

Seeping Through the Regulatory Cracks

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The management of toxic waste has become an increasingly global business. The worldwide generation of hazardous waste is currently around 440 million tons, of which an estimated 10 percent makes its way across international boundaries.¹ A variety of industries generate toxic wastes, ranging from chemicals to electronics and from plastics to metal plating. These toxic wastes have adverse effects on the natural environment and have been linked with various health problems, including respiratory diseases as well as immune and reproductive disorders. These environmental and health concerns make decisions about where to dispose of toxic waste highly contentious politically, especially when transboundary issues are involved.

Hazardous materials are nonetheless transported with relative ease from one country to another, albeit subject to certain rules. The international trade in hazardous wastes is governed by various national and international regulations, such as the Basel Convention, which purport to deal with wastes in an environmentally sound manner. Although the purpose of global regulations is to prevent adverse environmental outcomes, the existing agreements nonetheless contain several key weaknesses or “cracks” that allow the trade to continue, often in ways that fall short of environmental standards. Following is an overview of the rise of the waste trade and the rules that have come about to govern it.

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The Rise of the Waste Trade and the Emergence of Global Rules to Govern it

Prior to the late 1980s, there was little regulation at either the national or the international level to control the transboundary trade in toxic wastes. The bulk of the hazardous waste trade flowed between rich countries, and thrived on regulatory differences in each country.² However, it is estimated that at least twenty percent of these wastes also made their way to poorer, developing countries, where costs were lower and environmental regulations weaker.³ A number of high profile cases of hazardous waste exports from firms in industrialized to developing countries in the 1980s and the early 1990s brought international attention to this issue. Wastes were shipped from countries with high disposal costs and strict regulations to countries with low disposal costs and weak regulations. Because most poor countries did not have the equivalent capacity to dispose of wastes in an environmentally sound manner, concern mounted over the trade in wastes between rich and poor countries.⁴ Toxic wastes sent to poor countries were often disposed of in ways that led to adverse and harmful environmental effects. For example, the Italian firm's waste dumped in a Nigerian farmer's field and the toxic fly ash from a Philadelphia waste broker that wound up littering the beaches of Guinea and Haiti illustrate potential health and environmental impacts of careless disposal.⁵ This is in stark contrast to the way toxic wastes are stored in rich industrialized countries, where storage and disposal facilities have to meet high safety and environmental standards.

Many developing countries were outraged by what they viewed as negligent dumping practices by the industrialized world under the guise of trade. This provided the impetus for the development of strong international, regional, and national regulations to control these particular trade flows. At the international level, the Basel Convention on the Transboundary Movement of Hazardous Wastes and their Disposal seeks to regulate the trade of toxic wastes and, in particular, aims to protect developing countries from unwanted toxic waste imports. The Basel Convention was adopted in 1989 and came into legal force in 1992 after being ratified by 20 countries. The convention establishes that parties should reduce their exports of toxic wastes to a minimum and that wastes should only be traded internationally if the exporting state does not have the capacity to dispose of them in an environmentally sound manner or if the wastes constitute "raw materials" (i.e.,

they are to be “recycled”) to be used by the importing countries. The convention also requires parties to refrain from exporting wastes to states that have banned such imports. Additionally, it stipulates that parties should refrain from trade in hazardous wastes with non-parties, unless a bilateral or regional agreement with equivalent or more stringent regulations exists. In the case of hazardous waste trade between parties, the convention requires that states from which exports of toxic wastes originate give prior notification to states where the wastes are to be shipped, and receive the importing country’s written consent before the exporter can send the shipment. In this way, parties have the right to refuse imports of toxic waste if they so choose.

At the national level, a number of countries have passed laws regarding waste trade. Many developing countries have banned the importation of toxic wastes, and some industrialized countries have banned their exportation to developing countries. In addition, there are a number of regional waste trade agreements that place an outright ban on the trade in wastes between rich and poor countries. These include the 1991 Bamako Convention, which covers sub-Saharan Africa and prohibits the import of toxic waste to the region; the 1995 Waigani Convention, banning the import of toxic wastes into the South Pacific region; the 1996 Izmir Protocol, which prohibits the trade in toxic waste between OECD and non-OECD countries in the Mediterranean region; and finally, a European Union regulation, passed in 1997, banning the export of hazardous waste to non-OECD countries.⁶

The adoption of these national and international rules that sought to control the transnational trade in toxic waste resulted in a significant reduction in exports of toxic waste for disposal in developing countries by the early 1990s. At the same time, however, a new problem emerged. It soon became apparent that instead of exporting wastes for *disposal*, waste exporters shifted their business toward the export of toxic wastes to developing countries for *recycling*. There was, in effect, a loophole in the rules that allowed waste transfer to continue—legally—under the auspices of recycling. While recycling may imply environmentally sound waste management, in many cases, particularly in developing countries, it has resulted in detrimental environmental outcomes. A large proportion of toxic wastes destined for recycling operations in the developing world are not, in fact, recyclable. In addition, the process of recovering useful elements from these wastes often leaves hazardous by-products that must then be disposed of.⁷ For example,

throughout the 1990s the UK exported spent mercury to South Africa for recycling; poor waste management, however, claimed a number of lives and resulted in severe soil and water contamination.⁸ This illustrates the hazards of toxic waste recycling in the developing world. Several Southeast Asian and Latin American countries faced similar environmental and health effects as a result of recycling imported lead-acid batteries, used plastic, and scrap metals.⁹

Attempts to close this recycling loophole in the Basel Convention became the subject of a heated debate over the course of the mid-1990s. Poor countries and environmental NGOs argued for a ban on this type of trade between rich and poor countries, while most rich countries and the global recycling lobby argued against it. Painstaking negotiations finally yielded an amendment to the convention, the Basel Ban Amendment, which prohibits the trade in wastes between rich, industrialized countries listed in Annex VII, and developing countries that are not.¹⁰ Though the amendment was adopted in 1995, it has not yet come into legal force. Only when the minimum 62 parties ratify it will it become legally binding and effectively ban the trade in wastes between rich and poor countries that are parties to the Basel Convention.

Unfortunately, the story of waste trading does not end here. There are several important weaknesses in the existing waste trade regime. Though the volume of waste trade to poor countries has decreased substantially since the mid-1990s when the Basel Convention came into force and the Basel Ban Amendment was adopted, it is nonetheless significant enough to raise concern.¹¹ One of the difficulties is in getting key players to commit to the existing rules and abide by them, which underscores the frailty of the convention's enforcement mechanism. Another cause for concern is the limited scope of the 1995 amendment since it does not apply to the trade in wastes between poor countries, nor does it cover such transfers between rich countries. These transfers remain legal under the Basel Convention, but may in fact result in environmentally unsound management nonetheless. Finally, quite apart from the regulatory regime dealing with trade flows in the strict sense, there remains the possibility that an increasing share of the world's toxic wastes will shift toward developing countries as a result of waste-generating industries relocating from their home bases in the industrialized world to more attractive investment locations in poorer countries. Unless rules are also put into place to govern foreign direct investment in "toxic" industries, hazardous wastes may still wind up in other countries via this alternate route.

The Difficulty of Getting Key Players to Abide by the Rules

Though the national and international rules controlling the trade in wastes have become stronger over the years, getting key players to first commit to and then abide by these rules has been difficult in practice. A major problem is that not all countries that are important participants in the global waste trade are parties to the original Basel Convention. As of August 2001, more than ten years after its adoption, the convention has 148 parties. That leaves roughly one quarter of the world's countries that have not yet become parties, of which a

few are critical players in the international trade of hazardous wastes. The United States is notable in this regard. The United States is the world's largest generator of hazardous waste and a key player in the export of wastes, but has yet to ratify the Basel Convention. The U.S.

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government, however, argues that its own laws are compatible with the regulations stipulated in the convention. Nevertheless, since 1991 several attempts have been made in the United States to pass legislation enabling ratification of the Basel Convention, but these have been unsuccessful. Under the Clinton administration, the industrial lobby vehemently opposed the ratification of the Ban Amendment, while the White House dithered about ratifying it. The new Bush administration is less equivocal and has recently announced that it plans to ratify only the original 1989 convention, but not the Ban Amendment.¹² The administration's selective approach points to another problem, namely that it has taken much longer to garner the necessary ratifications for the Amendment than it took for the original convention to enter into force. Part of the reason is that while the original convention required only 20 ratifications, the Amendment requires over three times that number. As of August 2001, 26 countries had ratified the Ban Amendment, but this number falls far short of the 62 ratifications needed. And until it becomes legally binding, the parties are powerless to close the "recycling" loophole.

In the meantime, rich to poor country exports of waste for recycling continues, albeit in smaller quantities than was the case during the mid-1980s. The United States, for example, as a non-party to the Basel Convention, has continued to export toxic waste to developing countries. In a recent incident, a U.S. chemical firm, HoltraChem Manufacturing, attempted to export spent mercury waste from its Maine plant to India. HoltraChem used mercury to produce chlorine and other chemicals for use in the paper industry. When the company's Maine plant closed in September 2000, it left behind 260,000 pounds of mercury waste. HoltraChem announced that it would sell the waste to a broker who planned to ship it to India, already the largest recipient of mercury exports from the United States.¹³ News of this planned shipment sparked a huge controversy in both the United States and India. The U.S. government claimed that the spent mercury was a metal with trade value, not merely waste, exempting it from regulations on waste exports. In the end though, the Indian government refused the shipment, which was returned to the United States.¹⁴

Quite apart from the difficulties of increasing the number of parties to the Basel Convention, the existing regulatory regime suffers from poor enforcement. Indeed, even countries that have ratified the Basel Convention have been known to violate the terms of the agreement. In 1999, a Japanese firm shipped 2,700 metric tons of waste for disposal to the Philippines. Labeled as paper for recycling, the shipment was in fact a mix of hazardous medical and industrial wastes unsuitable for recycling.¹⁵ Once the shipment was revealed, the Japanese government took the wastes back. Another example is India, which despite its status as a party to the Basel Convention continues to import hazardous wastes for recycling purposes. In fact, between March 1998 and March 1999 the country imported more than 100,000 metric tons of toxic wastes, including used batteries, zinc ash and residue, copper cables potentially coated with PVC, and toxic metal.¹⁶ These wastes came from both rich countries and other developing countries. Although India is a party to the Basel Convention and has national laws banning the import of toxic waste, it has not yet ratified the Basel Ban Amendment, and its laws allow certain hazardous wastes to be imported for recycling.

Trade Among Poor Countries and Among Rich Countries Can be Problematic

Another major weakness in the existing waste trade regime is the limited scope of the Basel Ban Amendment, which does not cover trade in wastes among poor countries, nor among rich countries. These two categories of waste transfers are still legal under the Basel Convention, provided the exporting country abides by the original stipulations of prior notification and consent. The trade in wastes between poor countries is a growing problem that will continue to un-

dermine the existing regime as inequalities within the category of developing countries become more pronounced. The most notorious case is shipment of hazardous waste derived from industrial plastics from

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Taiwan to Cambodia in December 1998. Formosa Plastics Group (FPG), a Taiwanese firm, employed a waste broker to dispose of some of its mercury-contaminated waste, who shipped it to the Cambodian town of Sihanoukville. At least six deaths were attributed to the waste, two from direct contact, and four from the crushing crowds that fled from the town when it was revealed that the waste was toxic.¹⁷ FPG agreed to remove the waste, but it then attempted to ship it elsewhere for treatment. The United States, France, and Germany were approached, but all three refused. By mid-2000, FPG agreed had no choice but to re-import the waste and dispose of it in Taiwan.¹⁸ Neither Taiwan nor Cambodia is a party to the Basel Convention, but even if they had been—and had ratified the Basel Ban Amendment—they would still not have been prohibited from conducting such transfers since they both belong to the category of developing countries listed under Annex VII of the convention.

The trade in toxic wastes among rich countries is also problematic. This type of waste trade is only subject to prior notification and consent among Basel parties, under the assumption that

industrialized countries are able to dispose of waste in an environmentally sound manner. However, this is not necessarily the case, as Kate O'Neill has convincingly demonstrated in her research on this type of trade among European countries in the 1990s.¹⁹ A more recent concern emerged this past year in Canada over the increase in imports of toxic wastes from the United States in the late 1990s. U.S. laws on hazardous waste disposal are more stringent than they are in Canada. The United States requires hazardous wastes to be treated in order to reduce their toxicity prior to disposal in landfills, but Canadian law does not require such pre-treatment.²⁰ Moreover, Canadian law allows waste importers to assume full liability for imported wastes, making Canada an extremely attractive option for U.S. waste exporters who are subject to tight liability laws in their own country.²¹ Not surprisingly, there was a dramatic increase in waste imports to Canada from the United States in the late 1990s.²² About 30 percent of all imported wastes from the United States in the late 1990s ended up in a landfill in Sarnia, Ontario, which was owned by the U.S. company, SafetyKleen.²³ Recent reports show a drop in such imports in 2000, but the overall amount shipped remains high.²⁴

It appears that U.S. firms exporting these wastes to Canada were seeking less expensive alternatives for disposal. There has been a bilateral agreement in effect between the two countries since 1986 on the cross-border trade in toxic waste. As mentioned above, the Basel Convention allows parties such as Canada to have bilateral waste trade agreements with non-parties, provided the regulations are consistent with the requirements of the Basel Convention. In this case, however, there is significant reason to question whether the requirements were met. It is difficult to conclude that the United States lacks the capacity to properly dispose of the waste or that the landfilling of hazardous waste in Canada is any more environmentally sound than it would be in the United States. Moreover, the imported waste is not considered a raw material in Canada since it was disposed of in landfills and was not recycled.

Canada has not yet tightened its laws on hazardous waste disposal, despite its acute awareness of the problem. One of the reasons may be found in Chapter 11 of the North American Free Trade Agreement (NAFTA). Under Chapter 11, companies may sue foreign governments for expropriation of profits, or actions that are tantamount to expropriation of profits.²⁵ There have already been two lawsuits under Chapter 11 in which regulations imposed by NAFTA governments with respect to hazardous waste manage-

ment have successfully been challenged by corporations. In one case, a U.S. waste management corporation, Metalclad, won compensation from the Mexican government after Mexico tightened its laws regarding suitable locations for hazardous waste disposal facilities. In the other case, S.D. Myers, a U.S. waste disposal company, challenged Canada's 1995 law banning the cross-border trade of polychlorinated biphenyls (PCBs) waste, and won its case against the government.²⁶ In the latter case, Canada claimed that its law on PCB waste was justified under the Basel Convention, but the NAFTA dispute panel did not accept this argument. Ironically, the NAFTA agreement mentions the Basel Convention as one of three international environmental treaties that it recognizes as legitimate means by which to restrict trade to achieve environmental goals. Because a large amount of the current toxic waste imports to Canada are destined for a facility in part owned by a U.S. company, Canada may well be worried that any future tightening of regulations will be legally challenged.²⁷

Foreign Investment in Toxic Waste-Generating Industries Opens a New Loophole

Sadly, more creative avenues for exporting toxic wastes to developing countries exist. It has become increasingly apparent that the developing world's share of toxic waste generation, especially in the manufacturing sector, is growing.²⁸ If regulations become tighter on the transnational trade in wastes, this may lead to increased investment in toxic industries in countries with more lenient waste disposal regulations. The end result is the same: more toxic waste is disposed of in countries with weaker environmental regulations. This phenomenon is already a problem, though the extent to which it is significant is subject to debate.²⁹ Some argue that while in theory such pollution havens are a possibility, in practice they have been more elusive. But in the case of toxic wastes, there does appear to be a clear movement of some of the hazardous waste-generating industries to relocate in order to take advantage of less stringent environmental regulations in other countries.³⁰

Regardless of their motivations for relocating, many firms do take advantage of more lenient regulations where possible. For example, during the 1970s a number of Japanese-based hazardous waste-generating industries relocated to other Asian countries.³¹ More recently, the *maquiladora* zone in Mexico represents a fairly obvious example of the migration of toxic waste-generating industries

to a developing nation, successfully transferring wastes to other countries via investment rather than trade. These industrial factories are U.S.-owned plants located just across the Mexican border. Originally set up to produce goods, such as garments, for export to the United States, an increasing number of industries that produce large amounts of toxic wastes have been converging there over the past two decades. These include plants in the electronics, chemicals, and furniture sectors.³² By the early 1990s, the vast majority of *maquiladoras* along the U.S.-Mexican border were generators of toxic waste, and at the same time the total number of these firms increased substantially.³³ Technically, this increase in toxic wastes Mexico had to contend with should not have had an adverse effect on the local environment. In addition to Mexican law, the 1983 La Paz agreement between Mexico and the United States requires the return to the United States of any toxic waste generated by the *maquiladoras*. But in the early 1990s, less than three percent of the firms producing hazardous waste were returning it to the United States.³⁴ Both the United States and Mexico admitted at that time to not knowing the amount of toxic waste generated in the *maquiladora* zone.³⁵ After the adoption of NAFTA in 1994, improved monitoring systems were put in place to track the waste. Some improvements have occurred; figures show that the return of hazardous wastes to the United States has risen to 25-30 percent.³⁶ At the same time, accurate figures on toxic waste generation along the border are widely recognized to be elusive, and there are continuing reports of illegal waste dumping along the border.³⁷ NAFTA is one of the more progressive trade agreements in terms of acknowledging pollution havens as a possibility, and it even attempts to prevent them from occurring by asking treaty parties to refrain from relocating toxic industries in order to take advantage of lenient environmental regulations in host countries. However, enforcement of this provision has proven difficult, as evidenced by the continuing relocation of toxic waste-generating industries to Mexico.

Many environmental activists fear that in the absence of global rules aimed at controlling foreign direct investment in toxic waste industries more “*maquiladora* zones” will emerge in other parts of the developing world.³⁸ Some see this as a process that is already underway. For example, multinational corporations (MNCs) in the chemicals industry relocated much of their production to Asia, the Pacific Rim, and Latin America over the course of the 1990s, as demand fell in the West and rose in newly indus-

trializing countries.³⁹ Instead of exporting to these regions, MNCs in the chemicals industry reasoned that it would be easier to set up shop closer to their markets. In addition to saving on labor and transportation costs, these firms have in some cases also acknowledged that environmental cost factors have played a role. Bayer, for example, has admitted that stringent environmental regulations in Europe have been a main contributor to the movement of their production facilities to Asia.⁴⁰ In addition, there have also been growing concerns about double standards practiced by the chemicals industry whereby in their home country MNCs are more stringent than with their operations in developing countries.⁴¹ The December 1984 accident in Bhopal stands out as a clear case of the dangers of double standards in the industry. In this case, Union Carbide followed vastly different environmental, health, and safety standards in its India plant compared to standards in its U.S. plant, even though both plants produced the same chemicals.⁴² The Bhopal case appears not to be an isolated incident. For example, according to one UN study, over half of the MNCs surveyed in the Asia-Pacific region followed standards that were lower than those to which they adhered in developed countries.⁴³

The Way Ahead

As long as waste disposal regulations differ among countries and the global regulatory framework for international trade in toxic wastes has serious flaws, large quantities of hazardous wastes will continue to be precariously managed, damaging the environment and human health, and transboundary waste movements will persist. Policy efforts must therefore be made on several fronts.

First, there must be a firm commitment by all countries to adopt and implement the rules set out in the Basel Convention, including the ratification and implementation of the Basel Ban Amendment. It is imperative that all countries not only adopt but also abide by these agreements in order to prevent future incidents of waste exports to developing countries that are ill-equipped to handle them. Moreover, there is also a pressing need to recognize that the Basel Convention and the Basel Ban Amendment do not in themselves, even when properly implemented, end the risks associated with the trade in hazardous wastes. Efforts to strengthen the rules to address trade among rich countries, as well as trade among poor countries, should be considered.

Second, it is also essential that measures be taken to reduce the overall generation of toxic wastes. Governments, rich and poor alike, must enact tighter regulations on firms regarding emissions controls and waste management, and must promote policies to encourage the creation and adoption of clean production technology. While this may be unpopular amongst governments and firms because of the costs involved, it is a vital step. A major survey of MNCs has shown that the primary motivator for firms to improve their environmental practice is government regulation.⁴⁴ Pollutant release and transfer registers (PRTRs) are one mechanism that has great potential to encourage firms to adopt cleaner production methods. PRTRs require firms to disclose information to the public regarding their pollution emissions, with the hope that firms will seek to reduce their emissions in order to avoid public criticism. A number of industrialized countries, including the United States and Canada, already have PRTRs in place.⁴⁵ Some developing countries, such as the Philippines and Indonesia, are also experimenting with their use.⁴⁶

Finally, rules governing foreign direct investment in “toxic” industries need to be strengthened. A binding global agreement governing the environmental practices of transnational corporations remains a promising avenue for further efforts. In its strongest form, such an agreement could include performance-based criteria with respect to hazardous waste management and clean production. A first step might be an agreement requiring transnational firms to abide by their home country’s environmental regulations when host country regulations are not equally stringent. In addition, a requirement to publicly disclose information with respect to hazardous waste generation, similar to PRTRs, should also be considered. These measures would help prevent MNCs from taking advantage of regulatory differences between countries. Unless a more comprehensive approach is embraced, the remaining cracks in the international regulatory regime will continue to allow the trade in toxic wastes to thrive.

Notes

¹ The figure for total waste generation is from the preface to the 1999 version of the Basel Convention. The estimate for the amount of wastes traded is from Christoph Hilz, *The International Toxic Waste Trade* (New York: Van Nostrand Reinhold, 1992), 20. These are only estimates, and the precise amounts of toxic waste generated and traded internationally are not known because of discrepancies in the definitions of waste and in the diverging criteria for reporting the trade in those wastes.

² For a discussion of the trade in toxic waste among OECD countries, see Kate O'Neill, *Waste Trading Among Rich Nations* (Cambridge, MA: MIT Press, 2000).

³ Jonathan Krueger, *International Trade and the Basel Convention* (London: RIIA, 1999), 14; Hilz, 20–21.

⁴ The term “rich” refers here primarily to the industrialized countries of the Organization for Economic Cooperation and Development (OECD); the term “poor” on the other hand, refers primarily to those developing countries and Eastern European countries that are not members of the OECD.

⁵ For a full discussion of these and other dumping incidents in the developing world, see Jennifer Clapp, *Toxic Exports: The Transfer of Hazardous Wastes from Rich to Poor Countries* (Ithaca: Cornell University Press, 2001), 32–38.

⁶ For further details on these regional agreements, see the Basel Action Network website: <<http://www.ban.org>>.

⁷ Jim Puckett, “Disposing of the Waste Trade: Closing the Recycling Loophole,” *The Ecologist* 24, no. 2 (1994): 53–58.

⁸ For a complete discussion of spent mercury exports to South Africa, see F. Kockott, *Wasted Lives: Mercury Waste Recycling at Thor Chemicals* (Amsterdam: Greenpeace International and Earthlife Africa, 1994).

⁹ These cases were publicized by NGOs. See, for example, Madeline Cobbing, *Lead, Astray: The Poisonous Lead Battery Waste Trade* (Amsterdam: Greenpeace International, 1994); Bill Moyers and CIR, *Global Dumping Ground* (Cambridge: Lutterworth Press, 1991), 52–61; and Greenpeace, *The Waste Invasion of Asia* (Sydney: Australia: Greenpeace, 1994), 20–22.

¹⁰ Annex VII includes members states of the EU and the OECD, and Liechtenstein.

¹¹ The Basel Action Network (BAN) maintains a website that tracks waste transfers from rich to poor countries: <<http://www.ban.org>>.

¹² BAN, “Green Groups Call on USA to Ratify International Toxic Waste Dumping Ban as Part of Basel Treaty,” Press Release, 9 August 2001, <<http://www.ban.org>>.

¹³ Susan Young, “Fed Refuse HoltraChem Mercury, Company May Send Chemical to India,” *Bangor Daily News*, 17 November 2000; Danielle Knight, “Outcry over US Toxic Chemical Shipment to India,” *Inter Press Service*, 11 December 2000.

¹⁴ Danielle Knight, “Controversy Around Mercury Shipment from US to India,” *Inter Press Service*, 25 January 2001; Susan Young, “New Home for Mercury Hard to Find,” *Bangor Daily News*, 28 March 2001.

¹⁵ “Illegal Dumping,” *Mainichi Daily News* (Niigata, Japan), 13 January 2000.

¹⁶ Greenpeace International, “Toxic Waste—Poisons from the Industrialized World,” <<http://www.ban.org>>.

¹⁷ Lawrence Speer, “Environmentalists Assail Taiwan’s Plans to Ship Waste to French Treatment Facility,” *International Environment Reporter* 22, no. 21 (1999): 830.

¹⁸ For a full account of the incident, see BAN, “Victory for Global Environmental Justice: Toxic Waste Dumped on Cambodia Will Finally be Treated by Producer,” Press Release, Seattle, 9 June 2000, <<http://www.ban.org>> (10 April 2001).

¹⁹ For the UK case in particular, see O’Neill, 103.

²⁰ Martin Mittelstaedt, "Canada Permits U.S. Waste to Flood In: Report Cites Open-Pit Dumping Regulations that Allow Disposal of Untreated Pollutants," *The Globe and Mail* (Toronto, Canada), 25 June 2001.

²¹ Martin Mittelstaedt, "Quebec Dump Wants Contaminated U.S. Soil," *The Globe and Mail*, 25 June 2001.

²² Jacott, Marisa, Cyrus Reed, and Mark Winfield, *The Generation and Management of Hazardous Wastes and Transboundary Hazardous Waste Shipments between Mexico, Canada, and the United States 1990-2000* (Austin: Texas Center for Policy Studies, 2001), 51.

²³ Jeff Sallot and Richard Mackie, "Ottawa to Seek Waste-Disposal Standards," *The Globe and Mail*, 26 June 2001.

²⁴ Environmental News Service, "Canadian Imports of U.S. Hazwaste Down in 2000," 3 August 2001, <http://www.ban.org/ban_news/canadian_imports.html>.

²⁵ Howard Mann and Konrad von Moltke, *NAFTA's Chapter 11 and the Environment: Addressing the Impacts of the Investor-State Process on the Environment*, <<http://www.iisd.org/trade/chapter11.htm>>.

²⁶ Rossella Brevetti and John Nagel, "Arbitration Panel Awards Metalclad Corp. \$16.7 Million in Trade Dispute with Mexico," *International Environment Reporter* 23, no. 19 (2000): 710; Peter Menyas, "Canada Loses NAFTA Chapter 11 Case Over Ban on Hazardous Waste Shipments," *International Environment Reporter* 23, no. 24 (2000): 901.

²⁷ Jacott, Reed, and Winfield, 58.

²⁸ Patrick Low, "The International Location of Polluting Industries and the Harmonization of Environmental Standards," in *Difficult Liaison: Trade and the Environment in the Americas*, H. Munoz and R. Rosenberg, eds. (London: Transaction Publishers, 1993), 25.

²⁹ See Eric Neumayer, "Pollution Havens: An Analysis of Policy Options for Dealing With an Elusive Phenomenon," *Journal of Environment and Development* 10, no. 2 (2001): 147-177.

³⁰ H. Jeffrey Leonard, *Pollution and the Struggle for the World Product: Multinational Corporations, Environment and International Comparative Advantage* (Cambridge: Cambridge University Press, 1988), 232; see also Clapp, *Toxic Exports*.

³¹ Hans Maull, "Japan's Global Environmental Policies," *The Pacific Review* 4, no. 3 (1991): 254-62; Derek Hall, "Dying Geese: Japan and the International Political Ecology of Southeast Asia" (paper presented at the annual meeting of the International Studies Association, Toronto, Canada, March 1997).

³² Edward Williams, "The Maquiladora Industry and Environmental Degradation in the United States-Mexico Borderlands," *St. Mary's Law Journal* 27, no. 4 (1996): 777-779.

³³ Leslie Sklair, *Assembling for Development* (San Diego: University of California, Center for U.S.-Mexican Studies, 1993), 79-80.

³⁴ Sklair, 253-4; Diane Perry, et al., "Bi-national Management of Hazardous Waste: The Maquiladora Industry at the U.S.-Mexico Border," *Environmental Management* 14, no. 4 (1990): 442.

³⁵ John Harbison and Taunya McLarty, "A Move Away from the Moral Arbitrariness of Maquila and NAFTA-Related Toxic Harms," *UCLA Journal of Environmental Law and Policy* 14, no. 1 (1995-1996): 6.

³⁶ Cyrus Reed, "Hazardous Waste Management on the Border: Problems with Practices and Oversight Continue," *Borderlines* 6, no. 5 (1998), <

mex.org/borderlines/1998/bl46/bl46haz.html> (May 23, 2001). See also HAZTRAKS at <<http://www.epa.gov/earth1r6/6en/h/haztraks/haztraks.htm>>.

³⁷ Enrique Medina, "Overview of Transboundary Pollution Issues Along the Mexico-U.S. Border," in Thomas La Point, Fred Price, and Edward Little, eds., *Environmental Toxicology and Risk Assessment: Fourth Volume* (West Conshohocken, PA: American Society for Testing and Materials, 1996), 9.

³⁸ See Clapp, 113–120.

³⁹ P. Abrahams, "The Dye is Cast by Growth and Costs," *Financial Times*, 31 May 1994; Andrew Wood, "Asia-Pacific: Rising Star on the Chemical Stage," *Chemical Week* (February 15, 1995), 36.

⁴⁰ P. Abrahams, "The Dye is Cast by Growth and Costs," *Financial Times*, 31 May 1994.

⁴¹ Birtha Bergsto and Sylvi Endresen, "From North to South: A Locational Shift in Industrial Pollution?" FIL Working Paper no. 6, in Bersto et al., eds., *Industrial Pollution in the South* (Oslo: FIL, 1995), 19.

⁴² Thomas Gladwin, "A Case Study of the Bhopal Tragedy," in C. Pearson, ed., *Multinational Corporations, the Environment, and the Third World* (Durham, NC: Duke University Press, 1987).

⁴³ ESCAP/UNCTC, *Environmental Aspects of Transnational Corporation Activities in Pollution-Intensive Industries in Selected Asian and Pacific Developing Countries* (Bangkok: UN/ESCAP, 1990), 61.

⁴⁴ UNCTAD, "Programme on TNCs," *Environmental Management in Transnational Corporations: Report on the Benchmark Corporate Environmental Survey* (New York: United Nations, 1993), 38.

⁴⁵ OECD, *PRTR Implementation: Member Country Progress* (Paris: OECD, 2000), ENV/EPOC(2000)8/FINAL. See also, "OECD's Work on Pollutant Release and Transfer Registers (PRTRs)," <<http://www.oecd.org/ehs/prtr/index.htm>>.

⁴⁶ "World Bank Endorses Disclosure of Emissions Data as Enforcement Technique," *International Environment Reporter* 19, no. 18 (1996): 774–5; Rhea Sandique, "Rating System for 2000 Industries in Manila Set," *Manila Standard*, 9 December 1996; "Computer to List Firms Polluting Environment," *Philippine Daily Inquirer*, 29 April 1997.