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Human Rights and the Environment:
Strengthening Regulation of Improper Transboundary and National Movements of
Hazardous Waste and Disposal
(February 2013)

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Human Rights Advocates (HRA) supports the progress of international recognition for the connection and synergy between environmental and human rights protection. Great strides have been made in articulating and addressing the threat environmental degradation has on fundamental human rights and sustainable development. Still, achieving comprehensive human rights protection and sustainable growth remains plagued with inadequate support, inconsistent standards, insufficient enforcement measures and deficient waste-reduction measures. Furthermore, current norms and international regulation dramatically overlook private interests' threat to protection of human rights and the environment.

While reaffirming the Millennium Development Goal 7 on ensuring environmental sustainability, the Human Rights Council's (HRC) Resolution 19/10 recognized that human beings are at the center of concerns for sustainable development which includes the environmental needs of present and future generations equitably. An analysis of current international law addressing transboundary and national movements of hazardous waste and disposal illustrate insufficient implementation of an international environmental protection scheme as it pertains to sustainable development and human rights.

The role regulation of hazardous waste and disposal plays in the human rights protection scheme is underscored by the Council's recognition of the relationship between human rights and the environment including Resolution 16/11 on human rights and the environment, Resolutions 9/1 and 12/18 on the adverse effects of the movement of dumping of toxic and dangerous products and wastes on the enjoyment of human

rights, and Commission Resolutions 2003/71 and 2005/60 on human rights and the environment as part of sustainable development.

This report outlines (1) how transboundary and national movement of hazardous waste infringes on human rights, (2) current international law regulating waste management and how it can be improved within existing framework and (3) makes recommendations to the HRC to improve on the existing regulation framework for hazardous waste regulation. Throughout, the report will call for a systematic shift in framework to address the shortcomings of international law's recognition of the major role transnational corporations (TNCs) and other private interests play in degrading the environment and infringing on human rights.

Hazardous Waste: A threat to human rights

There is one cogent example of the multilayered issues involved in the link between human rights and the environment. In 2006, A Mexican state-owned oil company, Pemex, reached its storage capacity and sold its waste to a Swiss-based, Dutch oil and commodity shipping company, Trafigura Beheer BV.¹ Trafigura chartered a vessel, which sailed under a Panamanian flag, to Amsterdam. Amsterdam officials were wary of the strong fumes coming from the shipment and decided to investigate the contents. Tests revealed a much larger chemical concentration in the sludge than had been represented by Trafigura, and so the officials recalculated a higher estimate for disposal. Unwilling to pay the higher disposal cost, Trafigura procured services from a local Ivorian company, Tommy Ltd., to unload 500 tons of fuel mixture in Abidjan, Cote d'Ivoire for a lower price. Among the 18 dumping sites in that country, none had proper

¹ See Adam Duckett, Trafigura Story Breaks, The Chemical Engineer (Oct. 13, 2009). <http://www.tcetoday.com/tcetoday/NewsDetail.aspx?nid=12188>.

facilities required for treatment of chemical waste. As a result, it was reported that 15 deaths, 69 hospitalizations and more than 108,000 medical visits resulted from the contamination. Although over \$198 million was given by Trafigura to the Ivorian government for cleanup efforts, victims were not consulted before the agreement was signed and complaints of under-compensation and inequitable distribution of funds remain unsettled. Finally, insufficient decontamination efforts ensure lingering environmental and health effects.²

The consequences of incidents such as in Cote d'Ivoire and other hazardous waste calamities not only devastate the local environment but also infringe upon international human rights enumerated in human rights treaties. These consequences include, among others, human death, destruction of land and waterways, contamination of food and drinking water, violating article 6 of the International Covenant on Civil and Political Rights,³ article 6,⁴ article 11⁵ and article 12⁶ of the International Covenant on Economic and Social Rights.

Hazardous electronic waste, specifically, and the current methods of its disposal particularly threaten children's health and violate the Convention on the Rights of the

² Report on the Adverse Effects of the Movement and Dumping of Toxic and Dangerous Products and Wastes on the Enjoyment of Human Rights, U.N. Doc. A/HRC/12/26/Add.2 (Sept. 3, 2009).

³ International Covenant on Civil and Political Rights art. 6(1), Mar. 23, 1976, 999 U.N.T.S. 171 ("Every human being has the inherent right to life.").

⁴ International Covenant on Economic, Social and Cultural Rights art. 11(1), Jan. 3, 1976, 993 U.N.T.S. 3 ("The States Parties to the present Covenant recognize the right to work, which includes the right of everyone to the opportunity to gain his living by work which he freely chooses or accepts, and will take appropriate steps to safeguard this right.").

⁵ Id. at art. 11 ("[P]arties to the covenant must recognize of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions.").

⁶ Id. at art. 12 ("The States Parties to the present Covenant recognize the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.").

Child.⁷ Children represent a high proportion of the labor force dismantling and disposing of electronic waste in developing countries,⁸ and the chemicals within the electronic waste including lead and cadmium have devastating effects on children's rapidly developing organs.⁹

Furthermore, the unsustainable practices of the international waste disposal trade contravenes the principles of sustainable development articulated at the World Summit in Johannesburg in 2002, Millennium Development Goal 7 supported by the HRC, and Resolutions 2003/71 and 2005/60. The United Nations Environmental Programme has determined that development is sustainable "when it meets the needs of the present without compromising the ability of future generations to meet theirs."¹⁰

It is no surprise that money is the key motivating factor in the hazardous waste disposal trade. Compliance and disposal costs are much higher in developed countries and many developing countries not only welcome waste imports as a source of income but also rely on the recovery of materials from imported international 'waste' as a valuable source of income. Consequently, as the inexpensive alternatives for the disposal of hazardous waste pollution by developed states, the underdeveloped countries are the heart of human rights violations caused by environmental calamities.¹¹

⁷ Convention on the Rights of the Child art. 24(2)(a), Nov. 20, 1989, 1577 U.N.T.S. 3 ("States Parties shall pursue full implementation of this right and, in particular, shall take appropriate measures: (a) To diminish infant and child mortality.") [hereinafter CRC].

⁸ Karimeh Moukaddem, Children on the frontlines: the waste epidemic in Africa, Mongabay.com (Sept. 9, 2011), http://news.mongabay.com/2011/0909-moukaddem_ewaste.html (last visited Feb. 20, 2013).

⁹ Id.; see also Fangxing Yang et al., Comparisons of IL-8, ROS and p53 responses in human lung epithelial cells exposed to two extracts of PM2.5 collected from an e-waste recycling area, China, 2011 Environ. Res. Letters 6, http://iopscience.iop.org/1748-9326/6/2/024013/pdf/1748-9326_6_2_024013.pdf (last visited Feb. 20, 2013).

¹⁰ *U.N. Environmental Programme: Report of the Governing Council, Environmental Perspective to the Year 2000 and Beyond*, 42 U.N. GAOR Supp. (No. 25) Annex II, para. 2., U.N. Doc. A/42/25 (1987).

¹¹ Laura A. W. Pratt, *Decreasing Dirty Dumping? A Reevaluation of Toxic Waste Colonialism and the Global Management of Transboundary Hazardous Waste*, 41 Tex. ENVTL. L.J. 147, 150 (2011).

Unfortunately, because underdeveloped countries not only lack the technology to properly dispose of the hazardous waste, these countries often also lack the strict environmental protection regime necessary to promote the effective use of such technology even if it were available.¹² As a consequence, people of underdeveloped countries are at high risk of negative externalities associated with hazardous waste disposal, and instances such as in Cote d'Ivoire are likely to be duplicated in the future.

International Law Regulating Waste Disposal: Basel Convention

Despite its groundbreaking achievements, the 1989 Basel Convention,¹³ which regulates transboundary movements and disposal of hazardous waste, has fallen short of effective international regulation of waste disposal. Reliance on this current regulatory regime will undoubtedly lead to more environmental catastrophes that violate international human rights. Within its own framework Basel has been ineffective in four key areas including: (1) insufficient financial and political support, (2) ineffective implementation of standards, monitoring and enforcement, (3) ignores key incentives of major players in international waste disposal, and (4) discounts importance of hazardous waste reduction measures.

1. Insufficient Financial and Political Support

Because compensation from violators is often inadequate, victims of environmental calamities resulting from hazardous wastes must rely on the Basel Trust Fund to aid with clean-up costs. The Fund also serves to supply training and technology

¹² Id. at 152.

¹³ The Basel Convention on the Control of Transboundary Movements of Hazardous Waste and Their Disposal, opened for signature Mar. 22, 1989, 1673 U.N.T.S. 126, 28 I.L.M. 649 (4 U.N. Doc. UNEP/IG. 8013) [hereinafter Basel Convention].

transfers via its Basel Convention Regional Centers (BCRCs) for implementation of proper disposal methods.¹⁴

Absent sufficient financial and political support, however, the Fund currently lacks the capacity to meet the needs to carry out its own mandate.¹⁵ As an example of potential costs associated with environmental calamities caused by improper hazardous waste disposal, cleaning of soil pollution alone in the Cote d'Ivoire incident was estimated at nearly \$40 million.¹⁶ In 2006, although promised \$7 million, the trust fund raised only \$3.2 million.¹⁷ The Fund remains starkly underfinanced to address the needs of cleanup associated with environmental catastrophes and other aspects of its mandate including financing the BCRCs to train and transfer technology to nations in need.¹⁸

As stated above, governments of underdeveloped countries lack the technology to properly dispose of hazardous waste, strict environmental protection regime, and/or financial means to assist victims of improper hazardous waste disposal. When compensation from those at fault is unavailable for victims, citizens of underdeveloped countries are particularly threatened by a poorly financed Fund and thus highly vulnerable to human rights violations from environmental calamities.

One scholar has articulated two methods of generating sufficient funds to meet the obligations under Basel's mandate: (1) incorporate binding monetary sanctions against

¹⁴ Lisa Widawsky, *In My Backyard: How Enabling Hazardous Waste Trade to Developing Nations Can Improve the Basel Convention's Ability to Achieve Environmental Justice*, 38 ENVTL. L. 577, 578 (2008)

¹⁵ Basel, Stockholm and Rotterdam Secretariats Release Details of Current Funding Shortfalls, International Institute for Sustainable Development (October 2012), available at <http://uncsd.iisd.org/news/basel-stockholm-and-rotterdam-secretariats-release-details-of-current-funding-shortfalls> (last visited Feb. 19, 2013) ("Under the Basel Convention... a total current funding gap of US\$4,076,463 is identified.") See also Widawsky, *supra* note 14, at 619 ("The most fundamental element needed to close many of the loopholes in the Basel Convention... is a reliable monetary fund.")

¹⁶ Although settlements between Trafigura and the Ivorian government resulted in relief for costs associated with clean-up efforts, this example illustrates the inadequacy of the Fund in instances where private compensation is unavailable.

¹⁷ Widawsky, *supra* note 14, at 604.

¹⁸ *Id.* at 604-605.

parties who do not comply with Basel Requirements, and (2) solicit public and private sector donations.¹⁹

Imposing binding monetary sanctions against parties that violate Basel's requirements is a good source income to finance activity under the Basel mandate. This solution has the added bonus of coercing parties to the treaty to act in accordance with the requirements under the Convention. Although a proposal to impose monetary sanctions for noncompliance has already been submitted for approval, insufficient international support of the Protocol on Liability prevents it from entering into force.²⁰

Examples of successful fundraising by other international environment-related treaties can offer helpful guidance on effective ways to solicit public and private sector donors. The Montreal Protocol and its Multilateral Fund²¹ exemplify a successful approach to garner financial support from treaty parties and private sector affiliates. Hailed as the 'most successful fund to date'²² – generating more than \$2 billion, the Montreal Fund *requires* parties to provide financial and technical co-operation to developing countries.²³

Coupled with economic sanctions for violating Basel, by involving public and private sector stakeholders, the Convention can gain ground towards obtaining sufficient funds to protect developing nations from the devastation of hazardous wastes as well empower developing nations in terms of their international bargaining power, ultimately thwarting potential human rights violations caused by environmental calamities.²⁴

¹⁹ Id. at 620.

²⁰ Id.; see also *infra* note 42.

²¹ Montreal Protocol on Substances that Deplete the Ozone Layer, Sept. 16, 1987, S. Treaty Doc. No. 10, 1522 U.N.T.S. 29 [hereinafter Montreal Protocol].

²² Lavanya Rajamani, *Differential Treatment in International Environmental Law* 1, 110 (2006).

²³ Montreal Protocol, *supra* note 21, at art. X.1.

²⁴ Widawsky, *supra* note 14, at 623.

2. Ineffective Implementation: Standards, Monitoring and Enforcement

In addition to sufficient financing, Basel suffers from structural weaknesses as well which impedes its regulatory effectiveness. Beyond its inapplicability to non-parties,²⁵ these weaknesses include: (1) insufficient standards and categorization of hazardous substances (2) lack of inspection and monitoring; (3) and ineffective enforcement mechanisms.²⁶

A. Insufficient Standards

Definitional discrepancies for wastes among various nations as well as accounting for industry changes in the past twenty years remain a major obstacle facing Basel in determining what exactly needs to be regulated.²⁷ Basel's broad standards suffer from over-inclusive regulation and lead to crowding-out good waste (or products) that should be recycled, which incidentally, many developing nations currently depend on as a commodity for economic growth.²⁸ Broad definitions also allow countries to develop their own categories and classifications, which makes managing transboundary waste regulation increasingly difficult.²⁹ Furthermore, without universal application of standards, developing countries are pressured to adopt weaker standards subverting health and environmental protection in favor of encouraging business investment.³⁰

²⁵ See Parties to the Basel Convention, <http://www.basel.int/Countries/StatusofRatifications/PartiesSignatories/tabid/1290/Default.aspx#a-note-1> (last visited Feb. 21, 2013) (there are 179 parties to the Basel Convention. United States is among the notable nonparties).

²⁶ Pratt, *supra* note 11.

²⁷ Id. at 172.

²⁸ Id. at 168.

²⁹ Id.

³⁰ Tracy M. Schmidt, *Transnational Corporate Responsibility for International Environmental and Human Rights Violations: Will the United Nations' "Norms" Provide the Required Means?* 36 CAL. W. INT'L L.J. 217, 245 (2005).

Definitions regarding hazardous waste and associated thresholds should be standardized, clarified and narrowed. If such clarification is internationally applied, as exemplified by the Cartagena Protocol which regulates genetically modified organisms,³¹ not only will this alleviate uncertainties leading to regulation obstacles but it will also deter targeting of countries with weak standards which make those citizens vulnerable to human rights violations associated with environmental calamities.

B. Lack of Monitoring and Enforcement

Although Basel maintains a prior informed consent (PIC) procedure – an obligatory but nonbinding pre-trade discussions between exporting and importing nations to verify competency of the disposal facility – due to lack of inspection and the voluntary nature of the procedures and ineffective enforcement mechanisms, improper hazardous waste dumping easily escapes punishment. The current scheme relies on parties' own determination of a facility's capability to properly dispose of wastes. Without effective verification or monitoring procedures, Basel lacks any real mechanism to ensure this determination is carried out and is legitimate.³² Furthermore, if a party does not comply with the verification procedure, there is no punishment under Basel for noncompliance.³³ The incident in Cote d'Ivoire illustrates the inadequacy of the compliance monitoring of the PIC procedure as the shipment was improperly labeled as to its high chemical content and none of the dumping sites qualified as proper disposal facilities for chemical waste

³¹ Robyn A. Neff, *The Cartagena Protocol and the WTO: Will the EU Biotech Products Case Leave Room for the Protocol?* 16 FORDHAM ENVTL. L. REV. 261, 262 (2005).

³² The Compliance Committee does accept national reports on countries' compliance or noncompliance of Basel. To date, no reports have been submitted to the Compliance Committee. See Widawsky, *supra* note 14, at 608.

³³ *Id.*

disposal.³⁴ Exacerbated by ineffective monitoring and enforcement, the current system relies too heavily on parties' own determination of adequacy of facilities and proper disposal methods.³⁵ Thus, additional international involvement is necessary.

No doubt responsibility for regulation of waste disposal should fall on nations importing waste as well as the waste's country of origin. Absent a supporting international role, however, it is likely incidents like those in Cote d'Ivoire will inevitably occur again. For effective regulation of hazardous waste and its disposal so as to best protect violation of international human rights caused by environmental disaster resulting from improper disposal of hazardous waste, international regulation must (1) bolster monitoring and (2) impose enforcement mechanisms to deter noncompliance.³⁶

The International Atomic Energy Agency's inspection and authorization offers a loose framework for successful monitoring measures. The framework requires that each facility must pass inspection before it is authorized to handle certain kinds of materials.³⁷

Complimented by effective monitoring, enforcement mechanisms, such as monetary sanctions for noncompliance, would deter deviation from established rules and requirements under Basel. Nations should reexamine the proposed Protocol on Liability and find that supporting it would unquestionably make Basel more effective in regulation of transboundary and national movement of hazard waste and its disposal.

3. Ignores Key Incentives of Major Players in International Waste Disposal

The Basel Ban³⁸ and the Convention inadequately address the underlying narrative of international hazardous waste disposal. The Basel Ban ignores the needs of

³⁴ Although Trafigura did settle the dispute, the settlement was outside the Basel Convention and as mentioned in the text, the Ivorian citizens and victims were undercompensated.

³⁵ Widawsky, *supra* note 14, at 606

³⁶ *Id.* at 623.

³⁷ *Id.* at 621.

developing countries and realities of the waste disposal market. The Convention's framework overlooks the autonomy of corporations and does not apply enough responsibility for corporate actors.

Implementation of the Ban would be ineffectual for two reasons. First, as evident in the Cote d'Ivoire incident, developing nations often welcome hazardous materials for disposal to support the economic growth. Second, TNCs dealing in waste look to developing countries with lower compliance and disposal costs as the most economical location for disposal. Because of such strong economic incentives for both the import and export of hazardous waste, the Ban would likely just invigorate a black market of hazardous waste trade, which would undermine gains attained under the current regulatory regime.

A total ban of hazardous waste disposal from developed to developing countries should only be implemented on a temporary basis until the developing nation can establish, and a Basel compliance body can verify, the facility meets specified criteria to properly dispose of certain kinds of waste. Without affirmative action from developing nations and BCRCs to transfer technology and training to these developing nations, however, a temporary ban will effectively result in a total ban and include all the accompanying negative implications mentioned above. Thus, financial and technical support by Basel bodies is crucial for successful implementation of a temporary ban.

³⁸ "Ban Amendment" bans the export of hazardous waste for final disposal and recycling from developed countries to developing countries. Adopted in 1995, it was never effectuated because of a disagreement as to the interpretation of the requirements for amending the Basel Convention. In October 2011, the Basel parties agreed to allow the ban to take effect on its 68th ratification (seventy nations have already ratified the ban, which amends the Basel Convention). See Andrew Schatz, Sara Vinson, David R. Downes, Stephanie Altman, Niranjali et. al., *International Environmental Law*, 46 INT'L LAW. 419, 425 (2012).

Basel's relative exclusion of non-state actors as major players in waste disposal leaves too many loopholes for TNCs to evade responsibility. Scholars pose that the current international governance system which exclusively focuses on States in the regulation scheme is outdated and must progress. Although the suggested new governance system should maintain its recognition of the important supremacy role of the state, it must also recognize the evolving role of corporations.³⁹

Current governance schemes, including Basel, inadequately address the growing disparity between States and corporations. These multi-billion dollar companies pose a particular regulatory challenge for small and developing countries that are often financially outmatched, politically outmaneuvered and are unable or unwilling to assign accountability to the TNCs.⁴⁰

Additionally, TNCs are often no longer controlled by the States that charter them. Although corporations must abide by standard laws within States, TNCs are effectively autonomous entities, which unlike States, do not have territorial limits. Absent sufficient extraterritorial and other regulatory authority coupled with the dynamic interplay of TNCs with ambiguous allegiances to nations, effective State regulation of the hazardous waste trade remains problematic.⁴¹ In the Cote d'Ivoire incident, the transport of hazardous waste consisted of a highly entangled web of collaborating companies. Discerning the exporting or importing country and obligations under Basel can be challenging with such complex trade regimes.

³⁹ Larry Cata Backer, *From Institutional Mismatches to Socially Sustainable Governance: The Guiding Principles for the Implementation of the United Nations' "Protect, Respect and Remedy" and the Construction of Inter-Systemic Global Governance*, 25 PAC. MCGEORGE GLOBAL BUS. & DEV. L.J. 69, 86 (2012).

⁴⁰ Schimdt, *supra* note 30, at 218.

⁴¹ Dr. Kiarie Mwaure, *Internalization of Costs to Corporate Groups: Part-Whole Relationships, Human Rights Norms and the Futility of the Corporate Veil*, 11 J. INT'L BUS. & L. 85 (2012).

The most sensible approach to address TNCs' role and responsibility in hazardous waste disposal and human rights violations is for States parties to Basel to adopt the existing Basel Convention's Protocol on Liability and Compensation (hereinafter Liability Protocol).⁴² The Liability Protocol offers a workable framework which balances a primary regulatory role for States while imposing individual liability and responsibility to corporations. Dictated by a State's level of control over the hazardous waste in transit, the Protocol's strict liability regime imposes binding accountability to States (either importing and exporting nations) in regulating hazardous wastes and companies that engage in the trade.⁴³ The Liability Protocol also imposes individual liability on individuals and/or companies for causing environmental calamities under general principles of tort law through its fault-based liability regime.⁴⁴ In order to ensure adequate monetary coverage, States parties must supply a financial guarantee to indemnify potential fault-based calamities by corporations.⁴⁵ Implementation of the Liability Protocol awaits 20 additional ratifications.⁴⁶

4. Hazardous Waste Reduction

Although technically included in the language of Basel,⁴⁷ waste reduction measures have taken a backseat in international regulation of hazardous waste.⁴⁸ In order

⁴² Basel Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and their Disposal (Dec. 10, 1999), <http://archive.basel.int/meetings/cop/cop5/docs/prot-e.pdf> (last visited Feb. 20, 2013) [hereinafter Liability Protocol].

⁴³ *Id.* at art. 4; see also Pratt, *supra* note 11, at 164 ("The Protocol imposes strict liability for damages in situations involving Parties to the Basel Convention, but only while they maintain control of the hazardous waste through their respective notifying, transporting, or disposing entities.").

⁴⁴ Liability Protocol, art. 5.

⁴⁵ Liability Protocol, art 14.

⁴⁶ Basel Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and their Disposal Basel, 10 December 1999, available at <http://www.basel.int/Countries/StatusofRatifications/TheProtocol/tabid/1345/Default.aspx> (last visited Feb. 20, 2013).

⁴⁷ See Basel Convention, *supra* note 13, at pmbl, art. 4, para2, & art. 10.

⁴⁸ Pratt, *supra* note 11, at 161.

to implement a comprehensive approach to regulating transboundary and national movements of hazardous waste, not only must regulation focus on disposal, but measures must also address the regulation of waste at its production phase. Predictably, unregulated markets within hazardous waste trade follow an economic path of least resistance.⁴⁹ If producing hazardous waste remains inexpensive, then it will continue to be produced and resolving hazardous waste and its inevitable infringement on human rights will rely solely on regulation of its disposal.

‘Extended producer responsibility’ (EPR) measures and advanced recovery fees (ARFs) offer a practical framework for placing more burden of waste regulation on governments and corporations during the production phase of hazardous waste. While maintaining the regulatory role of governments but shifting waste disposal responsibilities to corporations, these mechanisms instill costs to the private sector to take responsibility for the pollution created by the products. Funds generated by the costs will be collected by governments and dispersed to accredited recycle and disposal organizations. By incorporating this ‘tax’ on specified products or chemicals, companies will be encouraged both to use less hazardous materials as well as produce less waste.

California’s Electronic Waste Recycling Act of 2003 (Act), Costa Rica’s EPR system, and Europe’s Directive on Waste and Electrical Equipment (WEEE Directive) offer workable frameworks to begin developing an international regime to effectively incentivize reduction in production of hazardous wastes.⁵⁰ In effort to address the mounting problem of e-waste, California’s ARF system focuses on consumers and manufacturers by imposing point-of-purchase recycling fees for designated electronic

⁴⁹ Zelalem Tesfaye Bogale, *E-responsibility: E-Waste, International Law and Africa’s Growing Digital Wasteland*, 18 U.C. DAVIS J. INT’L L. & POL’Y 225, 255 (Fall 2011).

⁵⁰ Id.

devices as well as requires manufacturers to report on current and future waste-reduction and recycling efforts.⁵¹ Coupled with a robust enforcement mechanism of monetary penalties for noncompliance, the program has resulted in 590 recycling locations and houses twenty percent of America's electronic waste recycling, making California a leader in recycling e-waste.⁵² California's model can be used to guide a framework for improving recycling and incentivizing waste reduction on an international scale.

Recommendations

HRA recommends the following:

1. That the Working Group on the issue of human rights and transnational corporations and other business enterprises and the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes to cooperate with the Independent Expert on human rights and the environment to address the threat TNCs have on human rights and the environment.

2. The Independent Expert, Working Group, and Special Rapporteur should consider and study additional measures addressing the causes of environmental hazards resulting in human rights violations. As it pertains to hazardous waste disposal, these measures should include incentivizes for waste reduction and incorporate concepts such as 'extended producer responsibility' (EPR) measures and advanced recovery fees (ARFs) such as California's Electronic Waste Recycling Act of 2003 described above.

⁵¹ Danielle M. Bergner, *The Electronic Waste Recycling Act of 2003: California's Response to the Electronic Waste Crisis*, 88 MARQ. L. REV. 377, 379-380 (2004).

⁵² 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 (2010).