substances."60 The Executive Order was the culmination of two and a half years of effort by the "Interagency Working Group on Hazardous Substances Export Policy." The working group was created to establish procedures to notify foreign governments of the export of hazardous products banned or restricted in the United States. The Order defined "banned or significantly restricted substance" by referring to legislation regulating specific categories of products including foods, drugs, chemicals, medical devices, and electronics. It was intended to standardize and consolidate the information distributing function of EPA and the

   1. That the U.S. is concerned about the potential health and environmental risks where adequate hazardous waste programs are lacking.
   2. That we stand willing to share specific information on those risks and make that information public.
   3. That it would be in the importing government's own interest to obtain full information from potential exporters, particularly on the nature, volume and toxicity of the wastes and evaluate the risks involved before concluding any agreement.
59. Id.
State Department through a notification procedure that would allow the foreign government to determine whether local conditions require the products use despite potential dangers. In essence, the Order placed the endorsement of the Executive behind the State Department’s ad hoc notice and disclosure policy. The Order also established procedures for the President to ban the export of extremely hazardous substances pursuant to Executive authority under the Export Administration Act. The President could impose export controls for hazardous substances:

(a) which represent a substantial threat to human health or safety or to the environment,
(b) the export of which would cause clear and significant harm to the foreign policy interests of the United States, and
(c) for which export licenses would be granted only in exceptional cases. The portion of the Order was designed to curb the most egregious cases of U.S. MNCs distributing to foreign nations products banned in the U.S.

President Reagan, within one month of his inauguration, rescinded the Carter Order by signing Executive Order 12,290 entitled “Federal Exports and Excessive Regulation.” The Reagan Order was rationalized as an attempt to implement the dual goals of enhancing the competitiveness of U.S. exports and eliminating over-regulation of business by government.

Congress substantially improved regulations for the management of hazardous waste exports through the enactment of the Hazardous and Solid Waste Amendments of 1984 (“HSWA”). The Act gives the EPA authority to control hazardous waste exports and coordinate notice and disclosure requirements. The provisions went into effect in November of 1986 and prohibit hazardous waste exports until the U.S. government has been notified that the importing country has agreed to accept the waste.

The “prior consent requirement” of HSWA demonstrates aware-
ness on the part of Congress that the environment is a vital foreign policy issue. Continued export of hazardous waste without the consent of the importing nation was becoming a source of extreme tension and embarrassment for the United States and the developing nations who felt victimized by MNC's illicit waste dumping—an act often viewed as a blatant example of the legacy of imperialism.

The EPA regulations published under authority of HSWA require the exporter to provide sixty days notice of a waste shipment bound for a foreign country. One notice, however, is valid for two years of planned exports, but any alteration of the plan including composition of the shipment or quantity, necessitates renotification and re-affirmation of consent by the importing country.

The EPA regulations also create a recording system similar to domestic provisions governing transport of hazardous waste. The notification procedure requires the exporter to list the types and quantity of waste to be exported, the estimated frequency of exports as well as manner of transportation, port of entry and proposed treatment, storage and disposal in the importing country.

Consent of the receiving country is an absolute prerequisite and is coordinated by the EPA through the State Department. The EPA prepares a file for the importing country that includes information sub-

(1) the names and address of the exporter;
(2) the types and estimated quantities of the hazardous waste to be exported;
(3) the estimated frequency or rate at which such waste is to be exported and the period of time over which such waste is to be exported;
(4) the ports of entry;
(5) a description of the manner in which such hazardous waste will be transported to and treated, stored, or disposed in the receiving country; and
(6) the name and address of the ultimate treatment storage or disposal facility.


Once the EPA has been notified of the proposed shipment, the Secretary of State, acting on behalf of the Administrator, shall:

(1) forward a copy of the notification to the government of the receiving country;
(2) advise the government that United States law prohibits the export of hazardous waste unless the receiving country consents to accept the hazardous waste;
(3) request the government to provide the Secretary with a written consent or objection to the terms of the notification; and
(4) forward to the government of the receiving country a description of the Federal regulations which would apply to the treatment, storage, and disposal of the hazardous waste in the United States.

Id. § 6938(d). The EPA must forward the foreign government's response to the shipping party within 30 days of receipt by the Secretary of State. Id. § 6938(e).

69. 40 C.F.R. § 262.52(a) (1989).
70. Id. § 262.53(c) (1989).
71. Id. § 262 (1989).
mitted by the exporter as well as regulations governing the treatment, storage, and disposal of the particular hazardous waste in the U.S. The American exporter must wait for a confirmation from the importing country before the waste is shipped.

HSWA provides criminal penalties for knowing violation of export regulations.\textsuperscript{72} "Primary exporters"\textsuperscript{73} who initiate hazardous waste export jointly bear the most responsibility and liability. They are responsible for timely, complete and accurate notification to EPA regarding proposed export and for compliance with the prior consent requirement of the importing country.\textsuperscript{74} Transporters are responsible for ensuring that EPA records accompany the shipment including the importer's written consent.\textsuperscript{75}

The HSWA export requirements are significant because they ensure that no hazardous waste will be shipped without the prior informed consent of the importing nation. The regulations require the importing nation to receive pertinent information about the waste in order to make an informed decision whether the potential benefits of importing the waste (economic or otherwise) are outweighed by the dangers to human health and the environment presented by exposure to the wastes. The notice and disclosure provisions of HSWA, however, are severely limited by the restrictive definition given to hazardous waste by the EPA. Many types of hazardous wastes and chemical compounds are not covered by the EPA's definition of hazardous waste and are thus excluded from the export provisions of HSWA.

III. EXTRATERRITORIAL APPLICATION OF U.S. ENVIRONMENTAL AND SAFETY REGULATIONS

A. The Low Road

Within the regulatory model there are two possible approaches for managing hazardous waste exports. They can be characterized as the "low road" approach and the "high road" approach.\textsuperscript{76} Both strategies, however, are impotent in dealing with overt and insidious dangers

\textsuperscript{72} 42 U.S.C. § 6928(d).
\textsuperscript{73} 40 C.F.R. § 262.51 (1989).
\textsuperscript{74} 40 C.F.R. §§ 262.53(a) & 262.54 (1989).
\textsuperscript{75} 40 C.F.R. § 262.51.
\textsuperscript{76} See McGarity, Bhopal and the Export of Hazardous Technologies, 20 Tex. Int'l L.J. 333, 335-36 (1985). In proposing solutions to deal with the export of hazardous technology, the author characterizes the "low road" approach as requiring "the United States [to] warn the recipient country of the dangers of the technology, and let that country decide what, if anything, to do about it." Id. at 334. On the other hand, "the 'high road' approach would subject all operations of multi-
presented to the human environment by hazardous wastes. The fact that both approaches are subject to similar criticism points out the pressing need to move beyond regulation as a strategy to control attempts by U.S. MNCs to avoid liability for harms caused by their wastes.

Current U.S. export regulations under HSWA approximate the "low road" approach to managing hazardous waste exports. The U.S. government, through the EPA and the State Department warn developing nations of the dangers accompanying waste they are importing. Through disclosure and access to scientific data, the importing country can weigh the risks and benefits and make an informed decision whether or not to import the waste. By emphasizing full disclosure and access to information, the "low road" allows developing nations to make autonomous decisions unburdened by paternalistic legislation of the exporting nation. Through multilateral agreements, many LDCs have condemned the practice of hazardous waste disposal in their territory. These agreements have resulted in a proliferation of legislation banning waste disposal in developing nations. Clearly, these nations have a sovereign right to ban waste imports or allow them at their discretion. Thus, the principle advantage of the "low road" is its respect for developing nation's sovereignty. The importing nation is properly allowed to make the choice.

The "low road" approach, however, is a severely flawed strategy for managing the problem of illicit waste disposal. As noted previously, the EPA's definition of hazardous waste under HSWA is a particularly narrow one. Developing nations therefore, are making informed choices about a fairly limited number of hazardous wastes they may be importing. Further, the United States is still open to the criticism of maintain-

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77. See 42 U.S.C. § 6938. See also supra note 66 for notice and disclosure requirements.
78. See Reuters Wire Service (Press Release) (July 30, 1988) (At a conference hosted by Brazil, the South Atlantic Nations called for an end to transferring hazardous waste to the region). See also Shabecoff, Irate and Afraid, Poor Nations Fight Efforts to Use Them as Toxic Dumps, N.Y. Times, July 5, 1988, at 4, col. 4 ("[t]he Organization of African Unity, a coalition of African nations, passed a resolution condemning the export of waste chemicals, metals and radioactive materials to their continent as 'a crime against Africa and African people.' The resolution called on all African nations to end such transactions.").
79. See, Government Pledge to Prevent Dumping of Toxic Waste, Wall St. J., June 27, 1988, at 1, col. 1 (pledge by leaders of the Economic Community of West African States to bring into force laws criminalizing aiding and abetting in dumping); Brooke, Waste Dumpers Turning to West Africa, N.Y. Times, July 17, 1988, at 1, col. 2 (Nigeria has prescribed "the death penalty for any Nigerian, any foreigner, caught in the act of bringing in toxic waste.").
80. See, e.g., supra notes 76-77.
ing a "double standard" by allowing products and chemicals that have been banned for domestic consumption due to deleterious health and environmental effects to be exported and dumped on markets in developing countries.

It is also easy to question the extent to which LDCs are truly informed of particular risks. Lack of industrialization is usually accompanied by a lack of a regulatory framework to protect human health and the environment. Most LDCs do not have the scientific capacity to properly analyze data on hazardous waste let alone the sophisticated infrastructure necessary to dispose of it in a responsible way. Moreover, the "low road" requires only that governments be informed and does not inquire whether the people who are affected are informed. If the importing government does not share information with its citizens regarding the danger, the promise of "informed consent" is a false one. Tragic consequences often flow from ignoring the cultural differences and educational disparities between industrialized and developing nations.

The "low road" approach is also susceptible to charges of "economic imperialism" leveled by developing nations at the industrialized world. U.S. MNCs and LDCs do not approach the bargaining table as equals. LDCs are faced with a competitive disadvantage. MNCs are aware of this fact and exploit it to their full advantage. LDCs are under economic duress to accept contractual terms dictated by MNCs, while MNCs are in a position to forum shop among debt burdened developing nations for the most favorable terms of disposal contracts. The corporate managers are in full control of this coercive situation. LDCs are at a competitive disadvantage and must accept the exporters' terms or noth-

81. See Note, Any Place But Here: A Critique of United States Hazardous Export Policy, 7 BROOKLYN J. INT'L L. 329, 330 (1981). The "double standard" means essentially, that on the one hand, the U.S. will protect its citizens from hazardous products, on the other hand it will allow MNCs to ship these products abroad to the unwary. Thus, the principle of caveat emptor is alive and well in international markets. Id.

82. See Bordewich, supra note 14, at 33; Maragarinos de Mello, supra note 14, at 53.

83. See Shue, supra note 13, at 590.

84. See Greenwood, Restrictions on the Exportation of Hazardous Products to the Third World: Regulator Imperialism or Ethical Responsibility, 5 B.C. THIRD WRLD L. REV. 129, 133 (1985). This article points out that disregard for the unique circumstances faced by developing nations, such as Bolivia, by pesticide salesmen has led to resistant moths that destroy crops. As a result of this tragedy, some of the farmers committed suicide by drinking the pesticide. The farmers believed that they were "the killers of Pachama—Mother Earth." Id.

85. See Shue, supra note 13, at 601. The government of a developing nation that needs foreign investment has little or no bargaining power. "A government that requires foreign investors to use more expensive, safer processes puts itself at a competitive disadvantage against other poor countries that are trying to attract the same firms." Id.
Freedom of choice and autonomous decision making, which are held out as the principle advantage of the "low road" requires more than adequate information. It requires two parties to approach an agreement from positions of relative equality, and under no compulsion. The current situation is more accurately characterized as a coercive one which corporations put to profitable use. The "low road" allows developing nations to continue establishing themselves as havens of pollution.

Even the most cynical analysis of the "low road" points out a significant danger in this strategy. Consumers in industrial nations have begun to suffer the consequences of permitting the unregulated export of hazardous waste through a phenomenon known as reimportation of wastes. This phenomenon can occur, for example, when industrial sludge contaminated with toxic heavy metals is marketed and sold as "fertilizer" to grow produce that developing nations export for sale in the U.S.; or when banned or severely restricted pesticides are sold to developing nations to grow produce that ends up in our local grocery stores, thus completing the circle of poison. "Out of sight, out of mind" is an apt description of how we view hazardous waste disposal in developing nations. This policy of treating the world as our backyard and developing nations as our garbage bin can have dramatic, and tragic repercussions.

B. The High Road

U.S. hazardous waste export regulations under HSWA stop at the shores of the importing nation, and do not address the issue of how waste is handled by the receiving country. Recently, some commentators have addressed the issue of receiving facility standards and have argued in favor of the "high road" approach. Under this regulatory strategy, EPA would unilaterally impose the U.S. model of regulation upon devel-

86. Id. at 601.
87. J. Rawls, A Theory of Justice 12 (1971). When "all are similarly situated and no one is able to design principles to favor his particular condition, the principles of justice are the result of a fair agreement or bargain." Id.
88. See Porterfield & Weir, supra note 7, at 344. Here, Wendy Grieder, an official of the EPA's Office of International Activities aptly stated:
   It's possible that we could send sludge to the Caribbean and they might use it on, say, spinach or other vegetables. We would get it back here and the FDA would say, "Hey, wait, you've got too much cadmium in those vegetables." Since the FDA checks only a small portion of foods and vegetables that come into the United States, exported hazardous wastes could easily end up on our dinner table.
89. See id.
90. See Helfenstein, supra note 42, at 789.
oping nations. U.S. MNCs operating in developing nations would be subject to the same standards of conduct that apply domestically. Before importing hazardous waste, LDCs would be forced to adopt the same regulations managing transportation, storage, and disposal of waste that U.S. MNCs domestic operations must comply with.

The primary benefit of the "high road" is to bring the environment and citizens of developing nations under the umbrella of protection provided by U.S. environmental and safety legislation. Thus, the human environment of LDCs is protected to the same extent as the environment in advanced industrialized society. Proponents of the "high road" approach argue that their strategy is necessary to deal with the imminent health and environmental hazards presented by irresponsible waste disposal. Another justification for this approach is that the importing country can neither make nor implement a reasoned decision as to what level of risk they will accept. The argument is made even more compelling by the inability of developing countries to create an infrastructure to deal with hazardous wastes in the face of graft, corruption, volatile governments and economic pressure to accept the immediate financial benefits of hard currency in return for providing a market for hazardous waste.

Like the "low road" approach, the "high road" is a severely flawed strategy for managing harms that result from illicit waste disposal. For all its potential virtue, the "high road" is almost completely paternalistic and fails to deal with the developing nations' sovereign right to decide what risks are acceptable. The "high road" assumes that no developing nation is capable of regulating hazardous waste. This paternalistic position ignores cultural, geographic, and economic factors that may make the American regulatory model completely inappropriate for developing countries. The "high road" provides no guidance for determining when variance from American domestic regulatory standards would be appro-

91. Our environmental protection legislation is far from perfect, but it is probably better at protecting human health and the environment than any legislation in developing nations.


93. See Greenwood, *supra* note 84, at 129-30, 133. Respect for sovereignty of nations is essential. Products banned in developing countries may produce benefits in developing nations that outweigh risks. For example, "developing countries plagued with malaria and other tropical diseases may perceive a need to use banned pesticides." The LDC may be faced with choosing the lesser of two evils—malaria or DDT. The LDC is in the best position to consider the appropriate factors and make a decision. *Id.* at 130.

94. See *id.* at 133.
appropriate for a different system of government with a different culture faced with a unique set of problems. These problems include but are not limited to balancing the necessity of strengthening industry in order to abate poverty, with the need to develop standards to maintain the integrity of the human environment. In fact, unilateral imposition of the American model has led to charges of "regulatory imperialism." Export of the American regulatory model has been viewed as repression, thinly veiled by altruistic motivation. LDCs often see environmental regulation as a wolf in sheep's clothing designed to perpetuate the existing cycle of impoverishment. Although the situation is rare at present, it is not difficult to envision a reasonably competent developing nation with a reasonably representative government making an informed and well reasoned decision to accept risks associated with importing hazardous wastes that are greater than risks generators are permitted to impose domestically. Developing nations have a sovereign right to create standards independent of U.S. regulation for differentiating acceptable from unacceptable risks.

The disclosure and notice requirements of HSWA are useful for managing waste exports to the extent they facilitate disclosure, information gathering and reasoned analysis of the risks and benefits associated with importation of wastes on the part of developing countries. The two strategies within the regulatory model, however, are inadequate to deal with the complex problems and circumstances that attend hazardous waste exports to developing nations. The regulatory model of managing hazardous exports is flawed because by concentrating solely on disclosure it fails to address the crux of the issue—imposing liability upon U.S. corporations for harms created by waste they generate, final destination of those wastes notwithstanding. Although U.S. waste generators can avoid the strictures of domestic hazardous waste regulation by exporting to developing nations, they should not also be permitted to wash their hands of liability for environmental degradation and human disease that results from irresponsible waste disposal. Thus, liability is a more productive strategy than regulation to force corporations to internalize costs of responsible waste disposal that are currently passed off onto developing nations.

95. See Bordewich, supra note 14, at 30 (Environmentalism is sometimes viewed as a Western plot to retard the growth of developing countries).
96. See id.
IV. RESPONSIBILITY FOR HARM

A. Generator and Transporter Liability

Imposing liability upon MNCs for harm caused by waste exported to developing nations avoids the problem of making analytical distinctions required under the "high road" approach. Under this regulatory model, it is necessary to separate developing nations that are not capable of making or implementing a reasoned decision as to what level of risk they will accept from developing nations with reasonably competent governments and the infrastructure necessary to engage in a reasoned analysis of risks and benefits attending importation of hazardous waste. A strategy centered on liability rather than regulation makes the generator the guarantor for both types of inquiry. Thus, the MNC that wishes to export waste must determine if a particular developing nation is capable of handling hazardous wastes responsibly so as not to incur liability. The generator is liable for damages resulting from a mistaken assessment.

B. RCRA and CERCLA

Through the RCRA\textsuperscript{98} and CERCLA,\textsuperscript{99} Congress has recognized its domestic obligation to protect the integrity of the human environment by mandating generator and transporter liability for damage caused by hazardous waste. Congress must also recognize its international obligation to ensure that U.S. MNCs who generate and transport waste are held accountable for harms caused by wastes exported to developing nations.

Although the American regulatory framework as codified in specific provisions of RCRA and CERCLA regulating domestic requirements for transport, storage and disposal of hazardous wastes is not suitable as a regulatory model for developing nations, general provisions of these statutes mandating generator and transporter liability are. CERCLA makes generators of hazardous waste strictly, jointly, severally and retroactively liable for harm caused by their wastes.\textsuperscript{100} CERCLA also creates financial assurance requirements for waste handlers and generators to assure that they do not use insolvency to avoid payment for damages.\textsuperscript{101} By analogy, these provisions should apply multinationally to create liability for U.S. MNCs exporting hazardous waste to developing nations.

\textsuperscript{98}42 U.S.C. §§ 6901-6991.

\textsuperscript{99}42 U.S.C. §§ 9601-9675.

\textsuperscript{100}42 U.S.C. § 9607(a). The courts have interpreted this section to create strict liability. See e.g., New York v. Shore Realty Corp., 759 F.2d at 1042.

\textsuperscript{101}42 U.S.C. § 9608.
nations where they are disposed of in an irresponsible manner. Currently, U.S. MNCs are able to do an end-run around domestic regulation by shipping hazardous waste to developing countries. They should not, however, be able to escape liability when the end result of this scheme is injury, death and environmental degradation.

RCRA was enacted in 1976 in order to abolish unregulated land disposal of discarded material and hazardous wastes. Under original provisions of the Act, the Administrator of EPA was empowered to seek equitable relief against any person contributing "to the handling, storage, treatment, transportation, or disposal of any solid or hazardous waste that may present an imminent and substantial endangerment to public health or the environment." Although Congress did not create a private cause of action for hazardous waste injuries, the RCRA vests citizens with a right to equitable relief by allowing enforcement of any standard, regulation or order promulgated by the EPA under the authority of RCRA. With passage of HSWA in 1984, Congress extended the use of EPA's equitable powers to impose liability upon waste generators who do not dispose of wastes at the location of production. Importantly, the equitable powers granted by section 6973 apply regardless of fault or negligence. To facilitate abatement of health and environmental threats, RCRA also imposes retroactive liability upon waste generators no longer dumping waste at a particular site.

Congress enacted CERCLA (Superfund) in 1980 to clean up hazardous waste sites by placing the ultimate financial burden upon those responsible for the danger. The Act creates a revolving fund which can be tapped by the EPA, state, and local governments to clean up

104. 42 U.S.C. § 6973 (a). HSWA explicitly modified and extended the equitable powers of EPA to create equitable relief against off-site generators as follows:
   The administrator may bring suit on behalf of the United States in the appropriate district court against any person (including any past or present generator, past or present transporter, or past or present owner or operator of a treatment, storage, or disposal facility) who has contributed or who is contributing to such handling, storage, treatment, transportation, or disposal, to order such person to take such other action as may be necessary, or both.

106. See 42 U.S.C. § 6973(a); see also supra note 103.
107. See Eddy & Riendl, Transporter Liability Under CERCLA, 16 Env't. L. Rep. (Envtl. L. Inst.) 10244 (Sept. 1986) (This legislation has the potential to impose more onerous and overpowering liability than any environmental statute before it).
waste dumps that are placed on the EPA's national priority list. Section 9607(a) has been interpreted to hold generators and transporters of hazardous waste, as well as past and present owners of disposal facilities strictly, jointly, and severally liable for the costs of clean up of wastes. The above mentioned actors are referred to as "potentially responsible parties" ("PRPs") for section 9607(a) "response costs." PRPs can be ordered to perform clean ups under section 9606 enforcement actions, can be sued for section 9607(a) response costs after federal or state government has performed a clean up, or can enter voluntary settlements with government concerning their liability for clean up. Although CERCLA does not create a private cause of action for injuries arising from hazardous waste, it does make off-site generators liable for both public and private response costs. Thus, section 9607(a) authorizes a private cause of action limited to recovery of incurred response costs. Based on legislative history and judicial interpretation, it is a settled question that CERCLA imposes strict liability at least for response

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109. See Shore Realty Corp., 759 F.2d at 1042.

110. 42 U.S.C. § 9607(a). "Liability" is defined here defined as:

(a) Notwithstanding any other provision or rule of law, and subject only to the defenses set forth in subsection (b) of this section—

(1) the owner and operator of a vessel or a facility,

(2) any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazardous substances were disposed of,

(3) any person who by contract, agreement, or otherwise arranged for disposal or treatment, or arranged with a transporter for transport or disposal or treatment, of hazardous substances owned or possessed by such person, by any other party or entity, at any facility or incineration vessel owned or operated by another party or entity and containing such hazardous substances, and

(4) any person who accepts or accepted any hazardous substances for transport to disposal or treatment facilities, incineration vessels or sites selected by such person, from which there is a release, or a threatened release which causes the incurrence of response costs, of a hazardous substance, shall be liable for—

(A) all costs of removal or remedial action incurred by the United States Government or a State or an Indian Tribe not inconsistent with the national contingency plan;

(B) any other necessary costs of response incurred by any other person consistent with the national contingency plan;

(C) damages for injury to, destruction of, or loss of natural resources, including the reasonable costs of assessing such injury, destruction, or loss resulting from such a release; and

(D) the costs of any health assessment or health effects study carried out under section 9604(i) of this title.

111. Id. § 9607(b).

The courts have also determined that CERCLA creates a relaxed causation requirement. With respect to generator liability, the majority of cases have determined that causation is not an element of liability under CERCLA, although a clear minority hold that some form of causation is necessary. The majority position is based on a literal reading of section 9607(a)(3). The plaintiff need only establish that:

1. The generators hazardous substances were shipped to the facility in issue;
2. The generators hazardous substances, or substances like those of the generator, are present at the facility;
3. There is a release or threat of release of any hazardous substance at the facility; and
4. Response costs were incurred as a result of the threat of release.

Since there may be cases where it is impossible to differentiate among generators who dumped waste at a particular site, courts have construed section 9607(a) as implicitly authorizing the imposition of joint and several liability where the harm is indivisible and liability cannot be apportioned, even though Congress omitted "joint and several liability" language from the statute.

Although neither CERCLA nor RCRA authorize a private action for personal injury, both statutes demonstrate the continued development and expanding scope of liability for harm caused by hazardous wastes. Congress has recognized the virtue of holding waste generators liable for domestic health and environmental problems created by their wastes. U.S. MNCs should not be allowed to avoid their responsibility for harm simply by shipping waste to developing nations. Through global forum shopping MNCs pick and choose between LDCs that offer lax health and environmental standards. They actively seek developing nations that offer the least possible recourse for harm from hazardous wastes.

113. See Eddy & Riendl, supra note 107, at 10246; see also Shore Realty Corp., 759 F.2d at 1035.
114. See Eddy & Riendl, supra note 107, at 10247 (Provisions that would have required the usual common law nexus or causation were deleted from CERCLA prior to its enactment). See also U.S. v. Wade, 577 F.Supp. 1326, 1333-34 (E.D. Pa. 1983).
116. See Eddy & Riendl, supra note 107, at 10247.
waste. By not imposing liability\textsuperscript{118} to deal with this deplorable state of affairs, Congress implicitly approves and rubberstamps this kind of activity.\textsuperscript{119} As the ultimate purchasers of products with artificially low prices made possible by externalities causing health and environmental degradation in LDCs, we are guilty of complicity in this venture. Therefore, Congress should authorize a cause of action for environmental and personal injury in federal court for foreign plaintiffs injured by exported waste generated by U.S. MNCs. Congress, however, has previously refused to grant American citizens a federal private cause of action for harm from hazardous waste; it is unrealistic to believe that legislation granting a private right of action to citizens of LDCs will be enacted in the near future.

Despite the improbability of a statutory private cause of action in U.S. courts for these potential plaintiffs, the legislative standards of liability authorized by RCRA and CERCLA are part of the foundation for the basic premise that U.S. MNCs should be made responsible for harms caused by their waste, no matter where those harms occur.

\section*{V. \textsc{International Law: An Endorsement for State and Corporate Responsibility}}

There are a number of related international agreements and precedents in customary international law that provide guidance for allocating responsibility for damage inflicted upon the environment. These agreements are based on the principle of "volunteerism" and lack a uniform structure for enforcement of obligations. Thus, U.S. MNCs reign as sovereigns in international markets, with freedom to export hazardous waste without fear of liability at home or from the international community. They roam the globe with impunity, achieving short term profit maximization and avoiding liability by conducting business in developing nations lacking health, safety, and environmental standards.

International law supports the allocation of responsibility for harm

\textsuperscript{118} See Bruno, \textit{The Development of a Strict Liability Cause of Action for Personal Injuries Resulting from Hazardous Waste}, 16 \textsc{New Eng. L. Rev.} 543, 562 (1981):

Although having failed, the attempt to include a strict liability and victims compensation clause in a Superfund Bill, demonstrated awareness on the part of the legislators of the necessity to protect the individual's right to compensation for personal injuries and that a victim's compensation clause would be an incentive for industry to be more careful in the disposal of waste.

\textsuperscript{119} See id. at 562.
on those who cause the damage. The fundamental concept upon which the developing international law of the environment is based is *sic utere tuo ut alienum non laedas* or "the principle of good neighborliness." This concept is manifest in international agreements that articulate a simple, straightforward thesis—every nation ought generally to avoid producing harm outside its territory. This guiding principle finds expression in a number of international agreements of which the U.S. is a part.

As a result of the United Nations Conference on the Human Environment at Stockholm in 1972, the United Nations Environmental Program ("UNEP") was established to deal with worldwide environmental problems. This conference was the first manifestation of worldwide environmental concern, and ended with the announcement of the Stockholm Declaration on the Human Environment. Principle 21 provides that

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or areas beyond the limits of national jurisdiction or control.

Principle 21 recognizes that along with a sovereign right to exploit their own resources, nations have a corresponding duty or responsibility not to inflict avoidable harm upon the environment of other States. Principle 22 of the Declaration encourages international organizations to develop standards of liability and compensation to deal with situations where a nation fails to comply with its responsibility not to inflict harm.

Based on Principle 22 of the Stockholm Declaration, the Organiza-

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120. See Magraw, *Transboundary Harm: The International Law Commission's Study of "International Liability,"* 80 Am. J. Int'l L. 305, 308-9 (1986): The topic implicates two potentially conflicting principles of international law: on the one hand, the sovereign right of a state to be free to engage in activities within its own territory and to regulate its own nationals; and on the other hand, the duty of a state to exercise its rights in a manner that does not unreasonably harm the interests of other states, including, significantly, the duty to regulate activities within its own territory.

121. The "principle of good neighborliness" lends support to the concept of State responsibility for the environment. See Goldie, *Special Regimes and Pre-emptive Activities in International Law,* 11 Int'l & Comp. L.Q. 670, 687-91 (1962).


123. See id. at 1420.

124. "Principle 22: states shall co-operate to develop further the international law regarding liability and compensation for victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such states to areas beyond their jurisdiction." See id.
tion for Economic Co-operation and Development ("OECD")\textsuperscript{125} formulated an approach to transboundary pollution based on the principle of nondiscrimination.\textsuperscript{126} This principle recognizes that liability for a polluting activity must follow pollution. It also holds polluters liable for transfrontier pollution under standards no less severe than their home country.\textsuperscript{127} This standard implicitly recognizes the serious risks and inequities involved when MNCs forum shop among developing nations to avoid liability. The result is an intolerable situation where the populace of LDCs are victimized by MNCs creating environmental disasters with impunity, in order to externalize costs and maximize short term profits. The OECD decision places MNCs on notice that they will be held responsible for harms according to the environmental and health standards of their home country, regardless of where they export those harms.

In 1986, an OECD Export Decision was enacted mandating general procedures to guide members in making export decisions. The export decision is based on the principle of nondiscrimination and validates the emerging sense of international responsibility for personal injury and environmental degradation caused by hazardous exports. It requires that member countries:

1. Ensure that their authorities are empowered to prohibit hazardous waste exports in appropriate instances;
2. Apply equally strict controls on non-member countries as are imposed on member countries;
3. Prohibit the movement of hazardous waste to a nonmember country without the consent of that country; and
4. Prohibit movement of hazardous waste to nonmember countries unless the wastes are directed to adequate disposal facilities.\textsuperscript{128}

The final requirement of the OECD directive forbids member nations to allow hazardous waste exports to other countries unless the waste can be handled in a sound manner. Like the principle of nondiscrimination, this provision of the OECD directive is an attempt to con-

\textsuperscript{125} OECD began as a group of countries operating under the Marshall Plan reconstruction of Europe after W.W. II. Members include Australia, Austria, Belgium, Canada, Denmark, Finland, France, Federal Republic of Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States. See Helfenstein, \textit{supra} note 42, at 781 n.54.

\textsuperscript{126} The principle holds: "(a) polluters causing transfrontier pollution should be subject to legal or statutory provisions no less severe than those which would apply for any equivalent pollution occurring within their country. . . ." See 14 I.L.M. 242, 245 (1975).

\textsuperscript{127} See \textit{id.} at 245.

control MNCs' ability to expand dangerous industrial activities abroad in the face of increasingly strict health and environmental regulation imposed at home.

The current status of U.S. controls on hazardous waste exports fall far short of compliance with the OECD mandate. Wholesale exportation of the American regulatory model, however, is not an attractive solution to the problem. The pitfalls of this approach have been well demonstrated. Perhaps the best solution is to make MNCs that sell hazardous waste to developing nations responsible for determining whether a particular LDC has the capacity to handle wastes responsibly. By making MNCs the guarantor for this inquiry, and establishing liability for damages resulting from illicit waste disposal, MNCs will take greater care deciding which LDCs to sell hazardous waste to. They will be seriously concerned about how the waste is managed after it is sold, since the potential liabilities for reckless handling of hazardous waste are tremendous.\(^{129}\)

Through provisions of the Stockholm Declaration on the Human Environment and the OECD Export Decision, the international community has recognized the practicality and basic fairness behind policies that require the polluter to pay for human and environmental tragedies created by waste they create. These declarations arise out of fundamental ethical principles that provide an excellent foundation and justification for expanding the scope of liability to encompass U.S. MNCs who currently operate with impunity and dictate the terms of the hazardous waste trade.

The first international agreement regulating the hazardous waste trade, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal,\(^ {130}\) was established on March 22, 1989, at the conclusion of a conference sponsored by the United Nations in Basel, Switzerland. Along with establishing a U.N.-administered agency to regulate and monitor international shipments of

\(^{129}\) See Foreign Firms Feel the Impact of Bhopal Most, Wall St. J., Nov. 26, 1985, at 24, col. 4. Harold Corbett, senior vice president for environmental affairs at Monsanto Co. was quoted as saying:

Bhopal's greatest impact, it seems has been on the multinationals. The realization of corporate headquarters that liability for any Bhopal-like disaster would be decided in U.S. courts more than pressure from Third World governments has forced companies to tighten procedures, upgrade plants, supervise maintenance more closely and educate workers and communities.

hazardous waste, the Basel Convention also includes provisions that require the approval of both the importing and exporting nations before hazardous waste can be shipped. Specifically, Article 6 of the Basel Convention, entitled "Transboundary Movement Between Parties" provides:

3. The State of export shall not allow the generator or exporter to commence the transboundary movement [of waste] until it has received written confirmation that:
   (a) The notifier has received the written consent of the State of import; and
   (b) The notifier has received from the State of import confirmation of the existence of a contract between the exporter and the disposer specifying environmentally sound management of the waste in question.  

While the Basel Convention is an important first step toward international cooperation in controlling hazardous waste exports, it does little more than place the international stamp of approval upon inadequate U.S. regulations currently governing waste export under the HSWA. The notice and consent provision of the Basel Convention are reminiscent of notice and consent regulations under current U.S. regulations requiring written consent from the importing country. Thus, the Basel Convention adds nothing new to the existing rules, and there is little reason to expect the Convention to impact seriously upon the burgeoning international hazardous waste trade.

VI. COMMON LAW LIABILITY AND FORUM NON CONVENIENS

In the absence of comprehensive international controls on hazardous waste exports and federal legislation creating a private cause of action for damages from hazardous waste, U.S. MNCs are presented with a convenient opportunity to externalize costs. Although International agreements, and U.S. statutes and regulations are inadequate to deal with this complex problem, they provide a foundation to justify the imposition of liability upon corporate actors engaged in the illicit export of hazardous wastes to developing nations. Given the inability of International

131. Id. at 49.
132. See supra text accompanying notes 65-75.
133. See supra text accompanying notes 76-89. This similarity means that the notice and consent provisions of the Basel Convention are equally susceptible to the many criticisms of the "low road" approach.
134. During the meeting of the Convention many representatives of developing nations insisted that waste generators and exporters assure responsibility for their hazardous wastes. This proposal was rejected by the industrialized nations. See, Johnson, Keeping Tabs on the Worlds Waste, CHEMICAL ENGINEERING, Apr. 1989, at 48E; see also, Greenhouse, U.N. Conference Supports Curbs on Exporting of Hazardous Waste, N.Y. Times, Mar. 23, 1989, at A1, col.1.
Law and Congress to close this loophole, U.S. courts are uniquely situ-
atated to compel American MNCs to reckon with harms caused by irre-
ponsible exportation of hazardous waste to developing nations. Foreign
plaintiffs, particularly those from LDCs should be allowed access to U.S.
courts for the redress of grievances caused by hazardous wastes gener-
ated in the U.S. The judiciary should place U.S. MNCs on notice that if
they plan to export hazardous waste to developing nations that lack the
ability to handle them responsibly, the judiciary is prepared to provide
citizens of LDCs U.S. courts for the health and environmental damage
that will inevitably result.\footnote{135}

Since there is no way that personal injury victims, whether foreign
or U.S. citizens can obtain relief for private injuries under current federal
environmental statutes, they must rely on theories of common law liabil-
ity as developed by the states. In order to secure access to federal court
and American common law, the foreign plaintiff must first defeat the
corporate defendant’s motion for dismissal under the doctrine of forum
non conveniens.\footnote{136} Although this may not be the most imposing hurdle
the foreign plaintiff will face, it is the first, and symbolically the most
important. It represents continued judicial acquiescence in corporate
policy that externalizes the costs of responsible waste disposal. The
American judiciary and legal system are uniquely capable of accomplish-
ing a reversal of this policy.

The foreign plaintiff in these actions will be able to establish that
federal courts have competence to hear their case. This can be done
through diversity of citizenship jurisdiction. Section 1332 of Title 28 of
the United States Code grants original jurisdiction to district courts
where the matter in controversy is greater than $50,000 and is between
citizens of a state and citizens or subjects of a foreign state.\footnote{137} A U.S.
based MNC is subject to personal jurisdiction of federal courts in any
state where the corporation has minimal contacts.\footnote{138}

Among the defendant’s first strategy to block a personal injury suit
brought by a foreign plaintiff will be a motion to dismiss on the basis of

\footnote{135} See McGarity supra note 76, at 339 (suggesting that the most effective thing the U.S. can
do to prevent future Bhopals is open up the doors of the courts to victims of hazardous waste
generated by U.S. MNCs in developing nations).

\footnote{136} See Birnbaum & Wrobel, Foreign Plaintiffs and the American Manufacturer: Is a Court in
the U.S. a Forum Non Conveniens?, 20 THE FORUM 59, 60 (1984). (Forum non conveniens is an
equitable doctrine that permits a court, in its discretion, to decline to exercise jurisdiction for pru-
dential reasons).


\footnote{138} See Birnbaum & Wrubel, supra note 136, at 62.
HAZARDOUS WASTE

forum non conveniens. Although jurisdiction has been established, the doctrine permits federal courts to dismiss a plaintiff's suit if the choice of forum is unreasonably inconvenient for defendant or would administratively encumber the court. The decision is based on an open-ended balancing by the trial judge of considerations including convenience of litigants and witnesses and the availability of evidence in plaintiff's chosen forum. The decision is committed to the discretion of the trial judge. The ultimate resolution of the motion is often based as much on the personal predilection of the judge as upon a balancing of uniform standards.

The guidelines for determining the outcome of a forum non conveniens motion were articulated by the Supreme Court in Gulf Oil Corp. v. Gilbert. The Court announced a test that involved balancing of "private interest" of the litigant against factors of "public interest" and added that the doctrine must be applied flexibly with no single determinative factor. Initially, the trial court is required to determine whether an adequate alternative forum exists that would have jurisdiction over the parties and subject matter. Once defendant has established that there is an alternative forum where it can be sued, the trial court can proceed to balance the interests. The private interests of the litigant include:

- the relative ease of access to sources of proof; availability of compulsory process for attendance of unwilling, and the cost of obtaining attendance of willing, witnesses; possibility of view of premises, if view would be appropriate to the action; and all other practical problems that make trial, of a case easy, expeditious and inexpensive. The court will weigh relative advantages and obstacles to a fair trial.

Against the private interest of the litigant must be weighed the public interest.

Administrative difficulties follow for courts when litigation is piled up in congested centers instead of being handled at its origin. Jury duty is a burden that ought not to be imposed upon the people of a community which has no relation to the litigation. In cases which watch affairs of many persons, there is reason for holding the trial in their view and reach rather than

139. See Birnbaum & Wrubel, supra note 136, at 60 ("Thus, even where subject matter and in personam jurisdiction exist, a court may nevertheless dismiss an action where a balancing of interests of the litigants and the forum reveals that it would not be 'convenient' to have the case tried in that forum.").
140. See Robertson, supra note 5, at 271 ("A number of court of appeals judges have deplored the lack of consistency and predictability and called for a reformulation of this body of law.").
142. See id. at 506-7.
143. See id. at 508.
in remote parts of the country where they can learn of it by report only. . . . There is an appropriateness, too, in having the trial of a diversity case in a forum that is at home with state law that must govern the case, rather than having a court in some other forum untangle problems in conflict of laws, and in law foreign to itself.\textsuperscript{144}

Thus public factors focus in on the choice of law\textsuperscript{145} issue and the burden placed on the Court's docket by cases outside its territorial discretion while private factors emphasize considerations of convenience to individual litigants. The \textit{Gilbert} Court concluded that "... unless the balance is strongly in favor of the defendant, the plaintiff's choice of forum should rarely be disturbed."\textsuperscript{146} The \textit{Gilbert} standard, with its presumption in favor of plaintiff's choice of forum made corporations amenable to suits by foreign plaintiffs, at district courts discretion in jurisdictions where the corporation maintained continuous business operations.

Forum non conveniens doctrine was significantly altered by the Court in \textit{Piper Aircraft Co. v. Reyno}.\textsuperscript{147} The Court held that the plaintiff's choice of forum should not be accorded substantial deference when the plaintiff is a foreign citizen attempting to benefit from liberal tort rules designed to protect American citizens and residents.\textsuperscript{148}

Further, the Court determined that "adequate forum" does not mean that the case should not be dismissed if the applicable law in the alternative forum is less favorable to the plaintiff.

We do not hold that the possibility of an unfavorable change in law should never be a relevant consideration in a forum non conveniens inquiry. Of course, if the remedy provided by the alternative forum is so clearly inadequate or unsatisfactory that it is no remedy at all, the unfavorable change in law may be given substantial weight; the district court may conclude that dismissal would not be in the interest of justice.\textsuperscript{149}

Finally, the Court discussed important public policy issues raised by this country's interest in deterring sales of defective products and in providing a remedy to individuals injured by these products. The Court stated that litigation of \textit{Piper} in the United States would result in only "incremental deterrence" and any value for curbing distribution of unsafe products would be slight. Thus \textit{Piper} establishes a hostile tone toward foreign plaintiffs attempting to redress wrongs in U.S. courts by accord-

\textsuperscript{144} Id. at 508-9.
\textsuperscript{145} See id.
\textsuperscript{146} Id. at 508.
\textsuperscript{147} 454 U.S. 235 (1981).
\textsuperscript{148} Id. at 242.
\textsuperscript{149} Id. at 254.
ing less deference to their choice of forum, and placing strict limits on the definition of adequate alternative forum.

Critics have attacked forum non conveniens as a doctrine reform. Piper is used to justify the dismissal of a foreign plaintiff’s claim with minimal examination of the adequacy of the alternative forum or significant public policy considerations underlying the refusal to hold corporate defendants liable for their actions in developing nations. Thus, district courts can use Piper to justify dismissal of a motion simply by distinguishing the facts and emphasizing certain public and private interests over others. Likewise, district courts can use Piper to grant forum non conveniens motions by stressing public interest in expediting court dockets. Often, the important question of whether a foreign plaintiff can get justice in U.S. courts depends upon how the particular district court judge views the judiciary’s role in shaping public policy. Presently, the doctrine of forum non conveniens is a highly discretionary reflection of judicial policy concerning the proper posture of the American judiciary toward foreign plaintiffs injured by U.S. corporations. By granting forum non conveniens motions, the American judiciary gives tacit approval to irresponsible acts of U.S. MNCs dumping hazardous waste abroad. The doctrine is in need of revision. Foreign plaintiffs should have access to substantial justice in the U.S. for harms caused by hazardous wastes generated by U.S. MNCs and dumped in their territory.

The California doctrine of forum non conveniens provides an attractive alternative to the federal doctrine that validates illicit dumping. California differs from the federal law in two important respects. California adheres to the Gilbert rule according to substantial deference to plaintiff’s choice of forum. Secondly, California attaches significant importance to the possibility of an unfavorable change in applicable law occasioned by a forum non conveniens dismissal. Thus, there is a strong presumption in favor of plaintiff’s choice of forum and defendant has the greater burden of proving plaintiff would not endure “substantial disadvantage” by having to litigate in the alternate forum. Through reform of forum non conveniens doctrine federal courts would be in a position to export justice to developing nations by allowing foreign plaintiffs

150. See Robertson, supra note 5, at 271.


152. Determining under California law that a suitable forum exists requires a showing that plaintiff would not endure “substantial disadvantage” by having to litigate in the alternative forum. Id. at 381, 202 Cal. Rptr. at 778-79.
to hold U.S. hazardous waste generators responsible for wastes they dispose abroad.

Modern hazardous technology and wastes have arrived in developing nations without the corresponding structures necessary to compensate victims of health and environmental tragedy often caused by them. Often, the alternative forum for citizens of developing nations is a local one that is not capable of providing the sophisticated procedures and expertise necessary to handle harms occasioned by disastrous toxic torts. U.S. MNCs, cognizant of this fact, seeking to dispose of hazardous waste search the globe for developing nations with limited environmental and health laws as well as limited recourse for holding the MNC liable in their courts. Given this situation, citizens of LDCs injured by irresponsible waste disposal ought to be entitled to search out the most advantageous legal forum for redress of grievances.

The U.S. judiciary has vast experience and expertise in dealing with disastrous domestic toxic torts. LDCs should have access to the benefits of our experience to remedy damages caused by U.S. MNCs involved in illicit waste disposal.

Further, the American legal system, through the contingent fee structure, is uniquely situated to aid LDCs in the event of environmental disaster by creating among their citizens an expectation of recovery where none existed previously. Through the contingent fee structure, there is an incentive for American attorneys to become involved in toxic torts cases arising out of illicit disposal of wastes by U.S. MNCs in developing nations. Although the attorney's personal motivation may not be altruism, the positive results flowing to LDCs from this arrangement should not be underestimated. Thus, the American judiciary, common law and legal system are uniquely situated to impose liability upon MNCs and bring about a swift end to the practice of illicit and irresponsible hazardous waste disposal in developing nations. The spectre of liability in U.S. courts and the threat of being hit in the pocketbook would cause U.S. MNCs to reevaluate their current policies of externalizing costs of responsible waste disposal by dumping on developing nations. Liability in U.S. federal court would also raise the consciousness of developing nations and their populace. Governments of LDCs could

153. See Foreign Firms Feel Impact of Bhopal, supra note 129, at A24, col. v; see also Galanter infra note 154, at 291 n. 91 ("Lawyers who file multimillion dollar lawsuits are the consciences [sic] of corporations. They whisper in their ears in a language they understand. So quit thinking of them as vultures.").

154. See Galanter, Legal Torpor: Why So Little Has Happened in India After the Bhopal Trag-
learn valuable lessons in protecting the health and environment of their territories. Their citizens would be empowered and realize that there is recourse for environmental disasters that cause injury and death.\textsuperscript{155}

VII. CONCLUSION

U.S. MNCs have demonstrated their willingness to avoid regulation and liability by disposing of hazardous waste in developing nations that may not be able to manage it responsibly. U.S. regulations dealing with hazardous exports are designed only to ensure that developing nations make informed decisions about importing wastes into their territories. LDCs are free to accept wastes from U.S. MNCs attempting to avoid high disposal costs and liability at home. Advocating the wholesale export of U.S. domestic waste laws is an inadequate solution. International law is currently incapable of dealing with the problem. Despite the inadequacy of U.S. hazardous waste legislation and International agreements, they provide an excellent foundation for the proposition that U.S. MNCs generating toxic waste should be held liable for damages caused by waste they export to developing nations. This situation puts federal courts in a position to close the loophole created by U.S. regulations and International law by allowing foreign plaintiffs a cause of action under common law theories of liability against U.S. waste dumpers. The doctrine of forum non conveniens must be modified so that meritorious claims by citizens of LDCs are not dismissed by judicial whim.

JEFFERY D. WILLIAMS

\textit{edy, 20 TEX. INT'L L.J. 273, 291-92 (1985).} India is a nation where dangerous conditions and disasters abound. Until Bhopal and the arrival of the American tort remedy system, there were very low standards of accountability applied to government, employers and property owners. The presence of the American lawyer has created the expectation of aggressive action to redress harms and has "raised consciousness and created bargaining power." \textit{Id.}

\textsuperscript{155} See \textit{id.}
**APPENDIX A. WASTE TRADING COMPANY**

The following firms have been reported to be engaged in the international waste trade. This list does not include firms involved in waste trade between industrialized countries.

<table>
<thead>
<tr>
<th>Name of Company</th>
<th>Location of Co.</th>
<th>Countries of Intended Import</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acme Metal Enterprise</td>
<td>Taiwan</td>
<td>Taiwan</td>
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<tr>
<td>Admiralty Pacific</td>
<td>U.S.</td>
<td>Marshall Islands</td>
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<tr>
<td>Agro-Industrial Development Co.</td>
<td>U.S.</td>
<td>Dominican Republic</td>
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<tr>
<td>Alfred Hempel</td>
<td>West Germany</td>
<td>China</td>
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<tr>
<td>Altos Hornes</td>
<td>Mexico</td>
<td>Mexico</td>
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<tr>
<td>Allied Technologies</td>
<td>U.S.</td>
<td>Brazil, Morocco</td>
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<tr>
<td>Amalgamated Shipping</td>
<td>Bahamas</td>
<td>Haiti, numerous countries</td>
</tr>
<tr>
<td>American Cyanimid</td>
<td>U.S.</td>
<td>South Africa</td>
</tr>
<tr>
<td>American Security Int'l</td>
<td>U.S.</td>
<td>Argentina, Paraguay, Peru, Uruguay</td>
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<tr>
<td>Applied Recovery Tech.</td>
<td>U.S.</td>
<td>Belize, Guatemala, Haiti, Honduras, Turkey, &amp; Caicos</td>
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<tr>
<td>Arbuckle Machinery</td>
<td>U.S.</td>
<td>Dominican Republic</td>
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<tr>
<td>Armco Steel</td>
<td>U.S.</td>
<td>Mexico</td>
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<tr>
<td>Ashland Metal Co.</td>
<td>U.S.</td>
<td>Brazil</td>
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<td>Astur Metals</td>
<td>U.S.</td>
<td>Brazil</td>
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<tr>
<td>Atlantic Forest Prod.</td>
<td>U.S.</td>
<td>Dominican Republic</td>
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<tr>
<td>Axim Consortium Group</td>
<td>U.S.</td>
<td>Equatorial Guinea</td>
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<tr>
<td>Bauwerk A.G.</td>
<td>Luxembourg</td>
<td>Congo</td>
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<tr>
<td>Bayerischen Lloyd</td>
<td>Austria</td>
<td>Turkey</td>
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<tr>
<td>Bayou Steel Corp.</td>
<td>U.S.</td>
<td>Mexico</td>
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<tr>
<td>Bergsoe Metal Corp.</td>
<td>U.S.</td>
<td>Pakistan, South Korea, Taiwan</td>
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<tr>
<td>Bis Import-Export</td>
<td>U.K.</td>
<td>Guinea-Bissau</td>
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<tr>
<td>Boeing</td>
<td>U.S.</td>
<td>South Pacific region</td>
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<tr>
<td>Border Steel Mills</td>
<td>U.S.</td>
<td>Mexico</td>
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<tr>
<td>Bulkhandling Inc. (part of Klaveness)</td>
<td>Norway</td>
<td>Guinea, Haiti, Panama</td>
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<td>Buyuktemitz</td>
<td>Turkey</td>
<td>Turkey</td>
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<tr>
<td>Chapparral Steel</td>
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<td>Mexico</td>
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<tr>
<td>Chemical Marketing Co.</td>
<td>Zimbabwe</td>
<td>Zimbabwe</td>
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<tr>
<td>Chief Chemical and Supply Co.</td>
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<td>Mexico</td>
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<tr>
<td>Chimica</td>
<td>Romania</td>
<td>Romania</td>
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<tr>
<td>Coastal Carriers</td>
<td>U.S.</td>
<td>Haiti, numerous countries</td>
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<tr>
<td>Cogema</td>
<td>France</td>
<td>Benin</td>
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<thead>
<tr>
<th>Company</th>
<th>Country</th>
<th>Location</th>
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<tr>
<td>Colbert, Jack &amp; Charles</td>
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<tr>
<td>Cultivators of the West</td>
<td>Haiti</td>
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<td>Czech.</td>
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<td>Delatte Metals</td>
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<td>Diamong Shamrock</td>
<td>U.S.</td>
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<td>Dumba International</td>
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<td>Dyno-Cyanimid</td>
<td>Norway</td>
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<td>Eckernfoerde</td>
<td>West Germany</td>
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<td>Eco-Therm</td>
<td>U.S.</td>
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<td>Ecodeco</td>
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<td>El Paso</td>
<td>U.S.</td>
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<td>Elite Shipping Co.</td>
<td>Denmark</td>
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<td>Elma</td>
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<td>Fort Dauplin Co.</td>
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<td>Franklin Energy Resources</td>
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<td>G.E.I.</td>
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<td>I.C.I.</td>
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<td>Institute Mexicano de</td>
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<td>Intercontrat S.A.</td>
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<td>International Asphalt</td>
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<td>International Energy Resources</td>
<td>U.S.</td>
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</table>

Location:
- India, Nigeria, South Korea, Zimbabwe
- Haiti
- Lebanon
- Brazil
- Gabon
- Mexico
- Sierra Leone
- Nigeria
- Turkey
- Costa Rica
- East Germany
- Mexico
- Turkey
- Nigeria
- Equatorial Guinea
- China, Hong Kong, Philippines
- Mexico
- Nigeria
- Congo, Guinea
- Brazil
- Mexico
- Hungary
- Haiti
- Dominican Republic
- Mexico
- Senegal
- Panama
- Papua New Guinea, Solomon Islands
- Mexico
- Nigeria
- Guyana
- Guinea-Bissau
- Costa Rica
- Guinea-Bissau
- Brazil
- Nigeria
- Mexico
- Mexico
- Guinea-Bissau, Senegal
- Honduras
- Panama
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<td>Italy</td>
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<td>Irueken Construction</td>
<td>Nigeria</td>
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<td>Kimika</td>
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<td>King LUN Shing Metals</td>
<td>Taiwan</td>
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<td>Kraftwerk Union</td>
<td>West Germany</td>
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<td>Ladriller de Mexico</td>
<td>Mexico</td>
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<td>Lanvik Pigmentfabrikk</td>
<td>Norway</td>
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<td>Lily Navigation</td>
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<td>M.L.S.A.</td>
<td>Italy</td>
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<td>Mineralimpex</td>
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<td>Monochem (now Borden)</td>
<td>U.S.</td>
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<td>Montenay Glen Cove Corp.</td>
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<td>Mssrs. S.I. Ecomar</td>
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<td>Nucor Steel</td>
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<td>Country</td>
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<td>Recycled Energy Inc.</td>
<td>U.S.</td>
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<td>Review Ave. Enterprises</td>
<td>U.S.</td>
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<td>Ricoh Electronics</td>
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<td>Roldiva Corp.</td>
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<td>S.O.P.</td>
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<tr>
<td>Samin</td>
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<tr>
<td>Serviyo Industriali</td>
<td>Italy</td>
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<tr>
<td>Sesco Ltd.</td>
<td>Gibraltar/U.K./</td>
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<tr>
<td>Sheffield Steel</td>
<td>U.S.</td>
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<tr>
<td>Societe Congolaise de</td>
<td>Congo</td>
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<tr>
<td>Recuperation de Dechets Industrial</td>
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<tr>
<td>Sodilo</td>
<td>Senegal</td>
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<tr>
<td>Sogaben (Societe Gabonese d'Etudes Nucleaire)</td>
<td>Gabon</td>
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<tr>
<td>Steward Environmental Systems Co.</td>
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<tr>
<td>Sulinade Metals</td>
<td>Brazil</td>
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<tr>
<td>T.R.W.</td>
<td>U.S.</td>
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<tr>
<td>Teixeria Farms</td>
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<td>Thai Ping Metal</td>
<td>Taiwan</td>
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<td>Thor Chemicals</td>
<td>South Africa</td>
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<tr>
<td>Tito Nemenzo</td>
<td>Philippines</td>
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<tr>
<td>Transnuclear (Nukem subsidiary)</td>
<td>West Germany</td>
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<tr>
<td>Ultramar Agencia Martima Ltd.</td>
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<tr>
<td>Van Santen</td>
<td>Netherlands</td>
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<td>Varn Products</td>
<td>U.K.</td>
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<td>Vinzenz Wagner</td>
<td>Austria</td>
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<tr>
<td>Waste Central Inc.</td>
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<td>Waste Enterprise</td>
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<td>Weirton Steel</td>
<td>U.S.</td>
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<tr>
<td>World Resource Recovery and</td>
<td>U.S.</td>
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<tr>
<td>Congeneration</td>
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<tr>
<td>World Technology Co.</td>
<td>Italy</td>
</tr>
<tr>
<td>Zatec</td>
<td>Netherlands</td>
</tr>
<tr>
<td>Zinc Macional</td>
<td>Mexico</td>
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</tbody>
</table>
APPENDIX B.
WASTE TRADING SHIP INDEX**

The following vessels have been reported to be involved in the international waste trade.

<table>
<thead>
<tr>
<th>Name of Vessel</th>
<th>For more information about these vessels' travels, see these countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al Karameh</td>
<td>Turkey</td>
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<tr>
<td>Arctic Trader</td>
<td>Nigeria</td>
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<tr>
<td>Arktis Trader</td>
<td>Turkey</td>
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<tr>
<td>Bark</td>
<td>Guinea</td>
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<tr>
<td>Baru Luck</td>
<td>Nigeria</td>
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<tr>
<td>Banja</td>
<td>Guinea, United States</td>
</tr>
<tr>
<td>Danix</td>
<td>Nigeria</td>
</tr>
<tr>
<td>Deepsea Carrier</td>
<td>Italy, Nigeria</td>
</tr>
<tr>
<td>Juergen Vesta Denise</td>
<td>Nigeria</td>
</tr>
<tr>
<td>Karin B</td>
<td>Italy, Nigeria, United Kingdom</td>
</tr>
<tr>
<td>Khian Sea</td>
<td>Bahamas, Guinea-Bissau, Haiti, Philippines, Senegal, Sri Lanka, Yugoslavia</td>
</tr>
<tr>
<td>Line</td>
<td>Ethiopia, Egypt</td>
</tr>
<tr>
<td>Lynx</td>
<td>Djibouti, Venezuela</td>
</tr>
<tr>
<td>Makiri</td>
<td>Syria, Venezuela</td>
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<tr>
<td>Petersberg</td>
<td>Romania, Turkey, West Germany</td>
</tr>
<tr>
<td>Radhost</td>
<td>Lebanon, Venezuela</td>
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<tr>
<td>Vorais Spiades</td>
<td>Lebanon</td>
</tr>
<tr>
<td>(formerly Jumbo Trust)</td>
<td>Italy, Greece</td>
</tr>
<tr>
<td>Yvonne/A.</td>
<td></td>
</tr>
<tr>
<td>Zanoobia</td>
<td></td>
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</table>