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Recycling Electronic Wastes in Nigeria: Putting Environmental and Human Rights at Risk

Christine Terada*

I. INTRODUCTION

¶1 Unregulated recycling of electronic waste (e-waste)¹ has led to environmental degradation and human rights violations—most often in developing countries in Asia and Africa where exporting is easy, labor laws are lax, and communities are poor. While the global market for new high-technology electronic products continues to grow, so does the amount of discarded products. The increasing availability of new electronics, along with the higher number of products built with shorter life spans, has resulted in the current explosion of e-waste. The majority of e-waste currently ends up in domestic landfills or incinerators, although efforts to divert e-waste from landfills, via recycling, have led to a largely unregulated, and oftentimes illegal, e-waste trade that dumps toxic materials from the affluent onto poorer countries in such regions as Asia and Africa.²

¶2 To address the problem of e-waste management, the European Union (EU), Japan, South Korea, Taiwan, and several states of the U.S. have introduced legislation making producers responsible for products reaching the end of their lives. In the U.S., 65 percent of the population is currently covered by some sort of state e-waste recycling law.³ So far, 25 states have passed e-waste laws; California passed a consumer fee law, while most of the other states with e-waste laws utilize the Producer Responsibility approach, where the manufacturers must pay for recycling.⁴ Despite these state actions, a loophole in national legislation, exempting e-waste from regulation under the Resource Conservation and Recovery Act, as well as the country's refusal to ratify the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal ("Basel Convention"), means that when e-waste cannot be readily or economically recycled in developed countries, it is still sold to brokers who look for the best price on the global market.⁵

¶3 E-waste disposal is especially problematic when humans and the environment are exposed to hazardous chemicals during the process of dismantling electronic products. E-waste contains approximately 1,000 chemicals, including mercury, lead oxide, cadmium, and polyvinyl chloride, which are especially hazardous to human health.⁶ Because of these risks to human and

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¹ "E-Waste" is the term used to describe old, end-of-life or discarded appliances which contain electrically powered components. *Facts & Figures: E-Waste Definition*, EWASTEGUIDE.INFO, <http://ewasteguide.info/introduction/e-waste> (last visited Jan. 31, 2012).

² Jim Puckett et al., *Exporting Harm: The High-Tech Trashing of Asia*, BASEL ACTION NETWORK (2002), available at <http://www.ban.org/E-Waste/technotrashfinalcomp.pdf>.

³ *Promote Good Laws: State Legislation*, ELECTRONICS TAKEBACK COALITION, <http://www.electronicstakeback.com/promote-good-laws/state-legislation> (last visited Jan. 31, 2012).

⁴ *Id.*

⁵ Puckett et al., *supra* note 2, at 3, 14.

⁶ *Id.* at 5, 9.

environmental health, as well as the higher costs of safer recycling processors, developed countries have found it easier to ship their e-waste to developing countries where regulations are lax and labor is cheap.⁷

¶4 As a result of this disparity in costs and regulations, much of the world's e-waste is currently exported from more developed, affluent countries to less developed countries.⁸ According to a report by the Basel Action Network and Silicon Valley Toxics Coalition, two leading organizations working against the toxic trade, an estimated 50 - 80 percent of the e-waste collected for recycling in the western U.S. is not recycled domestically, but is sent to countries in Asia for recycling.⁹ China, a leading recipient of e-waste, remains an importer despite a national ban in 2000 on the import of e-waste, including computers, monitors, cell phones, and televisions.¹⁰ Because of the country's weak enforcement measures, China has been repeatedly singled out in the media as posing dangerous risks to the environment and the health of dismantling workers and surrounding communities.

¶5 In this article, I will explore the e-waste trade in Nigeria and discuss how developed countries, as well as the developing countries themselves, must actively end the e-waste trade that exploits human workers and the environment. First, I will introduce the concept of e-waste and the scope of the current problem. Second, I will address existing federal and state regulations in the U.S., as well as legal structures in the international arena, to argue that a robust international regime is critical in preventing the export of e-waste. Third, I will discuss international conventions, such as the Basel Convention, a multilateral agreement which places restrictions on the transboundary movement of hazardous waste,¹¹ and the Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa ("Bamako Convention"), which made the trade of hazardous e-waste illegal in sub-Saharan African countries.¹² Fourth, I will introduce a case study on Nigeria and address the current challenges and approaches to two main issues in the country: 1) creating effective legislation to regulate the e-waste trade and, 2) enforcing this legislation against illegal e-waste dumping. The case of Nigeria is significant because Nigeria ratified the Basel Convention and signed the Bamako Convention. Still, the e-waste trade continues to flow into Nigeria. This article examines the political atmosphere of Nigeria and argues that without comprehensive legislation and enforcement protocols on both ends of the trade route, the e-waste trade will continue to flourish.

II. WHAT IS E-WASTE?

¶6 E-waste is the disposal of electronic goods, such as cell phones, mp3 players, televisions, and computers. The majority of the world's hazardous waste is produced by industrialized

⁷ *Id.* at 5.

⁸ *Id.*

⁹ *Id.* at 4.

¹⁰ *Id.* at 31-32.

¹¹ Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, *opened for signature* Mar. 22, 1989, 28 I.L.M. 657, available at <http://www.basel.int/TheConvention/Overview/TextoftheConvention/tabid/1275/Default.aspx> [hereinafter Basel Convention].

¹² Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa, *opened for signature* Jan. 30, 1991, 30 I.L.M. 773, available at <http://www.africa-union.org/root/au/documents/treaties/Text/hazardouswastes.pdf> [hereinafter Bamako Convention].

market economies.¹³ When consumers in developed countries discard or recycle their electronic goods, they usually do not think twice about what happens to that old phone or television. In reality, e-waste is expensive to recycle in a manner that is safe to humans and the environment.¹⁴ Instead of being dismantled and recycled domestically, e-waste is often shipped either directly, or indirectly through brokers, to countries where labor and environmental laws are not as stringent.

¶7 Craig Lorch of Seattle's Total Reclaim provides domestic recycling for cathode ray tubes (CRTs) in computer monitors.¹⁵ In a report by the Basel Action Network and Silicon Valley Toxics Coalition, Lorch said he has little alternative but to sell the rest of the computer parts to scrap brokers who might very well export them depending on the global market.¹⁶ Lorch stated his frustration over the lack of local area recyclers to utilize available domestic solutions:

Right now, the economics of electronics recycling clearly prefers export over managing the material in the U.S. Every day we must make the choice between spending money to disassemble and manage the material here or simply load it into a shipping container and sell it offshore. Why would a good business person allow spending 3 to 4 dollars to disassemble and handle material domestically when the same material can be sold offshore for 3 bucks. It's a 6 dollar swing—that's a make or break difference for a recycler.¹⁷

¶8 After being sold offshore to salvage companies subject to fewer labor and environmental regulations, the electronic devices are dismantled and laborers remove the lead, gold, copper, and other valuable metals found inside the products in order to resell them.¹⁸ This process releases substantial quantities of toxic heavy metals and organic compounds into the surrounding soil, air and water.¹⁹

¶9 The hazards to human health stem from over 1,000 different chemical substances found in e-waste, many of which are toxic.²⁰ Toxic heavy metals found in e-waste include: lead and tin, copper, cadmium, mercury, brominated flame retardants, barium, antimony, and beryllium.²¹ Beryllium, for example, is commonly used in computers on motherboards and "finger clips" to strengthen the tensile strength of connectors while maintaining electric conductivity.²² Beryllium is classified as a human carcinogen because it can cause lung cancer, primarily through inhalation. Furthermore, workers who are constantly exposed to the chemical, even in small amounts, can develop a lung disease called beryllicosis.²³

¶10 Mercury, as well, causes harm to humans and is found in many electronic products. It is estimated that 22 percent of the yearly world consumption of mercury comes from electrical and

¹³ Puckett et al., *supra* note 2, at 11.

¹⁴ *Id.*

¹⁵ *Id.* at 10 (quoting Craig Lorch, Vice President, Total Reclaim).

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Id.* at 18.

¹⁹ *Id.* at 26.

²⁰ *Id.* at 5.

²¹ *Id.* at 9.

²² *Id.* at 10.

²³ *Id.*

electronic equipment.²⁴ Mercury is especially dangerous because it easily accumulates in living organisms and becomes concentrated through the food chain when it combines with water and turns into methylated mercury.²⁵ In humans, mercury can cause damage to vital organs such as the brain and kidneys.²⁶ One of the greatest dangers is to developing fetuses, which are highly susceptible to mercury poisoning through maternal exposure.²⁷ The harmful effects of beryllium and mercury are just two examples of the health risks that e-waste poses.

¶11 E-waste poses tremendous risks to the environment as well, including groundwater pollution, air pollution, acidified rivers and banks, and toxic soil.²⁸ The environmental risks from e-waste affect entire ecosystems, and can pose major health risks to wildlife and humans. It is therefore impossible to separate the environmental from the human health risks. The e-waste problem is widespread and pervasive, endangering the livelihoods of entire communities.

III. THE SCOPE OF THE E-WASTE PROBLEM

¶12 On February 22, 2010, the United Nations Environment Programme²⁹ issued a report called “Recycling – from E-Waste to Resources.” The report used data from 11 representative developing countries to project current and future e-waste generation.³⁰ Although the available data on e-waste is incomplete and imprecise due to the unregulated nature of the trade, the U.N. predicts that the amount of global e-waste should rise by about 40 million tons per year.³¹ The e-waste trade continues to grow at an alarming rate, and the need for more stringent legislation and enforcement will become increasingly significant.

¶13 According to the report, more than 24 million personal computers (PCs) and roughly 139 million portable communication devices, such as cell phones, pagers and smart phones, were manufactured in the U.S. in 2006.³² Furthermore, the report highlights that the highest growth rate has occurred in communication devices between 2003 and 2008.³³ During those years, the number of communication devices skyrocketed from 90 million in 2003 to a projected 152 million in 2008.³⁴ The increasing number of electronics manufactured and sold inevitably leads to a growing number of discarded products. Most often, consumers throw away their discarded electronics or turn them into a store for recycling without a second thought. The growing number

²⁴ *Id.* at 9.

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.* at 26.

²⁹ The United Nations Environment Programme (UNEP) is administered by the United Nations Development Group. The organization aims to encourage countries to improve their quality of life without compromising the environment for future generations. See THE UNITED NATIONS ENVIRONMENT PROGRAMME, <http://www.unep.org> (last visited Jan. 31, 2012).

³⁰ Mathias Schlupe et al., *Sustainable Innovation and Technology Transfer Industrial Sector Studies: Recycling – From E-Waste To Resources*, UNITED NATIONS ENVIRONMENT PROGRAMME & UNITED NATIONS UNIVERSITY, VII (July 2009), available at http://www.unep.org/PDF/PressReleases/E-Waste_publication_screen_FINALVERSION-sml.pdf.

³¹ *Id.* at 1 (citing Huisman J. et al., *2008 Review of Directive 2002/96 on Waste Electrical and Electronic Equipment (WEEE)*, BONN: UNITED NATIONS UNIVERSITY (2007), available at ec.europa.eu/environment/waste/weee/pdf/final_rep_unu.pdf).

³² *Id.* at 1 (citing *US Consumer Electronics Sales and Forecast, 2003-2008*, CONSUMER ELECTRONICS ASSOCIATION, (2008)).

³³ *Id.*

³⁴ *Id.*

of discarded electronics has resulted in an increasing volume of e-waste. In 2000, more than 4.6 million tons of e-waste ended up in U.S. landfills.³⁵ In Hong Kong, it is estimated that 10-20 percent of discarded computers end up in landfills.³⁶ Landfills are problematic because the toxic chemicals in e-waste can leach into the land over time or can be released into the atmosphere, impacting neighboring communities and the surrounding environment.³⁷

¶14 In an ideal end-of-life system, the hazardous products would be separated from the main recyclable materials without harm to human or environmental health. Effective recycling operations not only save resources, but also contribute to reducing greenhouse gas emissions that are produced when e-waste is recycled through mining, smelting, refining and concentrating. Unfortunately, environmentally-sound, end-processing technologies require a higher investment cost compared to pre-processing technologies, as well as a large amount of tonnage to operate the processes economically and a medium to high level of training to educate the workers.³⁸

¶15 Because domestic recycling facilities are expensive to run and require adherence to labor regulations, brokers often turn to developing countries for low labor costs, and lax environmental and occupational regulations.³⁹ For example, a 2001 investigation led by the Basel Action Network (BAN) uncovered a town known as Guiyu in Guangdong Province, about a four-hour drive from Hong Kong.⁴⁰ About 100,000 poor migrant workers were employed there to break apart and process obsolete computers mostly imported from North America.⁴¹

¶16 In towns such as Guiyu, people often work in backyard operations where primitive, unsafe, and unregulated practices are used. Such practices include: opening cathode ray tubes with hammers, exposing the toxic phosphor dust inside; cooking circuit boards over open fires to melt lead solder, producing toxic lead fumes; burning wires in open piles to melt away the plastics; burning plastic casings, creating dioxins and furans; throwing the unwanted, hazardous leaded glass into former irrigation ditches; and dumping pure acids and dissolved heavy metals into nearby rivers.⁴² Around the world, poor men, women, and children are being exposed to dangerous chemicals and work conditions in order to dismantle e-waste sent from developed countries. As a result of environmental contamination, the released chemicals can have far-reaching impacts on entire communities and natural habitats.

¶17 According to a December 2011 report from Pike Research, “Electronics Recycling and E-Waste Issues,” the total volume and weight of end-of-life (EOL) electronics worldwide will more than double in the next 15 years, increasing from 676 million cubic feet (and 6.0 million tons) in 2010 to 1,465 million cubic feet (and 14.9 million tons) by 2025.⁴³ During the same forecast period, Pike Research anticipates that electronics recycling and reuse—driven by international environmental legislation, sustainability, and corporate social responsibility (CSR) programs of

³⁵ *Where Does E-waste End Up?*, GREENPEACE INTERNATIONAL, <http://www.greenpeace.org/international/en/campaigns/toxics/electronics/the-e-waste-problem/where-does-e-waste-end-up/> (last visited Jan. 31, 2012).

³⁶ *Id.*

³⁷ *Id.*

³⁸ Schlupe, *supra* note 30, at 38.

³⁹ Puckett et al, *supra* note 2, at 8.

⁴⁰ *Responsible Recycling vs. Global Dumping*, ELECTRONICS TAKEBACK COALITION, <http://www.electronicstakeback.com/global-e-waste-dumping/> (last visited Jan. 31, 2012).

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Executive Summary: Electronics Recycling and E-Waste Issues*, PIKE RESEARCH (Dec. 2011), <http://www.pikeresearch.com/newsroom/e-waste-environmental-crisis-is-being-mitigated-by-strong-growth-in-electronics-recycling-and-reuse>.

leading electronics manufacturers and service providers—will rise from 122 million cubic feet (and 1.1 million tons) per year in 2010 to 789 million cubic feet (and 7.9 million tons) annually by 2025.⁴⁴

¶18 By the early 2020s, Pike expects that “recycling and reuse activity will surpass the annual volume and weight of electronic devices that become e-waste, and thus will play a large part in mitigating the e-waste crisis.”⁴⁵ Still, the total volume of e-waste in landfills will continue to increase throughout the period.⁴⁶ These advances in recycling and reuse of new electronics will not sufficiently address the problem of e-waste already in existence.

¶19 According to the report, one of the main obstacles to the progress in recycling and reuse will be the transboundary shipments of e-waste, sent easily and inexpensively, from developed countries to developing countries.⁴⁷ The informal recovery of components and materials in developing countries may be minimized if national and regional governments modify their legislative mandates to close major loopholes.⁴⁸

IV. EXISTING LEGAL STRUCTURES

¶20 While the U.S. has enacted federal laws regulating hazardous waste generally, individual states, such as California, have, on their own initiative, enacted laws specifically regulating e-waste. As will be discussed, international laws are much more stringent than the U.S. with regards to e-waste, and states such as California have looked overseas for model laws.

¶21 U.S. domestic law, even though it does not perfectly address the issue of e-waste, certainly raises the cost of recycling, so that without a robust international legal regime, e-waste will continue to be pushed overseas, where the environmental and human rights consequences are even worse.

A. *Federal Laws in the U.S.*

¶22 The U.S. has enacted legislation that aims to regulate hazardous waste, but the country still lacks a comprehensive, effective law that parallels international law. There are U.S. federal laws currently addressing hazardous waste, such as 42 U.S.C. §6901 (the Resource Conservation and Recovery Act (RCRA)), which establishes federal regulations on the generation, transportation, treatment, storage, and disposal of hazardous waste.⁴⁹

¶23 Unfortunately, RCRA does not discuss provisions that specifically address the issue of e-waste. Even though it is not singled out as a hazardous waste, e-waste should fall under the provisions of the Act. Section 1003(a) provides the objective of the Act, which is to “promote the protection of health and environment and to conserve valuable material and energy resources....”⁵⁰ Section 1004(5) defines “hazardous waste” as:

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ *Id.* at 2.

⁴⁹ *Summary of the Resource Conservation and Recovery Act*, ENVIRONMENTAL PROTECTION AGENCY (2012), available at <http://www.epa.gov/lawsregs/laws/rcra.html>.

⁵⁰ Solid Waste Disposal Act, § 1003, 42 U.S.C. § 6901 (2002), available at <http://epw.senate.gov/rcra.pdf>.

[A] solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may—(A) cause or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (B) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.⁵¹

Under RCRA, a material must first be waste in order to have the potential to be a hazardous waste.⁵² If waste were classified as hazardous, then its transboundary movement would be subject to regulation under 40 CFR 262.80. These regulations apply to imports and exports of wastes that are considered hazardous under U.S. national procedures and are destined for recovery operations within the Organization for Economic Cooperation and Development (OECD).⁵³

¶24 Some could argue that e-waste does not constitute waste if its parts are going to be reused. However, if the product cannot be reused in its entirety, it is clear that e-waste should constitute a hazardous waste under RCRA and therefore be subject to strict restrictions on disposal and treatment.

¶25 Even if e-waste did explicitly fall under RCRA, there are some loopholes. Any waste can be categorized as non-waste by processing if raw materials or commodities could be produced.⁵⁴ And in July 2006, the Federal Register published a final EPA rule that states that used, intact CRTs exported for recycling are not solid wastes provided they are not “speculatively accumulated” and provided the exporter notifies EPA of the export and receives subsequent written consent from the receiving country allowing the CRTs to be imported for recycling.⁵⁵ The rule also provides that used, intact CRTs exported for reuse are not solid wastes if the exporter sends a one-time notification to the EPA Regional Administrator.⁵⁶ This means that the Agency largely relies upon the receiving country to enforce proper recycling processes. The Agency’s relatively “hands-off” approach creates an opportunity for handlers of e-waste to avoid the restrictions and accountability of RCRA.

¶26 In September 2010, U.S. Representatives Gene Green and Mike Thompson introduced new landmark legislation, the Responsible Electronics Recycling Act of 2010.⁵⁷ The Act would

⁵¹ *Id.* § 1004.

⁵² When a material is recycled, its regulatory classification (whether or not it is a solid waste, and potentially a regulated hazardous waste) depends on two factors: (1) what type of secondary material is being recycled, and; (2) what type of recycling is occurring. Precious metals reclamation is the recycling and recovery of precious metals (i.e. gold, silver, platinum, etc.) from hazardous waste. According to the EPA, because these materials will be handled protectively as valuable commodities with significant economic value, generators, transporters, and storsers of such recyclable materials are subject to reduced requirements. *See* 40 CFR 266.70(F), *available at* www.epa.gov/epawaste/hazard/recycling/regulations.htm#notsubject.

⁵³ OECD Member countries include: Australia, Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Poland, Portugal, the Republic of Korea, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States. For the purposes of subpart H of this part, Canada and Mexico are considered OECD Member countries only for the purpose of transit. *See* 40 CFR 262.58.

⁵⁴ *See* Solid Waste Disposal Act, § 1004, 42 U.S.C. § 6902 (2002), *available at* <http://epw.senate.gov/rcra.pdf>.

⁵⁵ Federal Register, Vol. 71, No. 145, 42928, 42929 (July 28, 2006) *available at* <http://www.epa.gov/osw/hazard/recycling/electron/crt-final.pdf>.

⁵⁶ *Id.*

⁵⁷ Jim Puckett, *Landmark E-Waste Export Bill Introduced to Stop Global E-Waste Dumping*, COMMONDREAMS.ORG (Sept. 2010), <http://www.commondreams.org/newswire/2010/09/30-13>.

stop U.S. “recyclers” from dumping e-waste on developing countries, and is supported by environmental groups, as well as electronic manufacturers such as Apple, Dell, and Samsung.⁵⁸

¶27 The bill creates a new “restricted electronic waste” section of RCRA that would prohibit the exportation of consumer electronic equipment, parts, and derivative materials containing toxic chemicals.⁵⁹ Tested and working equipment could still be exported to promote reuse, and there are a few exemptions (including products subject to recall); however, the importing countries must give their consent to accept all of the exempted exports.⁶⁰

¶28 The bill, now called the Responsible Electronics Recycling Act of 2011,⁶¹ has garnered bipartisan support while it awaits passage. While the bill prevents hazardous material from being exported where it will be mishandled and cause health and environmental damage, it also creates recycling jobs in the U.S.⁶²

Twenty-five states in the U.S. have passed e-waste recycling legislation, but these laws do not ban e-waste exports, which is an international trade issue, and not the constitutional jurisdiction of the states. Only Congress has the authority to legislate this restriction.⁶³

B. Implementation of State Regulation in California

¶29 Despite the lack of cohesive, effective federal legislation governing the e-waste trade, over a dozen states have enacted their own e-waste laws, including California.⁶⁴ California enacted the Electronic Waste Recycling Act of 2003, which includes the following key elements: reduction in hazardous substances used in certain electronic products sold in California; collection of an e-waste recycling fee at the point of sale of certain products; distribution of recovery and recycling payments to qualified entities covering the cost of electronic waste collection and recycling; and, recommendations on environmentally preferred purchasing criteria for state agency purchases of certain electronic equipment.⁶⁵

¶30 California law requires manufacturers to follow the European Union’s (EU) Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) requirements to limit the amount of cadmium, lead, mercury, and other toxins in electronic products sold in the state.⁶⁶ The California legislature enacted a point-of-sale consumer disposal charge that the California Integrated Waste Management Board (CIWMB) uses to reimburse authorized collectors and recyclers for treated e-waste from households.⁶⁷ Additionally, in

⁵⁸ *Id.*

⁵⁹ *Summary of H.R. 6252, The Responsible Electronics Recycling Act*, ELECTRONICS TAKEBACK COALITION, http://www.electronicstakeback.com/wp-content/uploads/Bill_Summary_HR62521.pdf (last visited Feb. 13, 2011).

⁶⁰ *Id.*

⁶¹ Responsible Electronics Recycling Act of 2011, H.R. 2284, 112th Cong. (2011).

⁶² *E-Waste Export Bill to Stop Global E-Waste Dumping & Boost Green Jobs*, ELECTRONICS TAKEBACK COALITION (June 23, 2011), <http://www.electronicstakeback.com/2011/06/23/e-waste-export-bill-to-stop-global-e-waste-dumping-boost-green-jobs/>.

⁶³ *Id.*

⁶⁴ Aaron Ezroj, *How the European Union’s WEEE & RoHS Directives Can Help the United States Develop a Successful National E-Waste Strategy*, 28 VA. ENVTL. L.J. 45, 51 (2010).

⁶⁵ *Electronic Waste Recycling Act of 2003: Covered Electronic Waste Payment System (SB 20/SB50)*, CAL RECYCLE, available at <http://www.calrecycle.ca.gov/electronics/act2003/>.

⁶⁶ *Electronic Waste: More Information*, CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL, <http://www.dtsc.ca.gov/HazardousWaste/EWaste/MoreInfo.cfm> (last visited Nov. 7, 2010).

⁶⁷ Ezroj, *supra* note 64, at 51-52.

January 2005, each time California consumers purchased electronics with certain video display devices, they began paying a \$6-10 fee that went into an account used to pay qualified e-waste collectors and recyclers.⁶⁸ With more than 590 recycling locations in the state, California recycles 20 percent of all e-waste recycled nationwide.⁶⁹

¶31 Responsible e-waste recycling raises costs, both for the consumer and producer. According to Matthew Decareau, business development director at M&K Recovery Group, the cost of electronics recycling is constantly changing because the initial cost of recycling is supplemented by the extracting and refining of gold and platinum (which have daily fluctuating prices), which are then resold and recycled back into production.⁷⁰ Generally, M&K's commercial customers in the U.S. can expect to pay from about \$2.50 for smaller pieces such as phones and printers, up to \$15 for larger CRT monitors.⁷¹ The cost includes local pickup, certificate of recycling and hard drive destruction serialization.⁷² Some domestic recyclers run legitimate operations that absorb these higher costs and profit from refurbished equipment sales.⁷³ Domestic manufacturers can also recover costs by charging for accepting old material that cannot be sold.⁷⁴ It is unclear exactly how much U.S. companies save by exporting e-waste, but in order to make transporting cargo all the way to Africa or Asia cost-competitive, domestic recycling costs would have to be higher than the costs associated with transportation, processing, and labor in places like Nigeria.

¶32 The biggest problem with state e-waste laws is that they create a web of regulations that manufacturers—which include national and multinational companies—are unable to navigate, even if they make good faith efforts to comply. The laws in each state vary significantly on the processes they cover, as well as the parties held responsible.⁷⁵ Moreover, because e-waste is an international trade issue, state recycling laws are not enough—a problem of this scope requires stringent U.S. legislation that works in tandem with the Basel Convention.

C. Examples in International Law

¶33 As in the U.S., Europe has had to deal with an increasing amount of e-waste. Since 2002, the EU's RoHS directive requires hazardous materials such as lead, mercury, cadmium, hexavalent chromium, and two types of BFRs to be completely phased out of production.⁷⁶ The RoHS and the Waste Electrical and Electronic Equipment (WEEE) directives cover all EU Member States and target a wide range of consumer electronics and combine to create the most comprehensive e-waste strategy in the world.⁷⁷ RoHS regulates the hazardous substances used in electronic products, while WEEE regulates the disposal of these products.

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ Lora Bentley, *Economy May Take Priority Over E-Waste Recycling Initiatives in Congress*, IT BUSINESS EDGE (May 1, 2009), available at <http://www.itbusinessedge.com/cm/community/features/interviews/blog/economy-may-take-priority-over-e-waste-recycling-initiatives-in-congress/?cs=32259>.

⁷¹ *Id.*

⁷² *Id.*

⁷³ Charles W. Schmidt, *Unfair Trade E-waste in Africa*, 114 ENVTL HEALTH PERSP. A232, A234 (Apr. 2006), available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1440802/>.

⁷⁴ *Id.*

⁷⁵ Ezroj, *supra* note 64, at 54-55.

⁷⁶ *Id.* at 60-61.

⁷⁷ Ezroj *supra* note 64, at 60.

The objective of improving the management of WEEE cannot be achieved effectively by Member States acting individually. In particular, different national applications of the producer responsibility principle may lead to substantial disparities in the financial burden on economic operators. Having different national policies on the management of WEEE hampers the effectiveness of recycling policies. For that reason the essential criteria should be laid down at Community level.⁷⁸

The EU recognizes the importance of a unified, cohesive piece of legislation that would be more effectively implemented by manufacturers.

¶34 Under the RoHS, Member States shall ensure that producers, or third parties acting on their behalf, set up systems to provide for the treatment of WEEE using best available treatment, recovery and recycling techniques.⁷⁹ Furthermore, all WEEE collected must be transported to an authorized treatment facility, unless the appliances are reused as a whole.⁸⁰ Stemming from these directives, a global phase-out strategy has been confirmed by some of the world's largest electronics manufacturers, including HP, Sony, Dell, Toshiba, and Samsung.⁸¹

¶35 In addition, the Consolidated Version of European Council Regulation on the Supervision and Control of Shipments of Waste Within, into and out of the European Community (EC) No. 259/93 was adopted and went into immediate force for all 25 member states of the EU on January 20, 1997. This regulation set up a system for the supervision and control of shipments of waste within the EU's borders, and with the countries of the European Free Trade Association (EFTA), the Organization for Economic Cooperation and Development (OECD), and third world countries that are parties to the Basel Convention.⁸² It incorporates the provisions of the Basel Convention into European Community legislation and aims to strengthen, simplify, and specify the procedures for controlling waste shipments to improve environmental protection.⁸³ The lack of efficient e-waste recycling laws and the continued export of e-waste from the U.S., as well as the higher costs associated with recycling, raises pressure on international law to prevent the export of e-waste.

D. International Conventions

1. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention)

¶36 The Basel Convention is an international treaty designed to reduce the movement of hazardous waste between nations, and specifically to prevent the transfer of hazardous waste from developed to less developed countries.⁸⁴ The Convention entered into force on May 5,

⁷⁸ Parliament and Council Directive 2002/96/EC of 27 Jan. 2003 on Waste Electrical and Electronic Equipment, 2003 O.J. (L 37) 24, (8).

⁷⁹ *Id.* art. 6.

⁸⁰ *Id.* art. 5(4).

⁸¹ Ezroj, *supra* note 64, at 62.

⁸² Summary of Parliament and Council Regulation (EC) No 1013/2006 of 14, June 2006, EUROPA, *available at* http://europa.eu/legislation_summaries/environment/waste_management/111022_en.htm.

⁸³ *Id.*

⁸⁴ Basel Convention, *supra* note 11. The World Trade Organization (WTO) is mandated under paragraph 31(i) of the WTO Doha Ministerial Declaration to consider the relationship between WTO rules and "specific trade obligations" set out in Multilateral Environmental Agreements (MEAs). The WTO is mandated under paragraph 31(ii) of the

1992.⁸⁵ It was amended in 1995 and prohibits the export of hazardous wastes for any purpose from countries listed in a proposed new annex to the Convention to all other Parties of the Convention.⁸⁶

¶37 The United States signed the Convention but has not yet ratified it.⁸⁷ Instead, the U.S. has entered into several bilateral agreements and one multilateral agreement governing the transboundary movements of waste for recovery purposes.⁸⁸ It remains unclear if the U.S. intends on ratifying the Convention, although a 1998 report suggested that the U.S. was interested in ratifying the original treaty while ignoring the Basel Ban amendment.⁸⁹ As a global super power, responsible for producing most of the world's e-waste,⁹⁰ the U.S. must establish legislation and ratify the Basel Convention and its amendment in order to halt the unethical practice of sending waste through unregulated channels to developing countries.

¶38 Created in 1989, the Convention is principally devoted to setting up a cohesive international framework for reducing the generation, and restricting and regulating the transboundary movements, of hazardous wastes.⁹¹ A central goal of the Convention is to promote “environmentally sound management” (ESM) that protects human health and the environment by minimizing hazardous waste production whenever possible.⁹² The Convention states that each Party shall take the appropriate measures to:

Ensure that the transboundary movement of hazardous wastes and other wastes is reduced to the minimum consistent with the environmentally sound and efficient management of such wastes, and is conducted in a manner which will protect human health and the environment against the adverse effects which may result from such movement.⁹³

The Convention states that illegal hazardous waste traffic is criminal but contains no explicit enforcement provisions.⁹⁴

¶39 As of September 2010, there are 178 parties to the Convention, including most of the industrialized countries, such as Japan, the EU and the UK; the only industrialized country missing from the list is the U.S.⁹⁵

WTO Doha Ministerial Declaration to negotiate “procedures for regular information exchange between MEA Secretariats and the relevant WTO committees, and the criteria for the granting of observer status.” *Cooperation with WTO*, BASEL CONVENTION, available at <http://basel.int/trade/index.html> (last visited Feb. 1, 2012).

⁸⁵ *Id.*

⁸⁶ *Origins of The Basel Convention*, BASEL CONVENTION, available at <http://www.basel.int/convention/basics.html> (last visited Feb. 13, 2011).

⁸⁷ Basel Convention, *supra* note 11.

⁸⁸ *Chapter V-Basel Convention*, ENVIRONMENTAL PROTECTION AGENCY, available at <http://www.epa.gov/osw/hazard/international/chap5.pdf> (last visited Feb. 13, 2011).

⁸⁹ *Briefing Paper: No. 2, Why the US Must Ratify the Entire Basel Convention (or not at all)*, BASEL ACTION NETWORK (June 1998), <http://www.ban.org/Library/briefing2.html>.

⁹⁰ Jackie Bennion, *Drowning in Electronics: Where the Law Stands on E-Waste*, PBS, <http://www.pbs.org/frontlineworld/stories/ghana804/resources/ewaste.html> (last visited Feb. 14, 2011).

⁹¹ Basel Convention, *supra* note 11, at 5.

⁹² *Id.*

⁹³ *Id.*

⁹⁴ *Id.* at 21.

⁹⁵ *Parties to the Basel Convention*, BASEL CONVENTION, available at <http://www.basel.int/Countries/Statusofratifications/PartiesSignatories/tabid/1290/language/en-US/Default.aspx> (last visited Feb. 3, 2012).

¶40 Following the adoption of the Basel Convention in 1989, many signatory countries condemned the Convention for legitimizing, rather than criminalizing, the hazardous waste trade.⁹⁶ As a result, a coalition of these countries, along with the non-profit environmental organization Greenpeace, managed to pass by consensus the Basel Ban at the Second Meeting of the Conference of the Parties in 1994, despite strong opposition from the U.S., Australia, Germany, Canada, Japan, and the United Kingdom.⁹⁷

¶41 The Basel Ban was designed to fully implement the Basel Convention and requires all member states to prohibit exports of hazardous wastes for recovery and final disposal except to OECD countries.⁹⁸ Additionally, it banned the export of wastes intended for recovery and recycling.⁹⁹ While the Ban was passed by a consensus of the Basel Convention, it needs to be ratified by 62 of the Basel Parties in order to become law.¹⁰⁰

2. Bamako Convention

¶42 The Bamako Convention on the Ban on the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa was adopted on January 29, 1991 and entered into force on April 22, 1998.¹⁰¹ As of March 2010, 33 African countries had signed the Convention and 24 had ratified it.¹⁰²

¶43 A comparison between the Basel and Bamako Conventions demonstrates the Bamako Convention's more restrictive framework for regulating the transboundary e-waste trade.¹⁰³ In general, the Bamako Convention articulates more specific, active guidelines for both sides of the trade than the Basel Convention. For example, the Bamako Convention recognizes strict liability for hazardous waste generators for damage caused by their wastes, while the Basel Convention defers addressing the issue.¹⁰⁴ The Bamako Convention states:

All Parties shall take appropriate legal, administrative and other measures within the area under their jurisdiction to prohibit the import of all hazardous wastes, for any reason, into Africa from non-Contracting Parties. Such import shall be deemed illegal and a criminal act.¹⁰⁵

⁹⁶ *What is the Basel Ban?*, BASEL ACTION NETWORK, http://www.ban.org/about_basel_ban/what_is_basel_ban.html (last visited Nov. 7, 2010).

⁹⁷ *Id.*

⁹⁸ *Id.*

⁹⁹ *The Basel Convention Ban Amendment*, BASEL CONVENTION, <http://www.basel.int/pub/baselban.html> (last visited Feb 14, 2011).

¹⁰⁰ *Id.*

¹⁰¹ Bamako Convention, *supra* note 12, art. 21; *List of Countries Which Have Signed, Ratified/Acceded to the Bamako Convention*, AFRICAN UNION, <http://www.africa-union.org/root/au/Documents/Treaties/List/Bamako%20Convention.pdf> (last visited Feb. 13, 2011).

¹⁰² At the time of writing, this was the last updated statistic given by the African Union. *List of Countries Which Have Signed, Ratified/Acceded to the Bamako Convention*, AFRICAN UNION, <http://www.africa-union.org/root/au/Documents/Treaties/List/Bamako%20Convention.pdf> (last visited Feb. 13, 2011).

¹⁰³ J. Wylie Donald, *The Bamako Convention as a Solution to the Problem of Hazardous Waste Exports to Less Developed Countries*, 17 COLUM. J. ENVTL. L. 419, 431 (1992).

¹⁰⁴ *Id.*

¹⁰⁵ Bamako Convention, *supra* note 12, art. 4.

Additionally, the Convention says that each Party shall introduce “appropriate national legislation for imposing criminal penalties on all persons who have planned, carried out, or assisted” in illegal importing.¹⁰⁶

E. Case study: Nigeria

¶44 The case of Nigeria is significant because Nigeria is a Party to the Basel Convention and signed the Bamako Convention in February 2008, but has yet to ratify the Bamako Convention. The Bamako Convention made the trade of hazardous e-waste illegal in sub-Saharan African countries, yet the e-waste trade continues to flow into Nigeria. It is estimated that 500 containers of second-hand electronics are imported to Nigeria every month from Europe, with each container holding 500 computers.¹⁰⁷ About three-quarters of these imported products are junk that cannot be reused and are dumped in landfills.¹⁰⁸ Without comprehensive legislation and enforcement protocols on both ends of the trade route, the e-waste trade will continue to flourish.

1. E-waste in Nigeria

¶45 Although Nigeria ratified the Basel Convention on May 24, 2004, it still has not ratified the Bamako Convention, and the country remains a dumping ground for e-waste from European and Asian markets.¹⁰⁹ Although it is unclear exactly why Nigeria has not ratified the Bamako Convention, Bamako has a more stringent set of regulations than Basel,¹¹⁰ and Nigeria might not want or be ready to implement the rules set out in the Bamako Convention.

¶46 Clouds of black smoke hang over Nigeria’s dumps, as the stench of burning plastic fills the air.¹¹¹ Lagos, Nigeria does not have a computer recycling facility, so e-waste is dumped in several sites spread around the city.¹¹² At these dumps, children—often young boys¹¹³—make their way through slicks of oily water¹¹⁴ to scavenge for any valuable components and earn around US \$2 a day by collecting components.¹¹⁵ The children burn cables and wires to recover reusable metals like copper wire; in the process, toxic chemicals and metals are released into the surrounding atmosphere.¹¹⁶

¶47 At the Ikeja Computer Village, near Lagos, thousands of vendors pack this bustling market to repair and sell used electronics.¹¹⁷ Ikeja is one of three major hubs in Nigeria where people can purchase electronics, such as computers, fax machines and cell phones, repaired and

¹⁰⁶ See *id.* art. 9.

¹⁰⁷ Sonny Aragba-Akpore, *Red Alert on Used Computers, Electronic Devices*, THE GUARDIAN (Dec. 27, 2005), available at http://www.ban.org/ban_news/2005/051227_nigeria.html.

¹⁰⁸ *Id.*

¹⁰⁹ Emeka Aginam, *Nigeria: E-Waste Concern Re-Echoes at Clean Environment Forum*, VANGUARD (Aug. 17, 2010), available at <http://allafrica.com/stories/201008180100.html>.

¹¹⁰ Donald, *supra* note 103, at 421.

¹¹¹ Matt Ford, *Sifting through the Mounting Problem of E-Waste*, CNN (Aug. 2, 2009), http://articles.cnn.com/2009-08-02/tech/e-waste.recycling_1_e-waste-greenpeace-report-greenpeace-study?_s=PM:TECH.

¹¹² Liz Carney, *Nigeria Fears E-waste ‘Toxic Legacy’*, BBC NEWS (Dec. 19, 2006), <http://news.bbc.co.uk/2/hi/africa/6193625.stm>.

¹¹³ Christian Purefoy, *‘Serious Contamination’ Threat from Africa’s Mounting E-Waste*, CNN (April 9, 2009), <http://www.cnn.com/2009/WORLD/africa/04/08/africa.recycling.computers.ewaste/>.

¹¹⁴ Ford, *supra* note 111.

¹¹⁵ *Id.*

¹¹⁶ Purefoy, *supra* note 113.

¹¹⁷ Schmidt, *supra* note 73, at A233.

ready to use.¹¹⁸ Unfortunately, up to 75 percent of the electronics shipped to the Computer Village is irreparable junk.¹¹⁹

¶48 Nigeria has had a history of involvement in the e-waste trade, with the most infamous scandal occurring in June 1988, when 3800 tons of hazardous wastes, including polychlorinated biphenyl (PCB) were discovered stacked in drums in Koko, Nigeria.¹²⁰ Nigerian port officials were said to have been bribed to allow the shipment by Italian businessmen.¹²¹ It took over nine months for the Nigerian government to discover the drums despite the fact that there were nearly 4,000 tons of wastes located in an inhabited village.¹²² The cost of cleanup was over one million dollars,¹²³ and dockworkers complained of illnesses stemming from the lack of basic equipment, including protective masks and boots to handle hazardous waste.¹²⁴ With no computer recycling facilities¹²⁵ or effective management system in place, efforts by the regulatory authorities, such as the Standard Organization of Nigeria (SON) and the Computer Professionals Registration Council of Nigeria (CPN) have not effectively controlled the e-waste trade.¹²⁶ Furthermore, recent changes like the switch from analogue to digital displays and flat screens have created a flood of old televisions and computer monitors into ports both within Nigeria and abroad.¹²⁷ To avoid disposal costs, exporters from the North often intentionally mix electronic bad parts with good, making it difficult to track what is actually being imported into Nigeria.¹²⁸

¶49 Roughly 45 percent of Nigeria's e-waste imports is shipped from the U.S. and another 45 percent comes from the EU.¹²⁹ At least one third of the contents of each shipping container is broken beyond use and transferred to dumps.¹³⁰ One warehouse complex in Lagos handles up to 40 container loads each month.¹³¹

Studies by the Nigerian Ministry of Environment suggest that basic components such as lead are being recovered and then smelted in people's backyards, which poses a huge risk of lead poisoning.¹³² Professor OladDele Osibjano of the University of Ibadan in Nigeria said that researchers have found excess heavy metals in the soil, as well as in plants.¹³³ Furthermore, unregulated e-waste dismantling has led to illness in grazing animals, tainted vegetables, and contaminated drinking water.¹³⁴

¹¹⁸ *Id.*

¹¹⁹ *Id.* at A234.

¹²⁰ Donald, *supra* note 103, at 418.

¹²¹ *Id.*

¹²² *Id.* at 453.

¹²³ *Id.* at 446.

¹²⁴ *Id.* at 424.

¹²⁵ *Id.*

¹²⁶ *Nigeria: E-Waste Remains a Challenge to Regulatory Agencies*, EWASTEGUIDE.INFO (Apr. 4, 2008), <http://ewasteguide.info/e-waste-remains-a-ch>.

¹²⁷ Rob Edwards, *Exposed: Scotland's Toxic Waste is Poisoning Africa and Asia*, SUNDAY HERALD (Sept. 26, 2010), http://www.ban.org/ban_news/2010/100926_poisoning_africa_and_asia.html.

¹²⁸ Carney, *supra* note 112.

¹²⁹ *Id.*

¹³⁰ Cahal Milmo, *Dumped in Africa: Britain's Toxic Waste*, THE INDEPENDENT (Feb. 18, 2009), <http://www.independent.co.uk/news/world/africa/dumped-in-africa-britain8217s-toxic-waste-1624869.html>.

¹³¹ Carney, *supra* note 112.

¹³² *Id.*

¹³³ *Id.*

¹³⁴ *Id.*

¶50 In 2009, Greenpeace completed a three-year undercover investigation, tracking the two-month journey of a broken, irreparable TV from the UK to Nigeria.¹³⁵ Acting on a tip-off, Greenpeace, along with the help of Sky Television, fitted a TV with a satellite tracking device and brought it to the UK's Hampshire County Council for recycling.¹³⁶ The organization used a device that is a combination of a mobile phone, GPS receiver and radio frequency transmitter.¹³⁷

¶51 From the Hampshire County Council waste recycling site, the TV was transported by van to BJ Electronics, the recycling company.¹³⁸ The next day, the TV was loaded onto a container and sent to West Africa. The container sat at Tin Can Island Port in Lagos, Nigeria for about two weeks until it was sent to Alaba Market.¹³⁹ Alaba Market is a second-hand TV market, with approximately ten to fifteen containers arriving daily from Europe and Asia.¹⁴⁰ The investigative crew watched as the container with the TV was unloaded and all the TV's were put on the street for resale.¹⁴¹ The investigative team members, who had traveled to Nigeria, recognized the TV by checking the serial numbers, and (re)purchased it from the owner/importer of the container under the condition that it had not been tested.¹⁴² The work done by Greenpeace demonstrates the lack of enforcement on both ends of the TV's 4,500-mile journey.

¶52 In another instance, on April 16, 2010, security agencies detained a ship in Lagos carrying 70 storage (lead) batteries classified as Basel-code A1180 and broken televisions. The ship, which sailed from the Netherlands, should have been confiscated in Rotterdam, but slipped through the checkpoint.¹⁴³

¶53 According to a recent article, tens of thousands of tons of toxic waste from Scotland have been illegally dumped in Africa and Asia every year through organized criminal gangs.¹⁴⁴ Cracking down on this illegal activity, the Scottish Environment Protection Agency has stopped eight major shipments this year using a combination of intelligence, surprise checks at ports and unannounced inspections of waste firms.¹⁴⁵ Approximately 100,000 tons of old televisions, computers, and other electrical products are thrown away every year in Scotland; moreover, the European Commission estimates that about half of those electronic goods go unaccounted for upon disposal.¹⁴⁶ Sometimes the illegal exports are disguised as legitimate recycling operations, with e-waste hidden behind a few rows of properly packaged and functioning televisions.¹⁴⁷

¶54 The continued transboundary operations into Nigeria are not "environmentally sound management" in accordance with the Basel Convention, and it is illegal for all Basel Parties to import waste from the U.S. since it is not a party to the Convention.¹⁴⁸ The illegal trade

¹³⁵ *Undercover Operation Exposes Illegal Dumping of E-Waste in Nigeria*, GREENPEACE INT'L (Feb. 18, 2009), <http://www.greenpeace.org/international/en/news/features/e-waste-nigeria180209/#a0>.

¹³⁶ *Id.*

¹³⁷ *Id.*

¹³⁸ *Following the E-Waste Trail—UK to Nigeria*, GREENPEACE INT'L (Feb. 18, 2009),

<http://www.greenpeace.org/international/en/multimedia/multimedia-archive/Photo-Essays1/following-the-e-waste-trail/>.

¹³⁹ *Id.*

¹⁴⁰ *Id.*

¹⁴¹ *Id.*

¹⁴² *Id.*

¹⁴³ Sulaiman Adenekan & Emeka Ezekiel, *FG Detains Toxic Waste Ship in Lagos*, THE PUNCH (April 16, 2010), http://www.ban.org/ban_news/2010/100416_detains_ship_in_lagos.html.

¹⁴⁴ Edwards, *supra* note 127.

¹⁴⁵ *Id.*

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

¹⁴⁸ "A Party shall not permit hazardous wastes or other wastes to be exported to a non-Party or to be imported from

demonstrates the urgent need for enforcement action both in Nigeria and the exporting country. Discarded electronic products must be subject to strict regulation on both ends of the trade, forcing countries to collaborate with one another in order to enforce treaties and laws.

¶55 A brief—if somewhat oversimplified—look into Nigeria’s current political, social, legal, and economic situation may provide insight as to why the illegal e-waste trade has found a relatively comfortable niche in the country. According to a 2004 report by Transparency International, Nigeria has consistently ranked as either the most corrupt or the second most corrupt country on its Transparency International Corruption Perception Index.¹⁴⁹ Transparency International states that the absence of political will to tackle the issue of corruption, absence of legal enforcement against corruption, and a culture of tolerance for corruption all add to the country’s corruption.¹⁵⁰ The report further states that the country’s corruption has led to a worsening economic crisis and to the decrease in foreign investment, with “attendant effects of unemployment and poverty.”¹⁵¹

¶56 In the face of poverty,¹⁵² Nigeria is notably one of the wealthiest countries in Africa, and is the largest producer of oil in Africa and the fifth largest producer of oil in the world.¹⁵³ There have been allegations of the Nigerian National Petroleum Corporation’s financial misappropriation. According to a report by Amnesty International, Nigeria’s oil wealth in the Niger Delta has led to a crisis of “extensive pollution and damage to the environment, corporate failure and bad practice, serious government neglect and the actions of security forces and armed groups.”¹⁵⁴

¶57 Given the history and prevalence of corruption, it is easier to understand why the country would have a hard time controlling an illegal e-waste trade. It is most likely a daunting task for Nigeria to effectively tackle the illegal e-waste trade without national legislation and a strong, stable enforcement regime. Furthermore, with much of the economic attention on its oil industry, it is possible that other sectors of the nation’s economy have been neglected by government regulation. Although the issues facing Nigeria are much more nuanced than those described briefly in this article, a basic understanding of the country’s challenges provides a backdrop as to why the e-waste trade has flourished in the country.

2. Possible Solutions

¶58 On the national level, Nigeria lacks a legal instrument that regulates the import of e-waste into Nigeria and implements the Basel Convention into law. A proposed Electronic Waste Bill, which would ban the importation and illegal trafficking of electronic and electrical waste from developed countries to Nigeria, is being considered by the Nigerian legislature.¹⁵⁵

¶59 A Director of Nigeria’s National Environmental Standards and Regulations Enforcement Agency (NESREA) said the agency will soon come up with tougher regulations to ensure

a non-Party.” Basel Convention, *supra* note 11, art. 4(2)(h)(5).

¹⁴⁹ Lilian Ekeanyanqu et al., *Transparency International Country Study Report: Nigeria 2004*, TRANSPARENCY INT’L (2004), available at http://www.transparency.org/policy_research/nis/nis_reports_by_country.

¹⁵⁰ *Id.*

¹⁵¹ *Id.* at 20.

¹⁵² *Id.* at 6.

¹⁵³ AMNESTY INT’L, *Nigeria: Petroleum, Pollution and Poverty in the Niger Delta*, AFR 44/017/2009, 9 (June 2009).

¹⁵⁴ *Id.* at 1.

¹⁵⁵ Adeyera Olubunmi, *Group Urges Assembly to Pass the E-Waste Bill*, P.M. NEWS (Oct. 29, 2010), <http://pmnewsnigeria.com/2010/10/29/group-urges-nassembly-to-pass-the-e-waste-bill/>.

effective environmental governance through compliance monitoring and law enforcement.¹⁵⁶ NESREA is an institutional mechanism created by the government of Nigeria to enforce environmental governance through compliance monitoring.¹⁵⁷

¶160 According to the Director, NESREA is currently coordinating the national implementation of the Toxic Waste Dump Watch Programme, which will monitor and prevent the illegal dumping of hazardous wastes in Nigeria.¹⁵⁸ Furthermore, the Director said the agency, in collaboration with the Consumer Protection Council (CPC) and the Standard Organization of Nigeria (SON), signed a Memorandum of Understanding (MOU) with the Alaba International Market Amalgamated Traders Association (AIMATA) to investigate cases of illegal e-waste dumping in Nigeria.¹⁵⁹ NESREA could be taking a step in the right direction, although it remains to be seen whether or not its initiatives will take flight and effect change in an established, unregulated black market.

¶161 Another possible solution would be for electronics manufacturers to redesign their products so that toxic materials are removed. Under this plan, producing electronics without toxic materials would eliminate the e-waste problem, though there would still be issues with discarded non-hazardous electronics filling landfills. Alternatively, manufacturers could include removable parts that consumers could simply upgrade instead of throwing away.

¶162 Additionally, heavy tariffs could be imposed on outgoing cargo, such that the cost would be high enough to cover the costs of responsible recycling in the receiving country or incentivize developed countries to recycle on their own soil. Currently, tariff schedules that dictate fees for export commodities do not assign codes to e-wastes other than dead batteries.¹⁶⁰

¶163 It is also possible to look at other binding U.N. treaties, such as the International Covenant on Economic, Social and Cultural Rights (ICESCR), to determine direct human rights violations that would further incentivize developed countries to halt the e-waste trade even if they are not parties to the Basel Convention. Unfortunately, while Nigeria has ratified the ICESCR, the U.S. is not a party, and is therefore not bound by the provisions of the ICESCR. Under the ICESCR Article 7, workers are entitled to fair wages, safe and healthy working conditions, and a decent living for themselves and their families.¹⁶¹ Conditions exposing workers to hazardous chemicals, such as those reportedly seen in Nigeria, directly violate Article 7 and should be addressed in international court. Since Nigeria is a party to the ICESCR, it could be held liable for its inactions in regulating the illegal e-waste industry.

¶164 The additional reports claiming the use of child labor in Nigeria's e-waste trade would further violate international treaties, such as the U.N. Convention on the Rights of the Child, which stipulates against the use of underage children for labor. Article 32(1) states that parties:

[R]ecognize the right of the child to be protected from economic exploitation and from performing any work that is likely to be hazardous or to interfere with the

¹⁵⁶ Aginam, *supra* note 109.

¹⁵⁷ *Id.*

¹⁵⁸ *Id.*

¹⁵⁹ *Id.*

¹⁶⁰ Schmidt, *supra* note 73.

¹⁶¹ International Covenant on Economic, Social and Cultural Rights, G.A. Res. 2200A (XXI), U.N.GAOR Supp. (No. 16) at 49, U.N. Doc. A/6316 (1966), 993 U.N.T.S. 3, (Dec. 16, 1966).

child's education, or to be harmful to the child's health or physical, mental, spiritual, moral or social development.¹⁶²

It is therefore imperative that the U.S. stop its involvement in breaching international codes of law by enacting stringent legislation governing the transboundary trade of e-waste. Unfortunately, the U.S. has not ratified the Convention on the Rights of the Child. Nigeria has ratified the Convention, however, meaning it could be held liable for the dangerous conditions under which its citizen children have been working.

¶165 Not everyone agrees that it is wrong to export dirty jobs to developing countries. Lawrence H. Summers, the World Bank's chief economist, wrote in a 1991 memorandum that the World Bank should be encouraging more migration of the dirty industries to developing countries.¹⁶³ First, Summers reasoned that a given amount of health-impairing pollution should be done in the country with the lowest cost and wages, since the costs of pollution should be measured by the foregone earnings from increased morbidity and mortality.¹⁶⁴ Second, Summers argued that African countries with low population numbers are "under-polluted," which means that initial increases in pollution would have a lower cost.¹⁶⁵ Third, Summers wrote that only those with high enough incomes would care about a clean environment for aesthetic and health reasons.¹⁶⁶ Summers essentially argues that it is economically efficient for poor countries to accept dirty jobs, such as e-waste recycling.

¶166 After receiving much criticism, Summers said that the memorandum was a "sarcastic response to a vague draft text on environmental issues by another World Bank Division."¹⁶⁷ Whether sarcastic or not, Summers raises the moral argument about trading off human health for economic gains. Because of the higher costs associated with responsible recycling, some, like Summers, argue that developed countries benefit the most by exporting e-waste. While it may be cheaper to export e-waste to unregulated markets in a system of free trade, it would certainly not be a fair trade.

V. CONCLUSION

¶167 The U.S., as the world's largest e-waste producer, should be pressured to ratify the Basel Convention.¹⁶⁸ Although parties to the Convention cannot trade with non-parties, such as the U.S., a black market exists in developing countries that can be traced back to the U.S.

¶168 A 2008 report by the Government Accountability Office found the EPA lacking in regulation and enforcement.¹⁶⁹ The report was commissioned by the House Foreign Affairs Committee and "found that large amounts of e-waste collected in the United States were still ending up in China and India, and often dismantled" in a manner unsafe to human or

¹⁶² Convention on the Rights of the Child, G.A. Res. 44/25, U.N. Doc. A/RES/44/25 (Nov. 20, 1989).

¹⁶³ *Whistle Blower's Corner: Lawrence Summer's 1991 World Bank Memo*, BASEL ACTION NETWORK, <http://www.ban.org/whistle/summers.html> (last visited Feb. 1, 2012).

¹⁶⁴ *Id.*

¹⁶⁵ *Id.*

¹⁶⁶ *Id.*

¹⁶⁷ *Furor on Memo At World Bank*, THE NEW YORK TIMES (Feb. 7, 1992), available at <http://www.nytimes.com/1992/02/07/business/furor-on-memo-at-world-bank.html>.

¹⁶⁸ Bennion, *supra* note 90, at 1.

¹⁶⁹ *Id.* at 2.

environmental health.¹⁷⁰ And as was seen in the investigation done by Greenpeace, even countries that ratified the Basel Convention lack effective enforcement measures. As a global superpower, the U.S. would be instrumental in the Convention's ability to gain traction on halting the illegal e-waste trade. Moreover, the U.S. needs to set clear standards for e-waste recycling and establish a system for compliance and enforcement. Given the higher costs associated with domestic e-waste recycling and the lack of national legislation, in order for the U.S. to halt its exports to developing countries like Nigeria, it will most likely require pressure from a robust, binding international regime.

¶69 Additionally, Nigeria needs to create effective legislation that would be strictly enforced. The new legislation should regulate the intake of e-waste, the process of e-waste recycling, and the health and working conditions of workers. Given Nigeria's history of corruption, the country should also ratify the Bamako Convention, which has a more stringent set of rules. Nigeria also needs the cooperation of other countries, particularly exporter countries, since it cannot regulate the transboundary movement of e-waste on its own. If Nigeria ratifies the Bamako Convention, it would have to find a way to halt the illegal movement of e-waste into its ports from overseas and to shut down the black market. Action needs to be taken not only by the U.S. and other developed countries, but also by the developing countries, through the ratification of international treaties and the establishment of stringent domestic legislation. The future of the transboundary e-waste trade thus depends on comprehensive and enforced legislation on both ends of the trade route.

¹⁷⁰ *Id.*