

THE BASEL CONVENTION AND THE TRANSBOUNDARY MOVEMENTS OF  
HAZARDOUS WASTE TO THE DEVELOPING WORLD:  
A STUDY OF REGULATORY VIOLATIONS AND THE PROBLEM OF LEGAL  
COMPLIANCE

by

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## ABSTRACT OF THE DISSERTATION

### The Basel Convention and the Transboundary Movements of Hazardous Waste to the Developing World: A Study of Regulatory Violations and the Problem of Legal Compliance

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Dr. Frank Fischer

Within the past twenty-five years, numerous well-publicized cases have drawn one's attention to the dangers of the growing hazardous waste trade, as well as the problem of controlling the illegal transboundary movements of such waste from the developed nations to the developing world. Thus, in order to decrease the movements of hazardous waste between countries and halt the hazardous waste flowing to the poor nations, a multilateral environmental convention, adopted in 1989, was established as "the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal". Despite the expectations of the developing world, the Basel Convention became a control mechanism of the transboundary movements of hazardous waste rather than a regime that would have prevented it. This inability was due in part to the fact that it didn't include an outright ban on the hazardous waste trade amongst the wealthy and poor countries that was mainly the result of the political struggle between the countries. For this reason, this particular research will focus on the question of *'why has the Basel Convention not adequately addressed the transboundary movements of hazardous waste to the developing world'*, as well as the regulatory violations and legal compliance that are an integral component of this important topic.

The findings have been added to the existing literature by providing a quantitative and qualitative analysis to this very important question.

One of the most important points of the Convention has been the definition of hazardous waste that continues to be widely discussed and criticized by scholars. As well, this controversial description has initiated the opinions of several Member States toward developing their own interpretations. Relative to the correlation of this matter, this research examines the relationship of the self-reporting data (export of hazardous waste) and the national definition of hazardous waste for the purpose of transboundary movements of waste. I have applied the Chi-square test and the results have shown that there is no relationship between the self-reporting data and the definition utilized by the Member States. Thus, the accuracy of the self-reporting data can be questioned. Additionally, a qualitative analysis was conducted which indicated that the provisions of the Convention, regarding the illegal traffic of hazardous waste, were not adequately implemented into the national legislation. Furthermore, the research also indicated that in some cases the provisions have not been applied at all and as a result the enforcement of these requirements seriously suffer from those shortcomings and the lack of compliance.

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Additionally, I would like to express my thanks to my friends and colleagues: Tunde Igaz, Robert Orr, Adlert Birotte and Melaku Wondmneh Negatu who were the valuable support mechanism that motivated me during this unique journey.

## DEDICATION

This Dissertation is dedicated to those groups, both governmental and non-governmental, who have fought to expose the environmental threats to our planet with the effort of safeguarding all mankind. Their tireless struggle toward providing a better world will be the topic of debatable dialogue within our current world as well as those future generations to come.

This Dissertation is also devoted to my Mom, who despite her serious illness, continued to support me and, in loving memory of my Father who had always motivated me to be a better individual who could somehow inspire others to make the world a better place. To my best friend, William, my sincere appreciation for the encouragement that has kept me grounded through the tough and demanding moments that have ultimately ignited my belief in myself through my invaluable journey.

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## **I. Introduction**

Due to the innovation of technology, as well as the increase in the production of goods and services, hazardous wastes have begun to rise in the developed countries; and, in doing so it has become one of the most serious threats to human life and the environment (Fikru 2012). Nowadays, Member States fundamentally are faced with difficult regulatory problems at various levels in order to safely manage hazardous waste. The crucial elements from the by-product of hazardous waste (i.e. storage, transportation, disposal procedures and best practices to minimize waste) are that it is extremely expensive for the industries, as well as imposing a significant burden on governments to enforce (O'Neill 2001). In addition, the inappropriate handling of hazardous waste can also negatively influence the environment, as well as human health through the passing of toxins into the atmosphere, groundwater or soil.

Within the past twenty years, there have been a number of well-publicized cases that have focused on the danger of growing trade, as well as the problem of controlling the movements of hazardous waste from wealthier countries to the poorer nations (Krueger 2009). For example, a hazardous waste shipment from Philadelphia (containing some of the most toxic chemicals in the world composed of heavy metals, dioxins and furans) was dumped on a Haitian beach, in 1986, from a barge called the *Khian Sea*. Despite the Haitian government's intervention, the *Khian Sea* left behind approximately 3,000 tons of toxic waste on the beach. The barge returned to Philadelphia with the bulk of its toxic ash; and, consequently, following the episode it spent nearly two years searching for a dumping site in order to dispose of the remaining shipment. The exposure

of this conflict, as well as other opposing factors, convinced several countries to create procedural and transboundary controls for the movement of hazardous wastes between the wealthier and poorer nations (Harjula 2006).

As a result, the international community began to respond to the hazardous waste trade through dialogue and deliberations led by the United Nations Environmental Programme (UNEP), the Organization for Economic Co-operation and Development (OECD), the European Union, as well as support by various non-governmental organizations, for example: Greenpeace International. In addition, this important issue also gained substantial attention from the global media (O'Neill 2001).

In order to prohibit the export of hazardous waste to developing nations, one of the most important multilateral environmental conventions adopted in 1989, was entitled, "the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal". The treaty came into effect in May 1992 and the primarily goal was to reduce the waste generation as well as advocate for the environmentally sound management of hazardous waste (Clapp 2001). Furthermore, the convention - that has over 170 participating countries - restricts the exportation of hazardous waste from one country to another, unless there is a notice of and consent thereof that exists between the countries (Barbour 2012). With reference to the Basel Convention, the subsequent Conference of the Parties addressed issues regarding the trade of hazardous waste at its second meeting in March 1994. During the meeting, the parties adopted a decision, whereby, they would ban all exports of hazardous wastes from OECD to non-OECD nations. Furthermore, the participants also agreed to phase out all trade with the purpose

of recovery or recycling operations within these two groups, by December 1997 (Lipman 1999).

During the third meeting of the Conference of the Parties in 1995, the Member States adopted the ban as a formal amendment to the Convention. Thus, countries listed in Annex VII of the Convention (all the industrialized countries) were prohibited to export hazardous waste for recycling or final disposal to non-Annex VII nations (Chasek, Downie and Brown 2014). Despite these efforts, the Basel Ban Amendment still has not been entered into force; and, it is questionable if it ever will be because there are a number of countries that oppose the Amendment.

In principal, the Basel Ban Amendment met the prerequisite number of 62 ratifications - 3/4 of the Parties attended (82) in 1995 - when the decision was adopted. However, although the magic number (62) had been reached, some representatives of the Member States noticed that the text within the Convention, referencing to the entry into force of the amendments, was vague. Therefore, a few countries seized the opportunity to discredit the ambiguous wording by using it as a means to hold back their right to enter it into force. Today, there is still a gridlock by the Parties regarding the content, understanding and meaning of article 17, paragraph 5; so, it is likely that the Office of Legal Affairs of the United Nations will utilize the "current time" approach that needs a ratification of 3/4 of the majority of Parties at any given time. In doing so, this method would require that 133 countries ratify the Amendment but this outcome will probably not occur within the next twenty years (Basel Action Network 2011).

Despite its substantive weakness, in particular the fact that it did not include an outright ban on the waste trade among the wealthy and poor countries, the Basel Convention remains one of the most important multilateral agreements concerning regulations on the transboundary movements of hazardous waste (Clapp 2001).

So, one may note that the Basel Convention - along with the Amendment – indeed, was the most important tool to regulate the transboundary movements of hazardous wastes. But, due to the lack of a total ban on waste trade, it has created difficulties toward successfully addressing the problems surrounding the illegal waste trade between the OECD and non-OECD countries. For example, the Brazilian authorities had returned 1.500 tonnes of hazardous waste to Britain in August 2009. During this process, it was discovered that the containers that had arrived, between February and May, were ultimately labelled recyclable plastics; but, the vessels actually contained domestic waste as well as hospital material such as batteries, used syringes and old medicine (MercoPress 2009).

This and many other examples have clearly illustrated the globally growing challenges in the awareness and movement of waste that can't be controlled unless proper enforcement policies are to be implemented. Therefore, the aim of this study is to examine 'why has the Basel Convention not adequately addressed the transboundary movements of hazardous waste to the developing world'? A quantitative and qualitative analysis will additionally be utilized with the aim of finding answers in relation to this research question.

### ***Significance of the study***

It became evident that the hazardous wastes, generated by the developed countries, were transported to developing nations for final disposal during the 1980s (Clapp 2001). However, complex environmental regulations began to appear from governments that affected the flexibility of private businesses to easily dispose of their wastes. The routine nature of this business became a complex task as well as an expensive one. As a consequence, business and elected government officials were looking for alternative methods dumping the wastes that were no longer needed in their respective countries (Sundram 1997). This process affected the developing nations worldwide and was seen as morally wrong; therefore, non-governmental organizations (NGOs) and the media wanted international involvement and action. The result was the Basel Convention, which controlled rather than banned the transboundary movements of hazardous waste (Clapp 2001).

It is the hope that my study will be able to provide a meaningful analysis of the effectiveness of the Basel Convention and its impact on the transboundary movements of hazardous waste, as well as add new information to the literature.

### ***Purpose of the Study***

The aim of the research is add to the growing literature on transboundary movements of toxic waste and its significance as a realistic and important topic toward successfully preserving the environment and safeguarding human health. Upon reviewing

the literature, I have noticed that there aren't many studies in existence that closely examine the factors that might hinder the efforts of the Basel Convention. Therefore, there is a lot to do within this field in order that researchers and other recipients better understand this complex phenomenon.

The outcome of this study should further strengthen the importance of this topic and support each actor during the developmental measures of effective and efficient strategies; and, in turn, this should have a positive effect toward decreasing the illegal trade of hazardous waste globally.

## **II. Hazardous Wastes**

In this section, essential definitions will be introduced with the purpose of having a better understanding of what hazardous waste is, as well as its involvement in transboundary movements. Therefore, the definition of hazardous waste will be briefly explained in addition to various trends relating to the generation of hazardous waste and its management.

### ***What is Hazardous Waste?***

According to Article 1.1 within the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, wastes that are subject to transboundary movements are defined as “hazardous wastes” as follows:

- a) “Wastes that belong to any category contained in Annex I, unless they do not possess any of the characteristics contained in Annex III; and,
- b) Wastes that are not covered under paragraph (a) but are defined as, or are considered to be, hazardous wastes by the domestic legislation of the Party of export, import or transit” (Basel Convention 1989 p.5).

By reviewing Annex I, it is apparent that the Convention established numerous categories of wastes that are needed to be controlled. For example: Waste from the production and preparation of pharmaceutical products (Y2), waste from heat treatment and tempering operations containing cyanides (Y7) or residues that arise from industrial waste disposal operations (Y18). If any category that is listed in Annex I carries one or

more hazardous characteristics that are highlighted in Annex III (i.e. explosive, flammable liquids, flammable solids, etc.) then the waste is regarded as hazardous waste under the Convention. Presently, this explanation is viewed as the globally harmonized part of the definition of hazardous waste. On the other hand, Article 1.1.b points out wastes that are defined as hazardous waste, under national legislation, are also considered hazardous waste under the Convention. However, it should be noted that wastes are not necessarily regarded as hazardous by all Parties (Basel Convention 1989).

Although, when a Member State notifies the Secretariat that a waste was categorized as hazardous waste that is also established in their domestic legislation, the procedures of the Convention will affect all transboundary movements, involving the notifying Party, in reference to such ‘national’ hazardous waste (Wielenga 2010).

There are examples, either similar or alternative definitions, of hazardous waste that have been constructed by the OECD, the European Community (EC) or the United States (U.S.).

Based on the decision of the “Decision of the Council C (2001) 107 Final” in relation to the control of transboundary movements of wastes destined for recovery operations, as amended by the “Council C (2004) 20”, the OECD defines hazardous waste as follows:

2. HAZARDOUS WASTES are:

“(i) Wastes that belong to any category contained in Appendix 1 to this Decision unless they do not possess any of the characteristics contained in Appendix 2 to this Decision; and

(ii) Wastes that are not covered under sub-paragraph 2. (i) but are defined as, or are considered to be, hazardous wastes by the domestic legislation of the Member country of

export, import or transit. Member countries shall not be required to enforce laws other than their own.” (OECD Decision C (2001) 107 Final page 5). By reviewing Appendix 1 and Appendix 2 of the OECD decision, it is understood that they are identical to the list provided by the Basel Convention in Annex I and III. Similarly to the Basel Convention, paragraph 2(ii) of the OECD document also states that Member States can consider wastes as hazardous even if they are not included in Appendix 1 and 2. In addition, it seems that paragraph 2(ii) also suggests the possible occurrence, by Member States, that they may arrive at different interpretations of hazardous wastes – apart from Appendix 1 and 2 – regardless; although, they should only apply and impose legislation that is responsible to their national interest. One may note that the differentiation of, what might be or not be, hazardous wastes in one country or another could eventually create loopholes that would ultimately contribute to the manipulation of the hazardous waste trade.

Currently, within the European Community, the basic concept of waste management is outlined in the Directive 2008/98/EC. It states that hazardous waste should be managed in a careful way in order to prevent its negative effects on the environment, as well as on human health (Directive 2008/98/EC). The Decision of 2000/532/EC introduced a classification system for wastes, including the difference between hazardous and non-hazardous wastes. The main characters of the list of wastes are similar and are considered hazardous as per Annex III within the Directive 2008/98/EC. As Boudier and Bansebaa (2011) noted, in June 2006, the EU Parliament issued a regulation CE. 1013/2006 entitled, ‘Shipments of waste’, that came into force in

July 2007 and established specific conditions when waste could be traded amongst countries.

The Directive 2008/98/EC also emphasizes that Member States should prepare for the re-use and recycling of various waste materials from households, as well as construction and demolition waste. As a result, the Directive requires that Member States implement waste management and prevention programs with the hope that by 2020 the recycling and recovery targets could achieve 50%-70% (Directive 2008/98/EC).

In the United States, wastes are considered hazardous, if “they are **ignitable** – capable of burning or causing a fire; **corrosive** – able to corrode steel or harm organisms because of extreme acidic or basic properties; **reactive** – able to explode or produce toxic gasses such as cyanide or sulphide; or **toxic** – containing substances that are poisonous to people and other organisms.” Primarily, the Resource Conservation and Recovery Act (RCRA) provides details regarding the regulation of hazardous substances and outlines the specifics within Chapter 40, Code of Federal Regulations, Section 261 (Slonecker 2010). Within section 261, hazardous wastes are listed and organized into three different groups: a) the F-list (non-specific source wastes), b) the K-list (source-specific wastes) and the P-list and the U-list (discarded commercial chemical products) (Kopsick 2011 and U.S. EPA 2012). The definition of hazardous waste of RCRA appears to be seemingly less complex as opposed to the Basel Convention. However, the lists are detailed and follow a different characterization of hazardous wastes compared to Annex III within the Basel Convention. One of the signatories of the Basel Convention, the United States, having not ratified the document could have amended the RCRA in order

to harmonize it, somewhat, with the internationally accepted definition of hazardous waste.

One can observe that there were differences when wastes were defined and characterized as hazardous within the developed world. These meanings differed somewhat from the definition established by the Basel Convention; therefore, this could lead to a misunderstanding as well as enable the opportunity of some to circumvent the hazardous waste trade.

For the purpose of my research, the definition developed by the Basel Convention will be considered.

### ***Electronic Waste***

As the digital era continues to ignite, the manufacturing of electric and electronic devices maintains its status as one of the fastest growing industries in the developed world. These items include a variety of merchandise from large household appliances to small cellular phones. However, as a result of this technological development the life cycle of these items lessens and lessens; therefore, the amount of electronic waste has been generating, as a norm, at alarming rates. According to the United Nations Environment Alert Bulletin, the volume of electronic waste steadily increases at approximately 3-5 percent per annum and this is nearly three times more than the municipal waste streams' general growth (DEWA/GRID-Europe 2005). A report prepared by the Basel Action Network and the Silicon Valley Toxics Coalition also stated that 20 to 50 tones of electronic waste is generated globally each year, and, 4 million PCs

are discarded by China alone per year (Puckett and Smith 2002). Currently, there is no globally accepted definition for electronic waste; therefore, the environmental as well as health implications can't be effectively addressed. The inappropriate recycling and disposal of electronic waste can pose serious harm and lead to degradation, as well as add to the pollution of the natural resources while causing chronic diseases within humankind (Wath, Dutt & Chakrabarti 2011).

In addition, as Interpol (2009) had noted the nature of criminal activity through the business of e-waste had appeared to be a vast and lucrative industry; although, internally this underhanded practice had actually involved theft, fraud, smuggling and money laundering. Criminals would usually reside outside the main OECD countries and often visit those areas in order to secure their e-waste shipments. Hereafter, they would utilize small-time operators within those given countries in order to organize the collection and preparation of those shipments.

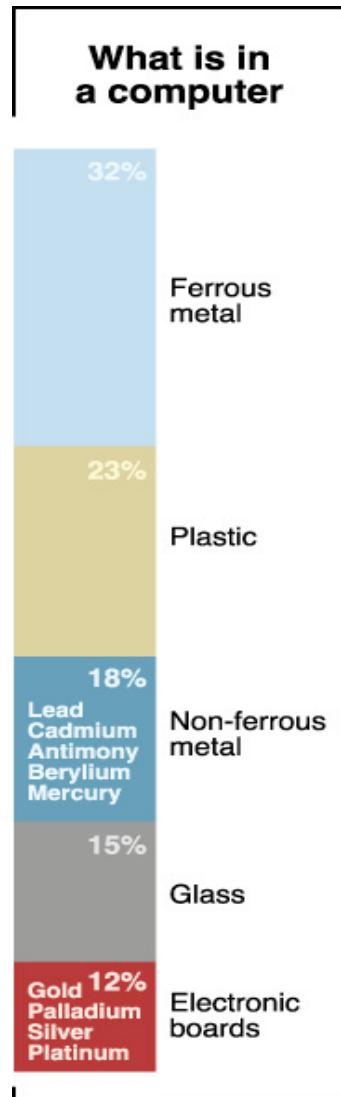
Under the Basel Convention, electronic waste is viewed as hazardous waste based on its material or chemical configuration (Kopsick 2011). The below table will illustrate the impact of electronic waste processing.

Table 1: Occupational and environmental hazards associated with E-waste processing  
(Wath, Dutt & Chakrabarti 2011. p.10-11)

<b>E-Waste Component</b>	<b>Process Used</b>	<b>Potential Environmental Hazard</b>
Cathode ray tubes (used in TVs, computer monitors, ATM, video cameras, and more)	Breaking and removal of yoke, then dumping	Lead, barium and other heavy metals leaching into the ground water and release of toxic phosphor
Printed circuit board (image behind table - a thin plate on which chips and other electronic components are placed)	De-soldering and removal of computer chips; open burning and acid baths to remove final metals after chips are removed.	Air emissions as well as discharge into rivers of glass dust, tin, lead, brominated dioxin, beryllium cadmium, and mercury
Chips and other gold plated components	Chemical stripping using nitric and hydrochloric acid and burning of chips	Hydrocarbons, heavy metals, brominated substances discharged directly into river acidifying fish and flora. Tin and lead contamination of surface and groundwater. Air emissions of brominated dioxins, heavy metals and hydrocarbons
Plastics from printers, keyboards, monitors, etc.	Shredding and low temp melting to be reused	Emissions of brominated dioxins, heavy metals and hydrocarbons
Computer wires	Open burning and stripping to remove copper	Hydrocarbon ashes released into air, water and soil.

Electronic equipment is composed of a complex mixture of materials and components that can be very toxic; for example, heavy metals such as mercury, cadmium and chromium combined together or separately have the propensity to create serious pollution possibilities or physical ailments upon their disposal (DEWA/GRID-Europe 2005). The below figure demonstrates what an average computer consist of.

Figure 1: What is in a computer (Baker 2004 p.36)



It should be noted that much of the plastic utilized includes flame-retardants that create difficulties in the recycling process (Baker 2004). On the other hand, computers, monitors and laptops, comprised of useful raw materials of copper, gold, steel and platinum, worth approximately \$40-\$60 has made e-waste recycling an attractive business. Presently, the raw materials process has been on the rise due to the fact that mining operations have to excavate deeper as well as extract more from low-grade materials while applying various toxic extraction methods when doing so. As a result,

raw material became scarce because the concentration of gold within a printed circuit board could be up to ten times greater than the raw material gold concentration that was being mined (Thaure 2013).

Presently, large amounts of electronic waste are delivered to domestic landfills or waste incinerators. However, in some cases the electronic waste is diverted from landfills under the premise of recycling. This, in fact, will usually lead to an illegal trade of toxic material that will eventually be transported to various areas within Asia and Africa that are generally the poorer or least developed countries adding to increased occupational and environmental issues (Terada 2012). For instance, according to a recycling industry source, it is estimated that 50%-80% of electronic waste is collected for recycling purposes within the western states of the United States; but, instead of being recycled in those locations, they are packed into containers and shipped off to China (Puckett and Smith 2002). Although, due to the fact that a large number of devices sold on the global market are manufactured in Asia, it seems logical, from consumer markets abroad, that electronic waste should be dumped in Asia as it is believed that the disassembled devices can be reintegrated back into their production assembly (Pellow 2007).

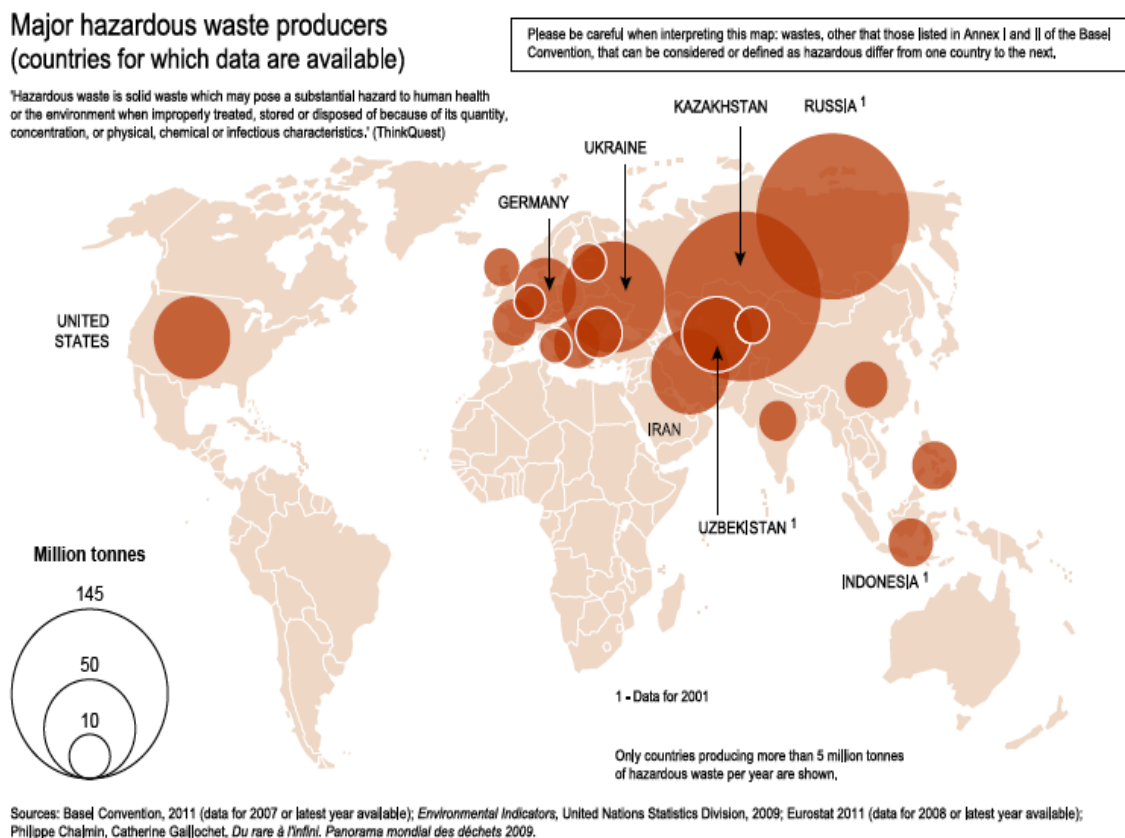
The fact is that the electronic waste trade is not effectively regulated enough and that countries are taking advantage of the loopholes of the international regulations. Although, there has been some change that was based on the agreement of Member States, in 2011, during the UN Environmental Conference in Cartagena, Colombia; whereby, Member States would expedite the global ban on the export of hazardous wastes that consisted of electronic waste (i.e. discarded computers, cell phones) from the developed to the developing countries. According to Kevin Stairs (Greenpeace's EU

chemicals policy director), this is a major development because, “all forms of hazardous waste including that sent for recycling, to obsolete electronic waste, will be banned from leaving wealthy countries destined to developing countries” (Morrison and Carsten 2011 p.1). Although, it will all be possible if another 17 countries ratify the amendment of the Basel Convention (Morrison and Carsten 2011).

### ***Global Hazardous Waste Generation***

Since the 1970s, the generation of hazardous waste is on the rise and it continues to increase day-by-day. However, the actual waste levels differ from each other, therefore, it can only be estimated (Selin, 2010). In addition, in spite of the current regulations and its monitoring mechanisms, no accurate data can be established that would provide a clear overview of the global hazardous waste generation. It is also unclear as to the precise sources and substances as well as the volumes of the hazardous waste generation globally (the below figure shows the main hazardous waste producers).

Figure 2 displays the major hazardous waste producers (UNEP-GRID-Arendal 2012).



Normally, hazardous waste is generated by various industrial and household processes and it becomes an unwanted by-product from these activities (Selin 2010 and Kopsick 2011). Table 1 illustrates some of the hazardous wastes generated by manufacturing industries (UNEP-GRID/Arendal 2006).

Table 2: Typical Hazardous Wastes generated by selected manufacturing industries  
(UNEP-GRID/Arendal 2006 p.13.)

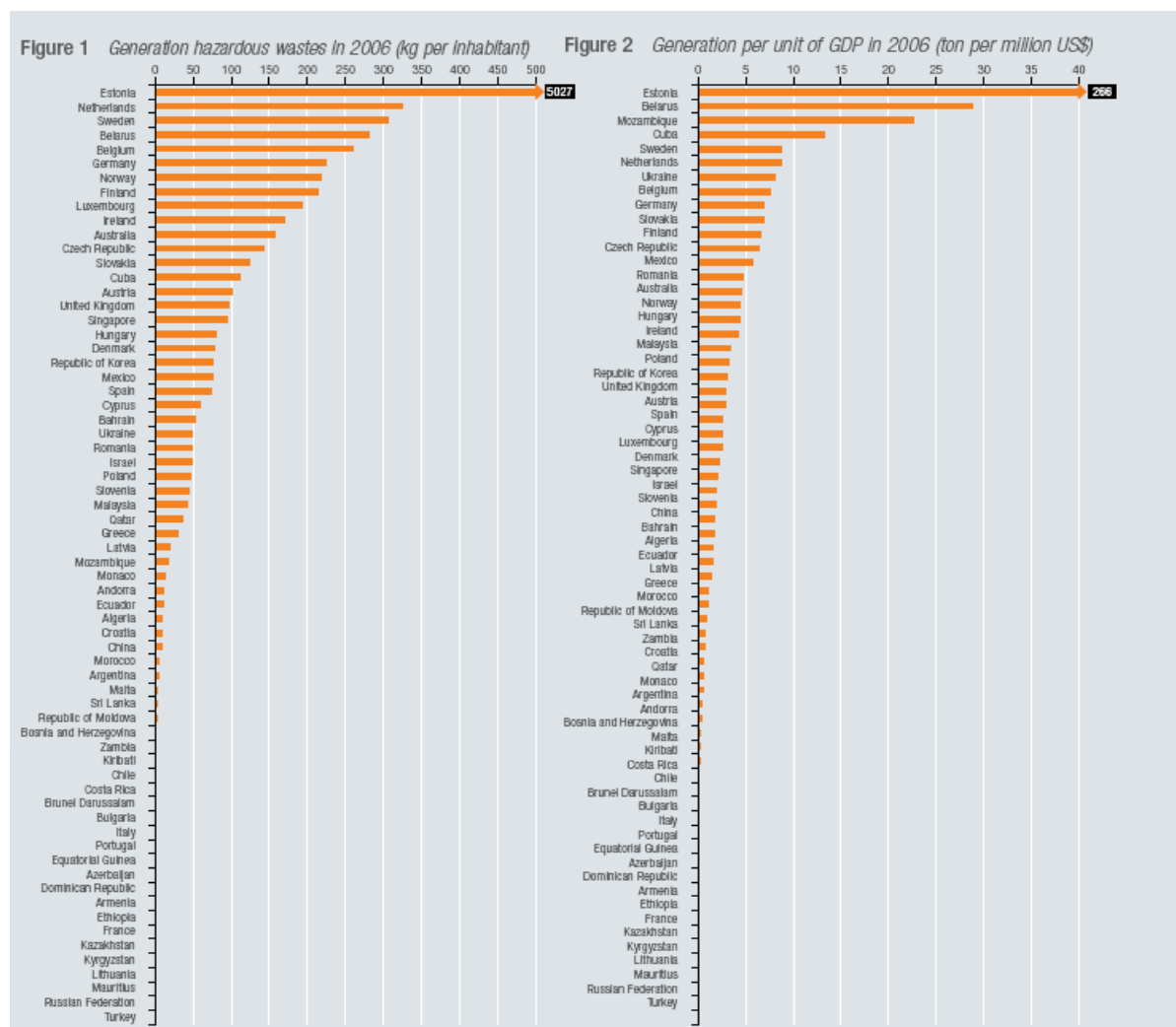
<b>Typical hazardous wastes generated by selected manufacturing industries</b>	
Strong acids and bases Reactive wastes Ignitable wastes Discarded commercial chemical products	<b>Chemistry</b>
Tanning liquor and effluent treatment containing chromium Dyestuffs and pigments containing dangerous substances	<b>Leather and textile</b>
Paint wastes containing heavy metals Strong acids and bases Cyanide wastes Sludges containing heavy metals	<b>Metal</b>
Ignitable and corrosive wastes Ink wastes, including solvents and metals Photography waste with heavy metals solutions	<b>Paper and printing</b>
Heavy metal dusts and sludges Ignitable wastes Solvents Strong acids and bases	<b>Cleaning and cosmetic</b>
Ignitable wastes Spent solvents Paint wastes	<b>Furniture and wood</b>
Paint wastes Ignitable wastes Spent solvents Acids and bases	<b>Vehicle maintenance shops</b>
Animal waste (not always hazardous) Cleaning wastes CFCs (refrigerants)	<b>Food and beverages</b>
Sources: UACPA, 2002; Commission Decision 2001/118/EC on the European List of Wastes (2001).	

There is no simple, objective way to specify hazardous waste due to the fact that some societies consider certain materials as waste that can be seen as a resource somewhere else. Therefore, the definition of hazardous waste unavoidably is shaped by various factors, such as: political, social, economic and cultural (Selin 2010).

Another way to consider the hazardous waste generation is to compare the scale of economic activities of various countries and the proxy for this parameter is the gross domestic product (GDP). In 2006, based on the UNEP dataset (Figure 3 and 4), it indicates that Estonia is by the far the largest producer of hazardous wastes per unit of

GDP, as well as the amount generated per inhabitant. Belarus, Cuba and Mozambique are also on the high scale of the hazardous wastes generation unit of GDP, as opposed to their ranking on the list amount generated per inhabitant that may indicate the existence of specific polluting industries.

Figure 3 and 4: Generation hazardous waste in 2006 (kg per inhabitant) and Generation per unit of GDP in 2006 (ton per million US\$) (Wielenga 2010 p.9)



It should be noted that the generation of hazardous waste per inhabitant better illustrates the consumption patterns of a country, while the hazardous wastes generation, per unit in GDP, more suitably reveal some information concerning the production sector. Forty-

three countries reported their hazardous wastes generation between 2004 and 2006; and, based on the dataset, there was a 12 percent increase even though the trend is not the same for all groups of Member States. For example, the high-income non-OECD countries as well as the low-income countries displayed a decrease concerning the generated hazardous wastes (Wielenga 2010).

### ***Transboundary Movements of Hazardous Wastes***

Since the 1970s, the international trade of hazardous waste has significantly grown. Based on available information, approximately 1 million tons of hazardous wastes created by wealthy countries are legally traded, even though this figure is most likely much higher in reality (O'Neill 2000).

On the other hand, there had been intense international media attention as well as local civic outrage that resulted from the illegal waste trading methods that were less openly used. Therefore, the rich nations displayed various fake recycling practices and concealed their hazardous wastes exports as nontoxic products. An example of this would be the Taiwanese petrochemical company, Formosa, in 1998, which shipped several thousand tons of mercury-laden sludge labelled as, “construction waste”, to a city named Sihanoukville in Cambodia. The hazardous wastes were dumped in several villages that were located to a nearby watershed. As a result, many people became ill in the area; and, eventually the operation was discovered by the local authorities that forced Formosa to pay millions of dollars to Cambodia in compensation (Sende 2010). As Situ and Emmons (2000) noted, corporations are generally the main environmental offenders; however,

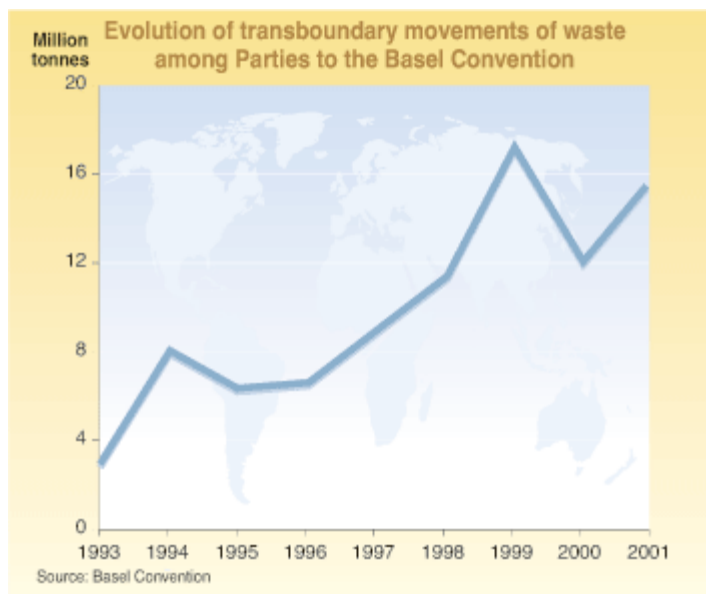
other organizations (e.g. criminal combines or government agencies) as well as additional types of individuals who have carried out other acts of environmental crime will be displayed in the latter segment of the research.

One may say that there are several factors involved in the trade of hazardous wastes that influence the developed as well as developing world to participate in such activity (i.e. well established trade routes, cost of disposal and importing wastes results in lower tariffs). There is a significant number of hazardous waste being traded amongst the rich and poor nations that has been undocumented. Although, both sides tend to forget that the third world nations hardly produce any hazardous wastes, which means that, they do not have the knowledge to properly deal with such materials. In addition, they do not possess the appropriate disposal facilities; and, as a result, they face setbacks in the implementation of the clean production practice as well as adequate disposal techniques (Aulston n.d.).

It is a fact that as a consequence of the global industrialization; hazardous wastes have been piling up faster than there are appropriate places for their disposal, especially in the wealthy countries. For example, in the United States the available disposal sites shrank from 1,500 in 1984 to 325 in 1988, despite the fact that approximately 500 million tons of wastes were generated each year. Nowadays, it is difficult to locate disposal sites due to the strong public resistance of dumping wastes in any backyard. Therefore, the placement of hazardous wastes has become a debatable issue even within the low-income neighbourhoods. Companies believe that it is more economical to dump the hazardous wastes in poor areas because the residents are least likely to present any political resistance (Okaru 2011). Based on the reports of the Basel Convention on the Control of

Transboundary Movements of Hazardous Wastes and their Disposal, as Figure 5 displays, it is estimated that between 1993 and 2001, the amount of waste crisscrossing the world grew from 2 million tonnes to more than 8.5 million tonnes.

Figure 5: Evolution of transboundary movements of waste among Parties to the Basel Convention (Baker 2004 p.30)



What material is being exchanged or traded between nations and where is it coming from or going to? Regrettably, data on waste movements aren't completed because not every country reports waste movements to the Basel Convention.

Based on this fact as well as other matters, the question that arises is whether the Basel Convention has adequately been constructed to address all the aspects of the transboundary movements of hazardous waste to the developing world? Hence, the remaining sections of the study will provide those answers to this dilemma.

### **III. Environmental crime: the illegal transboundary movements of hazardous waste and disposal**

The previous section provided information about hazardous waste and its involvement in transboundary movements while this segment reviews the backlash of illegal hazardous waste trafficking and dumping that is one of the fastest growing environmental crime.

#### ***Aspects of Environmental Crime***

Environmental crime is a serious contemporary problem that threatens the well-being of millions of people around the world (Clifford 1998). It is generally defined as a deliberate evasion of environmental law and regulations by natural as well as legal entities in order to pursue financial gain (Brack and Hayman 2002). Environmental crime and unlawful resource activity contributes to a specific aspect of non-compliance while also addressing the difficulties of enforcement that have been important issues to the global politics of the environment. One may note that when an activity is regulated or banned under the terms of a multilateral environmental agreement (i.e. the Basel Convention), it is expected that the signatory States establish legislation that present an effect to that agreement; and, in turn this process should take into account the penalties as well as sanctions to be assessed in order to ensure the adequate punishment for the violators (Elliott 2007). Although as White (2010) noted, those who create and form the

law are frequently those whose activities need to be criminalized in order to protect the environment.

As Elliott (2007) further noted, environmental crime has evolved into a transnationalized term that is recommended by the United Nations Convention against Transnational Organized Crime. In as much, its characterization will apply to a transnational offence in nature, if, "it is committed in more than one State; it is committed in one State but a substantial part of its preparation, planning, direction or control takes place in another State; it is committed in one State but involves an organized criminal group that engages in criminal activities in more than one State; or, it is committed in one State but has substantial effects in another State" (United Nations 2000 p.4).

Environmental crime is a complex issue that involves many factors as well as a variety of actors. The actors usually reside outside the jurisdiction of the authorities wherein the action of the offense occurs. In many cases, even if the perpetrators are brought to justice the penalty is within a bearable range that it can be absorbed as a cost of business.

Situ and Emmons (2000) defined environmental crime as *"an unauthorized act or omission that violates the law and is therefore subject to criminal prosecution and criminal sanctions. This offense harms or endangers people's physical safety or health as well as the environment itself. It serves the interests of either organization - typically corporations - or individuals"* (p.3). They noted that this definition takes into consideration three characteristics of environmental crime. In relation to this aspect, they further noted that environmental crime "violates existing environmental laws" (p.4). Situ and Emmons further added that people and the environment are the real victims who

suffer from these atrocities; and, this type of victimization can be "gradual and silent" (p.4). Thus, localizing the concept of criminality is an existential approach and improves the clarity of the definition. Yet, practicality of the definition is hindered by multidimensional variables in identifying the victims of the act, the nature and extent of the criminal damage.

Mueller (1996) provided ideas as to what he believed might impede the practicality of Situ and Emmons's definition; and, he also identified 10 problems that hampered the understanding and determination of environmental crimes within the scope of local laws. For instance, the first variable focuses on qualification and quantification of the crime. In as much, how do we measure the amount or the degree of the damage? Therefore, unless the quantity of the damage is determined reasonable compensation, the possibility would arise that the compensation might not be able to be assessed. Mueller (1996) also noted that environmental damage sometimes appears to be catastrophic and permanent; however, it may turn out to be temporary and reversible. Scientific predictions are frequently tentative and speculative; although, they still might cause alarm amongst politicians and advocacy groups focusing on those environmental issues.

In addition to the recognition of environmental harm, we can identify other issues of importance; for example, how do we decide when harm to the environment has become severe enough to be a penal offense? Mueller called it a 'problem of qualification' when one issue brings us to another problem that opens another area that may present issues in order to find the problem of proof. As Situ and Emmons (2000) noted, environmental damage is "gradual and silent"; therefore, its potential long term effect can go on for years, if not decades, without any recognition of its effect. Some factors may

even contribute to the degree of severity while others may mitigate the damage; hence, how can we prove whether the environmental damage has been caused by the actions of a specific offender(s)?

Thus, as White (2010) noted, it is crucial to have an idea of the 'where' of environmental harm as well as the 'how', 'why' and 'who'. In order to evaluate environmental harm, both the spatial and temporal methods should be taken into consideration due to the fact that the place and time are essential toward following the contours of the environmental deterioration and eradication within its various forms.

Clifford (1998), similarly to Mueller, recognized the problem associated with the determination of the degree of harm but she also emphasized the importance of intent. She proposed the following definition: *"An environmental crime is an act committed with the intent to harm or with a potential to cause harm to ecological and/or biological systems and for the purpose of securing business or personal advantage"* (p.26). Clifford noted that a workable definition could simply adopt 'classes' of violations based on the degree of harm, as well as the determination of intent. She further added that despite the difficulties associated with intent and the degree of harm, the process should not be any different when law enforcement agencies are pursuing other criminal offenses. Although, White (2008) took one step further and stated it is crucial to identify certain instances of harm that occur from imperfect operations and systemic harm that is arising by normatively sanctioned forms of activity. The first is considered to be 'criminal'; therefore, it is subject to social controls while the other is not. Thus, the difficulties related to the global environment will worsen in the midst of a generation of a greater range of regulatory mechanisms that are the agencies and laws.

Scholars also approached environmental crime with diverse theoretical ideas. For example, Situ and Emmons (2000) discussed the strict legalist and social legalist perspectives that are more complementary than conflicting. The strict legalist is a conceptualized environmental crime solely based on the code of law as written in the legislation. Even though, other scholars argued that with criminology in general, the concept of 'harm' should reflect those activities that might be legal and 'legitimate' because of their adverse effect on people, as well as the environment (White 2008). The social legalist extended the scope to a wider perspective whereby environmental crime was not that which is merely stated in the code of law but it should be rather perceived with a wide range of ethical considerations. One may note that the strict approach is punitive in nature while the social is viewed somewhat moralistic and philosophical.

In contrast to Situ, Adler (1996) noted the dichotomy between offender-specific versus offense-specific perspectives. In other words, the comparison draws the questions as to where do you put the focus of attention, on the criminality or on the crime. The criminality theory explains the criminal behaviour in terms of the social environment. For instance, it analyses whether an acceptable and legal way of disposing hazardous waste was available to the offender or if it explored alternative options to prevent the offense. The crime or the offense-specific approach strives to criminally evaluate the action. This approach might be seen as the strict legalist perspective utilized by Situ. Thus, the dichotomy between the criminality and crime theories can be perceived as a contrast between preventive versus punitive perspectives. Yet, the underlying question will remain as to which perspectives should be employed in order to formulate environmental laws?

Another contrast in approaching environmental crime is entrenched in the socio-economic and technological analysis of the offense. Mueller (1996) alludes that the justice system still considers environmental crime as an economic crime that is "committed involuntarily"; therefore, it is not deserving of "criminal disapprobation". Hence, if environmental crime is intertwined with socio-economic interests then it will be more problematic to criminalize it. The question of economic versus environmental priority obscures the criminality of the offense. Coupled with the socio-economic interest, the scientific community is not unanimous about environmental damage; and, as a result some still believe that environmental damage can be limited and rescindable.

In sum, environmental crime is considered in various ways by scholars who focus on several elements i.e. harm, offender and intent in their theories. Nevertheless, one may note that there is some consensus amongst them that this type of activity is harmful to both the people and the environment. The subsequent paragraphs will look into the illegal hazardous waste trade and disposal in relation to environment crime by examining i.e. illegal activities as well as how the perpetrators have taken advantage of various factors (i.e. regulatory shortcomings). Ultimately, a picture will begin to emerge that highlights the challenges of the Basel Convention in relation to the illegal transboundary movements of hazardous waste to the developing world.

### ***Corruption, Illegal Hazardous Waste Trafficking and Dumping***

Amongst the variety of environmental crimes, the trafficking of illegal hazardous waste has increasingly become an attractive interest of shady brokers as well as criminal networks due to its source of a significant revenue. According to Europol, organized crime networks are not the only actors who conduct illegal trafficking of hazardous waste. Apparently, investigations exposed numerous legal enterprises who have moved hazardous waste illegal through corrupt brokers and facilitators in order to minimize the costs involved while maximizing the overall profits (Baiamante and Vermeersch (2011). Additionally, as Terekhova (2012) as well as Baiamante and Vermeersch (2011) stated, waste trafficking is a crime that is generally accommodated by corrupt public officials who are in charge of the permits, law enforcement and custom officials as well as politicians who have facilitated the solving of bureaucratic issues in order to obtain falsified documents. Elliott (2007) also noted that transnational environmental crime had become more and more systematic while it also produced ‘venture capital’ for other illegal activities, for example: drugs and arms.

Similarly to the previous scholars, White and Heckenberg (2011) additionally stated that based on the nature of the industry – the disposal of hazardous waste at a competitive price – it has definitely opened up the prospect of wrongdoing. Therefore, they have illustrated key opportunities - within the below table – whereby crimes within the waste cycle have made waste management a vulnerable sector.

Table 3. Risks in the Waste Cycle

Illegal Storage	In cases where an empty hangar is found filled with tires or some other waste product with no trace of the owner of the hangar, the work of a crime group is suspected
Transboundary shipment/trafficking in toxic waste	Waste cycle is vulnerable to trafficking at 3 stages: <ol style="list-style-type: none"> <li>1) Initial transfer: from producer to firm specializing in waste management</li> <li>2) Transit phase: transport and storage activities can be run illegally, inspection of storage sites may be sporadic</li> <li>3) Destination stage: treatment, recycling and final disposal (illicit practices mean the waste ends up elsewhere)</li> </ol>
Illegal dumping of hazardous waste	Illegal dumping of hazardous waste is an activity in which the involvement of crime groups can be identified

Source: White and Heckenberg (2011, pp.1259)

The three stages (origin, transit and destination) of the waste cycle have been well illustrated by Massari and Monzini (2004) in the case of Italy.

#### Origin: The Waste Producers

In the event that the producer has no equipment to adequately treat the hazardous waste, they must transfer those contents to an authorized intermediary (storage place or recycling center). Upon the selection of a waste management firm, the generator must then pay for the necessary services to be provided and transfer the waste to the designated transport company accompanied by the appropriate paper work. Hereafter, the transport company that usually works in cooperation with the handling firm will then oversee its shipment. Thus, when the hazardous waste is taken from the generator, its 'social' responsibility will shift to the specialized firm who will be contracted for the job. Therefore, it should be noted that the selection of the waste management firm, by the

producer, is crucial. In general, waste generators often care little about their partners' reliability. The common practice of waste generators, as the means of hazardous waste disposal contracts, is to choose the lowest bidder available on the market despite the fact that the actions of the firm might be illegal. In as much, although the producer might be aware of the illegal trafficking activities of its waste products, the possibility of their accountability in this activity could be summarized as follows:

- a) The generator of the hazardous waste is not aware of the illegal business due to the lack of sufficient information. Thus, they are in the belief that the intermediary is appropriately carrying out the required services, while the intermediaries conduct clandestine and undetected operation during the transport or treatment of these activities.
- b) The waste producers are aware of their misconduct in the following examples:
  - ✓ Under-declare the weight of the waste and divert some portion of the waste to the illegal market or directly dumps it unlawfully.
  - ✓ They willingly choose the services of waste management firms who illegally deals with the collection, storage or dumping of the waste.
  - ✓ The producer ships the hazardous waste as recyclable waste or as products other than waste with fake documentation and codes. The analysts and chemists then provide the false certification during this type of activity.

As many scholars have noted before, the cost plays a major role as to the choices that producers often choose when dealing within the illegal market. The safe and

adequate disposal of hazardous waste is often overshadowed by the act of cheap illegal dumping versus the enormous expense emitted through the legitimate process of disposal. For instance, a large chemical factory near Syracuse (in Sicily) illegally discharged tons of hazardous waste and had saved approximately 400% in costs as opposed to the legal market.

### Transport and Storage Activities

As Massari and Monzini (2004) noted both steps can be conducted illegally. For instance, falsified paperwork (i.e. transportation invoices) can be given to the truck drivers while they are on the road. With false documentation, the waste can be shifted from one storage location to another and disappear prior to its anticipated arrival to the final disposal site. As well, there are also irregularities at the storage locations. As Massari and Monzini (2004) noted there are more than 20,000 storage locations in Italy; therefore, it is impossible to closely inspect each site for quality assurance. As a result, the main illegal activities during this phase might be summed up as follows:

- ✓ Shipping firms dump the hazardous waste illegally regardless of falsified transportation documents.
- ✓ There are examples when hazardous waste is mixed with domestic waste or other materials in order to stay within the legal limits.
- ✓ Treatment locations provide competent authorities with false claims that the hazardous waste was properly processed.

- ✓ Collectors' falsely state that part of the hazardous waste was received and discharged while the reality is that it was illegally dumped.

Destination stage: The final phase of the illegal waste cycle

In general, if hazardous waste is properly treated it will end up in recycling centers, authorized dumps or in incinerators. In opposition, the illegal cycle may end anywhere (i.e. collected in barrels or plastic bags or otherwise). Unfortunately, traffickers use several methods that are extremely dangerous for the environment as well as to human health. The common illegal activity includes the following but is not limited to:

- ✓ Recycling centers that only process waste 'on paper'; most of the time false documentation is created that states the waste has commercial value; thus, it can be used in construction or agriculture (i.e. fertilizer)
- ✓ Recycling locations that obtain large amounts of hazardous waste then declare bankruptcy before even processing the waste.
- ✓ Urban waste incinerators are utilized instead of the appropriate facilities for hazardous waste.

Environmental criminals have common characteristics such as; they are all connected to the marketplace where they operate within. More importantly, their activities and partnership take place in an economic arena whereby the boundaries between legal and illegal activities are somewhat blurred or most cases overlap (Massari

and Monzini 2004). As Ruggiero (1997) noted this economic area can be defined as dirty economy, *"an arena in which those principles of legality and fair competition, advocated by the leading actors operating in the economy, are disregarded by their very advocates"* (p.28).

In addition to the risks - discussed by Massari and Monzini (2004) as well as White and Heckenberg (2011) – Brack and Hayman (2002) added that several factors have driven the black market of illegal hazardous waste trafficking; for example, there have been differential costs and values, regulatory and enforcement failures. With respect to the regulatory drivers, Hoare (2007) noted that the introduction of new legislation could be considered as a driver of environmental crime because new areas of illegality would most likely lead to more violations. Additionally, the level of illegality would have a negative impact if the new legislation curtailed supply but demand remained. On the other hand, an absence of legislation could also be seen as a driver - for instance, regulations controlling imports and exports. Such controls would decrease due to the fact that there was a shift towards a greater regional integration (i.e. Europe); and, as a result the border controls would be greatly reduced. The free trade zones would then carry lots of advantages; however, they would also reduce the capabilities of law enforcement agencies to monitor and control the trade of goods.

Similarly to Hoare, South (2010) added that both weak and serious regulations can result in the illegal waste trade and disposal; whereas, the first one encourages illicit activities due to the easily flouted rules. While, the latter is due to the costs of the legitimate disposal that can also stimulate unlawful practices and services in order to find the means toward handling that hazardous waste. In relation to this issue, Szasz (1986)

stated that large corporations that generate significant amounts of hazardous waste fought for a regulatory structure (Resource Conservation and Recovery Act) that would later prove to be highly susceptible toward organized crime intrusion. Another example noted by South (2010), indicated an act of environmental protection racketeering that took place due to the effect of the regulations; thus, a Detroit-based company was tried as a result of the intentional contamination of rivers with a toxic chemical(s) just to gain profit by offering a 'clean up service'.

Brack and Hayman (2002) further noted that one of the widely used methods by the perpetrators in illegal hazardous waste trafficking is an upgrade in the value of the shipment in order to evade the discovery that the material is an international liability that needs to be disposed of as soon as possible. As a result, customs officials will generally make a conclusion that the type of waste material, indicated with a high secondary value, is destined for recycling and thus is not hazardous. Brokers often characterize these types of shipment, in the broadest terms, in order to prevent drawing regulatory attention to the issue; for instance, words indicating that the shipment is a 'waste' is substituted by those having more of an affiliation with raw materials. The so-called 'sham recycling' frequently presented a suitable cover for the dumping of waste. Therefore, hazardous waste materials are then possibly laundered as commercial products. For example, in 1993, in the port of Nanjin, China, a shipment of 1,288 tons of chemical waste – mixed with and composed of a highly corrosive chemical sludge and polluted water, labelled as 'other fuel oil' - was discovered. This shipment turned out to be the first of many agreements between a Chinese importer and a Macao-based business in order to import a significant amount (200,000 tones) of such materials (Brack and Hayman 2002).

Another problem that contributes to the success of the trafficking of illegal hazardous waste is the lack of efficient monitoring and tracking of the transboundary movements of hazardous waste. This issue has become extremely problematic based on the fact that some States have generally defined hazardous waste differently (Martini 2012). This issue will be further discussed throughout the dissertation as well as demonstrated in some of the chapters whereby a universal definition could have a significant impact on the effectiveness of the Basel Convention in relation to the transboundary movements of hazardous waste to the developing world.

Environmental crime has transcended national borders and frequently been connected to instability. As UNEP (2013) have noted, *"environmental crime affects all sectors of society and is often linked with the exploitation of disadvantaged communities, human rights abuses, violence, conflict, money laundering, corruption and international criminal syndicates"* (p.1). Illegal waste trafficking is a serious threat to those countries where the untreated hazardous waste is either dumped into the ground, waterways, or has been disassembled with no regard to any type of health or safety issues for workers and to the enduring damages that are thereby caused to the environment. In addition, it is also an increasing threat for those countries who are generators of hazardous waste, resulting not only in fraud and tax evasion but also in the "pollution" of the legitimate economy by criminal elements through money laundering and the control of legal businesses active in the waste management sector (Baiamante and Vermeersch 2011).

One of the most well know examples of how illegal hazardous waste trade is prompted by instability is the case illustrated within Somalia. Due to the civilian conflict, the lack of rule of law and respect for human rights has attracted Italian mafia groups as

well as corrupted public officials to begin illicit activities. However, in 2006, the Italian Parliamentary Commission investigated whether there was any connection that existed between the hazardous waste and arms trafficking. During the investigation, it was established that conventional weapons were provided to armed groups who had participated in civil conflicts in the exchange of various locations where different types of hazardous waste were buried, disperse or burned. As a consequence, the people on Somalia are still suffering from the affects of this illegal hazardous waste trade i.e. cancer or childhood leukemia (Baiamante and Vermeersch 2011).

Similarly to the comment of UNEP and Interpol, Martini (2012) also noted that corruption is a catalyst for environmental crime. In particular, it plays a crucial role in the promotion of fraudulent trade, the forging of import/export certificates or the wrongful clearing of customs items amongst other things. The hazardous waste activity is not exempted from corruption and offers many opportunities to such wrongdoings. As Martini (2012) and Terekhova (2012) noted, corruption can occur at several stages during the management, transboundary movement and disposal of hazardous waste, for example:

- ✓ During the process of initiating the prior informed consent (PIC) procedure by the State of export (i.e. issuance of the notification document in violation of the national/domestic legislation or the provisions of the Basel Convention).
- ✓ Authorizing that the export can take place (i.e. providing the movement document in violation of the Basel Convention's provisions).
- ✓ Accepting or approving the exported shipment by the State of import (i.e. lack of compliance with an import restriction or lack of appropriate control of a contract that clearly defines whether the hazardous waste will be disposed of accordingly

to the provisions of the Convention)

- ✓ Border control (i.e. inadequate control of documents or lack of the visual inspection of the shipment).

In addition to these factors, Schmidt (2004) noted that "transit nations" also have a significant role concerning their corruptive activities, as they are the midpoints of global trade routes, where shipments stop briefly prior to their final destinations. One of the most significant transit nations is Singapore, where nearly 40,000 containers pass through their ports every day; and, as a result these exchanges play a major part in illegal trade schemes. Singapore has a reputation of being efficient, reliable and free of corruption; yet, it has emerged as major hub for illegal chlorofluorocarbons (CFCs) as well as other environmental contraband. How could this happen? Well, this might occur *"because transit inspections in Singapore are minimal and the confidentiality of private business information there is highly respected....., brokers can unload cargo, repackaging it, and reroute it to new destinations with minimal oversight from custom officials"* (Schmidt 2004 p.3).

As a result, transit nations provide opportunities for criminal elements to disguise the origins of the shipment; thus, this activity would make the paper trails harder to follow. For example, in December 1996, used lead acid batteries were shipped for recycling and recovery operations, from Australia to the Philippines through Singapore, in violation of the Basel Convention as well as the Australian domestic legislation.

In addition to and as part of Operation Demeter that was conducted by the World Customs Organization in 2009, custom officials from 64 countries observed the illegal

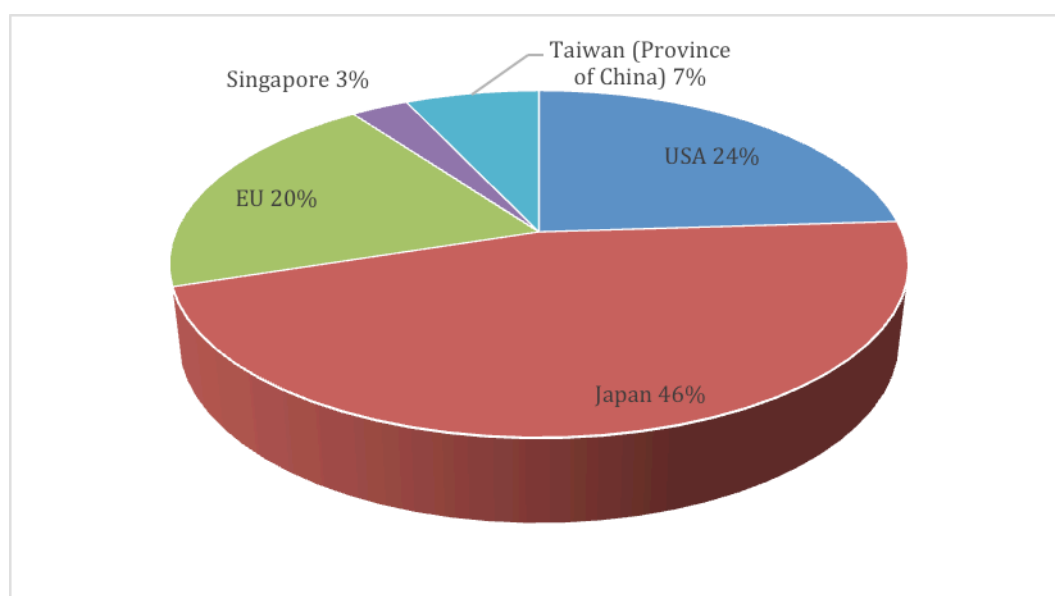
transboundary movements of hazardous waste from Europe to the Asia Pacific region as well as to Africa. As a result of this operation, approximately 30,000 tons of illegal hazardous waste was seized. The majority of the shipments were then taken into custody within some of the European countries (i.e. Netherlands, Belgium and Italy) prior to the waste being shipped to the developing countries (Martini 2012). Taking this information into consideration as well as factors from other cases, Schmidt (2004) and Elliott (2007) implied that European, Russian and Japanese crime groups had created an illegal market for hazardous waste within the Asia Pacific region; and, this connection would sometimes involve money laundering and arms sales.

In addition to the common illegal market for hazardous waste, the Asia Pacific region also knew about markets intensive illegal electronic waste trade. As UNODC (2013) noted, illegal market was mainly driven by the recycling of metals to be utilized in the manufacturing within that particular area. Within this region, China is the leading recipient of electronic waste but Indonesia, Thailand and Vietnam are not far behind. The bulk of illegal electronic waste is shipped to a Chinese province of Guangdong via Hong Kong, where it will be used in the "informal" recycling sector. The main demand - amongst the developing countries - focuses on cathode ray tubes (CRTs) monitors and printed circuit boards.

So, how is the trafficking of these materials being conducted? There are some answers to this question that surfaced through project 'Sky-Hole Patching'. The World Customs Organization (WCO) and UNEP conducted this development, during 2007, in order to gain some insight concerning this particular activity (Interpol 2009, UNODC 2013). In as much, Interpol (2009) did state that during the operation within Hong Kong,

custom officials (March-October 2007) were able to intercepted 98 illegal shipments of hazardous waste. As a result, the largest number of cargo was found to have originated from the United States (24), followed by Japan (13), Canada (7) and the European Union (7). Below, the figure indicates the sources of seized CRTs that were discovered in Hong Kong (China).

Figure 6: Sources of seized CRT in Hong Kong (China), March-October 2007



Source: OECD (2013 p.109)

In addition to the primary route that had been used as a gateway to Hong Kong, a 'backdoor route' had also emerged during the last few years, via Viet Nam, that also supplied the informal recycling sector in China (UNODC 2013). This passage was a consequence of the fact that Hong Kong had increased its border control regarding CRT televisions and monitors, in 2006, and discouraged the import of any articles that were in service for more than 5 years (Yoshida 2011). On the other hand, the 'secondary route'

had capitalized on the unclear legislation, in Vietnam, concerning importation during limited periods of time when electronic waste for re-export that was estimated to be up to 90% from the Vietnamese hubs (UNODC 2013).

Yoshida (2011) further added that Vietnam had also banned the import of second-hand electronic items in their legislation (with the exception of personal computers and laptop) but in practice they were massively imported. It was estimated that approximately 50,000 units of CRT televisions were ultimately shipped into Vietnam during each month and this was quite a high number to be considered for domestic demand. Therefore, it was believed that the bulk of these shipments were ultimately transferred to mainland China through areas where import control mechanisms were more relaxed. For instance, as UNODC (2013) had described this particular trade it was primarily dominated by the northern port of Haiphong. Containers of electronic waste (including mainly CRTs) had arrived from the United States, the European Union, Japan and Hong Kong (China). Then, the shipments were to be transferred to trucks in order to transport them to storage facilities in the vicinity of Mong Chai town (approximately 150 kilometres away) in the province of Quang Nihn (Mong Chai is situated across from the Chinese province of Guanxi that has a river that provides the international border).

Hereafter, the shipments would be loaded on small boats that would ferry them across the river to the Chinese town of Dongxin. The operation was often carried out during the night and the CRTs were disguised within the canvas. A single boat was capable of carrying approximately 800 CRTs thus, it was estimated by a field survey that up to 100,000 tons of electronic waste and scrap lead acid batteries were possibly illegally trafficked between Mong Cai and Dongxin on a yearly basis.

### ***The role of the actors***

The actors that were involved in illegal activities usually ranged from legitimate recycling firms to ‘waste tourists’ with a wide variety of the middlemen and brokers who were in between (UNODC 2013). The criminals were primarily attracted to the illegal trafficking of hazardous waste because it was profitable and the risk involved was quite negligible on a daily basis, as well as being coupled with a relatively low chance of actively being noticed or traced by law enforcement elements (Shebaro n.d.).

Thus, as Interpol (2009) and the UNODC (2013) had noted, the involvement of organized criminality (concerning illegal hazardous waste crime) was looser than the traditional hierarchical centralized structure of organized crime. The information gathered usually has indicated that small groups have been formed for a period of time in order to commit the offense for financial gain as well as other benefits; but, they have generally dispersed due to the pressure involved in order to organize new groups.

Rebovich (1992) further noted that the offenses committed by the generators were criminally carried out on a basic level thus the organization can be characterized a simple conspiracies. These types of criminal activities continuously occur and are only aimed toward obtaining illegal profits without the typical trademark of a traditional racketeering syndicate (i.e. threats of violence). He further added that the hazardous waste management sector might have been vulnerable toward being monopolized from certain aspects, such as: the fixed locations of customers or the low-skill of workers. Thus, he indicates that the possibility of the traditional cartel system would not have become a reality.

Although, Situ and Emmons (2000) formed a different opinion and stated that dominant criminal syndicates, especially Mafia families, had become a major player in the U.S. hazardous waste management industry, especially the East Coast of the United States. These criminal groups had utilized three strategies to achieve their exclusive place within the toxic waste disposal business in New York and New Jersey States.

- ✓ In order to eliminate the competition and secure high profits, the head of the groups divided the region into territorial monopolies based on the "property" claims of the various families. In addition, the groups also purchased their own landfills where the hazardous waste could be dumped from the territories. A New Jersey State police officer in his testimony portrayed the control of organized groups this way. He commented that, *"I am saying that someone operating in North Jersey and Central Jersey areas, no way can operate unless, somewhere, somehow, they are dealing with members of organized crime - given approval to deal in those territories"* (p.72). The territorial monopolies also granted non-competitive pricing of the hazardous waste disposal; thus, it resulted in huge profits for the Mafia families.
- ✓ Another tactic that was often utilized was the threat of violence in order to enforce "property rights". For example, if a regular business had participated in toxic waste disposal on a territory assigned to organized crime, it was offered to become part of the criminal enterprise. However, those firms that were resistant became the target of intimidation and possible violence.
- ✓ As part of the control of the toxic waste business, the criminals bribed local officials who had some type of jurisdiction over the disposal of toxic waste or

those who would ignore any illegal dumping while keeping it hidden from public scrutiny as well.

In addition, as Situ and Emmons (2010) noted the influence of organized crime groups even reached the local judicial system; and, as a result usually light sentences were imposed on criminals who were found guilty of those environmental crimes. For instance, Carmine Fransco (defendant in the Ramapo case) was indicted for different environmental violations (i.e. the falsification of state – mandated waste records, racketeering and the failure to adequately reveal the presence of hazardous materials). However, he only received a fine and was prohibited from actively participating in any waste disposal industry within Rockland County.

There are also many opportunities - as the Interpol (2009) noted - for criminal activities within the UK electronic waste disposal operation; and, as a result the criminals generally explore the weaknesses of the system (i.e. how to disguise or mislabel electronic waste in order to utilize it to their advantage). The term 'waste tourists' is widely used within the UK due to the fact that many individuals arrive to the country with the intention of organizing the purchase and export of waste. While they are in the country, a container will be filled and set-up for export; and, as they only have a tourist visa they will not have links to Customs or other forms of law enforcement and therefore might be able to avoid detection.

In other cases, criminals have exploited the necessity of local governments to accomplish recycling targets by buying the electronic waste straight from the municipal sites for recycling. The assumption is that the equipment bought by the criminals has been directly and frequently exported to the non-OECD countries without any

components for recycling. This process can be a highly rewarding business due to the fact that televisions and monitors can be purchased for £2-£3 each and sold for twice that amount. It is therefore estimated that this type of trade has a profit of approximately £2 million per year.

The Interpol (2009) further noted that exporters have often changed the method of the shipments in case the authorities have systematically enforced the restrictions. For example, custom officials may decide to select a seizure of all 40ft containers at a given port. Having knowledge of this, the waste traffickers will then shift the containers to a smaller size or decide to utilize another form of transport such as open-sided Lorries or the use of another port. This action would imply that a combination of premeditation and organization would definitely signify that the criminals are well aware of the nature of the waste shipment.

As Shebaro (n.d) noted, criminals involved in the hazardous waste smuggling practice are capable of utilizing all types of attempts in order to blend into the legal waste management business. In doing so, it is even possible for them to establish some type of fake company whose offices would be located within offshore sites or in countries that have provided advantageous tax benefits. As a result, this particular method would allow them to be able to launder money that they receive from businesses and remain unnoticed by the international community. On the other hand, due to the fact that faux companies have no intention of disposing the hazardous waste in accordance to the legal norms, they could simply underbid their legitimate competitors and win the contract.

For instance, the organized group, the Camorra, frequently undercut their *“competitors by up to 90% in order to snatch toxic waste disposal contracts from*

*factories seeking to reduce their costs”* (Arie 2004 p.2). Once the fake company has obtained the contract and concluded its action with the legal waste management firm, the illegal corporation would disappear but eventually would re-emerge under a new identity when there was a new business transaction that was in sight.

According to Shebaro (n.d.), criminals who operate from other countries most often utilize ways to commit illegal activities by searching for other countries that are weak in some shape or form. For instance, perpetrators in the United States often take advantage of the weak border controls between the U.S. and Mexico. The borders are often extremely engaged through out the day; therefore, it is almost impossible for the border patrol to inspect each cargo that passes through. As Moyers (1990) noted, the chance of being detected is slim due to the fact that U.S. Custom officials only check the paperwork that can be easily manipulated. He further noted that, *"although U.S. Customs agents stepped up their spot checks for hazardous waste in 1990, they concede toxic shipments are not their highest priority; they are looking for arms, drugs and illegal immigrants coming north from Mexico. The Custom Service also lacks the skilled personnel and on-site testing equipment necessary to check for toxic waste, which is difficult to detect. As one police officer observed, the trucks do not have a placard on them saying they're hauling hazardous waste"* (p.52.).

In sum, scholars have developed diverse interpretations and theories of environmental crime in order to capture the effects of this phenomenon on people as well as the environment. As was illustrated, the illegal hazardous waste trade and in some cases the illegal dumping – both a form of environmental crime – don’t just generate

significant revenue. These types of offenses can cause serious harm to the environment as well as to humans where the extent of the damage is difficult to be quantified.

One may note that regulatory structures and styles might also have impact on environmental crime. In Kate O'Neill's book, entitled, 'Waste Trading among Rich Nations: Building a New Theory of Environmental Regulation', she identified three contending explanations that describe the differences in the waste trade practices within the OECD countries in order to form an institutional theory of waste importation. One of the central hypotheses focuses on regulatory structure and styles that can determine waste importation patterns. In reference to the United Kingdom, she noted that the waste disposal industry is highly competitive, privately held and the policy process tends to exclude the opinions of the public as well as the advocacy groups. In opposition, the German system is much more structured and centralized. Furthermore, the waste disposal sector is either run and publicly owned or influenced by governmental bodies that might intervene from time to time. In reference to the waste importation propensity, she categorizes the United Kingdom as 'high' meaning that the country imports a great amount of hazardous waste as opposed to Germany who is considered 'low'. This finding is interesting because the United Kingdom has been seen as one of the major hazardous waste exporters, especially in the electronic waste area that mainly involves illegal activities. Additionally, the policy implementation is ad hoc that might also lead to loopholes that can be circumvented by criminals.

Within the environmental crime literature, regulatory failure is considered one of the drivers for illegal hazardous waste trafficking. So, one may wonder whether the regulatory structure and styles somewhat contribute to the illegal hazardous waste trade.

As O'Neill noted regulatory structure does matter because it can affect the ability of government officials to monitor, control and coordinate the activities of their people; thus, she concluded that the less that oversight is maintained by the government in the system, the more possibilities that businesses will have to import hazardous waste. Based on this assumption, one may ask does the decentralized system where national agents have less oversight or monitoring abilities of local authorities stimulate illegal hazardous waste trade and dumping; and, if so in what way?

Since the United Kingdom and Germany differ in the structure of waste management regulation and access to their policies amongst others, it would be interesting to see whether the regulatory structure and style differences resulted in the divergence in relation to the illegal transboundary movements of hazardous waste in the United Kingdom and Germany. If yes, what scale would it be? Even though these questions are not the scope of this research; nevertheless, they are for future consideration and the application of O'Neill's theory might provide some interesting insight that would help to better understand the mechanism of the illegal waste trade and government responsibilities.

Environmental crime is committed at different locations. Yet, the actors can be multinational and the action may not inherently arise from the domestic origin. The Basel Convention could be utilized as a reference to formulate national/domestic legislation that addresses transnational environmental offenses. However, States most likely consider different definitions or theories in order to deal with environmental crimes (in some cases it is not even a priority). Thus, the diverse approach created a vacuum that led to the flourishing of environmental criminal activities; and, among many challenges it

also contributed to the ineffectiveness of the Basel Convention in relation to the transboundary movements of hazardous waste to the developing world. As a consequence, illegal waste traffickers freely continue to do their business daily and even include any penalties into the cost of their business. Environmental crime is hard to police due to the fact that it poses a variety of challenges to detect it. In addition, as South (2010) noted, *“Paradoxically, the development of this illegal service runs parallel with an increase in environmental awareness, the latter forcing governments to raise costs for industrial dumping, which indirectly encourages industrialists to opt for cheaper solutions”* (p.233).

So, one may wonder whether governments will ever be able to match up with the perpetrators in order to prevent the tip over of the balance of nature completely.

#### **IV. The Background and the Political Aspect of the Basel Convention**

As my research begins to explore the issue proposed by ‘Why has the Basel Convention not adequately addressed the transboundary movements of hazardous waste to the developing world?’ this section attempts to achieve part of this question by exploring the historical and political aspects of the Basel Convention.

##### ***Cairo Guidelines***

During the 1980s, the UNEP began examining the problems of international shipments of hazardous waste; and, as a result senior government officials dealing with environmental law in 1981 adopted the Program of Development and Periodic Review of Environmental Law. The program, sponsored by UNEP, was tasked to develop guidelines, principles and a possible global convention that would address the transport, handling and disposal of toxic wastes (Abrams 1990).

In 1984 and 1985, a UNEP working group consisting of legal and technical experts constructed a set of voluntary guidelines that addressed the management and disposal of hazardous waste that became known as the Cairo Guidelines (Chasek, Downie and Brown 2010). The aim of the Cairo Guidelines was to assist national governments in the process of constructing the adequate policies that would identify and administer the issues of hazardous waste management (Abrams 1990 and Choksi 2001). For example, within the guidelines of Sections 26 and 27 its intent introduced the joint responsibility of both the exporting and importing nations so that they would ensure the

required safeguards for the preservation of the environment (Rublack 1989). Although, Choksi (2001) noted that the guidelines alone had no real degree of enforcement; nevertheless, the outcome might serve as a sense of obligation and motivation for those countries that were concerned about the increased trade in hazardous wastes and in turn draw consensus that would create a legally binding treaty. In light of the protection of the global environment, the Cairo Guidelines proposed a prior informed consent mechanism for hazardous waste shipments; and, likewise the verification by exporting countries that the importing country would have the appropriate facility to handle hazardous wastes (Helfenstein 1988, Abrams 1990, Chasek, Downie and Brown 2010). As Abrams (1990) claimed, the Cairo Guidelines recognized that the crucial issue in promoting safe hazardous waste management was regulating international waste shipments regardless of their purpose (i.e. recycling, treatment or final disposal) in the receiving state.

Following the official adoption of the Cairo Guidelines in June 1987, the UNEP established an ad hoc working group that was composed of various legal and technical experts (Cusack 1989 and Abrams 1990). The mandate of the working group was to formulate a convention that would address the specific difficulties of the transboundary movement of hazardous wastes while it integrated some of the principles that were introduced in the Cairo Guidelines (Petsonk 1989, Abrams 1990). During the first meeting, the working group agreed to define wastes that were covered by the convention based on a primary list that was unanimously recognized as hazardous (the list was annexed to the convention). Various topics were discussed during the second meeting regarding the operation of waste disposal; and, as a result the system of prior written consent for the movement of wastes by a receiving and transit country was established

and the definition of hazardous waste was further shaped by the working group. The third meeting focused on the importance of countries individual obligations; for example, the possible disposal of hazardous wastes within the specific location or close proximity to its waste production. During the fourth meeting the idea of a limited ban was presented that would allow waste to be moved among the contracting parties only (NGLS 1989). However, as the working group was to provide an amended version of the draft convention, the debate was so intense that they were unable to produce an overall means for their agreement; so, instead the group was only able to reach concession on a few areas of the provision (Kummer 1992). At that particular point in time, there was serious concern as to whether the agreed draft document could have been finalized for its eventual presentation to the Basel Conference and it thereby placed the success of the conference itself into question. In order to prevent this situation from leading into further divide, the Executive Director of the UNEP intervened and brought the consultations back on track allowing the working group to resume its initial work (Kummer 1992). The working group reviewed several UNEP revised draft conventions during the course of the five sessions and in conclusion formed its final proposal for the Basel Convention that was adopted in March 1989 and entered into force in May 1992 (Cusack 1989, Kummer Peiry 2010).

During the opening session of the Basel Conference, on behalf of the President of Mali (who was also the Chairman of the Organization of the African Unity (OAU) at that time), a statement was made to the effect that the African countries were not willing to sign the Convention as they regarded the process as being too weak. They also stated that they would determine a final position regarding the matter following additional meetings

within the framework of the OAU. On the other hand, a number of other countries including the crucial developed nations, such as the Federal Republic of Germany, the United States, the United Kingdom and Japan also choose to delay their signature to the Convention due to their own interest. If these countries had decided to remain against joining the parties, then the consequence of this inaction would seriously place into question the possibility of the Basel Convention remaining an effective declaration of intention overall. In as much, the likelihood of this event occurring would ultimately illustrate the frailness an agreed arrangement (Kummer Peiry 2010).

### *Negotiations*

During the negotiations, major differences emerged between the African countries and the industrialized nations (Chasek, Downie and Brown 2010). It soon became apparent that the main obstacles that would be debated would be the political and economic viewpoints (Petsonk 1989). As Montgomery (1990) noted, political differences could not be ignored between the North and South regarding the waste trade problem. Additionally, he remarked that developing countries should have been able to set the tone regarding these issues due to the fact that they were the victims of their own economic comparative advantage in waste disposal. He further noted that the North-South discussion changed from the exploitation of raw materials to taking advantage of the political and economic weaknesses for the North's benefit.

This notion was clearly characterized by one of the Nigerian citizens in his letter to the African Concord following the Koko, Nigeria incident, stating that, "*The ongoing*

*attempt to dump toxic nuclear waste in Africa is patently a new imperialist warfare against Africa and its people...In the past we were being bought as slaves and used as chattels. They looted our riches, colonized and partitioned our land. Presently, we are still being neocolonized, balkanized, plundered, exploited, and poisoned by the same forces” (Christrup 1988 p.14-15).*

The principal dispute of the African countries was surrounded by the issue that they were requiring an outright ban on hazardous waste exports and were seeking export-state liabilities as a consequence of the illegal trafficking of the wastes due to the fact that many developing states did not have the administrative, technical and financial means to enforce a total ban on their own (Petsonk 1989, Chasek, Downie and Brown 2010). An expert from Jamaica stated - during the second session of the ad hoc working group - *“Developing countries which received hazardous wastes suffered permanent environmental damage since their knowledge of the nature of the wastes and their expertise and technology to handle them were insufficient. The result was a transfer of pollution from industrialized to developing countries. The Convention should not provide a means to permit those practices”* (UNEP/WG. 186/3 p.5). While sharing the concerns of African nations during the same session, the observer from Greenpeace International expressed similar views and added *“Greenpeace International was calling for a world-wide ban on all exports of hazardous wastes as the only guarantee for the protection of the global environment”* (UNEP/WG. 186/3 p.9).

Christrup (1988) also shared the view that a total ban on the transboundary movement of hazardous waste was probably the best response. She believed that a ban would safeguard the environment from insufficient disposal methods; and, it would also

prompt the developed and other waste generators to make efforts to re-think the long-term solutions to the waste problem. As Christrup (1988) further noted, the waste trade is not a problem itself but an indication of the failure of the developed countries to intelligently deal with the fact that it is generating far too much waste. As Jim Vallette said, *“Banning the international waste trade is one very important step in stopping the contamination of our water, ground and air. Providing waste makers with escape valves, such as export, is moving us in the wrong direction. The only real solution, if these countries decide against becoming party to the toxic crisis, is to reduce waste at the source to stop it before it’s ever produced”* (Christrup 1988 p.16). As Petsonk (1989) noted, a total ban would force waste reduction at the waste generator that would most likely contradict the interest of the developed countries.

As scholars and experts described the positions of the North-South as it impacted the issue of a total ban, it should be specified that their views greatly differed. The negotiations will continue on this matter for many-many years to come but despite the efforts of the Member States, there has not been a satisfactory consensus on this matter until the present day. It is an incredible difficult task to curb hazardous waste trade, especially when the developing nations who are poor and in need of revenue see hazardous waste trade as a source of monetary value. So, in general, one may note that the economical interests of Member States supersede the ability of the Convention to provide appropriate controls that could put a stop to or at least decrease the growing hazardous waste trade market. One may add that this important matter could have contributed to the problem as to ‘why has the Basel Convention not adequately addressed the transboundary movements of the hazardous waste to the developing world?’

The industrialized countries wanted a convention that would permit trade through the utilization of the informed-consent regime (Chasek, Downie and Brown 2010). However, as Hackett (1990) noted some of the countries wanted the written consent to always be provided prior to the export of the wastes; while, others argued that the requirement of a consent notice should only be utilized if the receiving country didn't provide a required response within a certain period of time. Vilcheck (1990) further noted that developing countries argued that they should have the right to reject transit of hazardous waste across their territory unless a prior informed consent was provided. However, the developed countries did not have the same opinion regarding this proposal because they were concerned that the majority of the developing nations lacked the appropriate means to deal with the paperwork, thus, they might make it difficult for shipments to be processed through. An expert, from Malaysia, somewhat summarized the general concern of several developing countries by emphasizing, *"that the interests of transit countries had yet to be adequately addressed in relation to the need for informed consent, as well as the responsibility of the exporting country in the event that a movement of hazardous wastes could not be completed"*(UNEP/WG. 186/3 p.6). As scholars have illustrated, Member States had proposed various ideas as to how the prior informed consent should have functioned. So, in as much one might consider that the attempt by both sides to validate their standpoint on this matter was made in order to ensure their specific national interest.

The industrialized countries also argued that the convention should not have annulled the current and pending bilateral and multilateral agreements regarding the transport, recycling and disposal of waste. Moreover, the developed countries stated that

most of the international hazardous waste shipments had an economic significance; therefore, many of the states would oppose a flat ban (Petsonk 1989). In addition, the anti-ban coalition argued that the transboundary movements of hazardous waste to other countries should have been allowed if they were to be disposed of in an environmentally sound manner at a lower cost. Yet, at the same time some of the developed nations faced the negative judgment of the public; and, local communities argued against the idea of building new waste disposal facilities that in effect would cause the increased need for hazardous wastes to be exported (Selin 2010).

According to Petsonk (1989), the most politically sensitive matter at hand was the battle over the right - expressed by many developed and developing countries - of a transit state to control the hazardous waste shipments within its territorial sea and restrictive economic zone. In other words, how will the territorial waters be determined in the case of a transit state (Hackett 1990)? Based on this specific concern, the Executive Director of the UNEP held countless formal and informal meetings with representatives from both sides of which numerous proposals were submitted to the working group that identified these issues as well as their possible solutions. However, due to the constant influx of new participants into this process it became enormously difficult to draw consensus based on the fact that each agreement reached in principal seemed to fall apart at the next consultation. For example, delegations who had participated during the earlier stages of dialogue were disappointed when they became aware that the results of their hard work was beginning to crumble; while, new comers had begun to develop a sense of frustration as they felt that the 'veteran' delegates were trying to exclude them from the process (Petsonk 1989).

During the final bargaining stage that took place in Basel, Switzerland, in March of 1989, the veto coalition headed by the United States took advantage of the fact that exporting countries could continue to find poor states who were willing to accept wastes (Chasek, Downie and Brown 2010). Moreover, rumours had spread that some African states were discretely negotiating advantageous waste import deals on their own (Petsonk 1989). Although, at the time of the negotiations the United States had only exported 1 percent of its hazardous waste mainly to Canada and Mexico; but, it had led the veto coalition due to its ideological standpoint that had refused the limitations on its right to export. An ultimatum was then given, by the veto coalition, to those countries who advocated for the ban to accept an informed-consent mechanism or get none at all. In response, the OAU recommended amendments be implemented in order to ban the export of wastes to states that lack the same level of facilities and technology as the exporting nations, as well as require the inspection of disposal sites by the UN inspectors. Unfortunately, many developed countries found these amendments to be unacceptable (Chasek, Downie and Brown 2010).

Contrary to the demand of the developing countries, Selin (2010) noted that there were several developing nations who neither joined the African countries in their objective nor supported the pro-ban coalition in their call for a trade ban; but, instead they supported the continuation of the trade of hazardous waste. These countries believed that the waste trade had played an important role of their particular domestic efforts to stimulate the economic development and industrialization of their country. Furthermore, they were convinced that waste imports would bring additional income, as well as provide opportunities to gain access to certain materials and equipment discarded by

Northern nations that was valuable for the developing countries. Selin (2010) further noted that during the time of the negotiations, the UNEP, under the leadership of Mostafa Tolba had also shared the view of the pro-trade coalition and also amenable supported a continued but regulated trade in hazardous waste.

Similarly to Selin (2010), Clapp (2001) and Kummer Peiry (2010) also noted that the UNEP didn't advocate a total ban of international hazardous waste transport because it was not convinced that the total ban was the most appropriate answer from an environmental viewpoint. Furthermore, they believed that a total ban would exclude shipments in a country where waste disposal might be carried out in a more environmentally sound manner than the country of origin. Kummer Peiry (2010) further noted that the developing nations and the environmental NGOs were extremely angry because the UNEP took a pro-trade position and they interpreted it as a betrayal of their struggle against the illegal trade, as well as an active support of the aims of the developed nations. Clapp (2001) added that the key interest of the developing nations was to conserve the environment as well as the justice and economic development opportunities over the long term. President Gnassingbe Eyadema of Togo, referring to the Basel Convention, noted that, *"Our efforts for the economic development of our states and for the progress of our people will be in vain if we do not...preserve the lives of our people and the environment"* (p.41).

So, has the Basel Convention adequately addressed the transboundary movements of hazardous waste to the developing world? So far, what I have ascertained is that this might not be the case based on the fact that the developing world was unable to achieve the total ban on the transboundary movements of hazardous wastes for their respective

territories during the negotiation process, even though the ban would have been morally right. As some scholars had illustrated, the veto coalition led by the United States fought very hard to avoid the possibility of a complete ban. Therefore, one may note that the Convention simply became a monitoring mechanism of the transboundary movements of hazardous wastes rather than a tool that prevented or prohibited it. Moreover, the prior informed consent that was supposed to be destined, as a crucial mechanism to be utilized will prove in the years ahead to be an inadequate system due to various reasons, as has been discussed in the literature review.

The Convention was composed during a relatively short period of time and seemed to be more lenient towards the interest of the developed nations rather than the developing world. Although given these facts and the entire purpose of the Convention, hasn't this process been an oxymoron in its protection the developing world from the unwanted trash of the rich nations? Do the political and financial gains really outweigh the life of millions of people in the developing world as well as the importance of preserving the earth for future generations? In the latter development of this dissertation, some insight to these questions will be provided that might prompt the reader to believe that the Convention did not serve as a catalyst to encourage waste reduction (as Member States would have expected), discourage fraudulent activities between trading entities or offer economical inducement in order to urge compliance in general.

### *The Conference of the Parties*

The most important question - the total ban - remained unresolved but this discussion will be further negotiated amongst other issues at the meetings of the Conference of the Parties (hereinafter COP). Article 15 of the Basel Convention established the Conference of the Parties that was to be composed of governments whose countries had accepted, ratified or acceded to it (Basel Convention Overview/Mandate n.d.). According to the Basel Convention the Conference of the Parties, it was to be tasked with various responsibilities, for example; promoting the harmonization of policies, strategies and measures and minimizing the harmful effects of hazardous waste on human health and the global environment. Moreover, the COPs were also responsible for the continuous review and evaluation of the process so that the Convention would be effectively implemented (Basel Convention 1989). Although, in retrospect, one may say that it would have been a challenge in fulfilling some of the duties of the COPs as most of the Member States may have acted in the best interest of their constituents rather than in the interest of the greater good. This struggle has surely been demonstrated as I reflect on the negotiations that lead up to the adoption of the Convention.

The first Conference of Parties (COP-1) took place, in 1992, where the Group of 77 (G-77) bodies of developing countries re-established the idea of a complete ban of the Basel Convention. The force with which the developing countries argued for a global ban stunned the OECD countries. For example, the head of the Indian delegation, Mr. A. Bhattacharjya, expressed the feeling of the developing nations when he noted that, *"You industrialized countries have been asking us to do many things for the global good - to*

*stop cutting down our forests, to stop using your CFCs - now we are asking you to do something for the global good - keep your own waste"* (Puckett 1997 p.5).

Knowing the seriousness of the situation, the OECD states realized that if the question of a total ban comes to a vote they would be outnumbered and receive little support to oppose it; therefore, they made every effort either to reach some compromise or delay the ban (Puckett 1997). Nevertheless, after the heated debate COP-1 adopted Decision I/22 that *"requests the industrialized countries to prohibit transboundary movements of hazardous wastes and other wastes for disposal to developing countries....and further requests developing countries to prohibit the import of hazardous wastes from industrialized countries"* (Wirth 1998 p.238).

During the second COP (COP-2) that took place in Geneva, March 1994, many countries led by the G-77 proposed the implementation of a complete ban – including those shipments that were for recycling purposes - on hazardous waste exports from OECD countries to non-OECD countries (Wirth 1998, Chasek, Downie and Brown 2010). During this segment of the discussion, the G-77 refused to compromise with the United States, the EU, Australia and Canada. The developed nations presented various watered down ideas but the chair of the G-77, Sri Lankan representative Dr. Nesiah stated that, *"These proposals have loopholes that would quickly widen. We would have a flood of movement from OECD to non-OECD countries - from countries that can cope to countries that cannot."* He further added that, *"The G-77 will not negotiate on the ban... the only room for negotiation is the starting date"* (Puckett 1997).

Puckett and Fogel (1994) added that the EU even proposed a list of developing countries that might have been willing to accept various types of wastes that would have

been drawn up and published. This “global designated dumping grounds” idea in their view was actually an attempt to gain some time in order to break the non-OECD unity while passing the responsibility of the problem to the non-OECD nations. In response to this suggestion, Kante from Senegal stated: *“It is unacceptable to us; it is a mixture of nonsense”*; while, Mr. Miguel Arujo from El Salvador added that, *“we cannot allow this situation that requires us to be alert to continue. We need to adopt the ban once and for all... Why is this so difficult if, as industrial countries have said, only 1% of OECD hazardous wastes are exported to the non-OECD countries”* (p. 2)?

Chasek, Downie and Brown (2010) noted that Greenpeace also introduced significant material supporting the G-77 position. In as much, they provided a seven-year study that closely scrutinized more than fifty recycling operations within non-OECD countries. As a result, the evidence of the study was quite disturbing because it indicated the widespread dumping of hazardous wastes that had been falsely marked and shipped as “recyclables”. In addition, it was discovered that many of these shipments were supposed to have been recycled but were just dumped in areas within the developing countries. Consequently, the veto coalition against the ban began to weaken due to some of the veto states - including the United States – that had not ratified the Basel Convention itself; therefore, as non-parties they were not entitled to be part of the decision- making process. Although, they were able to speak in opposition to the ban but were not allowed to vote; and, ultimately their opinions did not officially affect the emerging consensus. At the end of the meeting, the opposition of the OECD was dazed because they did not count on a complete agreement between the G-77, the Eastern European countries and China being reached (Puckett 1997). By the end of the COP-2,

the ban was ultimately approved and the remaining opposed states had gained nothing more than a delay in the application of a total export ban (Chasek, Downie and Brown 2010). Sundram (1997), Chasek, Downie and Brown (2010) further noted that the total ban was considerably reinforced during COP-3 – that was held in Geneva during September 1995 - by adopting it as a formal amendment to the Convention in order to avoid ambiguity as to the legal enforceability of the decision.

### ***Conclusions***

The negotiations leading up to the Basel Convention, as well as the follow up COPs meetings, demonstrated that the hazardous waste trade issue is a touchy and politically sensitive subject. Within this environment, the Basel Convention attempted to address the transboundary movements of hazardous waste to the developing world but unfortunately was unable to convince the vital actors (i.e. waste-generators, lobbyists and the community at large) at the national level about its importance and relevance. Furthermore, one may state that within its boundaries couldn't fulfil the expectations of the developed as well as the developing nations whom had conflicting interest and economical situations. These divergent aims and positions still exist today that is well illustrated by the standpoint of the United States (still did not ratify the Convention) as well as the inability of the Basel Ban Amendment entering into force since 1995. Therefore, the challenge remains for Member States to strengthen the abilities of the Convention to prevent dangers of hazardous waste movements although, one may note that this goal only can be achieved if its is supplemented by suitable national legislations

and enforcement.

Lastly, the behaviour of the Member States during the negotiation process also provided some insight that may have contributed to the understanding of the issue as to why the Basel Convention had not adequately addressed the transboundary movements of hazardous waste to the developing world. Thus, one may state that some similarities can be drawn between the decision making of the Member States and polythink. According to Redd and Mintz (2013), polythink can be defined as, "Poly (many) ways of perceiving the same decision problem, goals and solutions" (p.5). In addition, Mintz and Wayne (2014) noted that polythink could have numerous consequences; for example, decision paralysis, group conflict or failure to revisit previously dismissed options. Moreover, polythink could lead to severe disagreements and myriad options; and, as a result it might become nearly impossible for group members to reach common ground in order to achieve a policy goal.

The issues surrounding the necessity to implement or reject the idea of the total ban on hazardous waste exports showed the symptoms of polythink, such as group conflict that was displayed amongst Member States as well as the UNEP during their negotiations. Member States from the developed and the developing world, as well as the UNEP, had created their own interpretation of this crucial issue and how it should be addressed that resulted in a strong disagreement amongst these players. For instance, the developed countries were looking for a convention that would allow the trade of hazardous waste through the usage of the informed-consent regime; while, the majority of the developing nations wanted an outright ban on hazardous waste exports. On the other hand, some of the other developing countries had argued for the continuation of the

trade by claiming that it would excel their economic development. At the same time, the UNEP supported a continued trade, within regulated settings, by arguing that a total ban might not be the solution from an environmental viewpoint. The question of a total ban, as can be observed, had generated various competing viewpoints with the potential for various courses of action; and, this availability amongst the players had hindered any optimal decision-making. As Mintz and Wayne (2014) noted, group conflict "both causes and is caused by the polythink syndrome" (p.340).

In connection with the total ban on the hazardous waste export, it should be noted that another important outcome of polythink would be the removal of key options from the table. In as much, based on the gruelling negotiations that had convened, it is very difficult to reach a consensus when a large plurality of conflicting ideas are presented; therefore, decision makers generally are often hesitant to renew the discussion on a previously dismissed alternative based on the fear of an endless debate (Mintz and Wayne 2014). One may consider that the failure to revisit the question of a total ban and keeping it on the table largely contributed to the fact that the Basel Ban Amendment has still not been entered into force to the present day that could have effected the ability of the Convention to adequately address the transboundary movements of hazardous waste to the developing world.

Mintz and Wayne (2014) considered that the lowest common denominator for decisions and decision paralysis were the most important syndromes of polythink that could result in the failure to implement a policy. One may note that the Basel Convention is an example of this phenomenon due to the fact that the Convention was constructed in a way to meet the lowest common denominator of compromises that could attain the

broadest support from the Member States despite their diverse situations and interests. It should not be forgotten that during the fourth meeting of the working group, the disagreement was so intense that it jeopardized the presentation of an agreed draft document to the Basel Conference that would have undermined the success of the conference itself. The application of some aspects of the Basel Convention (i.e. definition of hazardous waste or the prior informed consent) was greatly effected by polythink that has ultimately had an adverse impact on its overall outcome up to the present day.

In sum, taking into account the symptoms of polythink with regard to the negotiation process as well as the meetings of the working group, it can be observed that Member States had exhibited polythink. However, despite the elongated conflicting interests of various parties the Basel Convention was born but today, the question still lingers as to whether the Convention has been able to adequately address the transboundary movements of hazardous wastes to the developing world.

## V. Literature Review: Problems and Hypotheses

This chapter will focus on the existing literature that is relevant to the research that proposes the question as to ‘why has the Basel Convention not adequately addressed the transboundary movements of hazardous waste to the developing world?’

This review will be comprised of various segments that will discuss this important matter, as well as support the composition of the hypotheses.

### *The roots of the Basel Convention*

Many scholars have noted that the hazardous waste generation - produced by various industries – had rapidly increased within the past forty years (Kummer 1995, Krueger 1999, Clapp 2001, O'Neill 2000, Selin 2010, Pratt 2011). However, the harmful affects of the disposal of hazardous waste unfortunately did not receive international attention until the late 1980s when several cases of illegal dumping were reported (Murphy 1994, Montgomery 1995, Lipman 2002, Cox 2010, Sende 2010). Some of the notable examples indicated by scholars was the Koko incident in Nigeria, the voyage of the Khian Sea, the struggle of the MV Karin B ship from Italy and the MV Probo Koala ship (flown under the Panamanian flag) journey in the Port of Abidjan within the country of Côte d'Ivoire (Kilcoyne 1992, Clapp 1994, Cooke and Chapple 1998, Clapp 2001, Fagbohun 2007, Pratt 2011).

The international community then began to collectively voice its opinion against the global waste trade, as well as demand that the exploitation of toxic dumping within

the poorer countries be halted (Pellow 2007). The increasing debate and negotiations between Member States resulted in an international agreement, entitled, "Basel Convention on the Transfrontier Movement of Hazardous Wastes and Their Disposal", in 1989, that aimed to regulate the cross border movements of toxic waste (Baggs 2009, Braun 2011).

It should be noted that although the non-OECD countries had expected to achieve a complete ban on toxic waste exports at the Convention; instead, the outcome developed into a regulatory mechanism that ultimately became a method of designing controls for the movement of hazardous waste rather than preventing or prohibiting those activities (Krueger 1999, Braun 2011, Aulston n.d). Although, Montgomery (1994) and Pratt (2011) had argued that a total ban would greatly weaken recycling and reclamation operations that had otherwise been environmentally acceptable and economically sensible. They also stated that these operations would result in the decreased global waste quantity as well as improve the overall conservation of natural resources. Similarly to Montgomery (1994) and Pratt (2011), Lipman (2002) noted that the ban would likely have a significant impact on recycling industries especially in the developing countries. The demand for lead had been on the rise in Southeast Asia based on the need for motor vehicle batteries, communications and computer equipment. Lipman (2002) further noted that if a ban were to go into effect, the purchase of lead blocks would be needed in order to supplement the output of the domestic recycling industry, which would be subservient on the national inventory or import from other non-OECD countries.

The convention entered into force on May 5, 1992 and has 53 Signatories and 183 Parties as of 2014 (United Nations Treaty Collection). While the European Community

had ratified the Basel Convention, as of today, the United States who is one of the largest hazardous waste producers has not done so (Dreher and Pulver 2008). Over the past years, scholars have posed various opinions as to the possible reasons why the United States has not ratified the Basel Convention. Dreher and Pulver (2008) have claimed that the United States has distinct responses to regulate the international trade in hazardous waste. They also stated that the U.S. valued its position as an economic leader and was an advocate for free trade; therefore, they strongly opposed an outright ban on waste trading. In addition, based on the anti-ban views that have been prominent within the U.S., they have also failed to push for the ratification of the convention as opposed to other OECD countries. Like Dreher and Pulver (2008), Bradford (2011) also referred to the lack of action by the U.S. Congress who failed to enact any legislation that was driven toward the ratification of the Convention. He further added that based on its current non-party status, the United States has no ability to successfully influence the international policy on hazardous waste transport and disposal, in spite of the fact that the U.S. is one of the largest producers and exporters of hazardous waste with an extensive involvement in the waste trade business as of today.

Regardless of the different views on total ban, Krueger (1999) and Okaru (2011) noted that the Basel Convention has been showed to be a useful instrument and was a positive step forward by the international community to restrict the uncontrolled trade in toxic waste.

### ***The key objectives of the Basel Convention***

The key objectives of the Convention are:

- a) Less production of hazardous waste;
- b) Disposal of wastes as close to the source as possible; and,
- c) Minimizing the cross border movements of hazardous wastes (Basel Convention 1989).

Managing hazardous wastes has undeniably become a serious matter as a result of its production in large volumes throughout the world (Hilz 1992, Kummer 1995, Krueger 1999, Clapp 2001, European Environment Agency 2009, Selin 2010). However, as Clapp noted (1994) the Basel Convention expected that Member States would have minimized the generation of their hazardous wastes. Although, contrary to this objective, Pratt (2011) had found that, in 1945, the generation of hazardous wastes was estimated to be around five million metric tons; and, by the year 2000, it had increased to four hundred million metric tons. Similarly to Pratt's observation, the United Nations Environment Programme (UNEP) also showed an increasing trend based on data provided by 43 parties. The calculation had estimated that the production of hazardous wastes had risen 12% between 2004 and 2006 (Wielenga 2010). Additionally, predictions by Pellow (2007) and Pratt (2011) indicated that the generation of hazardous wastes would increase as much as sixty percent by 2020, which means that 194 million metric tons would ultimately be processed annually. These numbers are quite alarming and the consequences (i.e. environmental damage and the impact on human health) as O'Neill (2000), Puckett and Smith (2002), Puckett (2005), Pellow (2007), Blacksmith Institute

(2012) and Aulston (n.d.) expressly pointed out has already been affecting areas within North Africa and Asia due to the exported hazardous wastes from developed countries.

In spite of these growing numbers, there are examples that could turn this trend around in order to support the goal of the convention. For example, within the United Nations Environment Programme's Harmful Substances and Hazardous Waste sub-programme, one of its goals aims at assisting nations toward improving their methods of assessment and management regarding harmful substances and hazardous waste (UNEP n.d); and, many companies have proven that reducing hazardous by-products could be economically profitable as well as environmentally safe (Puckett 1997 and the Secretariat of the Basel Convention 2002). Nevertheless, much of the work still remains to be carried out in this area, as the generation of hazardous waste will not significantly decrease in capacity any time soon.

The Convention also advocates for the local disposal of produced hazardous wastes. Hilz (1992) found this to be a challenging task because there was a limited capacity in treating such wastes in the volumes produced. Consistent with Hiltz (1992), Bernard and Chang (1994), O'Neill (2000) and Sora (2013) had also recorded that there had been various OECD countries that by virtue of the lack of landfills, economically feasible incinerators and the overcapacity of incinerators have exported the majority of their hazardous wastes. Due to the scarcity of disposal facilities, as well as the expenses of compliance with stringent environmental regulations, waste management costs had grown rapidly within the developed countries. From the late 1980s, the estimated cost on average for hazardous waste was between 100 to 2,000 dollars per ton, whereas, the developing nations had charged as little as 2.50 to 50.00 dollars per ton (Hackett 1990,

Wani 1991, Kilcoyne 1992, Kummer 1995, Selin 2010).

As a result of the rising cost of waste management, Handley (1989), Singh and Lakhan (1989) and Kilcoyne (1992) noted that businesses around the world would rather transport hazardous wastes to the developing world than dispose of them locally as the Convention had suggested. On the other hand, Kilcoyne (1992), Bernard and Chang (1994) and Selin (2010) all stated that industrialized nations had additionally faced public opposition to construct new incinerators because the stringent domestic regulations had forced many older facilities to close and communities had become more conscious of the environmental impact of the treatment facilities. For example, Chang, Ni, Fan and Lee (2006) had compared various treatment plans in different countries for hazardous wastes and following their observation concerns were raised with respect to China. In as much, based on their findings three of the plants had received PC boards, cables, wires and mixed metals mainly from the United States as well as other OECD countries. As a result, the following was noted: 1) there was no system established for pollution control; 2) no environmental monitoring was conducted; 3) there was no adequate permit(s) enforced or in place; and, 4) no safety, hygienic inspection and employee health care was provided.

Hilz (1992) noted that developing nations often did not have access to the newest waste disposal technologies that were patent protected. In addition, the license fees may have been too high; therefore, they couldn't afford them based on the lack of financial resources or other economic priorities. Thus, appropriate locations to dispose of hazardous wastes, in an environmentally sound management, is a complex task that involves economic, social and political factors.

The Basel Convention also strongly emphasized the minimization of the transboundary movements of hazardous wastes. In reference to this important objective, Handley (1989) and Montgomery (1995) had obtained similar conclusions that the majority of the generated hazardous wastes by the developed nations had not been exported. Montgomery further noted that less than 1 percent of the hazardous wastes generated, by developed nations, had ever crossed the national borders. In general, Fikru (2012) agreed with Handley and Montgomery that much less hazardous waste had been traded in comparison to the quantity that was generated. Fikru found through his study (conducted within 30 European countries) that, in 2009, 40.3 million tons of hazardous waste was produced while only 4.5 million tons had been exported. However, he claimed that a larger number (96 percent) of the total export had crossed borders within Europe rather than the estimate given by Montgomery. Likely to Fikru, Kummer (1995) and the European Environment Agency (2012) also noted that hazardous wastes had overwhelmingly stayed within Europe; however, it had intensively crossed borders within neighbouring countries mainly due of the lack of the national incapacity to handle the waste.

Handley (1989) as well as Singh and Lakhan (1989) stressed that the increasing transboundary movements of hazardous wastes into developing countries had occurred because the developed nations have had little or no experience with the by-products of industrial manufacturing; therefore, they implemented only a few rules for hazardous waste disposal. Pellow (2007) and Okaru (2011) made further points, such as, the ineffectiveness of environmental regulations, economic instability, financial incentives

for importing toxic wastes and no or little public awareness of environmental hazards that they believe had added and played a significant role for businesses who had increased their exports to the developing world. An example of this would be illustrated by Beheton (1995) and Sende (2010), who indicated the existence of these factors in the case of Benin. In the late 1980s, Benin was in a serious economic deficit and thus was unable to pay its foreign debt. In desperation, the government agreed to import several million tons of hazardous wastes, from France, in exchange for thirty years of financial aid and a 1.6 million dollar down payment. Ultimately, a significant amount of media attention and opposition through civic protests began to develop; and, as a result the French government had to eventually withdraw from the contract. Nevertheless, a shipment of nuclear waste was transported and buried within Benin.

Pellow (2007) shared similar views with Handley as well as with Sing and Lakhan concerning the reasons behind the increasing transboundary movements of hazardous wastes; however, he additionally noted that economic globalization remains a powerful motivator regarding government decisions. As capitalist pressure continues to grow, the expansion as well as increased profits continues to encourage industries and governments to decrease their costs while continuing to produce unimpeded.

In general, the literature found little support for the main objectives of the Basel Convention. Scholars presented claims concerning a growing trend in hazardous wastes production and they added that the disposal of hazardous wastes domestically (the 'proximity principle') is a challenging task for the Member States because of the different costs of the removal, lack of availability of special treatment technology, facilities, and landfills (i.e. as Hilz (1992) and Okaru (2011) mentioned, due to the geological and

hydrological conditions the landfills were banned altogether in Netherlands). Moreover, scholars also identified various factors that possibly increased the transboundary movements of hazardous wastes rather than minimized as outlined in the Basel Convention. Although, one may note that there is a lack of quantitative analysis in order to support their proposals. The following segments below will explain the obstacles in more detail that pose challenges to fulfil the expectations of the Basel Convention.

### **Limitations of the Basel Convention**

The Basel Convention progressed throughout the years; however, scholars regarding important matters raised concerns.

#### ***The Definition of Hazardous Waste***

The Basel Convention defines "wastes" as substances or objects that are required to be disposed of as well as the means of their disposal (Basel Convention p.6.). Furthermore, it states that wastes that are subject to transboundary movements shall be regarded as "hazardous wastes", if they: a) fall under the waste streams listed in Annex I; b) carry hazardous characteristics as described in Annex III; c) are determined hazardous wastes by the domestic legislation of a Member States; and, d) are "other wastes" (household wastes and its residues from the incineration) listed in Annex II that require special consideration. According to Kummer (1992), the distinction is only terminological because there was no real difference between the two categories of wastes in the provisions of the Convention. She argued that the category of "other wastes" was

added as a compromise between the opposing parties during the negotiations. Some of the Member States maintained that household wastes as well as incinerator ash should be included in the scope of the Convention; while, others argued that these wastes should not be considered hazardous as they were not identified as such.

It should be noted that the Convention excluded the radioactive wastes and "*wastes which derive from the normal operations of a ship*" (p.6) based on the fact that they are covered by other international instruments (Basel Convention).

Many scholars (Clapp 1994, Kitt 1995, Gudofsky 1998, Orloff and Falk 2003, Okaru 2011, Pratt 2011) noted that the definition was vague, too broad and data comparisons between countries was challenging due to the various interpretations. Hilz (1992), Murphy (1994), O' Neill (1998), Orloff and Falk (2003) agreed that the classification of hazardous waste is a difficult task due to the fact that countries may classify and regulate the same waste differently. While Hilz (1992) and Murphy (1994) concerns related to the use of terms other than "hazardous" (i.e. toxic, special or dangerous) and those particular consequences in comparison to specific coverage; on the other hand, Orloff and Falk expressed the problems regarding self-reported data on the hazardous waste generation that's provided to the Basel Convention. They stressed that some countries may only include chemical wastes while others may incorporate domestic, hospital and other wastes that they consider being hazardous. O'Neill (1998), opposed to Murphy, Hilz, Orloff and Falk claimed that other substances were identified as possible hazardous contaminants but the results and the name of these wastes were not incorporated in the laws established.

Kitt (1995) and Okaru (2011) argued that a broader definition of hazardous waste needed to be considered but differed in their particular reasoning. Kitt (1995) noted that based on the various explanations of hazardous wastes, exporting parties might not be able to avoid the obligations, under the Basel Convention, in determining a waste as non-hazardous. For that particular reason, even household waste could be considered hazardous if it was not managed properly. On the other hand, Okaru (2011) claimed that the wider definition was to prevent misunderstanding as well as provide a better control and monitoring system. She further added that the Convention aimed to have flexibility in order to influence political and scientific progression of the definition of hazardous waste.

In as much, this might be the case but Hackett (1990) Lipman (2002) and Pratt (2011) took a different position and disagreed with Kitt (1995) and Okaru (2011). They noted that vague definitions were not much help for countries to implement an international agreement. According to Hackett (1990), some countries found the definition so unclear that they dropped their enforcement actions due to the fact that they had doubts of an effective implementation. Additionally, Lipman (2002) and Pratt (2011) noted that the vague criteria and interpretation of the word 'hazardous' resulted in the continuous export of these types of wastes under the classification of commodities or raw materials even though these wastes still posed environmental and health risks to the developing nations. They further argued that the diverse national definitions characterizing the broad terminologies of hazardous waste resulted in more complications in the management of transboundary shipments than had been anticipated.

For example, Sende (2010) noted that the United States did not consider scrap metal to be a hazardous substance. However, shipments found to export scrap metal to countries, such as Taiwan, had been found to contain PCBs, lead and asbestos contaminants that were regarded as hazardous chemicals by the Convention. In another situation, Krueger (1999) found that in August 1997, a U.S. company had exported lead acid batteries to a Brazilian recycling plant where it was discovered that the lead concentration levels reached five times higher than the recommendation considered to be safe by United States EPA regulations. Notwithstanding, even though Brazil had banned imports of scrap batteries, since 1994, U.S. law regarded contents, such as batteries, to be considered hazardous only if they were crushed; therefore, under those existing laws the contents were exported legally.

Similarly to Lipman (2002) and Pratt (2011), Montgomery (1990) agreed that the ambiguous language of the Convention allowed States to develop their own definition as to what they in turned considered to be hazardous; however, he argued that it should have been generally accepted that the definition by the Convention was to be regarded as the minimum requirement necessary. In essence, his comment meant that a country could ultimately label more substances as hazardous if they choose but all should fundamentally recognize the existing materials on the list, through the Convention.

Contrary to Montgomery (1990), Schneider (1996) noted that the debate on this issue still existed, between the Convention's opponents and proponents, as to what particular wastes ought to be considered within these guidelines. As a consequence to this dilemma, there was no sign of compromise amongst the parties; and, as a result this matter stood as a distinct and serious problem to the overall success of the

implementation of the Convention. Schneider asserted that based on the failure to clearly define “hazardous waste”, questions were raised as to what the Convention exactly covered. So, as the endless dispute continued and a consensus between Member States lacked regarding a true working definition of hazardous waste, this matter seriously limited the purpose of the Basel Convention.

With reference to the definition, scholars (Kummer 1995, Gudofsky 1998, Hackett 1990, Bradford 2011) also commented on Annex III that listed the hazardous characteristics. Kummer (1995) and Gudofsky (1998) stated that certain elements within the list (H10-H13) were poorly described whereas others were fairly straightforward. In addition, Kummer (1995) and Bradford (2011) noted the Convention did not establish the ‘minimum values of concentration’ that would meet the threshold levels of "Explosive" or "Corrosive". As a result, Kummer (1995) argued that it could be possible that a substance with an insignificant quantity of hazardous element might be taken into account as hazardous waste. Gudofsky (1998) also shared the observation by Kummer and Bradford and also added that there were no standardized practices to define the meaning and scope of the Annex III characteristics.

Abrams (1990) approached the issue similarly and noted that in order to determine the concentration levels or the combination of substances there would need to be a complex series of chemical analyses conducted. He further added that the Convention fell short of addressing a significant question as to which nation would ultimately be responsible for determining whether the ship carrying wastes had actually a hazardous characteristic. Therefore, without the guidelines to clearly define these characteristics, as Hackett noted (1990), the Member States would reach diverse

conclusions as to whether or not a waste was actually hazardous.

As the scholars have illustrated, the vague definition of hazardous waste has been a significant issue. In as much, it has allowed some Member States to develop their own interpretation of what constitutes a hazardous waste or has provided them the political influence over developing countries' enforcement illegal actions that have had a great impact on the management of transboundary shipments. In this regard, one may note that due to the lack of consensus concerning the definition of hazardous waste, it may have posed the most serious obstacle for the effective functioning of the Convention as well as added to the question 'why has the Basel Convention not adequately addressed the transboundary movements of hazardous waste to the developing world?'

In the end, Whyne (1989) greatly summarized the dilemma that surrounds the definition of hazardous waste by stating that, "*The imprecision of many key terms and the chronic inconsistency of hazardous waste definitions leaves the boundaries between legal and illegal, satisfactory and unsatisfactory practices ill-defined*" (p. 140).

### ***Prior Informed Consent (PIC)***

One of the key provisions of the Basel Convention is the prior informed consent (PIC) that is outlined in Articles 6 and 7. The main idea of Article 6 is that the exporting countries are obligated to notify, in writing, the importing Member States concerning any proposed transboundary movements of hazardous wastes. Furthermore, the exporting state is not allowed to commence the transboundary movement of the hazardous waste until the importing state confirms that the waste in question will be disposed of in an

environmentally sound manner. The PIC regulation applies to the Member States of the Convention that might export or import wastes and to those who are simply involved in the transit point of the transboundary shipments. The information required concerning the transboundary movement is listed in Annexes VA and VB. In addition, each signatory of the Convention needs to nominate at least one competent authority in order to administer the PIC procedure (Basel Convention 1989).

The PIC procedure is one of the most widely critiqued elements of the Convention. Some scholars (Handl 1988, Abrams 1990, Krueger 1998, Andrews 2009) expressed their concern regarding the qualifications of the competent authority. Handl (1988) Abrams (1990), Vilcheck (1990), Krueger (1998) and Andrews (2009) noted that developing countries often lack the technical and administrative capacity to adequately assess the implications, the realization of the potential dangers of a particular shipment of waste or the ability to take the appropriate action.

On the other hand, Hackett (1990) claimed that this issue was a two-folded challenge based on the fact that the Convention did not provide the adequate assurances (i.e. the handing-over of appropriate information from exporting nations to the importing nations) in order to allow the importing nations to make an informed decision about the applicable disposal of the waste. Alike, the importing country also may not know or reveal enough data about the disposal facility in order to enable the exporting country to make a sound decision as to whether the facility in question is the proper place for disposal. As a consequence, without this important knowledge the importing nation may give consent for the importation of a shipment with the understanding that they are

actually in possession of a sufficient facility to dispose of the waste in question even though the facility may be ill equipped to handle the waste.

Clapp (1994), opposed to Handl (1988), Abrams (1990), Krueger (1998) and Andrews (2009), argued that the wording of the notices could be misleading; therefore, the importing countries might feel burdened during their decision as to whether they should accept or reject a shipment. Contrary to Clapp's (1994) opinion, Andrews (2009) added that the responsibility lies on the importing nation to verify the letter of consent, as well as the existence of an adequate disposal facility. In turn, this would prevent the PIC procedure from becoming exposed to possible abuse and corruption by local officials.

With regard to the case of the Abidjan disaster, Fagbohun (2007) noted that this unfortunate situation exactly happened. The report, prepared by the Commission of Inquiry, found that certain wrongdoing by government officials' directly contributed to the outcome of this serious incident. Additionally, Societe Tommy, the local waste handling company contracted to dispose of the residue was actually dumping these contaminants within various parts of Abidjan. Moreover, Cox (2010) noted that the PIC procedure concerning the initial shipment to Amsterdam was neglected as well as at the port of Abidjan. Later on, information was confirmed that the original documentation was proven to be a fake. For that reason, the situation could have prompted Article 9 of the Basel Convention with reference to the illegal transport or trafficking of waste that wasn't consistent, in a material way, with the completed forms. Due to the fact that the state of export could not be ascertained and the original country that generated the waste was not able to give assurance for its safe disposal, the responsibility and cooperation to act should have occurred based on Article 9 (4) of the Convention.

Fagbohun (2007) and Cox (2010) agreed that the Abidjan incident pointed-out failures of the PIC system under the Convention. Fagbohun asserted that poverty, global politics and hypocritical intervention of national governments could pose a threat to the effectiveness of an international regulatory mechanism, such as the PIC. For instance, poverty made the developing nations more vulnerable as they consumed serious debts; thus, they became more susceptible to money and other incentives in order to dispose of hazardous wastes within their boundaries (Park 1998). Anand (2004) noted that, “*prior notification cannot work in a world where the poison of the rich can be offered as short-term remedies for the poverty of the poor*” (p.73). He argued that governmental approval of the importing nation was not essentially demonstrative of the interest of the citizens or environmentally justified of the receiving country.

On the other hand, Cox (2010) pointed out that there was a lack of supervisory intervention on the part of the Basel Secretariat as well as the absence of country support regarding capacity building and technical assistance that could have greatly impacted the efficiency of the PIC procedure. However, it should be noted that contrary to the intention of some negotiating states, Kummer (1992) noted that with a few exceptions, the Convention has no supervisory function because its primary responsibility is limited to coordination and monitoring. Although in the absence of supervisory competence, this could be a major shortcoming concerning the efficiency of the PIC procedures. As Cox (2010) indicated, there is a need for a more thorough approach to the assessment of environmentally sound management, support for local infrastructure development as well as the evaluation of the possible impact on the environment. Similarly, Kummer (1995) observed that, “*clearly, the successful application of the PIC system depends on a*

*sophisticated national infrastructure*” (p.81), as well as resources and expertise (Krueger 1998, Hackett 1990).

Krueger (1998) was also concerned that the falsified documents regarding the content of the proposed waste shipment could greatly circumvent the PIC procedure. He stated that Greenpeace has recorded occurrences when hazardous wastes were labelled as something else rather than the actual materials that were in the shipment. Vilcheck (1990), Clapp (1997), Dorn, Van Daele and Vander Beken (2007) as well as Liddick (2010) identified another problem that created serious headache for the developing nations. As Vilcheck (1990), Dorn, Van Daele and Vander Beken (2007) as well as Liddick (2010) explained that the low level of integrity of the waste, meaning the physical nature of the product could be manipulated with the intent of deception, such as: hazardous waste mixed with non-hazardous waste (the legal trade in recyclable material is a good example).

The so-called ‘mirror entries’ (Council Decision 94/904/EC) opened up opportunities to disguise the proportions of hazardous and non-hazardous wastes. These ‘mirror entries’ as Beken (2007), Dorn, Van Daele and Vander Beken (2007) noted only deemed hazardous if the concentration of hazardous substances increased to a certain proportion; therefore, when it was necessary to take samples it was a costly procedure and required the appropriate equipment.

To cover hazardous waste and sell it as a legitimate commodity, Clapp (1997) and Liddick (2010) demonstrated that in the case of Bangladesh, in 1992, they received 1000 tons of copper smelter furnace dust that contained high levels of lead and cadmium. The waste was mixed with fertilizer by several U.S. companies and was sold to the

government of Bangladesh with the help of the Asian Development Bank. Although, before this scheme could be prevented, Bangladeshi farmers in the fields had already spread the waste; but, the involved parties responsible were ultimately brought to trial within the U.S., convicted and forced to pay a fine of 1 million U.S. dollars. Krueger (1998) claimed that if the competent authority did not expose fraudulent activities or worth, then the competent authority would be suspect to the illegal activity and thereby the PIC procedure would be null and void. Clapp (1997) added that disguised waste has been a significant problem for developing countries, as most of them have not had the resources to determine the contents within every import container.

Another significant limitation that has handicapped the proper functioning of the PIC procedure is the ability to monitor and enforce these means. Based on Article 13 (4), Krueger (1998) stated that compliance monitoring was severely limited because parties were not required to send copies of the notifications and responses to the Secretariat unless a country believed that the environment would suffer by a given offer. Previous drafts regarding the Convention, as Kummer (1995) noted, incorporated an obligation of sending copies of all notifications and final responses to the Secretariat. However, some industrialized countries were opposed to this provision; thus, it was not included in the final draft. Abrams (1990), compared to Kummer (1995), also claimed that the developed countries rejected the inclusion of this approach in the final draft due to the principles that keeping track of all shipments would not be efficient utilization of the Secretariat's assets. As a result of the exclusion of all notifications to the Secretariat, this led to a significant restriction of the Secretariat's monitoring function in reference to the PIC procedure (Kummer 1995).

Clapp (2001) expressed similar views and added that the Basel Convention Secretariat did not have legitimate authority to observe the behaviour of the Member States or to use sanctions in order to ensure compliance. With such a susceptible mechanism for ensuring compliance, there is a serious concern that developing nations might be persuaded into accepting waste imports without proper checks and balances regarding whether wastes were disposed of safely. To support this notion, O'Neill (2000) added that the Convention only observed the actual transfer of wastes from one country to another but it did not make certain that wastes were appropriately disposed of at their final destination. Krueger (1998) further added that during the movements of hazardous wastes, if the PIC procedure was not followed then it would be difficult to enforce liability concerning the illegal movement or transfer that would be environmentally damaging.

The PIC procedure established a significant importance to the question '*why has the Basel Convention not adequately addressed the transboundary movements of hazardous waste to the developing world?*' based on the fact that it added relevance to the regulations regarding the transboundary movements of hazardous wastes between the parties of the Basel Convention. However, as many scholars illustrated it there have been many situations and attempts when the procedure was circumvented. As of now, the Secretariat does not have the mechanism and authority to ensure the accuracy and the effectiveness of the PIC procedure. In addition, despite the fact that the Convention outlines the right of the parties to prohibit the import of hazardous waste, the truth is that Member States might not exercise this right in the view of a possible financial compensation. For this reason, one may note that the PIC procedure is irrelevant due to

potential actions of government officials who knowingly carry out these unlawful exploitations. Therefore, the success of the PIC procedure is greatly dependent upon the activities of the Member States, as well as its willingness to accurately implement these protocols. Otherwise, the Basel Convention will become even more incapable of protecting the developing world from the rich nations' hazardous wastes.

### ***The Lack of Liability and Compensation Framework***

According to the Basel Convention (Article 12), Member States are urged to adopt guiding principles that constitute the exploitation of transboundary movements and the disposal of hazardous wastes whereby liabilities and compensation for damages would be evaluated (Basel Convention p. 19). In 1993, negotiations between the parties commenced based on concerns by developing countries regarding the lack of funds and technology needed to prevent illegal dumping or accidental spills (Webster-Main 2002, Harjula 2006, Widawsky 2008, Selin 2010 and Onzivu 2013). The talks evolved around and dominated two controversial issues a) whether an "opt out" clause would be added and b) whether Member States donations to the compensation fund would be binding (Clapp 2001). After an intensive negotiation, on 10 December 1999, the Parties adopted the Basel Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and their Disposal. However, as of 2014, the protocol set forth is still not in effect due to the fact that only 11 parties of the required 20 Member States have ratified the document prohibiting it from entering into force (UN Treaty Collection).

In general, the objective of the protocol was to provide a comprehensive approach toward compensation for Member States that had been victim to environmental devastations as a result of waste imports; to address the illegal trafficking of those wastes as well as the appropriate means for their disposal; and, to also determine the parties who are responsible for those arrangements and the reimbursement necessary (Long 2000, Clapp 2001, Harjula 2006, Cox 2010 and Onzivu 2013).

As Kummer Peiry (2010) pointed out, each stage of a transboundary movement from waste loading to the export, transit, import and final disposal had been included in the document. According to Pruzin (1999) and Choksi (2001), two key provisions of the Protocol, Articles 4 and 5, had established the guidelines for two types of liability: strict and fault-based. Strict liability was exercised upon the notification of entry - in accordance with Article 6 of the Basel Convention - in the event that damage resulted from an accident until the disposer took control and responsibility of the wastes. In addition, if only one of the contractors was Party to the Convention, the country was held liable for any damage encountered until the importing nation acknowledged possession of the waste. Lastly, the Protocol applied fault-based liability for ignoring the Basel Convention requirements or through *"wrongful intentional, reckless or negligent acts or omissions"* (Choksi 2001 p.523).

Hackett (1990) agreed with Pruzin (1990) and Choksi (2001) that once an importing party consciously accepted the waste, that country was liable for it. However, he claimed that the shift in liability underlined the lack of a clear definition of hazardous waste and the completeness of the information presented to the importing country. Therefore, the presumption of responsibility based on consent could have negative impact

on the developing nations. Nevertheless, countries were likely disagreeing over the adequacy of the information furnished to the disposer as a means to escape from any financial obligations.

As Clapp (2001), Andrews (2009) and Cox (2010) noted, the protocol was a compromise between the OECD and non-OECD countries that suited neither of them and lacked broad based support. As Selin (2010) stated, this was a clear sign that the industrialized and developing nations were afraid to take responsibility for environmental and human health damages resulting from the global trade of hazardous waste. Pruzin (1999) further noted that one of the representatives of the Greenpeace International characterized the protocol, as a, *“text with as many holes and exclusions as Swiss cheese”*; furthermore, *“the protocol is a dangerous precedent and is unlikely to ever provide adequate relief for victims of toxic waste or serve as an incentive to avoid hazardous waste trafficking”* (p.3.).

Widawsky (2008) agreed with Clapp (2001), Andrews (2009) and Cox (2010) and further added that the OECD countries mainly failed to support the protocol due to the strict liability provisions imposed on the notifying party. The OECD countries argued that OECD liability, to which they were already subjected to rather than the disposer, was burden enough. On the other hand, one reason that the developing nations were hesitant to support the protocol was that they felt that the protocol actually created loopholes in liability that would pose hardships for them in dealing with wastes issues. Their original need was to obtain assistance in order to cope with those hazardous incidents.

The OECD countries, as Pruzin (2000) indicated, succeeded because the protocol included provisions that allowed the OECD nations to opt out of the protocol as long as

they were party to a multilateral or regional agreement under Article 11 of the Convention, which basically followed the same goals as the protocol. This meant, as Choksi (2001) stated, that not only did Article 11 of the Convention allow waste trade within non-Parties but now Article 3(7)(a) of the protocol exempted Member States from liability and compensation; whereas, it would permit them to make outside agreements that presented liability regimes but ‘fully met or exceeded’ the Protocol provisions. Widawsky (2008) shared the views of Pruzin (2000) and Choski (2001) and further argued that this would leave many waste transporters unhindered from any liability to the Protocol and the developing nations might be susceptible to the possibility that these wastes might enter their borders. Clapp (2001) noted that the developing nations were disappointed with the end result and were concerned as to whether the OECD countries would opt out the Protocol then most likely they would not contribute to the compensation fund.

With reference to the compensation fund, Pruzin and Hogue (1999) explained that developing nations made every effort to have provisions included that would establish a global fund in order to provide compensation for the clean-up and waste spills where the responsible party was unknown or was unable to cover the financial costs. Unfortunately, as Pruzin (2000) noted, the developed nations resisted this demand; and, as Clapp (2001) further added the compensation fund became voluntary as opposed to the original proposal that would have made it mandatory. An example of the seriousness of this matter, by Fagbohun (2007), has been illustrated and supported in the Abidjan disaster. He stated that the project, by UNEP, for the decontamination and the clean up of the affected area would have cost approximately US\$30 million; however, during the time all

that the emergency fund was able to absorb for the costs, through the Convention, was about \$270.000.

Another criticism of the Protocol was, as Long (2000) pointed out, that it placed the responsibilities on the “person in operational control” (p.257) in order to alleviate damages caused by hazardous wastes and this meant that the producer would be immune to any queries of liability. Long further argued that this option encouraged the generators to export their hazardous wastes as opposed to one of the key objectives of the Basel Convention. Similarly to Long, Choksi (2001) also noted that producers could have circumvented their liability simply by selecting exporters who operated as notifying and controlling entities.

Consistent with Long (2000) and Choksi (2001), Pruzen (1999) further noted that negotiations have resulted in a regime that could be utilized to export waste and avoid liability. For example, in the case of the United States, Pruzen (1999) and Long (2000) agreed that the corporations might attempt to export their waste by avoiding liability under the U.S. Superfund legislation. Long (2000) noted that the legal advisor to the Basel Action Network, Roger Kluck, specifically criticized this portion of the Protocol and stated, *“under superfund provisions, a waste generator in the United States who disposes his waste in a landfill which is not run properly is jointly liable for any damage. So a generator is always on the hook, which encourages a firm to ensure that the waste is being handled correctly. All this is being undercut by the option to terminate liability under the protocol, which acts as a significant and real incentive to export”* (p.258).

Critiques by scholars (Choski 2001, Clapp 2001, Widawsky 2008 and Andrews 2009) claimed that the Protocol failed to address the liability issues concerning the

'aftercare' of disposed wastes. As Clapp (2001) noted the Protocol dealt with damages that resulted during shipment or initial deposit or processing but did not cover damages that occurred afterwards. She further added that this was problematic because the damage from hazardous waste disposal or processing caused the accumulation of toxic residues that posed serious health and environmental risks.

Choksi (2001) and Andrews (2009) stated that this issue specifically signified areas of long-term soil and groundwater pollution. Choksi (2001) and Widawski (2008) agreed that the Protocol did not hold liable the generator and the exporter for future damages to the environment and public health that occurred after the importer took possession of the waste. Therefore, as Choksi (2001) further noted this provided insignificant incentives for the developed nations to provide assistance to the developing countries in order to design and implement environmentally sound hazardous waste management technology. In other words, as Andrews (2009) remarked, the Protocol failed to encourage the exporting nations to ensure that the disposal facilities were sufficient in accordance with Article 4. 2(b) of the Convention.

As scholars illustrated, the Basel Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and their Disposal could be a very important tool in the protection of the environment and human health. Unfortunately, the Protocol has loopholes that created a regrettable situation by not gaining the support of the developing as well as developed nations. As a result, after 15 years of its adoption it has still not been ratified. Therefore, the question arises as to how can the Basel Convention protect the developing world from the developed nations' hazardous wastes when it is unable to find common ground concerning the important

consensus on liability as well as issues regarding compensation? Instead of strengthening the Basel Convention, the Protocol basically encourages the export of hazardous wastes as opposed to its key objectives while creating a situation of gridlock despite its fundamental intention. As an example, the United States has brought to light how the generator of hazardous waste might be able to avoid the obligations outlined in the Protocol.

In reality, the greatest lapse might be the fact that the generator will likely not take full responsibility for its actions because they can utilize the notifying and control entities that make them unsusceptible to the Basel Protocol. In addition, the lack of a significant resource of funding for the developing nations to address the issues related to hazardous wastes incidents makes the justification of this objective even more uncertain. Because of the shortcomings of the liability and compensation regime, the vague definition of hazardous waste and the difficulties related to the PIC procedure, the perception and inability of Member States to draw true consensus, within the Basel Convention, could be interpreted as some of the main reasons surrounding the question as to *'why has the Basel Convention not adequately addressed the transboundary movements of hazardous waste to the developing world'?*

### ***Loopholes that Surround Recycling***

Following various international scandals during the late 1980s and early 1990s, an environmentally friendly word labelled 'recycling' began to emerge. Waste traders then utilized this characterization in order to justify the export of hazardous wastes from developed nations to developing countries. As a result, the intended practice has

continued to currently transport industrialized wastes (Basel Action Network 2007) and as Anand (2004) noted, “*the recycling rationalization is a very common justification for waste trade schemes whether they be legitimate or completely fraudulent*” (p.74). In addition, given these particular gaps in the rules the exporting country had not been required to make sure that the importing country had the adequate technical capacity to handle hazardous waste for recycling purposes (Anand 2004). Consequently, as Kitt (1995) claimed, this exemption encouraged waste producers to simply focus on these recycling options rather than the practical alternatives for waste minimization domestically.

As Ray (2008) stated, the trade of recyclable wastes increased not only between the developed and developing countries but also amongst the developing nations as well, thereby indicating that there was a growing acceptance for the cross-border movement of hazardous wastes. These exports, as Faber (2008) had observed, could range from used cars (lead-acid), batteries, cell phones, asbestos laden ships or plastics as well as lead scrap and other contents that have been destined for China or other developing Asian countries (Kojima 2005). Faber (2008) further added that these new types of waste products have become far more serious forms of hazardous waste dumping as opposed to the export of hazardous chemicals.

Clapp (2002) indicated that the word recycling might imply that there was an environmentally sound management of wastes but in the reality, it had generated an adverse effect on the environment especially with reference to the developing countries. For example, the export of spent mercury for recycling, from the United Kingdom to South Africa, during the 1990s claimed a number of lives and also resulted in severe oil

and water contamination sites. Similarly, consequences also occurred in Southeast Asia and Latin American countries when lead-acid batteries, used plastics and scrap metals were exported for recycling.

Disposal operations outlined in Annex IV of the Convention, Section B, contains procedures that may lead to recycling, recovery and its reuse; and, it also details 13 different ways of providing this operation, such as: a) the utilization of fuel or other means in order to generate energy; b) land treatment and recovery of components from catalysts; and, c) uses for pollution abatement (Basel Convention p.43). Scholars (Kummer 1995, Clapp 2002 and Anand 2004) agreed that not all these approaches could be considered environmentally sound based on the fact that they had short-term and long-term harmful effects on the environment as well as on human health. Kitt (1995) and Anand (2004) further argued that nothing could be entirely recycled because the residue produced from the recycling process was considered to be highly toxic; therefore, this would suggest that the movement of this dirty industry would easily manoeuvre its way through the legal means and loopholes internationally.

During the mid-1990s, heated negotiations had convened in order to discuss the needed consensus of closing the 'recycle loophole' within the Basel Convention. As a result, in 1995, the Amendment to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (hereinafter referred to as "the Basel Ban") was adopted. The Basel Ban outlined the prohibition of exports of all hazardous wastes that were listed by the Convention with the intention for final disposal, reuse, recycling and recovery from countries listed in Annex VII to the Convention to all other countries (Akinnusi 2001, Clapp 2002, Fagbohun 2007, Pelsy 2008, Widawsky 2008,

Langlet 2009, Kummer Peiry 2010 and Puthucherril 2010). As of 2014, the Basel Ban has 78 Parties; however, it has not been entered into force due to the fact that it requires ratification by 3/4 majorities of the Member States to the Convention (UN Treaty Collection).

There was wide skepticism around the ratification of the Amendment and as Baggs (2009) suggested, the Basel Ban, *“is being effectively opposed by a powerful coalition of industry and state actors which makes it even less likely to be adopted in the near future”* (p.3.). On the other hand, Fagbohun (2007) stated that the Basel Ban was incorporated into the European Union Waste Shipment Regulation and it became a legally binding obligation for all EU Member States. Puthucherril (2010) argued that although this might be the case, despite the efforts to endorse the policy as one of the most complete laws controlling the shipment of non-hazardous and hazardous wastes, shipping companies’ have created distinct techniques to by-pass the difficulties of this law in order to protect their own interests. So, in reality the end-of-life vessels are reflagged and other mechanisms are put in place in order to conceal the identity of the true owner that essentially causes serious enforcement challenges. Due to the problems associated with this particular dismantling process, the European Union remains as one of the main exporters of hazardous vessels; and, the current legal framework (WSR 1013/2006) has failed to properly address the issues related to the reflagging of end-of-life vessels.

As Faber (2008) described, the Basel Ban *“transformed the Basel Convention from a control regime, to a no-exceptions, environmentally-justified trade barrier to hazardous waste”* (p.200). Member States considered the Basel Ban controversial

because its proponents argued, as Kirby (1994) and Pratt (2011) noted, that the strict ban could cease the hazardous waste trade; but, the opponents had claimed that the Basel Ban could have negative effects on fair trade thereby acting as a disincentive for appropriate practices of recycling and reclamation. Widawsky (2008) shared the notion of Kirby (1994) as well as Pratt (2011) and further noted that opponents of the Basel Ban claimed that the illicit trade would rise and the ban would not be profitable. Furthermore, as a result of shifting interests, suddenly the national regulations became acceptable in order to ensure the “proper control” of transboundary movements of hazardous wastes.

Opponents to the Basel Ban further argued, as Poulakidas (1996) noted, that the Global Agreement on Tariffs and Trade (GATT) recognized the commercially disposed hazardous waste as well as its disposal as a commodity. Therefore, the trade restrictions introduced by the Basel Convention could be referred to the GATT and challenged. Moreover, the GATT rules required that each Member State (whether OECD or non-OECD participant) be considered equal in terms of trade. However, it presented serious obstacles for the Basel Ban to prohibit hazardous waste exports from the OECD nations to the non-OECD countries. Currently, the free trade agreement doesn't allow the Basel Convention to regulate what is or is not a good for the purpose of free trade.

Akinnusi (2001) praised the adoption of the Basel Ban for various reasons: a) it sustained talks between the Member States to the Convention and prevented the actual poisoning of the environment, as well as humans; b) the known exports from OECD countries to non-OECD countries decreased significantly since the adoption; and, c) the gap, whereby more than 90% of the exported hazardous waste was determined as "recyclable" has now been closed. Additionally, Akinnusi concluded that the recycling of

hazardous wastes solely represented the continuation of the waste crisis and did not propose a real solution. Aulston (n.d) agreed with Akinnusi's findings and further noted that the Basel Ban was considered an effective tool in order to eliminate the systematic international trade of hazardous waste. Although, Aulston did point out that the Basel Ban Amendment had failed to address today's challenge, the trade of electronic waste (e-waste) that had similar harmful effects as the hazardous waste trade once did during the 1970s, 1980s and 1990s. Pellow (2007) and Ray (2008) shared the view of Aulston (n.d.) and added that the e-waste problem was a crisis not only on the basis of quantity (increasing by 3 to 5 percent per year) but also due to its toxic materials, such as: lead, beryllium, mercury and polyvinyl chloride plastics.

Even though the Basel Ban did not include the issues of e-waste, nonetheless, Herat and Agamathu (2012) claimed that it created two important initiatives to boost the private sector's participation in the environmentally sound management of e-waste. The 'Mobile Phone Partnership Initiative' was launched, in 2002, which had various objectives in promoting best reuse, recycling and disposal options as well as material recovery. Moreover, in June 2008, the Basel Convention adopted The Partnership for Action on Computing Equipment (PACE) that aimed toward providing new and innovative approaches in dealing with used and end-of-life computing equipment.

In contrast to Akinnusi (2001), academics such as Poulakidas (1996), Wirth (1998), Krueger (1999) and Widawsky (2008) pointed out the possible adverse effects of the Basel Ban. In doing so, they stated that the Basel Ban might negatively affect the developing countries, such as, Brazil, India, Malaysia and the Philippines despite their increasingly industrialized capacity; and, this consequence might be a primary result of

the fact that they would be unable to obtain secondary raw materials. Furthermore, the Basel Ban did not address the South-South trade in hazardous waste – with little or no environmental regulations - that could have the same harmful impact on the environment as North-South trade. An evident example of this would be the waste trade scandal between Taiwan and Cambodia. In addition, Poulakidas (1996) noted that the South-South trade raised not only environmental but trade concerns as well. According to a U.S. State Department official, *“Under the ban, the same substances could be exported from China to India but not from Spain to India”* (p.898). The problem then becomes more evident when the newly industrialized nations begin to generate more significant amounts of hazardous waste. Lastly, those Member States that were not listed in Annex VII, wished to be included at some point in order to participate in hazardous waste trade; although, the membership in Annex VII was tied to the entry into force of Decision III/1. Therefore, the assumption was that those countries that were concerned about a "closed" Annex VII would less likely ratify the Basel Ban.

Wirth (1998) further noted that due to the fact that the Basel Ban administered only hazardous wastes, the characterization of a waste as 'hazardous' had substantial significance. The reason was that certain scrap metals were designated as raw materials either for recycling or extraction; however, based on the Basel Ban they might be considered as hazardous and therefore could not be transported. Another concern was that the Basel Ban did not address the availability of regional or bilateral agreements and how it would effect shipments for recycling among the Parties to the Convention.

Kummer Peiry (2010), similar to Wirth (1998), Krueger (1999) and Widawsky (2008), also identified concerns and noted that the expansion concerning the parties of the

OECD, the evolution of new waste streams and the techniques regarding recycling as well as resource recovery and the increasing number of modern recycling facilities that were available in non-OECD countries, had added new aspects to the problem. Poulakidas (1996) agreed with Kummer Peiry (2010) while adding that the ban on waste trade would prohibit the international development of an environmentally sound recycling capacity as well as end trade in wastes from the OECD to the non-OECD nations despite the fact that a non-OECD country may have capabilities of an environmentally sound management.

As O'Neill (2009) noted that some of the developing countries - including India - were challenging the Basel Ban by disputing that it raised barriers restricting their right to import wastes for recycling in order to gain valuable metals and other components. Opposed to this claim, Puckett (1997) stated that Greenpeace examined over 50 recycling operations, within non-OECD countries, during a seven-year period and documented unfavourable experiences. In conclusion, they reported that the operations were categorized as a "sham" as well as "dirty" recycling. Basically, the "sham" recycling technology was never seriously considered because the wastes were labelled recyclables just to facilitate trade. In general, the importer received payment for taking the hazardous waste and either simply dumping it, burning it or using it as fill material. On the other hand, "dirty" recycling seemed a less blatant fraudulent activity because some proportions of the hazardous waste were actually recuperated through the recycling technology; although, it had an equivalent or worse impact on human health and the environment. The real profitability of this activity was derived from exporters avoiding any liability, occupational or environmental exposure in their homeland rather than the

actual recycling itself.

In principal, Montgomery (1994) agreed with Puckett (1997) but argued that “sham recycling” should not be compared as legitimate recycling as it is executed poorly and as a result humans and the environment become the recipients of the dangerous end products. Unfortunately, some governments have allowed the import of wastes for recycling and recovery but have made no attempt to ensure that these processes have been carried out in an environmentally sound manner.

Additionally, Clapp (1994) described another form of ‘recycling’ named the “waste-to-energy” scheme. A suggestion of this type of operation was made to Sierra Leone, Angola and Namibia. The arrangement was that the imported hazardous waste was burned in incinerators with the aim of running a power plant. In exchange for this, countries would receive money or proposals for the establishment of roads or ports, as well as power plants. Similarly to the other two schemes, the “waste-to-energy” type of recycling also released deadly toxins into the air that would have an adverse impact on the environment and human health over time.

As Choski (2001) as well as Brown and Kütting (2008) noted, the Parties improved the waste classification system in order to strengthen the Basel Convention and to clarify the definitions relating to what constitutes hazardous and non-hazardous waste to resolve various interpretations and loopholes. Choski (2001) further noted that areas within two categories of wastes in the Convention were amended. Therein, List A (Annex VIII) could not have contents transported under the Basel Ban while waste contained in List B (Annex IX) might be transported to developing countries unless they exhibited the hazardous characteristics outlined in Annex III. The developed nations supported the

composition of these lists because it opened trade for recyclables with non-OECD countries. On the other hand, environmentalists were concerned that the “sham” recycling would create opportunity to OECD nations to ship hazardous, List A wastes under the guise of recyclable wastes.

As scholars discussed, the recycling loopholes and the Basel Ban seemed to add more questions than answers. With the adoption of the Basel Ban, there was hope to decrease the transboundary movements of hazardous wastes and essentially strengthen the Basel Convention. However, the opposition concerning the complete waste export ban appears to be too determined to accept an agreement and seemingly has found ways of undermining attempts of the Convention to meet and achieve these goals. One may wonder as to how there will be any protection to the developing nations from hazardous wastes if they appear to be resistive toward accepting these safeguards. Twenty years have passed already from the adoption of the Basel Ban but still it has been unable to obtain the necessary number of ratifications necessary. In the meantime, by utilizing the loophole of the Convention the hazardous waste is freely moving across the world under the assumption that hazardous waste is being treated for resource recovery, recycling reclamation and direct re-use.

The Basel Convention appears to continually standing on frail ground; and, now it is coupled with the Basel Ban that most likely will be hindered for some time without fulfilling its purpose. Although, one may note that in retrospect, prior to the ratification of the Basel Convention, that there would have been an unfavourable outcome to this dilemma in the view of the expected negotiations. In doing so, it is difficult to determine whether the Basel Convention can or will be able to protect the developing nations from

unwanted hazardous wastes because in light of the past/current incidents, the multimillion dollar business of recycling and the current and future challenges of electronic wastes will always be demanding.

Given this particular situation, the characterization of waste as 'hazardous' has become even more important than before as the issue of free and vague interpretation has and will continue to create a lengthy debate as to whether an important raw material, for a developing nation, is constituted as being hazardous or not. This matter amongst others could have a significant impact on current and future trade between the OECD and non-OECD countries. For that reason, one may state the transboundary movements of hazardous waste is a tricky business that hinges on the complex perimeters that facilitate frequent shifts in consensus building depending on the interests of the Parties to the Convention.

### **Other International Agreements Relevant to the Basel Convention**

In order to fill in the loopholes of the Basel Convention, other multilateral environmental agreements were created and some of those observations are briefly discussed below.

#### ***The Bamako Convention***

As Kummer (1994) and Akinnusi (2001) noted, the Bamako Convention is one of the important regional agreements on hazardous wastes that emerged in response to the

dissatisfaction of African states toward the Basel Convention; and, as Kitt (1995) noted, the African nations called for a, “*common African position for ameliorating the inadequacies of draft convention*” (p.501). Similarly to Kummer (1994) and Akinnusi (2001), Bradford (2011) further noted that the Bamako Convention was viewed as a means of correcting certain weaknesses of the Basel Convention; and, as Kaminsky (1992) added it strengthened as well as coexisted with it. The convention was adopted in 1991 and scholars (Shearer 1993, Kummer 1994, Gudofsky 1998, Akinnusi 2001 and Cox 2010) expressed that it dealt with concerns of radioactive wastes (areas that had not considered by the Basel Convention) as well as hazardous wastes while utilizing a wider definition of hazardous wastes as opposed to the Basel Convention.

As Gudofsky (1998) added the definition of “waste” of the Bamako Convention omitted a few uncertainties that were present in the Basel Convention. As a result, the actions and intentions of a waste producer and the national legislation were applicable in deciding with the question of what constitutes a waste. The Bamako Convention obtained the ten ratifications that were necessary and it was then entered into force in 1998 (DeSombre 2006 and Pratt 2011) however, as Oluwu (2012) stated the Secretariat of the Bamako Convention was not given the authority to monitor the treaty beyond the objectives that existed under the Basel Convention.

Scholars (Shearer 1993, Kummer 1994, Park 1998, Akinnusi 2001, Webster-Main 2002, DeSombre 2006, Fagbohun 2007, Cox 2010 and Bradford 2011) further noted that the scope of the Bamako Convention was broader than the Basel Convention because it completely prohibited the import of hazardous waste as well as radioactive wastes from non-contracting parties to Africa in addition to the banned exports of hazardous wastes to

all other African signatories. For example, a waste listed under Annex I or a hazardous characteristic defined in Annex II could be denied an import permit as per the Bamako Convention. Akinnusi (2001) and DeSombre (2006) further added that the Bamako Convention, contrary to the Basel Convention, included household wastes (i.e. sewage and sewage sludge) and "residues arising from incineration of household wastes" (Akinnusi p.309) also as being hazardous; therefore, there was no need to implement a special category of waste within the Convention (Park 1998). As Gudofsky (1998) added the Bamako Convention had identified a differentiation between waste that was generated in Africa and waste that was a by-product from outside Africa. Therefore, as a recommendation to the disposal of wastes within the African continent it was determined that it should be moved among the African countries only as a last alternative.

Clapp (2001) noted that due to the strong influence of Greenpeace, more stringent provisions were being included within the Basel Convention because the African countries recognized that the Bamako Convention by comparison would lack the overall funding necessary to successfully monitor the traffic of toxic wastes. As a result, NGOs were then approached to become more involved so that the aim of enforcing compliance would be certain. As Achoka Awori (Executive Director, Kenya Energy and Environment Organization) commented on the concern of the Convention: *"It sends a message even though it doesn't do much. It gives environmental agencies something to point to in a legal sense....It is now up to the NGO community and the international agencies to patch up the loopholes"* (UN Officials 1992 p.275).

Consistent with Clapp (2001), Brown and Kütting (2008) also emphasized the importance of the Greenpeace that prepared a report containing 1,000 cases connected to

the illegal trade of hazardous waste. Although, in the interim of its submission Brown and Kütting also noted that some of the waste exporters were in the process of adjusting their policies to these claims. For instance, during the Clinton administration the United States had modified its policy concerning waste exports to the developing countries; although, the importance of the new directive had still allowed the export of certain commodities under debate (i.e. scrap metal, glass and paper). Therefore, despite the fact that these types of waste were not considered hazardous, per se, they still were believed to have harmful effects on the environment as well as humans that posed individual challenges for every receiving nation.

Though, Kaminsky (1992), Schneider (1996) and Olowu (2012) argued that the Bamako Convention had failed to address the enforcement of monitoring mechanisms, as well as the definition of environmentally sound management, that coupled with the inadequate funding system and unified commitment among the African states; but, as Park (1998), Akinnusi (2001) and Fagbohun (2007) added, it imposed unlimited as well as joint and several liability with respect to the hazardous waste producers and the disposal of wrongful hazardous waste. Fagbohun (2007) further added that strict liability was in contrast with the usual practice of the international treaties because it either enforced a commitment of due diligence or a standard of negligence contrary to a harsh liability in order to prevent harm.

However, as Kaminsky (1992) noted the ban in the Bamako Convention provided third parties an international right to question '*ab initio*' hazardous waste disposal programs in adjacent countries. Additionally, Kaminsky argued that the implementation of the Bamako Convention had a positive effect on the Basel Convention due to the fact

that the ban in the Bamako Convention provided a more clear picture for the Member States as to what their responsibilities were concerning the import and export of wastes.

Contrary to Kaminsky (1992), Kummer (1995) had noted that the Bamako Convention in comparison to the Basel Convention did not tackle the question of wastes that were destined for recycling and final disposal. Moreover, Pratt (2011) stated that even though the Convention outlined strong provisions and had political support, Bamako countries were not able to effectively implement these provisions; and, as a result the application of the Convention was limited.

#### ***Lomé IV Convention***

As Abrams (1990), Clapp (1994) and Kummer (1994) noted, the Fourth Convention of Lomé took place, in 1989, with the participation of the European Union and sixty-nine (69) African, Caribbean and Pacific (ACP) States. The aim of the discussion was economic cooperation as well as aid between the parties. The Lomé IV Convention was entered into force in 1991.

In terms of the environmental provisions, as Bradford (2011) added, that were established within the framework, Article 39 addressed the issue of hazardous wastes. As scholars (Abrams 1990, Clapp 1994, Kummer 1994 and Bradford 2011) noted, Article 39 stated that the members of the European Union were obligated to ban the direct or indirect exports of hazardous wastes to the ACP states as well as ban direct or indirect imports from the EU or any other countries. Therefore, as Schneider (1996) noted the Convention strongly depended on the cooperation of Member States in order to achieve its hazardous wastes policy.

However, as Kummer (1995) noted Article 39 created an odd situation between these nations because the ACP states must ban imports from the EU and from other states; while, the EU countries must prohibit exports to ACP nations only but may continue to export to other third parties. Additionally, it created a contradiction within the Bamako Convention by forbidding waste movements amongst ACP and non-ACP countries that were allowed under the convention. Moreover, as Park (1998) and Pratt (2011) noted the Convention viewed the dumping of nuclear and industrial wastes in Africa as a crime against the continent and its people. Thus, it required that those areas that have been already contaminated should have been cleaned up.

Pratt (2011) further added that the Lomé IV Convention expired in February 2000; therefore, the European Community and seventy-nine APC countries had created a new treaty known as the Cotonou Agreement. The scope of the Cotonou Agreement was broader in scope and did not focus on the hazardous waste trade ban but rather promoted, *“cooperation on environmental protection and sustainable utilisation and management of natural resources...taking into account issues relating to the transport and disposal of hazardous wastes”* (p.604-605). Contrary to the Lomé IV Convention, the agreement was considered to be much weaker based on the exclusion of total ban; nevertheless, it recognized the existence of risks in developing countries and devoted its existence to the protection of these nations against harmful and hazardous waste shipments.

As the scholars had illustrated both Conventions had aimed to strengthen and aid the Basel Convention in some particular form or manner. Although, despite the Bamako Convention's shortcomings (i.e. lack of enforcement, monitoring and funding) it was able to raise awareness as to the ban of exporting hazardous waste to the African continent. In

turn, it signaled a message to the developed world that the African countries should not be viewed as a platform for the disposal of hazardous wastes that are produced by other nations. The Lomé IV Convention also conveyed a similar message that the ACP countries were not dumping grounds for the rich nations' hazardous wastes. One may note that if nothing else, the Bamako and the Lomé IV Conventions demonstrated to the world that third world countries could join together for this common purpose and support each other in a unified means in order to protect their countries from the developed world' hazardous waste.

Despite the existing multilateral agreements outside the Basel Convention that dealt with hazardous waste issues, the international community still had difficulty in effectively addressing the challenges regarding the global hazardous waste management system. The Basel Convention, as well as other aiding international agreements, has been in existence for some time now; thus, it might be a good time to address the loopholes in the current system and provide solutions that would lead these agreements towards a more effective operation as it is now. Perhaps, the United Nations Special Session in New York on the Millennium Development Goals, in 2015, may possibly be one of the forums that will address an agenda connecting the protection of the environment and human health. Otherwise, the developed world will be less likely protected from these unwanted hazards.

In the meantime, the developed countries, as Pratt (2011) noted *"...should be to promote the importance of non-discrimination of environmental harm and to avoid shifting the burden of hazardous waste to countries that do not share in the production benefits"* (p.622).

### ***Illicit Trade in Hazardous Waste***

Article 9 of the Basel Convention defines illegal trafficking as any transboundary movement of hazardous waste or other wastes that has been presumed without prior notification as well as the consent of the receiving country - or - when the consent was attained – from involved Parties – through falsification, misinterpretation or fraud (Basel Convention). Although, despite the fact that the Basel Convention and other international agreements have been implemented to correct such wrongdoings, many cases have still been discovered concerning the illegal transboundary movements of hazardous wastes.

As Ajunwa (2007) and Hussein (2010) stated, African nations had been specifically affected by the dumping of illegal hazardous wastes. An example of this was demonstrated when the coast of Somalia, within the past 15 years, was found to have been an illegal dumping ground for the disposal of several European countries who had deposited large quantities of hazardous wastes on their shore. Based on the absence of a self-sufficient operational government and the need for accountability, dumping has been easily encouraged by corporations as a means of continuing this harmful practice within Somalia's shoreline as well as other parts of Africa. Consequently, Somalia has been vulnerable to illicit dumping due to the fact that the coast line is quite large and unpatrolled; and, thus illegally disposed waste, as Caruso (2005) noted, has caused health problems for countless citizens living along its coast as well as contaminated the groundwater in some areas.

Hussein (2010) further noted that, during the 1990s, Somalian guerillas combatants would often accepted hazardous wastes in exchange of survival equipment

and ammunition. Thus, the dumping of hazardous waste was seen to play an important role in the continued years of armed conflict that destroyed Somalia that regrettably had not received this needed attention as well as the subsequent humanitarian crisis.

Clapp (1994) also noted that shipping toxic waste to Africa was economically feasible for the industrialized countries due to the fact that long distance sea transport relatively became a cost effective process during the mid-1980s. Another economic reason for the disposal of hazardous waste in Africa, as Clapp expressed, was that the continent was under-polluted and that, *"the economic logic of dumping a load of toxic waste in the least wage country is impeccable."* (p.19). As a consequence of these perceptions, Africa had quickly turned into a popular site for waste dumpers during the 1980s. In addition, most of the African nation's environmental laws were generally weak and they hardly had any influence over the customs officials who allowed the shipments to be off-loaded in the ports.

Furthermore, as Myers (1992) pointed out the loopholes in the system had allowed top government officials to gain financial incentives through their dealings in corruption. For example, in Congo, five government employees had been arrested for negotiating a deal to receive one million tons of chemical waste and pesticides after obtaining \$4 million in commission; and, in Equatorial Guinea, the President himself claimed for a \$1.5 million bonus for the approval of a foreign firm to dump five million tons of hazardous waste within the country.

However, during the past years as scholars (Iles 2004, O'Neill 2009 and Gillis 2010) noted, one of the biggest commodities of waste transported to the developing nations (mainly Asia) was electronics that contained different toxic materials that were

considered harmful products of improper handling. For example, in some developing countries, scrappers were most likely to break down the electronic goods by way of hand tools, open-air incineration or acid bath in order to gain valuable metal and other recyclable materials for sale. Acid bath usually resulted in huge clouds of steamy acid gases that were emitted, as Puckett and Smith (2002) noted that resulted in clouds of smoke that could be viewed from far distances. Therefore, as Osibanjo and Nnorom (2007) further noted, the main environmental effect of e-waste developed as a basis of the inadequate processing rather than the toxic elements contained in the goods. However, it was difficult to define whether a secondary product was intended for reuse or it was considered waste material.

As Lepawsky and McNabb (2009) added, equipment disposed of as e-waste in one place became sources of value somewhere else when the materials were reused, repurposed and/or broken down. However, as Puckett (2005) and O'Neill (2009) claimed due to various reasons, e-wastes could not be defined as hazardous waste under the current regulations of the Basel Convention pertaining to the hazardous waste trade. The explanation was that computers and other electrical equipment often were not shipped as waste or goods for recycling but rather as 'charity' or 'donations' to Africa or Asia in order to close the digital gap.

Onzivu (2013) also claimed that the global consumption of electronic goods had increased ultimately generating the boom in toxic waste. As a consequence, the disposal of e-waste - especially computers and mobile phones - has grown dramatically from Europe and the USA to developing nations and has also resulted in the escalation of illegal activities as well. It was been estimated that in 2005, 47% of the exported

hazardous waste from the EU was illegal. In addition, the European Environmental Agency (hereafter EEA), in 2012, reported that during 2007-2009 approximately 400 cases that involved illegal movements were registered. According to EEA, Germany, the Netherlands, Belgium, the United Kingdom and Australia accounted for 70% of documented cases.

As Gillis (2010) pointed out, an industrial supply chain seemingly had evolved with questionable intent. By illustrating this, U.S. crime organizations, as Liddick (2010) argued, tried to monopolize private sanitation contracts by attempting to control their labor unions. By achieving this, they would include their own businesses in the hazardous waste disposal scheme in order to dump unidentified hazardous waste illegally. Similarly in Italy, organized crime involvement in the disposal of hazardous waste was significant. The Cosa Nostra, the Camorra, as well as the 'Ndrangheta have had tremendous control over the trade business. Although, Interpol (2009) noted that based on its research in the EU and the USA, the involvement of organized groups within the area of environmental crime has likely been less structured and centralized than the traditional patterns of organized crime. In as much, the aim of these crime groups has been to exploit their criminal opportunities in relation to the environmental crime while utilizing a loose based organizational network structure.

As UNEP-Grid-Arendal (2012) added, the criminal organizations in Italy infiltrated the waste management business and side-tracked shipments toward a more lucrative illegal market area. Liddick (2010) further noted that in China, the majority of the imported wastes had originated from the U.S., Europe, Japan and South Korea; although, much of this waste had been trafficked by organized crime syndicates within

those countries. In general, as Gillis (2010) and Liddick (2010) claimed, national and international crime organizations had earned billions of dollars each year by smuggling and dumping hazardous waste.

Similar to Liddick (2010), the EEA in 2012 also noted that the illegal waste trade was usually accommodated through well established import and export firms; such as, metal recycling and financial services. In addition, Europol (2011) as well as the EEA (2012) stated, that corruption in the public and private sector also had its role in this scam through the process of fake laboratory certificates. Moreover, intermediate storage locations were utilized in order to conceal the final destination of the hazardous wastes, as well as baffle the efforts of law enforcement to determine the source of business. Scholars as well as organizations (Heiss, Ruessink, Isarin, Koparova and Grabieli 2011, Europol 2011 and EEA 2012) further added that the north-western European ports appeared to originate as the most common means or route of sea transport within the illegal export of e-waste and end-of-life vehicles to West Africa and Asia.

Additionally, as Heiss, Ruessink, Isarin, Koparov and Grabieli (2011) noted the International Conference on Environmental Compliance and Enforcement (INECE) and Seaport Environmental Security Network (SESN) developed and carried out a hazardous waste inspection internationally between June-July 2010. According to the reports, seventy four cargo inspections were conducted of which irregularities were found in thirty nine cases (53%) while six cases were still under review during the investigation period. It was observed that the illegal waste streams were mainly encountered during the event when e-waste was improperly certified as second-hand goods; waste batteries were incorrectly specified as plastic or mixed metal scrap along with cathode ray tubes (CRT)

from televisions and computer monitors inadequately characterized as metal scrap. In most cases, the notification procedure was not followed through as the Basel Convention requires. In order to better understand the challenges of these inspections, according to the UNEP-Grid-Arendal (2012), it was noted, in 2010, that twenty-four million containers had passed through the port of Hong-Kong; more than eleven million containers through the Port of Rotterdam; and, two million and eight hundred thousand through the Port of Gioia Tauro, in Calabria, the largest harbour in Italy as well as within the Mediterranean Sea.

The INECE Seaport Environmental Security Network (2012) conducted its second inspection project at seaports from December 2011 through March 2012. During this period, one thousand and sixteen containers were inspected by the network that resulted in one hundred and sixteen cases (11%) of illegal activity while forty seven inspections were still to be investigated. Similar to the first inspection, the proper ‘prior informed consent’ was still an issue that was coupled with the lack of approval from a competent authority. Additionally, electronic goods were either found to be inoperable or it was questionable as to whether some of this equipment was going for reuse.

Apparent to the Europol (2011) and the EEA (2012) findings, it was detected that shipments to Asia almost often contained plastic/ paper/cardboard waste or metal scrap; while, on the other hand shipments to West Africa mainly contained electronic waste. Interestingly, some of the shipments to West Africa were declared to contain a “second-hand vehicle”, when in fact the container stored a second-hand vehicle that was holding electronic waste that was not declared.

As e-waste has evolved within the last decade, it became a definitive source of illegal trade whereby the leading recipient was the Asian continent (Onzivu 2013); although, as Pellow (2007) noted there were examples of e-waste dumping in Mexico as well as West and East Africa (Europol 2011, EEA 2012). He further noted that not only the Member States and business firms that were creating global environmental inequalities or environment activists who strengthened legislations in the industrialized countries inadvertently added to this problem. As Goodman (2003) noted, *“China’s role as dumping ground for the world’s unwanted gadgets is an outgrowth of efforts by wealthy countries to protect their environment”* (p.1).

As the United Nations Office of Drugs and Crime (hereafter UNODC) (2013) claimed, China is the largest single destination of illicit waste as it receives around seventy percent of the world’s scrap electronics. As a consequence, it is estimated that eight million tons of electronic waste is illegally transported into China on a yearly basis even though the entire region receives approximately ten million tons of electronic waste every year (including about two million tons in internal flow via third world countries such as Vietnam). This fact is interesting, as Goodman (2003) noted, because China has banned the import of scrap electronic although the regulations were circumvented many times through financial means to corrupt custom officials.

Similarly to Goodman (2003), Kojima and Yoshida (2005) also noted that China imposed a ban on the import of used electronics; although, these products could have been transported to Hong Kong if an import license was obtained. The reason behind this is that China and Hong Kong (despite them being one country) have different waste management systems and China’s regulations were not applicable in Hong Kong.

The Hong Kong Environmental Protection Department conducted over nine hundred inspections, between 2006 and 2008, in various storage sites and launched numerous successful raids by law enforcement agencies in order to interrupt illegal activities. During this period one hundred and ninety seven prosecutions were revealed; and, as a result one hundred and thirty eight convictions were made that have been indicated in Table 3. (Kojima, Yoshida, Sasaki and Chung 2013).

Table 4. Transboundary Movement of Electronic Waste between January 2006 and October 2008

Exporting Country	Number convictions of	Types of Hazardous Waste	Total Fines and Other Penalties (HK\$)
Japan	31	Batteries and cathode ray tubes	860,400
United States	26	Batteries and cathode ray tubes	710,000
Canada	14	Batteries and cathode ray tubes	353,000
Korea	10	Batteries and cathode ray tubes	330,000 and a community service order for 180 hours
Ghana	7	Batteries and cathode ray tubes	75,000
United Arab Emirates	6	Batteries and cathode ray tubes	160,000
Other places*	44	Batteries and cathode ray tubes	949,000

Note: \*. “Other places” include 24 countries such as Guatemala, Malaysia, Singapore and Italy, each with fewer than six related convictions.

Source: (Kojima, Yoshida, Sasaki and Chung 2013 p.153).

Furthermore, between 2006 and 2008, approximately two hundred and ninety one imported shipments of hazardous wastes were sent back to originating countries that are displayed in table 4.

Table 5. Number of shipments of electronic waste returned for illegal import between January 2006 and October 2008 (number of containers)

Countries of Export	Number of returned Illegally Imported Shipments (number of containers)*
United States	110 (140)
Japan	34 (39)
Canada	20 (30)
Vietnam	13 (45)
Australia	11 (15)
United Arab Emirates	11 (13)
Other places**	92(139)

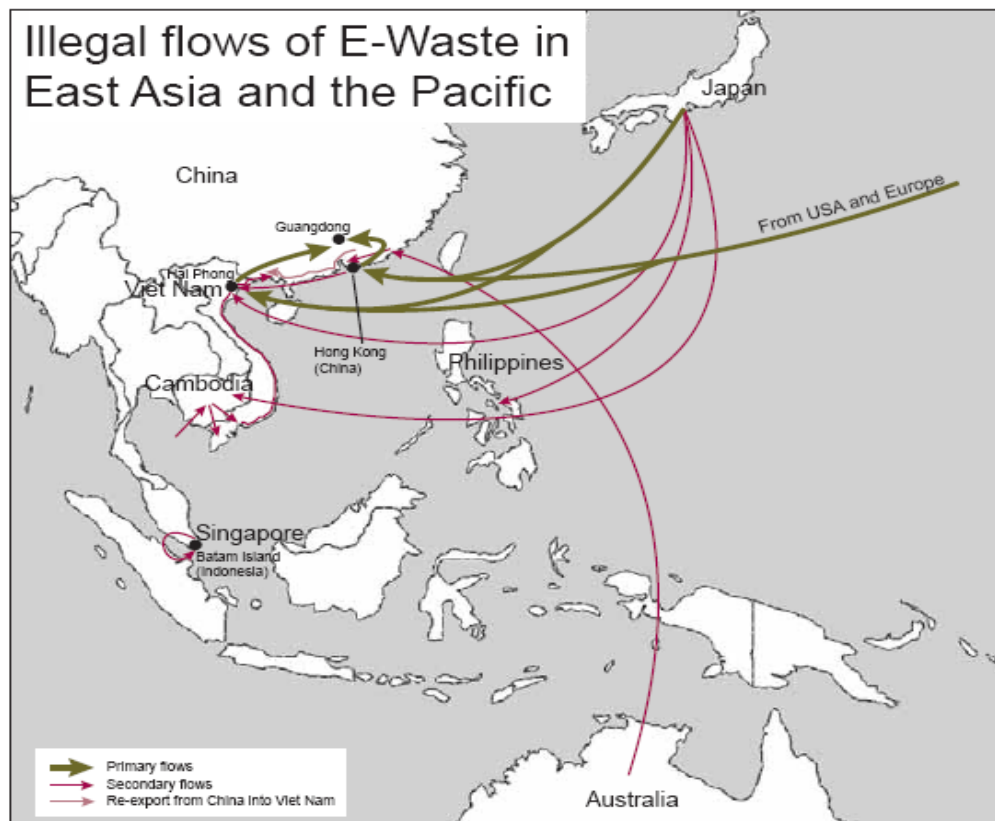
Notes: \*. Some shipments involved more than one container.

\*\*.. “Other places” include 40 countries such as Guatemala, Algeria, Malaysia, Philippines and Singapore, each with fewer than eight related shipments.

Source: Kojima, Yoshida, Sasaki and Chung (2013 p. 154)

The UNODC (2013) further added that a container of CRT monitors was sold for \$5,000 in Hong Kong (China), which meant that one metric ton was \$250. Interpol specified that the value of one ton of electronic waste was estimated to be approximately \$500. The difference yields an average \$375 per ton. In light of the ten million tons of illegal electronic waste that flows to Asia, the potential value from illicit trade could be estimated around \$3.75 billion per year. The below figure also demonstrates the main routes of the illegal trade of electronic waste in Asia and the Pacific.

Figure 7: Illegal flows of electronic waste in East Asia and Pacific (UNODC 2013 p.111)



The increasing problem of e-waste as, Agarwal (2003) noted, had arisen in India that was known as a hub for information technology. However, within the last few years, it became recognized as a hub of another kind - a destination of electronic waste. Despite government regulations, India developed into the region's dumping ground for computer junk. Agarwal further noted that Indian regulations did not permit the import of scrap electronic waste; nonetheless, their legislation granted permission for second-hand electronics such as second-hand computers. Thus, the terrifying concern was that if someone was looking for scrap computers then the seller would actually inform the buyer as to how they should classify the waste as a second-hand computer in order for the transport to India could be legally pursued.

As Borthakur and Sinha (2013) noted, it is estimated that by 2020 electronic wastes from old computers would increase to approximately 500%, while unusable cell phones would be about eighteen times higher and disposed refrigerators would ultimately double or triple in comparison to the 2007 levels. In addition, as Reed (1999) noted India altered its position due to the economic impact of the Ban Amendment; therefore, it lifted the block on zinc ash scrap as well as its consideration of the authorization for the import of lead scrap materials. Despite the growing concern of the impact of e-waste in India, who is a Party to the Basel Convention and its domestic law also bans the import of hazardous waste (but they have not ratified the Ban Amendment), continued to turn a blind eye to import of various hazardous materials (Clapp 2001, Agarwal 2003).

Another challenge concern of the illegal trafficking of hazardous waste has been second-hand goods. As Dorn, Van Daele and Vander Beken (2007) argued, the second-hand market was usually utilized in order to disguise the illegal shipments to developed countries. Although, the trading of second-hand goods was not strictly illegal; nevertheless, often it was abused or used in making a vulnerable aspect of this particular mode of trade.

The Europol (2011) further argued that the lack of unification regarding the distinction between waste and second-hand goods also contributed to e-waste and the transportation of deregistered vehicles to non-OECD countries and other states. Kojima (2013) added that the lifespan of the imported second-hand goods was shorter than brand new commodities; therefore, he expressed that they would then turn into waste much sooner. As an example, he noted that the second - hand imported electronics boosted the volume of electronic waste within the importing countries. Osibanjo and Nnorom (2007)

further noted that the imported second-hand electronic equipment was hardly tested for functionality in the developing countries; hence, it was estimated that 25-75% of the imported electronic equipment was unusable e-scrap.

Based on the scholars' observation and data from various organizations, it seems that not everyone shares the vision expressed by the Basel Convention. Many of them have found innovative ways of avoiding detection, circumventing the regulations or moving contents through the exploitation of falsified documents in order to deliver illegal hazardous wastes through borders. Unfortunately, the enormous volume of waste produced globally as well as the millions of million containers that are moved across the world makes the process of systematic tracking and an immeasurable challenge, if not an unthinkable commitment. These trends are made even more difficult when interlinked with the key objectives of the Basel Convention that advocate a reduction in the production of hazardous waste, the disposal of wastes as close to the source as possible and the minimization of cross border movements of hazardous wastes.

Even though the Basel Convention genuinely has made an effort to provide assistance for Member States, especially to the developing world, in order to protect their borders from unwanted wastes; but, no sizeable effect has appeared to greatly manifest it. Technology has changed rapidly and unfortunately it seems that the Convention was not able to keep up with current times as well as address its own vulnerabilities. Although in a manner of speaking, it has attempted to utilize the Basel Ban Amendment in order to control the newest challenges, somewhat - i.e. electronic waste – as well as its side effects but these presumptions have not formulated an infallible outcome.

Additionally, second-hand goods have also provided great challenges because they are not subjected to waste regulations. Therefore, many shipments sail across the world with false documentation that declares these goods as second-hand when they are truly harmful substances. Taking the defects of the definition of hazardous waste, the increased demand for raw materials by some of the developing nations, the lack of proper national enforcement abilities and other problems into consideration, one may say that the Basel Convention will soon become completely inadequate and ill-equipped to future challenges that will make it impossible to properly protect the developing world from the rich nations' hazardous wastes.

Therefore, it is crucial that the Member States realize the seriousness of the situation and that they may have acknowledged that the Basel Convention hadn't adequately addressed the transboundary movements of hazardous waste to the developing world. Therefore, they are strongly encouraged to ratify the Basel Ban, as well as the Liability Protocol whereby both indisputably attempted to fulfil the obligations outlined within the Convention. On the other hand, this might be the ignition that propels the Convention itself to gain its own momentum and convince the Member States to support the importance of its destiny; thus, enforcing the credibility for the future of the convention, the reverse of adverse effects of the current trends and the needed safeguards that have been discussed in order to protect the environment and its people for future generation.

## **VI. Research Design**

This section outlines the methodological approach that I have used in order to examine three hypotheses formulated for exploring my research question. The techniques employed include bivariate analysis (Chi-square test) and survey research used to develop additional quantitative and qualitative information for analysis (Singleton and Straits 1999).

The aim of the bivariate analysis is to assess the empirical association between two variables in order to determine whether the relationship is likely to exist (or it might be a product of random error) and how much effect or influence one variable has on the other (Singleton and Straits (1999). One of the common forms of bivariate analysis used for nominal and ordinal variables is the Chi-square test. The Chi-square test is intended to test the likelihood that an observed distribution is due by chance. Another way to describe the Chi-square test is that it tests the null hypothesis to indicate whether the variables are independent. So, in relation to this research, the Chi-square test would allow you to test the probability in order to indicate whether the differences of the hazardous waste definitions on the national level and the self-reporting data are completely independent. In other words, how likely would it be that the distribution of different hazardous waste definitions at the national level actually resulted in the divergent self-reporting data by chance? As Singleton and Straits (1999) and Diener-West (2008) noted, the large value of Chi-square statistically is due to the small probability of the occurrence by chance alone ( $p < 0.05$ ). Thus, one might conclude that a relationship exists between the national definition of hazardous waste and the self-reporting data. In the

event of a small Chi-square value, there would be a large probability of the occurrence, by chance alone ( $p > 0.05$ ), that would conclude that there is no association between the national definition and the self-reporting data.

The rationale for the application of these various techniques is that by themselves they are insufficient as means to fully address my study interests. Therefore, by combining these techniques, they complement each other and allow me to conduct a more thorough analysis.

The literature review discussed some of the factors that have provided some insight into the research question, *“Why has the Basel Convention not adequately addressed the transboundary movements of hazardous waste to the developing world?”* Consequently, the literature on the Basel Convention suggests that reviewing the inconsistent definition of hazardous waste on the national level holds some of the answers to the current problem. Additionally, examining the export of various hazardous wastes (containing essential elements) as well as the number of convictions and fines could provide critical data to resolve the research question. In view of this and to better understand this important question, the basis of this research need to be further analysed from various perspectives. Below are the hypotheses that were examined in my study, and the methods used to test them.

### ***Hypothesis One and Methods***

As it was discussed in the literature review, many scholars (Clapp 1994, Kitt 1995, Gudofsky 1998, Orloff and Falk 2003, Okaru 2011, Pratt 2011) expressed their concerns regarding the definition of hazardous waste that was established by the Basel Convention. The definition has been described as vague and broadly defined. Beyond this issue data comparison between the countries have been considered as challenging due to the various interpretations of the definition of hazardous waste that ultimately could result in inadequate self-reporting data. To test if there was any relationship between the definitions employed by the Member States and self-reported amounts regarding the export of hazardous waste the following hypothesis was created. The countries examined in this research have ratified the Basel Convention. The study years are 2007-2011.

**Hypothesis (H1):** Different hazardous waste definitions on the national level results in divergent self- reporting data

**Independent variable:** Different hazardous waste definitions on the national level

**Dependent variable:** Self-reporting data yields divergent results

### ***Explanation of data***

The data for the independent and dependent variables were collected from the Basel Convention website that is maintained by the United Nations. The Parties are required (based on the Convention Article 13, para (3), to transmit their national report to

the Secretariat, annually (Basel Convention 1989). The self-reporting data (export of hazardous waste) was provided by the Member States between the years of 2007-2011 (Table 5). The data was found to be incomplete because countries had either not reported the data or there was no available data at all. This might be possible that the resources were limited or not available to collect in order to compile the information for submission. In general, it was not uncommon that countries either reported partial data or nothing at all. I have noticed that approximately only 30-35% of the Parties did comply with the reporting provision of the Convention during these periods.

### ***Independent Variable***

For the aim of this study, the independent variable is the national definition of hazardous waste used for the purpose of transboundary movements of hazardous waste that is submitted by the Parties of the Basel Convention to the Secretariat. In order to preserve the uniformity of the independent variable no other than the Basel Convention definition is considered in my research. Explanation of how the independent variable is operationalized can be found in the section entitled, “statistical analysis”, below.

### ***Dependent variable***

For the purpose of this analysis, the dependent variable - the self-reporting data - is represented by the hazardous waste that is exported by the Member States and reported in metric tons. The self-reporting data concerning the export of hazardous waste (in

metric tons) is submitted in Part II of the annual reports submitted to the Secretariat of the Basel Convention. The following countries were included in the study that submitted the information in regards to the national export of hazardous waste in any given year: Andorra, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahrain, Belarus, Belgium, Bosnia and Herzegovina, Brazil, Bulgaria, Canada, Chile, China, Colombia, Croatia, Czech Republic, Cyprus, Denmark, Dominican Republic, Ecuador, Estonia, Finland, Germany, Greece, Honduras, Hungary, Indonesia, Iran (Republic of), Ireland, Israel, Italy, Jamaica, Japan, Kazakhstan, Korea (Republic of), Kyrgyzstan, Latvia, Liechtenstein, Luxembourg, Malaysia, Malta, Mexico, Montenegro, Morocco, Netherlands, New Zealand, Nigeria, Norway, Panama, Philippines, Poland, Portugal, Qatar, Romania, Serbia, Singapore, Slovakia, South Africa, Spain, Sri Lanka, Saint Lucia, Sweden, Switzerland, Thailand, Togo, Tunisia, United Kingdom of Great Britain and Northern Ireland, Ukraine, United Arab Emirates, Uzbekistan, Venezuela. It should be noted that each country did not report for every year. Therefore, the break down of the participants, year by year as follows: 2007-56 countries, 2008-50 countries, 2009-50 countries, 2010-54 countries and 2011- 49 countries. Explanation of how the dependent variable is operationalized can be found in the section entitled, “statistical analysis”, below.

### ***Statistical Analysis***

Currently, there is no study available that would address the problems surrounding the definition of hazardous waste and its reporting consequences within the national level. Therefore, my intention was to examine the relevant national definitions of the participating countries within the study. This process would assist in operationalizing the national definitions as an independent variable. Based on the findings, the definitions were separated into ranked categories of strictness (from least strict to most strict) taking into consideration the Basel Convention standards. The assumption was that different groups might have displayed different reporting patterns. For the purpose of the study, the dependent variable (self-reported metric ton data) was restructured so that it could be analysed appropriately as an ordinal variable. Hereafter, the data was reviewed in order to determine the variations according to the constructed definitional differences.

In order to carry out the bivariate analysis, a contingency table was created and Chi-square test applied to the ordinal independent and dependent variables. Within my analysis, the independent variable was the different national definition of hazardous waste used for the purpose of the transboundary movements of waste while the dependent variable was the self-reporting data.

The structure of the independent and dependent variables is as follows: *Category 1* - represents those countries that utilize the Basel Convention concerning their national definition; *Category 2* -characterizes those Parties (mainly countries from Europe) that addition to the Basel Convention consider various European Union guidelines i.e. Directive 2008/98/ EC on waste and Regulation (EC) No.1013/2006 on shipments of

waste in connection with their national definition and lastly; *Category 3* - describes those nations who in addition to the Basel Convention apply various characterizations and wording; for example, high reactivity, pathogenic, poisons, due to its origin, composition or concentration etc. to describe their national definition of hazardous waste.

The dependent variable is operationalized as follows: *Category 1* - includes those Member States whose self-reporting data (export of hazardous waste) was between 1-8,005 metric tons (in a given year); while, *Category 2* - incorporates those Parties whose self-reporting data (export of hazardous waste) is above 8,006 metric tons (in a given year). The results of the bivariate analysis are displayed in Tables 6 and 7 (p.246-247).

### ***Hypotheses Two and Three and Methods***

It is important that Member States implement legislation that effectively prevents the illegal dumping of hazardous waste and sanctions these activities. To illustrate this issue Kojima, Yoshida, Sasaki and Chung (2013) provided some data concerning the achievement of the Hong Kong Environmental Protection Department (Table 3 p.90). Currently, there is no existing database in the literature that includes the number of convictions or fines worldwide that would have a significant impact in measuring the successful implementation of national legislations. Yet, the assertion remains that there is a positive relationship between punitive legislation and convictions/fines assessed. To empirically examine these claims the following two hypotheses have been constructed.

**Hypothesis (H2):** Enacting punitive legislation on illegal shipment of hazardous waste at the national level leads to increasing convictions by the state on violators over time.

***Independent Variable:*** Enacting punitive legislation on illegal shipment of hazardous waste at the national level

***Dependent Variable:*** The number of convictions by the state on violators over time

**Hypothesis (H3):** Enacting punitive legislation on illegal shipment of hazardous waste at the national level leads to increasing fines by the state on violators over time.

***Independent Variable:*** Enacting punitive legislation on illegal shipment of hazardous waste at the national level

***Dependent Variable:*** The amount of fines by the state on violators over time

In order to test these hypotheses, I created a self-administered questionnaire that was submitted to the Member States of the United Nations who have ratified the Basel Convention. The aim was to gain data concerning this important issue. This survey method provided a greater accessibility to respondents as well as being the least expensive survey mode in order to obtain information concerning the questions. The intent was to acquire a response from government officials who are accountable for ensuring that their nations complied with these commitments under the terms of the Basel Convention. The questionnaires were administered by utilizing the six official languages of the United Nations (Arabic, English, French, Spanish, Russian and Chinese – Appendix B-G).

The data for the independent and dependent variables was to be collected from the Member States through the questionnaires. However, it was received a very low response rate; therefore, a generalizable quantitative analysis was not feasible. Instead, a qualitative analysis was carried out, and investigated the relationship of the independent

variable to the dependent variable by constructing a table of information that identifies the existing national/domestic legislation in connection with the illegal transboundary movements of hazardous waste. The results of this exercise can be found in Appendix H. I further examined this topic by reviewing five case studies designed to explore the relationship between the variables.

### ***Conclusion***

In order to provide an answer to my research question '*why has the Basel Convention not adequately addressed that transboundary movements of hazardous waste to the developing world*', I have constructed three hypotheses. The first hypothesis tests how the difference of the hazardous waste definition on the national level might lead to divergent self-reporting-data. The national definitions were reviewed of the parties of the Basel Convention; and, in light of the current definition of the Basel Convention, I then created different ranking structures for the Member States. The States were then was sorted into one of the ranked categories. My assumption was that the definition of hazardous waste varies amongst Member States regardless of the definition of the Basel Convention, and that the amount of reported transboundary hazardous waste transported would show little correlation to the type of definition applied. Once the Member States were sorted by definition into the ranks constructed, the data was reviewed (generation of hazardous waste in metric tons) that was submitted to the Secretariat by each Member State of the Basel Convention.

With the intention of working with information regarding the dependent variable (self-reporting data), I transformed the interval data provided into an ordinal structure by rank ordering blocks indicating levels of metric tons. This transformation enabled use of contingency table and the Chi-square test to analyse the data.

The final two hypotheses were intended to determine how effectively the Member States have enforced legislation domestically in order to prevent the trade of illegal hazardous waste. Due to the fact that the Basel Convention does not have the ability to enforce punitive actions against individuals or businesses, it is crucial that Member States create the efficient enforcement measures that are necessary. With this in mind and for the purpose of validating this assumption, a questionnaire was composed that aimed to obtain aggregated data from the Parties of the Convention. However, due to the lack of response from the Member States, a generalizable quantitative analysis was not achievable. Therefore, my attention shifted to the independent variable and created a table that encapsulate the current national/domestic legislation of the Parties to address the illegal transboundary movements of hazardous waste. Hereafter, a qualitative analysis was conducted in order to examine the independent variable and its consequence to the penalties that are imposed for unlawful activities regarding hazardous waste materials by examining five case studies intended to highlight these relationships.

## VII. Analysis

### *Quantitative Analysis*

As it was noted in the literature review, scholars stated that the classification of hazardous waste on the national level varies because Member States classify and regulate the same waste differently; therefore, the comparison of self-reporting data can be challenging. During my research, I have found that the literature lacks quantitative analysis that would test the association between these two variables. As a result, I decided to examine how the national definition of hazardous waste for the purpose of transboundary movements of waste and the self-reporting data (export of hazardous waste) relates to one another.

My findings will be interesting based on the fact that the results provide some new insight with regard to the concerns of the scholars who address the issue of the definition of hazardous waste and self-reporting data.

During my calculations, 73 countries were included in the study from 2007 to 2011 that reported the data of their transboundary movements of hazardous wastes as well as the national definition of hazardous waste for the purpose of transboundary movements of waste to the Secretariat of the Basel Convention. For the purpose of this research, the export of hazardous waste (in metric tons) provided by the Member States will be utilized for the calculations. It should be noted that the number of countries who reported their export of hazardous waste was different during each reporting year as some of the Member States were not consistent with their data submission. Within my analysis,

the independent variable is the various national definition of hazardous waste used for the purpose of transboundary movements of waste; while, the dependent variable is the self-reporting data (export of hazardous waste). The dependent variable was restructured so that it could be analysed as an ordinal variable. The Chi-square test was utilized to find out if any association does exist between the variables. When the relationship was present between the variables, Gamma was applied to further analyse the strength amongst the national definition of hazardous waste and the self-reporting data (export of hazardous waste).

Within my study, the p-value was used with the 0.05 significance level (one of the most common fixed value) as a standard for evidence against the null hypothesis. It means that if  $p < 0.05$  or equal with 0.05, there is no more than 1 chance in 20 that my sample would provide evidence this strong just by chance when the null hypothesis is actually true. Thus, if the p-value is as small as or smaller than 0.05, it can be established that the data are statistically significant at level 0.05. 'Significant' simply means that 'not likely to happen just by chance' (Moore 1996).

The degree of freedom is also important in the Chi-square test because it factors into my calculations of the probability of independence. When I calculate the Chi-square value then I use this figure and the degree of freedom (two in my research) in order to decide the probability, the p-value of independence.

Below, my results are discussed and its relevance to my research question as to, “why has the Basel Convention not adequately addressed the transboundary movements of hazardous waste to the developing world?”

## ***Results***

In order to assess the relationship between the variables for the first hypothesis the following null was stated:

The null hypothesis: the national definition of hazardous waste used for the purpose of the transboundary movements of waste and self-reporting data (export of hazardous waste) are independent (if the null fails, then the original hypothesis holds).

Tables 5 and 6 present the results of five years (2007-2011) of the variables. The result computed for the years of 2008, 2010 and 2011 showed no association between the two variables ( $p > 0.05$ ); therefore, I couldn't reject the null hypothesis. The result doesn't necessarily mean that the null hypothesis is validated because failing to obtain evidence against the null hypothesis may only suggest that the data I have is consistent with the null hypothesis, not that I have clear evidence that the null hypothesis is proven (Moore 1996). However, given these results, one may consider that for these years the self-reporting data (export of hazardous waste) provided by the Member States has no relation to the national definition of hazardous waste used for the purpose of transboundary movements of waste.

On the other hand, information provided within 2007 presented a different outcome. The result between the independent and dependent variables was statistically significant at the level 0.05, as the p-value was 0.0113; therefore, I could reject the null hypothesis. As Moore (1996) discussed that the small p-value is evidence against the null hypothesis, meaning that the observed result would be unlikely to occur if there wouldn't

be an association between the national definition and the self-reporting data (export of hazardous waste). Thus, this information suggests that the original hypothesis is proven. As a consequence, my estimate implies that there is a 1.13 percent chance that the submitted self-reported data (export of hazardous waste) by the Member States is related to their national definition. Based on this association, I further analysed the significance of the relationship. Gamma was calculated for the given variables that resulted in 0.26 (26 percent) that suggests a relatively weak positive relationship amongst the variables.

The year of 2009 provided a similar result regarding the p-value that is 0.0172 (1.72 percent) at the significance level 0.05; thus, the null hypothesis could be rejected. The estimate proposes that there is a 1.72 percent chance that the self-reporting data (export of hazardous waste) provided by the Member States has some relevance to their national definition. Gamma 0.40 (40 percent) showed a moderate positive association between the national definition of hazardous waste used for the purpose of transboundary movements of waste and self-reporting data (export of hazardous waste). This result could be interpreted that the data provided by the Member States might be slightly more reliable than in 2007 but reliable data is not a given in this analysis.

While the dataset was reviewed prior to the calculation (year by year), I observed that some data submitted by the Parties of the Convention might not be genuine. For instance, Liechtenstein reported less than 200 metric tons export of hazardous waste from 2007 to 2010 and then they suddenly rose to 302,275 metric tons in 2011. The explanation of this sudden increase could be various, but it is not in the scope of this study. However, one reason could be that presently, Germany discards the most electronic waste in total in Europe but Liechtenstein throw away more per person (Vidal

2013). Could this be the rationalization of the increasing export of hazardous waste? It might be, although, the electronic waste is not considered hazardous waste in the national definition of Liechtenstein and it's not within the scope of the Basel Convention; therefore, it is hard to determine whether the electronic waste was included in the submitted data.

Another example is China, where the generation of hazardous waste was increasing from 2007 to 2010 each year and was reported over 10 million (in metric tons) respectively but the export of hazardous waste varied only between 960 and 1,500 metric tons during these years (2007-1,083; 2008-969; 2009-1,353 and 2010-1,424). There was no data reported for 2011.

Based on the data supplied to the Secretariat of the Basel Convention, it seems that the hazardous waste export of China was less than 0.05 percent (taking the hazardous waste generation into consideration) each year between 2007 and 2010. One may doubtful of these data because according to the United Nations Commodity Trade Statistics Database (Comtrade), China for instance exported *lead and articles* - that is considered hazardous waste constituents by the Basel Convention - in the value of hundreds of millions of dollars between 2007 and 2010 (it should be noted that the United Nations Comtrade disclaimer states that the database contains detailed imports and exports statistics that are reported by statistical authorities of approximately 200 countries). Hence, if one further add up the export of other hazardous waste constituents, one would then assume that the value of the exported materials would significantly increase that might require for example, more than 1,424 metric tons of hazardous waste export during a one-year period.

## ***Conclusions***

The results concerning 2007 and 2009 that were statistically significant at level 0.05 as opposed to 2008, 2010 and 2011; although, the association between the variables displayed a very low connection (2007-1.13 percent and 2009-1.17 percent). The differences between the data could be caused due to various reasons; for example, there might be numerous individuals who compiled the information each year that resulted in inconsistency or the companies provided more accurate figures taking the national definition into consideration than previous years or the various European Council decisions (i.e. 1013/2006 and 2008/98) somewhat provided some clarification to the Member States in reference to the definition of hazardous waste that contributed positively for data reporting. Despite these and other possible reasons, the results (1.13 percent and 1.72 percent) might be too small that one could ensure with full confidence that the Member States submitted more accurate information in 2007 and 2009 than 2008, 2010 and 2011. Therefore, my first hypothesis must be considered disproven at this time. There is no clear relationship between the definition of hazardous waste employed by a Member State and the self-reported data on the transboundary movement (export) of such material.

So, how these results can be connected to my research question as to, *'why has the Basel Convention not adequately addressed the transboundary movements of hazardous waste to the developing world?'*

Seemingly, the Member States may have provided information to the Secretariat of the Basel Convention that inaccurately illustrated data in relation to their national

definition of hazardous waste used for the purpose of the transboundary movements of waste. Therefore, one may suggest that the figures submitted to the Secretariat, as to how much hazardous waste is being exported globally amongst the Member States, should be treated with caution.

The definition of hazardous waste on the national level and the self-reporting data (export of hazardous waste) as well as the issue of the prior informed consent mechanism - that has serious shortcomings as it was discussed in the literature review - relate to one another and have impact on the ability of the Convention to protect the developing world from the rich nations' hazardous wastes. As Krueger (1998) stated the countries are not required to send notifications and responses (concerning proposed waste shipments) to the Secretariat of the Basel Convention unless it is a possibility that the environment would be negatively affected. During the negotiations period, as Kummer (1995) noted, the drafts included the obligation of Member States providing copies of all notifications to the Secretariat. However, this provision was opposed by the developed countries and was not included in the final draft. As a result, Abrams (1990) noted that the exclusion of all notifications resulted in a significant restriction of the Secretariat's monitoring function regarding the PIC procedure.

In addition, the exclusion of the notification also constrained the ability of the Secretariat to obtain fair information in reference to the global amount of the transboundary movements of hazardous wastes between Member States. Due to the fact that the countries do not submit notifications regarding the transboundary movements of hazardous waste between the Parties to the Secretariat, the accuracy of the self-reporting data can be questioned because the Secretariat has no means of verifying or cross

checking the correctness of the given data by the Member States. This fact and the findings leads me to believe that the elimination of the notifications from the final draft and eventually from the Convention itself not only crippled the ability of the Convention to assist the developing countries to stop the developed nations' unwanted hazardous waste exports but also contributed to the fact that the integrity of the dataset maintained by the Secretariat could be challenged.

### ***Qualitative Analysis***

This section of my dissertation examines the expected effects of national legislation on illegal shipment of hazardous waste by States and whether punitive legislation has actually led to increased fines and convictions of violators over time.

As it was noted in the literature review the illicit trade of hazardous waste has been an increasing problem; and, as a result, the fight against it has been crucial in order to decrease the transboundary movements of unwanted hazardous waste to the developing world.

The Basel Convention under the general obligation (Article 4), in paragraph 3 states that, *"The Parties consider that illegal traffic in hazardous waste or other wastes is criminal"*; while, paragraph 4 notes that, *"Each Party shall take appropriate legal, administrative and other measures to implement and enforce the provisions of the Convention including measures to prevent and punish conduct in contravention of the Convention"* (p.22). In addition, Article 9 (Illegal traffic), paragraph 5 indicates that, *"Each Party shall introduce appropriate national/domestic legislation to prevent and punish illegal traffic"* (p.31).

In light of these arrangements, a self-administered questionnaire was composed (translated into the six official languages of the United Nations) that had been e-mailed to the focal points of the Parties (Appendix B-G). In doing so, the ultimate aim of the questionnaire was to obtain pertinent answers that would be relevant to my hypotheses, as follows:

H2: Enacting punitive legislation on the illegal shipment of hazardous waste at the national level leads to increased convictions of violators by the States over time.

H3: Enacting punitive legislation on the illegal shipment of hazardous cargo at the national level leads to increased fines by the States over time.

Due to the insufficient response rate to the questionnaire (14 Member States responded) a generalizable quantitative analysis was not feasible. Therefore, I did not further pursue this branch of my analysis.

However, in order to reinforce the importance of this matter, I decided to investigate the independent variable (enacting punitive legislation of the illegal shipment of hazardous waste at the national level) and its reference to the penalties that are imposed for unlawful activities concerning the materials of hazardous waste in another manner. Five national cases were assessed, in order to develop qualitative information concerning the implementation of the provisions of the Basel Convention in relation to the illegal traffic of hazardous wastes. The five cases I chose to describe took place amongst the following Parties: I. Japan and Philippines (1999) II. Indonesia and UK/Netherlands (2011-2012) III. Canada and Philippines (2013-2014) IV. Ghana/Nigeria and UK (2011 and 2013) and V. Brazil and UK (2009).

Then, I examined my topic with a review of the legislation created by the Member States in order to address the illegal shipment of hazardous wastes. A table was developed that included the national/domestic legislation by the Parties in order to analyze the existence (or non-existence) of punitive actions that were against unlawful transboundary movements of hazardous waste (Appendix H). Supplementing this review are comments offered in response to my questionnaire, where relevant.

### ***Cases of illicit trade in hazardous waste***

#### **I.**

In 1999, the Nisso Ltd., an industrial waste-processing company illegally exported 2,700 tons of hazardous waste in 122 containers under the false description, "waste paper for recycling", to the Philippines (The Yomiuri Shimbun 2000). The shipment had remained at the Port of Manila undisturbed for several months before local authorities decided to open the containers (Suvendrini 2000). The illegal shipment was eventually returned to Japan in January 2000 and the cost was covered by the Environment Agency, Health and Welfare and International Trade and Industry ministries instead of the waste-disposal company.

It was an assumption that the company had stepped up their illegal dumping because they were forced to shut down their incinerators that had failed to be upgraded in order to meet the toughened standards imposed for dioxin emissions (The Yomiuri Shimbun 2000). It remains unknown as to whether any punitive action was actually taken against the company despite the fact that both nations had legislation in place. The Japanese legislation utilized fines against legal entities but the amount was not

determined in the legislation; so, it is not known as to whether Nisso Ltd. was ever fined by the authorities. On the other hand, the Philippines' legislation in addition to the fine would have provided the opportunity to ban Nisso Ltd.'s entry into the Philippines, as well as cancelled their license to do business in the Philippines. As of now, there is no reference as to whether any of this action was ever enforced.

## II.

Between December 2011 and January 2012, 113 containers were sent in five shipments to Jakarta, Indonesia that had contained hazardous waste. Out of these shipments, Stemfor Ltd. transported eighty-nine (89) containers from Felixtone, England; and, the other twenty-four (24) were from Rotterdam, Netherlands, brokered by W.R. Fibers, Inc., a scrap metal company based in Diamond Bar, California. While the Indonesian officials had inspected the containers in the Tanjung Priok Port of Jakarta, at the end of January 2012, they became suspicious as a result of the odour that had emerged from these containers as well as the liquids that appeared to be dripping from them.

According to the shipping documents, the contents were scrap steel; however, when the containers were opened by officials there was a messy mix of oils, paints, plastics, electronic waste and scrap metal found (ENS 2012). A further investigation established that the waste also included sulfuric acid, lead, arsenic and chromium (RNW 2012). Thus, the shipments were considered to be illegal based on the contents within the containers, in addition to the absence of any prior consent, which is required under the Basel Convention. This was Indonesia's biggest toxic waste seizure in years (ENS 2012).

The 113 containers were then sent back to England and Netherlands in March 2012 and based on the Jakarta court ruling the importing company PT HHS (multinational company in the scrap metal business) had to pay the shipping cost (RNW 2012). There is no information as to whether any legal action was actually taken against the exporting firms; although, the Parties in question have legislation that addresses the illegal hazardous waste activities. Indonesia has quite a serious punitive action (5-15 years imprisonment and fine range between 400.000.00 - 1.200.000.000 USD) that involves legal entities as well; nevertheless, there is no information whether any of these options have been utilized.

### III.

Between June 2013 and January 2014, approximately fifty (50) containers containing hazardous waste (i.e. hospital waste) arrived to the Philippines from Canada (Adalia 2014, Balita 2014). The paperwork indicated that the shipment was "assorted scrap plastic materials for recycling" (Balita 2014 p.2). The Ontario-based Chronic Incorporated was the exporter and the intended recipient was the Chronic Plastics in the Philippines; however, Chronic Plastics has never acknowledged receipt for or acceptance of the containers (Adalia 2014). Following some type of communication between the two countries, the government of Canada asserted that the Philippines should process the illegally shipped hazardous waste; although, Canada did acknowledge that it could not accept the waste back into the country nor penalize either the exporter or the importer. Moreover, the Canadian ambassador Neil Reeder sent a letter to the Department of Foreign Affairs stating that the Canadian Government "has no domestic or international

authority to compel the shipper to return the shipment to Canada" (Adalia 2014 p.2). Thus, it seemed that Canada's desire was to keep the matter between the exporter and the importer rather than between the two countries (Adalia 2014).

The local authorities reported that the cost of disinfecting the containers was approximately \$20,100 and the processing of the hazardous waste was about an additional \$8,900. The Philippines Bureau of Customs claimed that they could not afford to pay this amount; however, it was necessary to remove the containers in order to prevent contamination of other vans in the area. The local authorities within the Philippines were afraid that this incident would boost the attempt of other illegal hazardous waste shipments since the result of a serious incident like this only resulted in the costs for waste processing and disinfection (Adalia 2014).

#### IV.

In May 2011, it was reported that Merseyside-based Environment Waste Controls (EWC), whose clients included ASDA, Tesco, Barclays and the Network Rail, illegally transported e-waste (most of the components are toxic and processed in primitive conditions) to West Africa. The Environmental Investigation Agency (EIA) visited the amenity site in Merton where e-waste collection is run by EWC and found that a separate company routinely collected the electrical waste at this particular facility then exported it to Nigeria and Ghana. At this site, approximately seven metric tonnes of televisions are being sold to a third party each week, at cost of between £1.50 and £2.00 per set (Wasley2011).

In November 2013, a shipment of 37 containers, containing 4,000 second-hand refrigerators was illegally exported to Ghana by Environcom (Environcom describes itself as the UK's largest electrical re-use and recycling company). Environcom has ties with Dixons and Argos (British retailers) who supply used appliances to the company for recycling. A study, conducted by Greenpeace, found that at about 75% of second-hand goods imported to Africa couldn't be reused. Most of the second-hand goods that were dumped released hazardous substances into the environment containing metal toxins and lead (Hirsch 2013).

In both cases there was no indication as to whether any of the companies could have been sanctioned in any way. It should be noted that the search for legislation concerning Ghana was inconclusive. It is also unclear whether any legislation was created to address the illegal transboundary movements of hazardous waste. In the case of Nigeria, one might say that they have one of the most serious punitive actions (imprisonment for life) for individuals; but, the sanction concerning the legal entities is quite vague in its explanation that the "crime shall be liable to be proceeded against and punished accordingly" (p.2). Based on the interpretation that one might derive from the sanction, it's not surprising that these countries have been targeted by continuous illegal shipments.

## V.

Between February and May of 2009, approximately 1,400 tones of hazardous waste were discovered in 89 shipping containers spread throughout three different ports of the Brazilian southern coast. The containers were sent from Felixstowe, UK, and had

been undetected up to four months before a routine inspection discovered the festering contents. Despite the complaints from the importers that they had been misled about the contents, federal prosecutors had fined five receiving companies in Brazil, between £60,000 and £150,000, even though those companies had maintained that they believed the contents were recyclable plastic (Milmo and Elliott 2009). The containers were then shipped back to the UK to be cleaned up by the Environment Agency at a cost of £1 million. The parties involved in the incident within the UK received fines from £250 up to £45,000, two persons implicated in the case were conditionally discharged for two years and one person received a conditional discharge of 18 months (Romford Recorder 2013). The Brazilian government then notified the Secretariat, as per Article 13 (4) of the Basel Convention, regarding the illegal traffic (Appendix H).

These cases were chosen because they illustrated the lack of corporate liability, the conflicting interests between Member States to resolve matters regarding illegal shipments and the deficiency of utilizing different actions available to the Parties other than fines against the implicated parties. They will also be linked to the next segment that analyze the national/domestic legislation with the aim of better understanding why these incidents can even take place.

### ***Evaluation of the national/domestic legislation***

While analyzing the table of national/domestic legislation, I discovered that within the Asian and Oceania region a large number of Member States had not imposed imprisonment as a punitive action, the years of the prison term had not been established and the information regarding any existing legislation that would address the illegal movements of hazardous waste was inconclusive. The remaining countries within the region were also very lenient with regard to the terms of confinement (1-2 years) although, a few exceptions had imposed enforcement that did exceed two (2) years.

This may have also explained why East Asia had become the main route of the illegal trade of electronic waste that included a greater amount of hazardous materials. As Figure 6 (p.92) illustrates, the main recipients were: Cambodia, Viet Nam and China, as well as the Philippines to some degree. In the case of Cambodia, corporate liability was not established and the natural person had received an administrative fine, in Riel, that was between \$220.00 and \$2,204. Imprisonment (from one month to one year) was only imposed when a natural person would repeat the offense. On the other hand, the national/domestic legislation of Viet Nam didn't provide specific punitive action but noted that, "*depending on the nature and seriousness of the breach, be subject to an administrative penalty or be criminally prosecuted*" (National Assembly 2005 p. 21). Lastly, China had utilized fines (4,796 US dollars equivalent Yuan) to sanction corporate businesses but the information does not specify the responsibility of the natural person. Considering these national/domestic legislations, it is not difficult to understand how a billion dollar business has evolved in this part of the world. In addition, despite the more

severe punitive action (12-20 years) established within the Philippines, it does not appear that the illegal shipments of hazardous waste will cease anytime soon, as indicated in case I and III.

The African region has exhibited diversity in relation to the prison terms given for the illegal transboundary movements of hazardous waste. I have found that within the current legal framework up to life in prison, there is either no existing prison term established or no available information referring to that issue at all. Moreover, there are a number of countries that propose that confinement should be between 5 to 20 years. One may note that this region uses the harshest punitive actions necessary but seems to fall short of the ability to enforce these serious actions. For example, there were examples within the past years (i.e. case IV) where Nigeria, Ghana, Ivory Coast and Congo had received hazardous and illegal electronic waste (The Guardian 2014). Three of the countries have set very strict punitive forms of action (Nigeria - life in prison and the Ivory Coast and Congo - ten to twenty years of prison); yet, those countries are still targeted by the illegal shipments. This fact has led me to believe that certain governmental officials are part of the schemes that allow certain criminal elements to receive these shipments in exchange for large sums of money. On the other hand, the remaining countries on the list are simply more attractive to the criminals because very limited or no punitive action is imposed by that country (i.e. Ghana has no existing national/domestic legislation for the trade of illegal hazardous waste).

Lastly, in the future there may be more examples of foreign businesses that have been established within certain countries or regions that operate without regulation

(spread hazardous materials into the environment) because the government of concern is more intrigued by the monetary value that is received rather than the legislative safeguards that are necessary to protect the environment. For instance, a number of factories had been set-up around Lake Koka (Ethiopia) that operated without specific arrangements as to the management of their effluent. Due to the lack of an exact regulation, pollutants had flowed from the businesses into the lake and the rivers feeding it. As a result, Lake Koka contains dangerous levels of arsenic, mercury, chromium and cadmium. As the residents depended on the necessity of water for drinking as well as other uses, the community began to face serious health defects (i.e. liver disease, cancer and death). In 2009, the Al Jazeera News Agency exposed these irregularities and as a result the government instructed the factories to clean up the lake. However, three years after the documentary was publicized no mechanisms had still been placed into action (Hydratelife 2012).

In Europe, the majority of the Parties had imposed imprisonment from 8 days up to 2 years. This was very interesting because most of the illegal shipments had originated from or transited through Europe. In particular, the United Kingdom is one of the most implicated locations regarding the transfrontier movements of hazardous waste as well as other types of wastes. According to the Secretariat of the Basel Convention (2012), the sanctions (regarding 59 cases) that had been laid down by the Courts mainly identified fines from 2004-2009. During this time, one of the largest fines (approximately 75,000.00 pounds) was issued to Viridor Resource Management Ltd. for their illegal waste export to Dubai. Interestingly, the same company had already been fined in 2007 (approximately

55,000.00 pounds) under a different name for a similar offense when they illegally shipped waste to India, China and Indonesia (Secretariat of the Basel Convention 2012). Despite the reoccurring offense, the Court considered no prison sentence; although, the fine of 75,000.00 pounds would not have been a serious loss to the entity either compared to the profit that may have been generated from these illegal activities (Viridor Resource Management Ltd. net worth is approximately 22,000,000 pounds and has assets are worth 44,000,000.00 pounds - Companycheck 2014).

The first landmark case where a ruling other than a fine was imposed occurred in 2014. During this legal process, an individual named Joe Benson was sentenced to 16 months in prison for illegally exporting 46 tones of hazardous waste to Nigeria, Ghana, Ivory Coast and Congo. Mr. Benson had previously been convicted (but not received a prison sentence) for the export of similar hazardous waste to Nigeria in 2011; still, he continued to pursue the reward of his illegal activity (The Guardian 2014).

Rotterdam, Netherlands (the largest port in Europe) is another important location that is sometimes entangled in the illegal shipment of waste (Case II). According to the Secretariat of the Basel Convention (2012), various types of waste have been going through this port on a daily basis transported by way of shipping vessels. For example, the waste (which mainly included metal waste, cables or electronic waste) originated from the Netherlands and was destined to be received in Africa or Asia, In addition, waste that originated from Germany and was moved to Rotterdam or other Western European countries all utilized Rotterdam as the transit port for sea vessels. The Secretariat (2012) further noted that an estimated 70,000 containers (40-foot high) was the subject of fraudulent activity in 2009. However, as a result of the rigorous law

enforcement practices implemented in the Netherlands, the numbers ultimately decreased while other factors in Antwerp, Belgium, indicated a clear increase in the signs of the illegal trafficking of waste. The Dutch government has implemented one of the most serious penalties (the maximum imprisonment of 6 years or a fine of 76,000 Euros to natural persons and a maximum of 760,000 Euros fine for legal entities) in Europe that probably also contributed to these outcomes as well.

The opportunities sought by the illegal waste traffickers in seeking the vulnerabilities of the Parties of the North and Latin American region (including the Caribbean countries) in illegal activities has been enormous partly due to the lack of a significant and specific development of national/domestic legislation; thus, it has been inherently difficult to effectively prevent the flow of illegal hazardous waste into these regions. With the exception of a few cases, the Parties have mainly employed administrative sanctions/offenses or ultimately moderate prison terms (i.e. from a few months up to 2 years). Yet, in some cases it is not even apparent that there is clear evidence as to whether any legislation was or will be developed in order to combat the illegal waste trade. In addition to this issue, the region is also challenged with other aspects i.e. corruption, political instability, scarcity of resources and lack of training that further complicates this matter (Araneda 1993). Moreover, it cannot be overlooked that one of the largest hazardous waste producer, the United States (a non-Party member), is also in the region and has significant impact on the flow of the hazardous waste trade. For example, approximately fifty percent (50%) of the U.S. hazardous waste exports (by volume) go to Mexico who is the United States largest partner in the hazardous waste

trade. Unfortunately, only ten percent (10%) of the imported hazardous waste received obtains the proper treatment protocol and millions of those tons are often unaccounted for or illegally dumped. Ultimately, this situation contributed to the hazardous waste crisis in Mexico accentuated by the constantly growing need to resolve the enforcement issue and treatment of the waste. This continued expansion was a condition that regrettably emerged from: 1. the increasingly hazardous waste production domestically; 2. the insufficient repatriation shipments by maquiladora plants along the U.S.-Mexico border; and, 3. the growing hazardous waste import from the U.S. (Slocum 2009).

Despite the Hazardous Waste Agreement between the United States and Mexico, the enforcement measures were inadequate at the borders coupled with poor tracking procedures. In addition, there are unknown numbers of clandestine hazardous waste dumps that operate at various locations within Mexico. As a result, they receive the illegal wastes smuggled through the border, from the U.S., with the aim of avoiding the high cost of incineration; and, most likely this situation will not improve any time soon (Cahalan 1993).

Mexico only has one official operating hazardous waste disposal facility whose estimated capacity is around 600,000-800,000 tons a year; yet, the functional ability of the facility is insufficient to keep up with the growing demand (Slocum 1993). Similarly to other countries, Brazil is also affected by the unwanted illegal hazardous waste shipments from Europe (Case V), as well as also facing issues regarding the illegal importation of hazardous waste from the U.S. For example, the export of lead acid batteries, from the U.S. to the Brazil, continues despite the Brazilian import ban since 1994. Group Moura is one of the leading manufactures of car batteries, as well as the

main importer of lead acid batteries, who illegally imported 5,000 tons of lead scrap batteries from the U.S. between January and June of 2007. These hazardous waste shipments were mainly considered for recycling that was prohibited under the Basel Ban (Greenpeace International 1997).

However, as it was noted in the literature review the hazardous waste traders often utilized the word 'recycling' in order to justify their export to the developing nations by exploiting the existing loopholes of the Basel Ban that is still not in force. In addition, U.S. legislation does not consider batteries hazardous unless they were crushed. There is no indication as to whether any companies or members of the entities were ever fined or imprisoned for illegal hazardous waste imported into Brazil despite the existing legislation. These facts might leave me to believe that neither the U.S. nor the Brazilian government was fully committed to the ban the hazardous waste trade.

Another important point is that the U.S, as a non-Party member, could not trade waste with a member of the Convention without a bilateral agreement. Currently, there is no such agreement between the U.S. and Brazil (Greenpeace International 1997). Lastly, nearly each country within the region has reported the attempt to mainly introduce hazardous waste material into their territories (Appendix J). However, protests from non-governmental agencies and pressure applied by the local communities has somewhat reduced the additional negative impact imposed on the environment (Araneda 1993).

## ***Conclusions***

The international transboundary movements of hazardous waste has provided a huge financial gain to corporate entities; even though, there have been many cases where their involvement has indicated violations of some type of illegal activity(ies) as well as exhibiting negligent behaviour and ignorance to the Basel Convention. Presently, a large number of the national/domestic legislation only addresses the individual culpability and does not include corporate/business entities aside from some exceptions. There have been cases where individuals were held accountable for their actions and received some length of prison time (i.e. Trafigura case – Amnesty International and Greenpeace 2012); however, as many of the cases have illustrated corporate liability has been primarily limited to either fines or nothing at all.

The questionnaire results also indicate that the majority of the respondents had noted that fines and administrative actions are generally enforced as punitive action and no jail time was considered for the illegal shipments of hazardous waste. Of the cases brought to court referring to the illegal trade of hazardous waste, the respondents specified that less than ten (10) cases per year had been received; and, of those specific cases none resulted in a conviction in their particular country. In order to effectively and efficiently implement the Basel Convention, provisions the national/domestic legislation should establish the option to prosecute officials who are in position within the corporation of making decisions concerning the illegal export/import of hazardous waste; thus, he/she could be held responsible for creating or committing such criminal activities.

The further examination of the national/domestic legislation of the Parties also revealed that some of the countries have no legal framework in place to combat the illegal transboundary movements of hazardous waste or the information is inconclusive to even establish whether any legislation was put in place or the party simply didn't implement the Basel Convention.

These findings were also supported by the self-administered questionnaires that were answered by the focal points. For instance, one of the respondents to the questionnaire noted that currently they have no legislation in place that would address the illegal movements of hazardous waste but they are in the process of addressing this matter. Another respondent noted that their government has no legislation for the implementation of the Basel Convention; although, they did indicate having an environmental act in place but there was no provision in the act that dealt with the illegal shipment of hazardous waste. As a result, the lack of effective legislation could be one of the a contributing factors to the Parties where they are unable to enact a successful fight against the transboundary movements of hazardous waste that has become more and more sophisticated nowadays.

Answers to the questionnaire also disclosed that one country has not been involved in a case of illegal shipment of hazardous waste according to their national authorities; although, the person noted that, *'Recently, we received information from another Basel Party about an alleged illegal movement on a shipment that apparently originated from our country. The authorities at the port of entry found that what was declared did not correspond to actual content of the ship and notified our National Authority via a letter sent in the postal mail. We received it about a month after the*

*incident and we have not been able to trace the ship back to our country. Our authorities do not have any record of that movement leaving the country and it has been difficult to decide what action(s) to take and who to hold responsible'.* Beyond this situation, one of the respondents wrote that the total number of inspections in their country had been greatly decreased, since 2010, as well as the written warnings (the reasons are not known). This comment and other factors have led me to believe that the enforcement mechanism of the Member States primarily suffers from inadequacy (i.e. lack of training or resources) and corruption. In addition, some countries don't even embolden the implementation of the legislation based on the possible negative impact to their industrial growth.

The Basel Convention provides a framework that had been agreed upon and ratified by the Parties; therefore, if the provisions are not enforced or the components of the enforcement mechanism are deficient then the whole existence of the Convention becomes questionable. Without the appropriate national/domestic legislation, accompanied by the adequate implementation and enforcement that also holds corporate/business entities liable for their activities that could have been prevented from occurring, the environment and the human health will further suffer from the adverse effects of the illegal transboundary movements of hazardous waste and ultimately the perceived failure by the Member States.

## **VIII. Policy Alternatives**

Based on the research the following policy alternatives can be considered in order to increase the effectiveness and efficiency of the Basel Convention concerning the transboundary movements of hazardous waste to the developing world.

### ***Definition of Hazardous Waste***

A number of approaches that characterize the definition of hazardous waste currently exist within the international arena; yet, the forum that initiated the principle guideline for these platforms was provided by the Basel Convention. In as much, other international regulatory regimes, such as the European Union Directives or the OECD, have even contributed to a different interpretation of what their policy issues for the definition of hazardous waste should be. To further complicate the situation, the Member States had also developed a national definition of hazardous waste based on the fact that they found the definition of the Basel Convention to be too vague. Therefore, in order to end this inconsistency there is a definite necessity to incorporate a unified definition of hazardous waste that will ultimately meet the current challenges of the transboundary movements of hazardous waste, as well as the approval of the Member States.

The solution can be the fusion of the waste categories, properties and characteristic systems (including the issue in reference to e-waste and second hand goods) utilized by the Parties that can enhance the cooperation and coordination amongst the Member States. In addition, it will result in a more effective and efficient implementation of the Basel Convention and will have a better understanding of what

constitutes hazardous waste and what does not. This will also provide the opportunity for the effective training necessary for the officials at the ports that could ultimately increase the success of combating the illegal hazardous waste trade. Lastly, the unified system could increase the likelihood that the self-reporting data concerning the transboundary movements of hazardous waste would be more accurate. However, there is no doubt that greater oversight of what is being reported is also required. Some mechanisms for achieving this goal are noted below.

### ***Self-Evaluation of the Parties***

Seemingly, Member States ratified the Convention but the implementation process lacks completion. The Secretariat of the Convention has no legitimate authority to sanction the Parties who do not comply with the provisions of the Convention. Therefore, it might be useful to require that the Member States provide a self-evaluation report during the meeting of the Conference of the Parties that would describe the series of enforcement actions that had been taken to fulfill the obligations of the Convention. In turn, this might possibly provide a stage toward identifying the shortcomings, developing a needs assessment and improving the existing legal framework or assisting in the establishment of necessary legislation and providing technical aid for those Parties who are in most need of assistance. As Montgomery (1990) noted, the Convention can only be effective if the Parties diligently enforce its provisions.

International cooperation and assistance is imperative to improve the capacity building of those countries that are lacking the adequate infrastructure of controlling the

export/import of hazardous waste. This problem is especially crucial in light of the fact that the Convention does not have a solid financial mechanism to improve capacity building and technological transfer (Secretariat of the Basel Convention 2008). The Secretariat is only able to spend fifteen (15) percent of the overall budget (that is approx. 9 million USD including supplementary contributions) at the country level for operational/implementation activities (United Nations 2012).

### ***Illegal Trade in Hazardous Waste and the National/Domestic Legislation***

One of the main challenges of the illicit trade of hazardous waste is second hand goods. The used equipment is not subjected to waste regulations and it is hardly checked for functionality. As Osibanjo and Nnorom (2007) noted, approximately 25-75 percent of the exported electronics equipment to the developing world is nothing else but e-scrap.

Therefore, a mechanism could be put into place that would require the exporting countries to provide the appropriate documentation that should indicate the functionality of the second hand goods. The shipment would have to be inspected within the port of origin so that any case of foul play observed would immediately be retained. The exporter would then be obligated to certify that the shipment was strictly intended for direct re-use and that the second hand goods were operational. The receiving country would then be in possession of the paperwork and would be obligated to verify the legitimacy of the contents upon the arrival of the shipment.

Second-hand goods are not characterized as hazardous waste per se. Thus, it would be especially helpful to custom officials if national/domestic legislation could

make reference to the illegally transported second hand goods to their specific countries. This process would be extremely helpful especially if the goods were unserviceable as opposed to the documentation that was provided by the exporter.

Other policies that could be implemented would be to scrutinize the illegal export of hazardous waste as much as the import of illicit shipments and to also offer incentives for the enforcement agencies in order to prevent and deal with those cases of the prohibited traffic of hazardous waste and other wastes (Secretariat of the Basel Convention 2010).

Currently, the Basel Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and their Disposal still has not been entered into force. Thus, the Parties are faced with numerous challenges in order to deal with the environmental devastation that has been caused by negligence or illegal activities mainly carried out by legal persons. For that reason, it is imperative that the Member States bridge the gap in the criminal culpability of corporate/business entities within their national/domestic legislation. The enforcement of this provision would greatly inhibit the opportunities of the companies who act with ill intent; and, by achieving this requirement it might also provide a strong basis for the victims of these tragedies to initiate a claim for punitive damages.

### ***Reducing Hazardous Waste Shipments to the African Countries***

Shipping hazardous waste to the African continent during the 1980s, as Clapp (1994) noted, was economically feasible based on the cost effectiveness of the sea transportation. As a consequence, the developed nations greatly profited from this business while the African countries received small amounts of compensation from the rich nations' unwanted waste. Hence, in order to provide some type of leverage to those African countries receiving hazardous waste shipments, consideration by those developing countries to raise the price for acceptable waste from the developed countries could be discussed and possibly agreed upon.

As a result, the prices might become competitive enough that they would force the generator to dispose of the hazardous waste locally thereby indicating the likelihood that the number of unwanted shipments would decrease. In turn, this might have a positive effect in one of the fundamental goals of the Convention that requires that the disposal of wastes by Member States to be as close to the source as possible; and, as Myers (1994) noted, African countries would then have some ability to control the disposal of hazardous waste within their own boundaries. Lastly, the African Nations who receive additional financial gain could then improve their facilities in order to dispose of the waste in an environmentally sound manner as the Convention outlines in its provisions.

### ***Notifications of the transboundary movements of hazardous waste***

Presently, the Member States are not obligated to send copies of all notifications concerning the transboundary movements of hazardous waste. The lack of this process

has contributed to the improper functioning of the prior informed consent, influenced the inaccuracy of the self-reporting data and restricted the monitoring ability of the Secretariat. Based on these conflicting interests, this practice will most likely not change during any time soon. Nevertheless, the following proposal might be a way of improving the situation.

The Secretariat could provide software that would be installed at the ports of entry and origin of the Parties. With the cooperation of custom officials and the focal points of the Basel Convention, data concerning the transboundary movements of hazardous waste could be recorded. Hereafter, on a quarterly basis this information would need to be submitted by the focal points to the Secretariat wherein the information and data is then compiled and maintained. As a consequence, this process should allow the Secretariat to have a more effective means of monitoring the system, better accuracy and the ability to provide the improvement of self-reporting data; and, lastly, the procedure would decrease the opportunity for any potential abuse of the prior informed consent.

## **IX. Conclusion and Summary**

This dissertation has focused on the question *'why has the Basel Convention not adequately addressed the transboundary movements of hazardous waste to the developing world'?*

Three hypotheses were proposed in order to assess the viable answers to my research question that had not previously been subjected to any empirical scrutiny. As a result, the discovery of my findings has advanced the study of the topic area. For instance, no significant relationship was found between the national definition of hazardous waste used for the purpose of the transboundary movements of waste and the self-reporting data (export of hazardous waste). Thus, the data provided by the Parties to the Basel Secretariat in reference to the export of hazardous waste should be considered with caution. Moreover, the role of the national/domestic legislation was analysed and found to have a vital function in the fight against the illegal trade of hazardous waste.

The research made several contributions to the literature. It was the first research project where the national definition of hazardous waste, utilized for the purpose of the transboundary movements of waste, was compared and quantified. Furthermore, this study was the first to empirically test the relationship between the national definition of hazardous waste that was used for the purpose of the transboundary movements of waste and the self-reporting data (export of hazardous waste). The quantitative results that I have presented demonstrate that some of the assumptions (i.e. divergent definition concerning hazardous waste), made by the scholars who study global environmental

politics, were supported. In addition, the findings also highlighted the exclusion of the crucial importance of the copies of notification receipts regarding the transboundary movements of the hazardous waste by members to the parties to the final draft of the Basel Convention following the lengthy and difficult negotiation amongst the Member States.

Moreover, I developed a table comprised of the punitive actions implemented by the Parties against unlawful transboundary movements of hazardous waste and this information has currently become the most comprehensive database within the literature. The table provides an insight as to how the Parties have addressed the provisions of the Basel Convention concerning illegal traffic. The study established that without appropriate national/domestic legislation that has to be properly implemented and enforced, the fight against the illegal waste trade would be fruitless.

### ***Future Work***

The research concerning the question to '*why has the Basel Convention not adequately addressed the transboundary movements of hazardous waste to the developing world*' has presented some answers. However, the research also produced some questions and opened up areas that could be a subject for possible future research in order to fully understand this complicated matter.

For example, the research indicated how convoluted the birth of the Basel Convention had been and how it became greatly influenced by the political and economic interests of the parties concerned. One could additionally examine the decision-making

models that shaped the multilateral environmental agreement and how the representatives of the Member States dealt with that information during the negotiation phases; and, how this information influenced the decision makers' commitment toward developing the end result that led to an international treaty.

In most cases, Member States generally ratify international agreements; although, sometimes due to various reasons the implementation is either delayed due to certain gaps in the course of action or the execution of the process just doesn't happen at all. Therefore, one might examine what particular approach the Parties follow in order to include the provisions of the Basel Convention within their national legal settings. In addition, what measures are taken to have an effective enforcement mechanism in place?

The study found that the self-reporting data might be inaccurate in relation to the Member States' national definition of hazardous waste used for the purpose of the transboundary movements of waste. Also, one might review the practices that are utilized by the Parties in order to collect/document/report the self-reporting data. Are the practices trustworthy enough to accept the process and the end result?

The research also examined the national/domestic legislation of the Parties and their practices that were in connection with the illegal trade in hazardous waste. The findings suggested that the Parties primarily utilized fines as a punitive action to address the illegal hazardous waste trade. It would be interesting to study whether the fines are dissuasive enough to withhold the culprits from recidivism. In addition, what is the reason why countries are reluctant to use prison time as a means for the illegal trade of hazardous waste? Even though it was not achievable to obtain conviction numbers from the Parties concerning the illegal trade of hazardous waste, this objective should

nevertheless be followed up by future studies.

Lastly, a study might examine whether the regulatory structure and styles has an impact on the illegal transboundary movements of hazardous waste in various OECD countries. So, one might formulate the following questions for possible consideration: Does a decentralized regulatory structure tend to contribute to the illegal hazardous waste trade versus a centralized system? Do nations characterized with a flexible policy implementation and a closed access to the policy process tend to be more involved in the illegal hazardous waste activities as oppose to those nations where the policy implementation is rigid but have an open access to the policy process?

### ***Summary***

This dissertation has emphasized various shortcomings of the Basel Convention that have greatly impacted its ability to address the transboundary movements of hazardous waste to the developing world. There is no doubt that changes are essential with a sense of urgency; otherwise, the Convention may possibly become a completely insignificant multilateral environmental agreement.

The current situation has shown the difficulties in the cooperation amongst self-interested rational actors in an anarchic environment and a regime that is based on the developed world's liking. As a result, the developing world has no apparent alternative but to accept the regulatory arrangements that are dominated by the powerful Member States (Sitaraman 2009).

In the future, the existence of our world will be also influenced by the success or

the failure of the Basel Convention. Fundamentally, if human health should be able to continually reap the present and future benefits of this world, it will greatly be dependent upon the Parties' current and future ability as well as ambition to improve compliance. Issues of the lack of water reserves, destruction of the ozone layer, disease and land mass destruction may lead to the ultimate necessity for basic survival through war or starvation.

The provisions of the Convention as well as sufficiently implementing its enforcement through national/domestic legislation must be the only way to prevent these catabolic forms of destruction to mankind and the environment. Various policy alternatives do exist in order to tackle these challenges; so, with the willingness of the Member States the Basel Convention can become a competent multilateral environmental agreement as its original adoption had intended. And so, as a result humankind will be assured of a better future for generations to come.

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## **Appendix A. National Definition of Hazardous Waste**

### **Andorra**

There is a definition of hazardous in our national law "Llei 25/2004, del 14 de desembre, de residus", article 3. The following are defined in article 3 as hazardous waste: "Are considered hazardous waste: - that figuring in appendix I to the Basel Convention of 22 May 1989 in accordance with section 1a) or article 1 of this Convention;

- that qualified as hazardous under community law and regulations;
- that prescribed by the Government in the form of regulation.

By the other hand, in the new regulation of transboundary movements of waste (14/05/2008) there are different procedures depending on the classification of waste. We can find too, the dangerous waste characteristics in the decree. This reglamentation is according with the Regulation (EC) no 1013/2006 of the European parliament and of the council of 14 June 2006 on shipments of waste which repeal the Council Regulation (EEC) No 259/93 of 1 February 1993.

### **Argentina**

National Law 24.051 (approved by the National Congress on 17 December 1991; published in the Official Bulletin on 17 January 1992) rules the generation, handling, transport, treatment, and final disposal of hazardous wastes. It include those wastes that are listed in Annex I of the Law as well as those having the characteristics set forth in Annex II (these annexes are identical to Annexes I and III of Basel Convention, which Argentina approved through Law 23.922).

The National Law 23.922 of "Approval of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal" is applied when wastes are subject to a transboundary movement for it disposal or recovering.

National Law 24.051 establishes in its Article 2o: "It will be considered hazardous, to the effects of this law, every waste that could cause damage, direct or indirectly, to living beings, or contaminate the ground, water, atmosphere or environment in general. Particularly, will be considered hazardous those wastes indicated in the Annex I or those that have any of the characteristics listed in the Annex II of this Law. The provisions of the Hazardous Waste Law are also applied to those hazardous wastes that could, in the future, be used as input in other industrial processes. The scope of this law excludes household and radioactive wastes, and those derived from the normal operations of ships, that shall be ruled by special laws and international conventions in force on the matter".

Radioactive wastes and those derived from the normal operations of ships are excluded from the application of National Law of Hazardous Wastes, but ruled by other regulations and international instruments.

## **Armenia**

National definition of wastes (industrial and household) as well as hazardous wastes is given in National “Law on Wastes” (Part one, article 4 “Definition”), adopted on November 14, 2004 (AL- 159-N): - industrial and household wastes /hereinafter - wastes/ - wastes arising in the process of industrial or household consumption of raw materials, compounds, products and by-products, other production or food processing remains, as well as manufactured goods/produce that lost the initial consumer properties;

- hazardous wastes – wastes, the physical, chemical or biological characteristics of which pose or can arise danger to Human Health and damage to the Environment and require special methods, procedures, and means for their management; - waste transboundary movement – transportation of wastes from the area of a country to the area of another country or ever some area that is out of jurisdiction of any country, on condition that such transportation of wastes relates to benefits of at least two countries.

## **Australia**

Section 4 of the Act defines hazardous waste as: (a) waste prescribed by the regulations, where the waste has any of the characteristics mentioned in Annex III to the Basel Convention; or (b) wastes covered by paragraph 1(a) of Article 1 of the Basel Convention; or (c) household waste; or (d) residues arising from the incineration of household waste; but does not include wastes covered by paragraph 4 of Article 1 of the Basel Convention.

Note 1: Section 4A of the Act provides for an extended meaning of hazardous waste. The extended meaning relates to the following matters: (a)a case where a foreign country has classified a particular substance or object as hazardous waste; (b)a case where a foreign country has classified waste collected from households as hazardous waste.

Note 2: Section 4F of the Act provides for an extended meaning of hazardous waste. The extended meaning relates to substances or objects subject to notification or control under Article 11 arrangements.

## **Austria**

The definition of hazardous waste is laid down in the Ordinance on a Waste Catalogue (Fed. Law Gaz. II 2003/570, as amended by Fed. Law Gaz. II 2008/498).

## **Azerbaijan**

There is a definition of hazardous waste under the Basel Convention in the Law of the Azerbaijan Republic "On the domestic and industrial waste". In according with the Law

of the Republic of Azerbaijan "On the industrial and domestic waste" hazardous wastes are determined as wastes having hazardous explosive, capable of burning, oxidizing, toxic, infectious, corrosive and ecotoxic characteristics;

## **Bahrain**

1. Hazardous Waste: any solid, semi-solid or liquid matter containing gaseous waste or a group of compounds of waste that may lead to a hazard or potential hazard to public health, environment and wildlife because of their quantity, concentration, physical, chemical or biological properties when they are managed in an environmentally improper manner. Such waste include the following:

a. All waste having the characteristics or properties mentioned in Appendix 4 of this Resolution, including chemical waste, defined as unusable chemical products, or products that do not conform to the standards, or materials that remain of container contents or remains of leaking materials that belong to one of the categories mentioned in Appendix 3.

b. All waste belonging to one of the categories mentioned in Appendix 3 and possess any of the properties mentioned in Appendix 4 or if they are a mixture of hazardous waste and other materials.

C. Any waste that exceed the standard concentration mentioned in Appendix 5 after carrying out the Toxicity Characteristic Leaching Procedure (TCLP).

d. All hazardous waste mentioned in Appendix 6 of this Resolution. e. Any other waste defined by the Competent Authority as hazardous waste.

## **Belarus**

Hazardous wastes are wastes that contain as their constitutes substances possessing any hazardous property or they set (toxicity, infectious, explosivity, high reaction ability and (or) other similar properties) and existing in such amounts and in such form that this waste independently or in contact with other substances can represent immediate or potential threat to environment, people health and (or) to people property including that caused by their adverse impact on environment.

## **Belgium**

In Belgium the definition of waste and hazardous waste is in accordance with the European Law. With regard to transboundary movements of wastes the Council Regulation (EC) N° 1013/2006 is applied.

## **Bosnia & Herzegovina**

2007 National definition of hazardous waste used for the purpose of transboundary movements of waste exists in Bosnia & Herzegovina.

"Hazardous waste" means any waste which is covered by separate regulations and which has one or more of the properties, which poses a hazard to human health and to the environment due to its origin, composition or concentration, and which is listed in the list of wastes adopted by a separate regulation as hazardous.

## **Brazil**

Law no 12.305 from 02/08/2010 – National Policy on Solid Waste – defines hazardous waste as “those who, due to its characteristics of flammability, corrosivity, reactivity, toxicity, pathogenicity, carcinogenicity, mutagenicity and teratogenicity, present significant risk to public health or environmental quality, according to law, regulation or technical standard.” Hazardous Waste - Class I - are those belonging to any category listed in the Annex I or II of the National Environmental Council (CONAMA) no 452, of July 2th, 2012, unless they do not present any characteristics listed in Annex III of the same Resolution.

## **Bulgaria**

The national definition of “hazardous waste” is laid down in the Bulgarian Waste Management Act, dated 18 September 2003, promulgated in State Gazette 86/2003, as amended, and states that "Hazardous waste" is the waste, which composition, quantity and properties create risk for human health and environment, have one or more properties determining them as hazardous, and/or contain components turning them into hazardous and/or are defined as such according to the Basel Convention on the control of transboundary movements of hazardous wastes and their disposal.

National definition of hazardous waste is based on Council Directive of 12 December 1991 on hazardous waste (91/689/EEC), as amended, according to which “hazardous waste” is: -waste classified as hazardous waste featuring on the list established by Commission Decision 2000/532/EC on the basis of Annexes I and II to the directive. This waste must have one or more of the properties listed in Annex III to the directive. The list shall take into account the origin and composition of the waste and, where necessary, limit values of concentration;

- any other waste which is considered by a Member State to display any of the properties listed in Annex III.

The requirements on the classification of waste as hazardous as laid down in Directive 91/689/EEC are completely transposed into the Bulgarian legislation by Ordinance No 3 on waste classification (SG 44/25.05.2004) without any specific national requirements regarding the waste classification. There are not any other wastes, which are considered by Bulgaria to display any of the properties in Annex III of Directive 91/689/EEC.

## Canada

In Canada, the definition of hazardous waste and of hazardous recyclable material for the purposes of controlling transboundary movements destined for final disposal or recycling is set out in the Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations, (EIHWHRMR). These Regulations came into force on November 1st, 2005 and replaced the former Export and Import of Hazardous Wastes Regulations (EIHWR) of 1992.

In order to meet this definition, a hazardous waste or hazardous recyclable material must be intended for a listed disposal or recycling operation and either be found on a series of lists comprised of substances and mixtures, or meet one of the hazard class characteristics. Specific testing, criteria and protocols exist in the Canadian Transportation of Dangerous Goods Regulations (TDGR) for the following hazard classes (which in most cases are analogous to the Basel Annex III characteristic identified): substances that are compressed gases or aerosols (Class 2), flammable liquids (H3), flammable solids (H4.1), liable to spontaneous combustion (H4.2), emit flammable gases in contact with water (H4.3), oxidizing (H5.1), organic peroxides (H5.2), poisonous (H6.1), infectious (H6.2), corrosive (H8), or are otherwise designated as hazardous (miscellaneous Class 9).

Those substances which are explosive (H1) or radioactive are excluded from the definition for hazardous waste, including hazardous recyclable material and are controlled under other Canadian federal legislation such as the Canadian Explosives Act (<http://laws.justice.gc.ca/eng/E-17/index.html>) and Canadian Explosives Regulations ([http://laws.justice.gc.ca/eng/C.R.C.-c.599/page-1.html#anchorbo-ga:s\\_2](http://laws.justice.gc.ca/eng/C.R.C.-c.599/page-1.html#anchorbo-ga:s_2)), and the Nuclear Safety and Control Act (<http://laws.justice.gc.ca/en/N-28.3/index.html>)

Finally, the EIHWHRMR define as hazardous for the purpose of export from Canada, any waste for which Canada has received information from the United States or in accordance with the Convention, that is considered or defined as hazardous under the domestic legislation of the country receiving it and is prohibited by that country from being imported or conveyed in transit.

Definition of "hazardous waste" 1. (1) In Division 8 of Part 7 and Part 10 of the Canadian Environmental Protection Act and in these Regulations, "hazardous waste" means anything that is intended to be disposed of using one of the operations set out in Schedule 1 and that (a) is set out in column 2 of Schedule 3; (b) is included in at least one of Classes 2 to 6, 8 or 9 of the Transportation of Dangerous Goods Regulations; (c) is set out in column 2 of Schedule 4 and is included in at least one of Classes 2 to 6, 8 or 9 of the Transportation of Dangerous Goods Regulations; (d) is set out in column 1 of Schedule 5 in a concentration equal to or greater than the applicable concentration set out in column 2 of that Schedule; (e) produces a leachate containing a constituent set out in column 2 of Schedule 6 in a concentration equal to or greater than the applicable concentration set out in column 3 of that Schedule, determined in accordance with Method 1311, Toxicity Characteristic Leaching Procedure, July 1992, in Test Methods for Evaluating Solid Waste, Volume 1C: Laboratory Manual, Physical/Chemical Methods, Third Edition, SW-846, November 1986, published by the United States

Environmental Protection Agency, which, for the purposes of this definition, shall be read without reference to section 7.1.3; (f) is set out in column 2 of Schedule 7, is pure or is the only active ingredient, and is unused; or (g) according to information that Canada has received from the United States or in accordance with the Convention, is considered or defined as hazardous under the legislation of the country receiving it and is prohibited by that country from being imported or conveyed in transit.

Exclusion (2) The definition "hazardous waste" in subsection (1) does not include anything that is (a) exported, imported or conveyed in transit in a quantity of less than 5 kg or 5 L per shipment or, in the case of mercury, in a quantity of less than 50 mL per shipment, other than anything that is included in Class 6.2 of the Transportation of Dangerous Goods Regulations; (b) collected from households in the course of regular municipal waste collection services; or (c) part of the exporter's or importer's personal effects or household effects not resulting from commercial use.

#### Definition of "hazardous recyclable material"

2. (1) In Division 8 of Part 7 and Part 10 of the Act and in these Regulations, "hazardous recyclable material" means anything that is intended to be recycled using one of the operations set out in Schedule 2 and that

(a) is set out in column 2 of Schedule 3; (b) is included in at least one of Classes 2 to 6, 8 or 9 of the Transportation of Dangerous Goods Regulations; (c) is set out in column 2 of Schedule 4 and is included in at least one of Classes 2 to 6, 8 or 9 of the Transportation of Dangerous Goods Regulations; (d) is set out in column 1 of Schedule 5 in a concentration equal to or greater than the applicable concentration set out in column 2 of that Schedule; (e) produces a leachate containing a constituent set out in column 2 of Schedule 6 in a concentration equal to or greater than the applicable concentration set out in column 3 of that Schedule, determined in accordance with Method 1311, Toxicity Characteristic Leaching Procedure, July 1992, in Test Methods for Evaluating Solid Waste, Volume 1C: Laboratory Manual, Physical/Chemical Methods, Third Edition, SW-846, November 1986, published by the United States Environmental Protection Agency, which, for the purposes of this definition, shall be read without reference to section 7.1.3; (f) is set out in column 2 of Schedule 7, is pure or is the only active ingredient, and is unused; or (g) according to information that Canada has received from the United States or in accordance with the Convention, is considered or defined as hazardous under the legislation of the country receiving it and is prohibited by that country from being imported or conveyed in transit.

#### Exclusion

(2) The definition "hazardous recyclable material" in subsection (1) does not include anything that is (a) exported, imported or conveyed in transit in a quantity of less than 5 kg or 5 L per shipment or, in the case of mercury, in a quantity of less than 50 mL per shipment, other than anything that is included in Class 6.2 of the Transportation of Dangerous Goods Regulations;

(b) collected from households in the course of regular municipal waste collection services; (c) part of the exporter's or importer's personal effects or household effects not resulting from commercial use; (d) exported to, imported from, or conveyed in transit through a country that is a party to OECD Decision C(2001)107/Final and that (i) is in a quantity of 25 kg or 25 L or less, (ii) is exported or imported for the purpose of conducting measurements, tests or research with respect to the recycling of that material, (iii) is accompanied by a shipping document, as defined in section 1.4 of the Transportation of Dangerous Goods Regulations, that includes the name and address of the exporter or importer and the words "test samples" or "échantillons d'épreuve" , and (iv) is not and does not contain an infectious substance as defined in section 1.4 of the Transportation of Dangerous Goods Regulations; or (e) exported to, imported from, or conveyed in transit through a country that is a party to OECD Decision C(2001)107/Final and that (i) is set out in Schedule 8, (ii) produces a leachate containing a constituent set out in column 2 of Schedule 6 in a concentration equal to or greater than the applicable concentration set out in column 3 of that Schedule, determined in accordance with Method 1311, Toxicity Characteristic Leaching Procedure, July 1992, in Test Methods for Evaluating Solid Waste, Volume 1C: Laboratory Manual, Physical/Chemical Methods, Third Edition, SW-846, November 1986, published by the United States Environmental Protection Agency, which, for the purposes of this definition, shall be read without reference to section 7.1.3, and (iii) is intended to be recycled at an authorized facility in the country of import using one of the operations set out in Schedule 2.

## **Chile**

Hazardous waste: waste or waste mixture that presents a risk to public health and / or adverse environmental effects, either directly or because of their actual or intended use, as a consequence of presenting some of the characteristics set out in Article 11.

## **China**

China "Hazardous wastes" means solid wastes included in the national catalogue of hazardous waste or solid wastes which, according to the identification standards of hazardous wastes, are determined as having the hazardous property.

Hong Kong Special Administrative Region, China: The list of hazardous wastes for the purpose of control on waste import and export in Hong Kong Special Administrative Region (HKSAR) is specified in the Seventh Schedule (Annex I, available upon request from the Secretariat) of the Waste Disposal Ordinance (WDO), the Laws of Hong Kong Chapter 354. Under the WDO, contaminated wastes are also controlled as hazardous wastes. For the purpose of control on import and export of wastes under the WDO, a waste is "contaminated" if it is contaminated by a substance to an extent which

- Significantly increases the risk of human health, property or the environment associated with the waste; or
- Prevents the reprocessing, recycling, recovery or re-use of the waste in an environmentally sound manner.

## **Colombia**

Colombian Law No. 1252, issued in November 27, 2008, “through which prohibitive norms in environmental matters relating to hazardous wastes and other provisions are dictated” sets the main rules regarding hazardous wastes management.

Article 3 of Law No. 1252 defines hazardous wastes as “those wastes which, due to their corrosive, reactive, explosive, toxic, flammable, infectious or radioactive characteristics, can result in risk, damage, or unwanted (direct and indirect) effects to human health and the environment. Packaging materials and recipients which have had contact with hazardous waste will also be considered as such”.

## **Croatia**

The national definition of hazardous waste is in accordance with article 3 of the Regulation on categories, types and classification of waste with a waste catalogue and list of hazardous waste (Official Gazette, No. 50/05, 39/09). This Regulation establishes categories, types and classification of waste depending on its properties and place of origin, and determines the waste catalogue, list of hazardous waste and list of waste in transboundary transport. Pursuant to this Regulation, hazardous waste is waste determined by categories (generic types) and composition, and it must contain one or more properties as determined in the List of hazardous waste which is compiled with Council Directive of 12 December 1991 on hazardous waste. Waste catalogue and list of waste in transboundary transport mentioned above are entirely harmonized with Council Regulation (EEC) No 259/93 on the supervision and control of shipments of waste within, into and out of the European Community.

## **Czech Republic**

Act on Waste No. 185/2001 Coll., as amended, Decrees of the Ministry of the Environment No. 376/2001 Coll. and 381/2001 Coll., as amended.

Hazardous waste means waste one or more of the hazardous properties listed in Annex 2 to the Act. Annex 2 to the Act is identical with Annex III of Directive 2008/98/EC of the European Parliament and of the Council on waste.

The control procedures for other transboundary movements of wastes destined for recovery are not based on the definition of hazardous waste, but on a specific listing system established by EU Regulation (EC) 1013/2006 on shipments of waste. The listing system consists of two lists of waste. The first one (Annex III to the EU Regulation 1013/2006 - Green listed waste) containing wastes not requiring notification and prior consent consists of wastes listed in Annex IX to the Basel Convention supplemented by several other non-hazardous wastes. The second one (Annex IV to the EU Regulation 1013/2006 - Amber listed waste) containing wastes requiring notification and prior consent consists of wastes listed in Annex VIII and II to the Basel Convention supplemented by several other not necessarily hazardous wastes. Transboundary movements of all wastes (both hazardous and non-hazardous) destined for final disposal

are either prohibited or subject to notification or prior consent.

## **Cyprus**

The House of Representative passed the new Waste Law on December 23, 2011. Within the new Law there is a definition of waste used for the purpose of transboundary movements of waste and it is in accordance with the provisions of the EU Directive 2008/98/EC, EU Regulation 1013/2006/EC and the Basel Convention.

## **Denmark**

According to the Danish Statutory Order of Waste no 1415/2011, § 3, no 18, Hazardous waste: Waste which is listed on and marked as hazardous wastes in the list of wastes contained in Annex 2, which exhibit one or more of the properties specified in Annex 4. As hazardous waste is also seen wastes that exhibit properties that are listed in Annex 4.

## **Dominican Republic**

Hazardous Waste: Solid remainder or semisolid that by its toxic, reactive, corrosive, radioactive, inflammable, explosive or pathogenic characteristics raises a substantial risk, real or potential, to the human health or to environment.

This definition is contemplated in our National Norm for the Environmental Management of remainders non dangerous that was edited in Santo Domingo, Dominican republic on June 2003 by the Secretary of State of Environment and Natural Resources (Pages 15).

Hazardous waste and hazardous waste: They are those who, in whatever physical state, containing significant amounts of substances present or may present a hazard to life or health of living organisms when released into the environment, or if handled incorrectly due to magnitude or form of its corrosive, toxic, poisonous, reactive, explosive, flammable, biologically harmful, infectious, irritating or any other characteristic that pose a danger to human health, quality of life, natural resources or the balance ecological.

This definition is contemplated in our General Law on Environment and Natural Resources (Law 64-00) that was edited in Santo Domingo, Dominican Republic on June, 2000 (Page 20).

## **Ecuador**

Hazardous wastes are those solid, mixed, liquid or gaseous wastes resulting from a process of production, transformation, recycling, use or consumption which contain some compounds with reactive, inflammable, corrosive, infectious or toxic characteristics that represent a risk to human health, natural resources or the environment according to existing legal provisions.

## Estonia

Hazardous waste is defined by § 6 and 8 of the Waste Act (2004). § 6. Hazardous waste "Hazardous waste" means waste, which due to at least one of the hazardous properties set out in § 8 of this Act may cause a hazard to health, property or the environment. § 8. Hazardous properties of waste The hazardous properties on the basis of which waste is considered hazardous are similar to the hazardous properties of: 1)H1 explosive substances and preparations which may explode under the effect of flame or which are more sensitive to shocks or friction than dinitrobenzene; 2)H2 oxidising substances and preparations which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances; 3)H3-A highly flammable liquid substances and preparations having a flash point below 21o C (including extremely flammable liquids), or substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or to be consumed after removal of the source of ignition, or gaseous substances and preparations which are flammable in air at normal pressure, or substances and preparations which, in contact with water or damp air, evolve highly flammable gases in dangerous quantities; 4)H3-B flammable liquid substances and preparations having a flash point equal to or greater than 21o C and less than or equal to 55o C; 5)H4 irritant non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membranes, may cause inflammation; 6)H5 harmful substances and preparations which, if inhaled or ingested or if they penetrate the skin, may involve health risks; 7)H6 toxic substances and preparations which, if inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks or death; 8)H7 carcinogenic substances and preparations which, if inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence; 9)H8 corrosive substances and preparations which may destroy living tissue on contact; 10)H9 infectious substances containing micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms; 11)H10 substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce non-hereditary congenital malformations or increase their incidence; 12)H11 mutagenic substances and preparations which, if inhaled or ingested or if they penetrate the skin, may induce hereditary genetic defects or increase their incidence; 13)H12 waste which releases toxic or very toxic gases in contact with water, air or an acid; 14)H13 substances and preparations which, if they are inhaled or if they penetrate the skin, are capable of eliciting a reaction of hypersensitization such that on further exposure to the substance or preparation, characteristic adverse effects are produced. Sensitising adverse effect will be applied to waste if testing methods are available to determine the described effect.; 15)H14 waste, which presents or may present immediate or delayed risks for one or more sectors of the environment; 16)H15 waste capable by any means, after disposal, of yielding another substance, e.g. a leachate, which possesses any of the characteristics listed in clauses 1) – 15) of this paragraph.

## Finland

According to the Waste Act (646/2011; Section 6):

“hazardous waste means any waste with properties that render it flammable or explosive, infectious, or hazardous to human health or the environment in other ways, or with other corresponding properties (hazardous properties)”

The hazardous waste definition is further defined in the Waste Decree (179/2012; Sections 3 and 4). They refer to Annexes 3 and 4 of the Waste Decree. The list of hazardous characteristics and the limit values for the interpretation are presented in Annex 3. A list of the most common waste and hazardous wastes is presented in Annex 4. The annexes are based on the respective EC legislation.

## Germany

Since 12 December 2010 the definition of hazardous waste of the Waste Framework Directive (2008/98/EC) applies. Article 3 (2) reads: “‘hazardous waste’ means waste which displays one or more of the hazardous properties listed in Annex III”:

Annex III reads: PROPERTIES OF WASTE WHICH RENDER IT HAZARDOUS •H 1 ‘Explosive’: substances and preparations which may explode under the effect of flame or which are more sensitive to shocks or friction than dinitrobenzene. •H 2 ‘Oxidizing’: substances and preparations which exhibit highly exothermic reactions when in contact with other substances, particularly flammable substances. •H 3-A ‘Highly flammable’ liquid substances and preparations having a flash point below 21 °C (including extremely flammable liquids), or substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy, or solid substances and preparations which may readily catch fire after brief contact with a source of ignition and which continue to burn or to be consumed after removal of the source of ignition, or gaseous substances and preparations which are flammable in air at normal pressure, or substances and preparations which, in contact with water or damp air, evolve highly flammable gases in dangerous quantities. •H 3-B ‘Flammable’: liquid substances and preparations having a flash point equal to or greater than 21 °C and less than or equal to 55 °C •H 4 ‘Irritant’: non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membrane, can cause inflammation. •H 5 ‘Harmful’: substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may involve limited health risks. •H 6 ‘Toxic’: substances and preparations (including very toxic substances and preparations) which, if they are inhaled or ingested or if they penetrate the skin, may involve serious, acute or chronic health risks and even death. •H 7 ‘Carcinogenic’: substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce cancer or increase its incidence. •H 8 ‘Corrosive’: substances and preparations which may destroy living tissue on contact. •H 9 ‘Infectious’: substances and preparations containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms. •H 10 ‘Toxic for reproduction’: substances and preparations which, if they are inhaled or ingested or if

they penetrate the skin, may induce non-hereditary congenital malformations or increase their incidence. •H 11 'Mutagenic': substances and preparations which, if they are inhaled or ingested or if they penetrate the skin, may induce hereditary genetic defects or increase their incidence. •H 12 Waste which releases toxic or very toxic gases in contact with water, air or an acid. •H 13 (\*) 'Sensitizing': substances and preparations which, if they are inhaled or if they penetrate the skin, are capable of eliciting a reaction of hypersensitization such that on further exposure to the substance or preparation, characteristic adverse effects are produced.

•H 14 'Ecotoxic': waste which presents or may present immediate or delayed risks for one or more sectors of the environment. •H 15 Waste capable by any means, after disposal, of yielding another substance, e.g. a leachate, which possesses any of the characteristics listed above.

1. Attribution of the hazardous properties 'toxic' (and 'very toxic'), 'harmful', 'corrosive', 'irritant', 'carcinogenic', 'toxic to reproduction', 'mutagenic' and 'eco-toxic' is made on the basis of the criteria laid down by Annex VI, to Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (1).

2. Where relevant the limit values listed in Annex II and III to Directive 1999/45/EC of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations (2) shall apply. The test methods to be used are described in Annex V to Directive 67/548/EEC and in other relevant CEN-notes.

It is noted that Annex III of Directive 2008/98/EEC is partly different from Annex III of the Basel Convention.

Through EU Decision 2000/532/EC as amended a list of wastes has been established. The list has been implemented in Germany by the Waste List Ordinance which entered into force on 1 January 2001. Wastes classified as hazardous are considered to display one or more of the properties listed in Annex III of EU Directive 91/689/EEC and, as regards H3 to H8, H10 and H11 of the said Annex, one or more of the following characteristics:

- flash point  $\leq 55$  °C, - one or more substances classified as very toxic at a total concentration  $\geq 0,1$  %, - one or more substances classified as toxic at a total concentration  $\geq 3$  %, - one or more substances classified as harmful at a total concentration  $\geq 25$  %, - one or more corrosive substances classified as R35 at a total concentration  $\geq 1$  %, - one or more corrosive substances classified as R34 at a total concentration  $\geq 5$  %, - one or more irritant substances classified as R41 at a total concentration  $\geq 10$  %, - one or more irritant substances classified as R36, R37, R38 at a total concentration  $\geq 20$  %, - one substance known to be carcinogenic of category 1 or 2 at a concentration  $\geq 0,1$  %, - one substance known to be carcinogenic of category 3 at a concentration  $\geq 1$  % - one substance toxic for reproduction of category 1 or 2 classified as R60, R61 at a concentration  $\geq 0,5$  %, - one substance toxic for reproduction of category 3

classified as R62, R63 at a concentration  $\geq 5\%$ , - one mutagenic substance of category 1 or 2 classified as R46 at a concentration  $\geq 0,1\%$ , - one mutagenic substance of category 3 classified as R 40 at a concentration  $\geq 1\%$ .

The classification as well as the R numbers refer to EU Council Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labeling of dangerous substances as amended. The concentration limits refer to those laid down in EU Council Directive 88/379/EEC on the approximation of the laws, regulations and administrative provisions of the EU Member States relating to the classification, packaging and labeling of dangerous preparations as amended.

## **Greece**

“Hazardous Waste” is defined in Directive 91/689/EEC, as amended and implemented in national law (Common Ministerial Decision 13588/725/2006, Article 2, paragraph 2), as follows: “Substance or object that is included in Annex I (“European Waste Catalogue”, as included in Common Ministerial Decision 13588/725/2006) or has one or more properties listed in Annex II (Annex III of 91/689/EEC Directive), which the holder discards or intends or is required to discard”

## **Honduras**

“Residuos peligrosos: Son los que de acuerdo a su composición poseen alguna de las siguientes características de peligrosidad: inflamabilidad, corrosividad, reactividad, explosividad, toxicidad y bio-infecciosidad, y que puede presentar riesgo a la salud pública o causar efectos adversos al medio ambiente.”

## **Hungary**

Hazardous waste shall mean waste displaying one or more of the properties listed in Annex II to Act XLIII of 2000 and/or containing such substances or components hazardous to health and/or the environment because of its origin, composition or concentration.

Otherwise the Environmental Ministerial Decree No. 16/2001 (VII.18) adopted the EWC codes and marked with \* the hazardous waste within this EWC list.

## **Indonesia**

Article 1 paragraph 18 of the Act No. 23/97 and Article 1 paragraph 2 of the Governmental Regulation No. 18/1999 (Amended by the Governmental Regulation No. 85/1999) share almost similar definition for Hazardous Waste. Hazardous Waste is the residue/leftover from business activities that contain hazards and/or toxicants due to its nature and/or its concentration and/or its amount which directly as well as indirectly, could pollute and/or deteriorate the environment, and/or harmful to the environment, health, the continuation of human life and other living creatures.

## **Iran (Islamic Republic of)**

The hazardous wastes are referred in the national waste management legislation as Particular Wastes. Particular wastes cover all kinds of wastes containing at least one hazardous characteristic such as toxic, pathogenic, explosive, flammable, corrosive and other similar characteristics which need special consideration in addition to the clinical wastes and the part of household, industrial and agricultural wastes which need special management.

## **Ireland**

Section 4(2)(a) of the Waste Management Act, 1996, as amended defines hazardous waste to mean a waste specified in the European Waste Catalogue/ Hazardous Waste List (EWC/HWL), which has one or more hazardous properties specified in the Second Schedule of the Act.

The Minister for the Environment, Heritage and Local Government may prescribe a waste which is not specified in the HWL if it has one or more hazardous properties specified in the Second Schedule of the Act.

## **Israel**

A substance of any type containing a hazardous substance as defined by the law, which is disposed of or is destined for disposal, or which has to be disposed of by the order of the Minister.

The law referred to above is the Hazardous Substances Law 1993.

The Hazardous Substances Law defines hazardous substances as "harmful chemicals" or "poisons" which are specified in the annexes to the Law. The Hazardous Substances Law came into force in 1993, and the Hazardous Substances Regulations (Import and Export of Hazardous Substances Waste), which address transboundary movement, came into force in 1994.

## **Italy**

The general definition of hazardous waste is set by the DLGS No 152/2006 and by the Regulation EC 1013/2006 adopting the Directive 2008/98/EC.

## **Jamaica**

Pursuant to the paragraph 2 of the Natural Resources (Hazardous Waste)(Control of Transboundary Movement), "Hazardous waste" means –

a)waste that belongs to any category contained in the First Schedule unless it does not possess  
any of the characteristics specified in the Third Schedule;

b)waste which belongs to any category contained in the Second Schedule; and c)Such waste as the Minister, by order, may declare to be hazardous

## **Japan**

Hazardous wastes defined by the Basel Law are as follows:

A. The following materials which are exported or imported for the disposal operations listed in Annex IV of the Basel Convention. 1. Materials listed in Annex I of the Convention and having one or more hazardous characteristics listed in Annex III of the Convention; 2. Materials listed in Annex II of the Convention; 3. Materials to be notified to the Secretariat of the Convention by the Government of Japan through the designation by the Cabinet Order in accordance with Section 1 or 2 of Article 3 of the Convention; and 4. Materials informed by the Secretariat of the Convention in accordance with Section 3 of Article 3 of the Convention.

B. Materials, exportation, importation, transportation (including storage) and disposal of which must be regulated based on bilateral, multilateral or regional agreements or arrangements defined in Article 11 of the Convention.

(The Waste Management Law also defines hazardous waste as “Special Control Waste (hereinafter SCW)” independently, but import/export regulations under the Waste Management Law do not differ between SCW and non-SCW.)

## **Kazakhstan**

Definition of hazardous wastes in our legislation differs from definitions accepted by Basel convention. According to article 1 of Basel convention hazardous wastes, first of all, are object of tranboundary movements or are subject to transboundary movement.

According to Ecological code "Hazardous wastes are wastes which contain harmful substances having dangerous properties (toxicity, explosion hazard, a radio-activity, fire danger, and high reactionary ability) and can represent direct or potential danger to environment and human health independently or at interaction with other substances ".

Notes: According to Ecological code of the Republic of Kazakhstan hazardous wastes are classified by kind of dangers on the following groups:

explosive and inflammable substances; oxidizing substances; toxic substances; infecting substances; radioactive substances; caustic and corrode substances; substances and materials dangerous because of products of their physical and chemical or biochemical aeration.

For the purposes of transportation, storage and burial, recycling it is established 3 levels of hazards of wastes: Green - index G Amber - index A Red - index R

The coding of wastes includes area of formation, a means of warehousing, a means of recycling or regeneration, potentially hazardous components, a kind of danger, branch of a national economy where wastes are generated.

Definition of a level of danger and wastes coding is made at technology modification or at transition to other raw materials source, and also in any other cases when hazardous properties of wastes can be changed.

Definition of chemical compound of wastes and reference of waste to the certain coding is made by enterprise independently in the presence of certificated laboratory or is carried out by legal and physical persons having license for fulfillment nature protection designing, normalization and ecological audit, and having laboratory accredited or certificated according to the legislation of the Republic of Kazakhstan.

## **Korea (Rep. of)**

National definition of hazardous waste used for the purpose of transboundary movements of waste exists in Republic of Korea. Pursuant to provisions in Article 2 of the Presidential Decree of the Act on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal, hazardous waste is defined as:

1. Waste listed in Annex I or Annex VIII that exhibit any of the hazardous characteristics listed in Annex III.

### **Restrictions on Transboundary Movement**

2. Waste listed in Annex II. 3. Waste that Korea has notified to the convention secretariat as being hazardous pursuant to Article III Paragraph I, II, and III and Article XI.

The specified list of hazardous wastes controlled by Korean Government was revised in 2007.

Republic of Korea regulates/controls additional wastes as hazardous that are not included in Art. 1 (1)a of the Basel Convention and would be controlled for the purpose of transboundary movements pursuant to Art. 1 (1)b.

The Amber Tier wastes determined by OECD are additionally controlled for the purpose of transboundary movement.

In Republic of Korea there are no wastes other than those pursuant to Art. 1 (1)a and/or Art. 1 (1)b of the Basel Convention that require special consideration when subjected to transboundary movement.

## **Kyrgyzstan**

In accordance with the Law of the Kyrgyz Republic from November 13, 2001 No 89 "On Waste from Production and Consumption " Hazardous waste - waste (except radioactive), containing in its structure matters, which have one of the hazardous properties (such as

toxicity, infectivity, explosiveness, flammability, high reactivity) and are present in such amounts and in such a way as to pose an immediate or potential hazard to human health or the environment, both independently and when in contact with other substances.

## **Latvia**

"Hazardous waste- waste which has one or more characteristics which makes it hazardous "(Waste Management Law, Art.1.2)

## **Liechtenstein**

For transboundary movements the Swiss special waste (hazardous waste) definition is used (Federal Law relating to the Protection of the Environment; Art. 30f Para 1), which is compatible with the hazardous waste Definition of the Basel Convention Art 1.1.a and 1.1 b Basel Convention

“Special waste are waste whose disposal requires special measures.”

## **Luxembourg**

The national definition of hazardous waste is the definition of directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives and of the "Loi du 21 mars 2012 relative à la gestion des déchets ("the waste law of 2012").

## **Malaysia**

Hazardous waste is defined as any waste falling within the categories of waste listed in the First Schedule of the Environment Quality (Scheduled Wastes) Regulations 2005.

## **Malta**

“hazardous wastes” means wastes which belong to any category in Annexes I , II and VIII in Schedule 1 of these regulations, and which by virtue of articles 9 and 10 of the Act, are being declared to be toxic substances. Source: Environment Protection (Control of Transboundary Movement of Toxic and other Substances) Regulations, 2000 as published by (LN 205/00).2)

2) This legislation has since been repealed and replaced by the Waste Management (Shipments of Waste Regulations), 2011 (LN285/11). However, for the purposes of the applicable reporting period, the former Regulations apply.

## **Mexico**

Hazardous waste: They are those that have some of the following characteristics: corrosively, reactivity, explosive, toxicity, inflammability, or that contains infectious agents that confers danger to them, as well as packages, containers, packing and soils that

have been contaminated when they are transferred to another site, according with which it establishes the Law.

Article 5 Fraction XXXII of the General Law of Prevention and Integral Management of Wastes.

## **Montenegro**

The definition of hazardous waste used for the purpose of transboundary movements is given in the Waste Management Law (2005/2008) “hazardous waste” shall mean waste that consists of elements and/or compounds that have any of the following characteristics: explosive, oxidizing, flammable, irritant, harmful, toxic, carcinogenic, corrosive, infectious, mutagenic, teratogenic, and eco-toxic, and substances which release toxic or very toxic gases in contact with water, air or an acid.

## **Morocco**

The Law 28-00 28 -00 on Waste Management and their Disposal defines hazardous waste as all forms of waste which, by their nature dangerous, toxic, reactive, explosive, flammable, organic or bacterial, may constitute a danger to the ecological balance or the wastes mentioned in supplementary annexes which are fixed by regulation (according to Law No. 11-03 on the protection and enhancement of the environment and the Decree No. 2-07-253 of 18 July 2008 on waste classification and establishing a list of hazardous waste).

The Law 28 -00 on Waste Management and their Disposal into force foresees a list of hazardous wastes, the importation of which will be banned.

## **Netherlands**

For the purpose of transfrontier movement of waste, the Netherlands uses the EC definition of hazardous waste.

## **New Zealand**

The definition of hazardous waste is specified in the Imports and Exports (Restrictions) Prohibition Order (No 2) 2004 available at [www.legislation.govt.nz](http://www.legislation.govt.nz).

“hazardous waste” means any waste that— (a) either— (i) falls into 1 of the categories of waste specified in Part 1 of Schedule 3; or (ii) has as a constituent any substance specified in Part 2 of Schedule 3; and (b) has any of the hazardous characteristics specified in Part 3 of Schedule 3 .

## **Nigeria**

The National Guidelines and Standards for Environmental Pollution Control in Nigeria defines “Hazardous Wastes” as a by-product of society that can pose a substantial or

potential hazard to human health or the environment when it is improperly disposed. The definition is based on hazardous characteristics e.g. (ignitability, corrosivity, reactivity or toxicity).

## **Norway**

According to that regulation the Norwegian regulation on waste, art. 11-3, "hazardous waste means waste that cannot be treated appropriately together with other household waste because it may cause serious pollution or involve a risk of injury to people and animals."

## **Panama**

Desechos Peligrosos: Desechos o residuos qu'afectan la salud humana, incluyendo los clasificados como peligrosos en los convenios internacionales ratificados por la Republica de Panamá o leyes o normas especiales. Ley 41 de 1 julio de 1998.

Ley 21 del 6 de diciembre de 1990, en el articulo I s'adopta la definición del convenio de Basilea.

## **Philippines**

"Hazardous wastes" are substances that are without any safe commercial, industrial, agricultural or economic usage and are shipped, transported or brought from the country of origin for dumping or disposal into or in transit through any part of the territory of Philippines.

"Hazardous wastes" shall also refer to by-products, side-products, process residues, spent reaction media, contaminated plant or equipment or other substances from manufacturing operations and as consumer discards of manufactured products which present unreasonable risk and /or injury to health and safety and to the environment.

## **Poland**

In the light of the Act on Waste of 27 April 2001 (Official Journal of 2010 No. 185, item 1243, as amended) "hazardous waste" shall mean waste:

1) is included within a categories or types of waste as specified in the List A in Annex II to the Act and characterized by at least one o the properties specified in the Annex IV to this Act; or 2) is included within the categories or types of waste as specified in List B in Annex II to the Act, includes any of the components specified in Annex III possessing at least one of the properties specified in the Annex IV to the Act.

Annex II specifies categories or types of hazardous waste. Annex III specifies components of waste which qualifies waste as hazardous waste.

The minister responsible for the environment laid down the ordinance of 27th October

2010 on the waste catalogue (Official Journal of Laws of 2001, No.112 and Item 1206). The new national list of hazardous waste is a part of waste catalogue. New waste classification is consistent with EU classification.

## **Portugal**

According to the Waste act (Decree-Law 73/2011 of 17 of June of 2011) hazardous waste' means waste which displays one or more of the hazardous properties listed in Annex III of Directive 2008/98/EC of the European Parliament and of the Council, of 19 November 2008.

## **Qatar**

The national definition of hazardous waste is in accordance with the Basel Convention.

## **Romania**

There is no national definition of hazardous waste in Romania used specially for the purposes of transboundary movements (see 2 a). We're using the hazardous waste definition from the Basel Convention.

## **Serbia**

Hazardous waste means the waste that according to its origins, composition or concentration of hazardous substances may cause danger to the environment or human health and has at least one of dangerous characteristics determined by special regulations, including any packaging in which hazardous waste was or is Packed, Transboundary movement of waste means movement of waste from one area under one state jurisdiction, or through an area which is not under the national jurisdiction of any of the states, provided that at least two states are involved in such movement

## **Singapore**

"Hazardous waste" means waste controlled as hazardous waste under the Basel Convention. The list of hazardous wastes for the purpose of transboundary movements are specified in the Hazardous Waste (Control of Export, Import and Transit) Act. The list follows the list of hazardous waste under the Basel Convention and includes wastes listed in Annex VIII (List A) and exclude wastes listed in Annex IX (List B).

## **Slovakia**

According to the Act No. 223/2001 Coll. of Laws on waste and on amendment of certain acts as amended - hazardous waste shall mean waste featuring one or several hazardous characteristics listed in Annex 4 Hazardous characteristics of wastes (H codes). The Annex 4 is equal to the Annex 3 of the EU Directive 91/689/EEC. The Decree No 284/2001 Coll. of Laws enacting Waste Catalogue as amended by subsequent regulations harmonized with European Waste Catalogue distinguishes two waste categories: - non-

hazardous; - hazardous. The annex 2 of this Decree refers to the Basel Convention list of hazardous waste characteristics (H codes). Hazardous wastes are considered wastes:

a) Listed in Annex VIII to the Basel Convention; b) Designated as hazardous in the Waste Catalogue; c) Listed in Annex IX to the Basel Convention and containing substances listed in Annex I to the Basel Convention within a scope causing the occurrence of dangerous properties listed in Annex III to the Basel Convention. The annex I of the Basel Convention is used for identification of hazardous wastes in the reporting.

## **South Africa**

The National Environmental Management: Waste Act 58 of 2008, defines hazardous waste as waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment.

## **Spain**

According to Spanish legislation, “Hazardous wastes” refer to: wastes identified in the European Waste List as hazardous (see Orden MAM/304/2002 in the Spanish Official Gazette of 19th February 2002 and reply to question 2a); wastes which have been classified as hazardous in pursuance of Community law; and wastes which the Government can approve in accordance with the established European laws or international agreements to which Spain is a Party.

## **Sri Lanka**

All wastes defined in the Annex I of the Basel Convention and radioactive waste are considered as hazardous waste. Annex VIII and IX will be used for controlling purposes, and if the waste does not appear on either of these lists, Annex I and III will be used for decision making.

## **Saint Lucia**

The definition of hazardous waste is in accordance with the Basel Convention.

## **Sweden**

In the Waste Ordinance (SFS 2011:927) hazardous waste is waste that is marked with an asterisk in annex 2 of the Ordinance or any other waste that exhibits one or more of the characteristics that are mentioned in annex 3 of the Ordinance. Annex 2 is the List of Wastes and annex 3 is the List of characteristics that render wastes hazardous wastes.

## **Switzerland**

2011 National definition of hazardous waste used for the purpose of transboundary movements of waste exists in Switzerland.

For transboundary movements the national special waste (hazardous waste) definition is used (Federal Law relating to the Protection of the Environment; Art. 30f Para 1), which is compatible with the hazardous waste Definition of the Basel Convention Art 1.1.a and 1.1 b Basel Convention

“Special waste are waste whose disposal requires special measures.”

## **Thailand**

Hazardous wastes to be controlled for the import and export are defined in the List of Hazardous Substances Item: chemical wastes in the "Notification of Ministry of Industry on List of hazardous substances B.E. 2546 (2003) and Notification of Ministry of Industry on List of hazardous substances" (no. 4) B.E. 2549 (2006)" issued under the Hazardous Substance Act. B.E. 2535 (1992) in accordance with the wastes listed in Annex VIII of the Basel Convention (List A).

## **Togo**

Définition de déchet toxique ou dangereux Produits solides, liquides ou gazeux qui présentent une menace sérieuse ou des risques particuliers, pour la sante, la sécurité des êtres vivants et la qualité de l'environnement. (Article 02 paragraphe 14 de la Loi No 2008-005 du 30/05/2008, Loi-cadre sur l'environnement).

## **Tunisia**

In Tunisia there is a national definition of hazardous wastes. Tunisian list (list available on request) of hazardous wastes consists of (i) wastes contained in Annex I (hazardous wastes list) and; (ii) any other waste containing any Annex II constituents and exhibits any Annex III hazard characteristics. Each hazardous waste is assigned a six digit code.

## **United Kingdom of Great Britain and Northern Ireland**

Council Regulation (EC) No 1013/2006 on shipments of waste ('the WSR') which came into effect on 12 July 2007, provides the means for supervising and controlling shipments of waste within, into and out of the EC. The WSR is the means by which the UK and other EU Member States implement the Basel Convention and OECD Decision C (2001)107/FINAL.

While the WSR does not include a definition of "hazardous waste", wastes listed in Annex IV and certain ones in Annex V of the WSR are controlled as hazardous. All shipments of hazardous and non-hazardous waste for disposal are subject to hazardous waste control procedures. Shipments outside the OECD are controlled subject to the rules

in relation to Annex V of the WSR. In addition, Regulation (EC) No.1418/2007, as amended, sets out the controls applicable to shipments of non-hazardous waste to non-OECD countries.

## Ukraine

"Hazardous wastes" mean the wastes included in Section A of "Yellow" Waste List", which has been approved by the Cabinet of Ukraine, and having one or more hazardous characteristics specified in the Hazardous Characteristics List, which has been approved by the Ministry of Environmental Protection, and the wastes included in "Green Waste List", which has been approved by the Cabinet of Ukraine, in case that those contain materials listed in Annex 2 of the Regulation in such quantities that those can show hazardous characteristics specified in the above Hazardous Characteristics List (as stated in the Regulation on the Control of Transboundary Movements of Hazardous Wastes and their Utilization/Disposal and "Yellow Waste List" and "Green Waste List" under the Decree of the Cabinet of Ukraine of July 13, 2000, No. 1120).

## United Arab Emirates

All hazardous and non-hazardous remnants and wastes, including nuclear wastes, disposed of or need to be disposed of, in accordance with the provisions of the law and include:

*Solid Wastes:* such as domestic, industrial, agricultural, medical, construction and demolition wastes.

*Liquid Wastes:* produced by domestic, commercial, industrial and other premises.

*Gaseous (smoke, vapour and dust) Wastes:* produced by domestic premises, bakeries, incinerators, factories, crushing plants, stone quarries, power stations, oil works and means of transportation and communication.

*Hazardous Wastes:* residues or ash of different activities and operations containing properties of hazardous substances.

*Medical Wastes:* Wastes constituted wholly or partially of human or animal tissues, blood or other body fluids or excretions or drugs or other pharmaceutical products or bandages, needles, syringes, sharp medical objects or any other contagious, chemical or radioactive wastes produced by medical or nursing activities, treatment or health care, dentistry or veterinary and pharmaceutical practices or manufacturing, research, teaching, sample taking or storage. Federal Law No. (24) Of 1999 for the protection and development of the environment

## Uzbekistan

Hazardous waste is waste containing substances, which have one of the hazardous characteristics (toxic, contagious, explosive, flammable, and high-reactive) and are present in such quantity and kind that are direct or potential danger to the environment, life and health of people themselves as well as during the getting in touch with other substances or environment. (Document O'z RH 84.3.19:2005 Terms and determinations).

## Venezuela

Hazardous waste: Simple or compound material in a solid, liquid or gaseous state which has hazardous properties or is composed of hazardous substances, whether or not it preserves its physical, chemical or biological properties, and for which no use is found with the result that a method of final disposal must be employed. The term includes receptacles containing or having contained such wastes.

Recoverable hazardous material: Material which has hazardous characteristics but after serving a specific purpose still retains useful physical and chemical properties and therefore may be reused, recycled, regenerated or used for the same or another purpose.

Hazardous Substances, Materials and Wastes Act, Ley Sobre Sustancias, Materiales y Desechos Peligrosos published in Official Gazette Extraordinary No. 5554 of 13 November 2001, and Decree 2635 containing the “Norms for the Control and Recovery of Hazardous Materials and the Management of Hazardous Wastes”, published in the Official Gazette Extraordinary No. 5245 of 3 August 1998.

\*Source: Secretariat of the Basel Convention

## Appendix B. Self-Administered Questionnaire (English)

Please provide information about the legislation that addresses the illegal shipment of hazardous waste

Title of legislation:

Date of enactment:

Date of main amendments (if applicable):

Illegal shipment of hazardous waste		Please tick				
		2012	2011	2010	2009	2008
How many cases have been brought to the court that involved illegal shipment of hazardous waste?	< 10					
	10-20					
	21-50					
	51-100					
	> 100					
How many cases have resulted in a conviction for the illegal shipment of hazardous waste?	< 10					
	10-20					
	21-50					
	51-100					
	>100					
Number of shipments of hazardous waste returned for illegal import.	< 10					
	10-20					
	21-50					
	51-100					
	>100					
What is the penalty imposed for the illegal shipment of hazardous waste?	Imprisonment <=12 months					
	Imprisonment >12 months					
	Fines (Total amount)					
	Other					

		Please tick
Based on your legislation, is the illegal shipment of hazardous waste considered to be?	Felony	
	Misdemeanor	
	No criminal offence	
	Administrative Sanction	
Does your legislation apply more serious punitive action in the absence of prior informed consent?	YES	
	NO	
	Not applicable	

Remarks:

## Appendix C. Self-Administered Questionnaire (French)

S'il vous plaît fournir des informations sur la législation qui porte sur le transfert illicite de déchets dangereux.

Titre de la législation:

Date d'entrée en vigueur:

Date des amendements principaux (si applicable):

Transport illégal de déchets dangereux		Veuillez cocher				
		2012	2011	2010	2009	2008
Combien de cas ont été portés devant la cour qui implique expédition illicite de déchets dangereux	< 10					
	10-20					
	21-50					
	51-100					
	> 100					
Combien de cas ont abouti à une déclaration de culpabilité pour le transport illégal de déchets dangereux?	< 10					
	10-20					
	21-50					
	51-100					
	>100					
Nombre des expéditions de déchets dangereux est retourné pour importation illégale.	< 10					
	10-20					
	21-50					
	51-100					
	>100					
Quelle est la peine imposée pour le transport illégal de déchets dangereux?	Emprisonnement <=12 mois					
	Emprisonnement >12 mois					
	Amendes ( Montant Total)					
	Autre					

		Veuillez cocher
En fonction de votre projet de loi, le transport illégal de déchets dangereux est considérés?	Felony	
	Délit	
	Aucune infraction pénale	
	Sanction Administrative	
Est-ce que votre législation appliquer plus graves mesures punitives en l'absence de consentement informé préalable?	OUI	
	NON	
	Non applicable	

Remarques:

## Appendix D. Self-Administered Questionnaire (Spanish)

Por favor proporcione la información sobre la legislación que se dirige al envío ilegal de desechos peligrosos

Título de la legislación:

Fecha de promulgación:

Fecha de principales enmiendas (si aplica):

Envío ilegal de desechos peligrosos		Por favor marque				
		2012	2011	2010	2009	2008
¿Cuántos casos se han traído al tribunal que implicó el envío ilegal de desechos peligrosos?	< 10					
	10-20					
	21-50					
	51-100					
	> 100					
¿Cuántos casos han dado lugar a una condena por el envío ilegal de residuos peligrosos?	< 10					
	10-20					
	21-50					
	51-100					
	>100					
Número de envíos de desechos peligrosos devuelto por importación ilegal.	< 10					
	10-20					
	21-50					
	51-100					
	>100					
¿Cuál es la pena impuesta para el envío ilegal de residuos peligrosos?	Encarcelamiento <=12 meses					
	Encarcelamiento <=12 meses					
	Multas (monto total)					
	Otro					

		Por favor marque
¿Basado en su legislación, es el envío ilegal de desechos peligrosos considerados ser?	Delito	
	Delito menor	
	No hay delito	
	Sanción administrativa	
¿Aplica su legislación la acción punitiva más seria en ausencia del consentimiento informado previo?	Si	
	No	
	No Aplica	

Comentarios:

### Appendix E. Self-Administered Questionnaire (Arabic)

يرجى تقديم معلومات عن التشريعات التي تعالج الشحن غير المشروع للنفائات الخطرة

عنوان التشريع

تاريخ صدور

تاريخ التعديلات الرئيسية

الشحن غير المشروع للنفائات الخطرة		يرجى وضع علامة				
		2012	2011	2010	2009	2008
عدد الحالات التي تم تقديمهم إلى المحكمة التي تنطوي على شحنة غير المشروع للنفائات الخطرة ؟	< 10					
	10-20					
	21-50					
	51-100					
	> 100					
عدد الحالات التي أسفرت عن قناعة لشحن غير المشروع للنفائات الخطرة ؟	< 10					
	10-20					
	21-50					
	51-100					
	>100					
عدد شحنات النفائات الخطرة عاد للاستيراد غير قانوني	< 10					
	10-20					
	21-50					
	51-100					
	>100					
ما هي العقوبة المفروضة لشحن غير المشروع للنفائات الخطرة ؟	السجن > = 12 شهرا					
	السجن < 12 أشهر					
	غرامات ( المبلغ الإجمالي )					
	آخر					

		يرجى وضع علامة
على أساس التشريع الخاص بك، هو شحنة غير المشروع للنفائات الخطرة التي تعتبر ؟	جناية	
	جنحة	
	أي جريمة جنائية	
	العقوبات الإدارية	
لا تشريعاتكم تنطبق إجراءات عقابية أكثر خطورة في غياب الموافقة المسبقة عن علم ؟	نعم	
	لا	
	لا ينطبق	

تصريحات

## Appendix F. Self-Administered Questionnaire (Russian)

Сообщите, пожалуйста, какое законодательство применяется в случае нелегальных перевозок опасных отходов.

Название закона:

Дата вступления в силу:

Даты его существенных поправок (если имели место):

Нелегальная перевозка опасных отходов		Пожалуйста, отметьте				
		2012	2011	2010	2009	2008
Число судебных процессов, связанных с нелегальными перевозками опасных отходов	< 10					
	10-20					
	21-50					
	51-100					
	>100					
Число дел, в которых было предъявлено обвинение в нелегальных перевозках опасных отходов	< 10					
	10-20					
	21-50					
	51-100					
	>100					
Число случаев, когда нелегально перевезенные опасные отходы были отправлены назад	< 10					
	10-20					
	21-50					
	51-100					
	>100					
Какое наказание предусматривается за нелегальную перевозку опасных отходов	Тюремное заключение сроком 12 месяцев и менее					
	Тюремное заключение сроком более 12 месяцев					
	Штраф (общая сумма)					
	Другая форма наказания					

		Пожалуйста, отметьте
Чем является нелегальная перевозка опасных отходов по законам вашей страны	Уголовным преступлением	
	Проступком	
	Не является уголовным преступлением	
	Административным нарушением	
Применяется ли более серьезное наказание по законам вашей страны при отсутствии информированного предварительного согласия	Да	
	Нет	
	Не применимо	

Примечания:

## Appendix G. Self-Administered Questionnaire (Chinese)

请提供有关解决危险废物的非法运输的法律信息。

立法的标题：

颁布日期：

主要修订日期（如适用）：

非法运输的危险废物		请打勾				
		2012	2011	2010	2009	2008
有多少涉及非法运输危险废物的案件被带到法院？	< 10					
	10-20					
	21-50					
	51-100					
	> 100					
有多少涉及非法运输危险废物的案件被最终被定罪	< 10					
	10-20					
	21-50					
	51-100					
	>100					
危险废物重新被非法进口的数量	< 10					
	10-20					
	21-50					
	51-100					
	>100					
什么是非法运输危险废物的处罚或定罪？	监禁 ≤12 个月					
	监禁>12 个月					
	罚款 (数额)					
	其他					

		请打勾
根据您的法律，非法运输危险废物可被定罪为是？	重罪	
	轻罪	
	无罪	
	行政处罚	
请问您的法律是否在没有任何事先知情同意的情形下作出更为严重的惩罚性行动？	是	
	否	
	不适用	

备注：

**Appendix H. National/Domestic Legislation in Connection with the Illegal  
Transboundary Movements of Hazardous Waste**

<b>Country</b>	<b>Natural Person</b>	<b>Legal Person</b>	<b>Remarks</b>
Afghanistan			Environmental Law (2007)  No provision for punitive actions
Albania	a: When not constituting a penal act, regarded as administrative contravention b: Penalty ranging from five hundred thousand (500,000.00) to one million (1,000,000) Lek	Not specified	Law on Environmental Protection No. 8934  - 500,000.00 Lek approx.4,140.00 US dollars - 1,000,000.00 Lek approx.8,281.00 US dollars
Algeria	- Imprisonment for five (5) to eight (8) years and a - Fine of one million (1,000,000.00) Dinars or one of these penalties  - In case of recidivism, the penalties are doubled	Not specified	Loi n° 01-19 du 12 décembre 2001 relative à la gestion, au contrôle et à l'élimination des déchets  -1,000,000.00 Dinars approx.10,728.00 US dollars
Andorra	*Very serious offence: Fine of thirty one thousand (30,001.00) to two hundred thousand (200,000.00) Euros		Decret del 10-12-2014 de modificació del Reglament pel qual es regula la gestió dels residus perillosos (2014)  *Llei 25/2004, del 14 de desembre, de residus  -30,001.00 Euros approx.34,256.00 US dollars  -200,000.00 Euros approx.228,368.00 US dollars
Antigua and Barbuda	- Offence: on conviction fine not exceeding ten thousand (10,000.00) dollars or - Imprisonment not exceeding two (2) years  On conviction of a second offence: fine of five thousand (5,000.00) dollars or more but not exceeding twenty thousand (20,000.00) dollars	- Fine not exceeding fifty thousand (50,000.00) dollars  On conviction of a second offence: fine of twenty thousand (20,000.00) or more but not exceeding one hundred thousand (100,000.00) dollars.	The National Solid Waste Management Authority Act (2005)  -5,000.00 Eastern Caribbean Dollars approx.1,866.00 US dollars - 10,000.00 ECD approx.3,732.00 US dollars - 20,000.00 ECD approx.7,463.00 US dollars - 50,000.00 ECD

			approx.18,658.00 US dollars - 100,000.00 ECD approx. 37,316.00 US dollars
Argentina	<p>- <b>*Criminal liability: Imprisonment of three (3) years to ten (10 years) and a Fine of ten thousand (10,000.00) pesos to two hundred thousand (200,000.00) pesos.</b></p> <p>- If the act is followed by death of any person, the penalty shall be ten (10) to twenty five (25) years of reclusion or prison.</p> <p>- If the act committed by negligence or incompetence or imprudence, Imprisonment of one (1) month to two (2) years shall be imposed. If illness or death of any person occurs, the penalty shall be six (6) months to three (3) years.</p>		<p>Ley Nacional 24.051 de Residuos Peligrosos (1991)</p> <p>*Codigo Penal 3992/84 (Articulo 200)</p> <p>- 10,000.00 Pesos approx.1,160.00 US dollars - 200,000.00 Pesos approx.23,196.00 US dollars</p>
Armenia			<p>The Law of the Republic of Armenia on Waste (2004)</p> <p>No provision for punitive actions</p>
Austria	<p>- <b>Prison from one (1) day to two (2) years</b> for misdemeanour</p> <p>- <b>Prison up to three (3) years for misdemeanour under aggravating circumstances</b></p>	<p>No corporate criminal liability</p> <p>In administrative penal law, pecuniary fine imposed on the (responsible) representative: Fine up to seven thousand and seventy (7,270.00) Euros</p>	<p>European Commission (2007) <a href="http://ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf">ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf</a></p> <p>-7,270.00 Euros approx. 8169.00 US dollars</p> <p><b>These sanctions relate to illegal shipments of waste</b></p>
Australia	Imprisonment not exceeding five (5) years	*Fine not exceeding ten thousand (10,000) penalty units.	<p>Hazardous Waste (Regulation of Exports and Imports) Act 1989</p> <p>*- 1 penalty unit 170.00 Australian dollar (Crimes Act 1914 – SECT 4AA) <a href="http://www.austlii.edu.au/au/legis/cth/consol_act/ca191482/s4aa.html">http://www.austlii.edu.au/au/legis/cth/consol_act/ca191482/s4aa.html</a></p>
Azerbaijan	////////////////////	////////////////////	<b>Data inconclusive</b>
Bahamas	<p>- Offence, on summary conviction, <b>Fine not exceeding one thousand (1,000.00) Bahamian dollars or Imprisonment for a term not exceeding nine (9) months</b> or both.</p> <p>- In case of <b>second or subsequent offence, Fine not</b></p>		<p>Environmental Health Services Act (1987)</p> <p>- 1,000.00 Bahamian dollars equal 1,000 US dollars - 5,000.00 Bahamian dollars</p>

	<b>exceeding five thousand (5,000.00) Bahamian dollars or Imprisonment for a term not exceeding twelve (12) months or both.</b>		equal 5,000.00 US dollars
Bahrain	- Liable for inflicting a punishment of imprisonment and a fine no exceeding fifty thousand (50,000.00) BD or both	Not specified	Legislative Decree No. 21 of 1996 in Respect with the Environment  - 50,000.00 BD approx. 132,682.00 US dollars
Bangladesh	- Imprisonment not exceeding three (3) years or Fine not exceeding three (3) lac taka or both		The Bangladesh Environment Conservation Act (1995)  - 3 Lac taka approx.0.039 US dollars
Barbados	////////////////////////////////////	////////////////////////////////////	<b>Data inconclusive</b>
Belarus			ОБ ОТХОДАХ ЗАКОН РЕСПУБЛИКИ БЕЛАРУСЬ от 25 ноября 1993 г. № 2609-XII  No provisions for punitive actions
Belgium	<p><b>Flanders:</b></p> <p>Imprisonment from 1 (1) month to five (5) years</p> <p><b>Walloon District:</b></p> <p><i>Shipment without prior notification and/or consent or without financial guarantee:</i></p> <p>Imprisonment from eight (8) days to three (3) years</p> <p>-If intentional, prison from one (1) month to five (5) years</p> <p><i>Shipment without orior and/or concsent and/or financial guarantee causing harm to human health:</i></p> <p>Imprisonment from six (6) month to five (5) years</p> <p>-If intentional, imprisonment from five (5) years to</p>	<p><b>Flanders:</b></p> <p>Criminal fine from twelve and a half (12.5) to five hundred and ninety six thousand (596,000.00) Euros</p> <p><b>Wallon Distirct:</b></p> <p><i>Shipment without prior notification and/or consent:</i></p> <p>Criminal fine from two fifty (2.50) to fifty thousand (50,000.00) Euros and from two fifty (2.50) to one hundred twenty five thousand (125,000.00) Euros in the case of intentional offence</p>	<p>European Commission (2007) <a href="http://ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf">ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf</a></p> <p><b>These sanctions relate to illegal shipments of waste</b></p> <p>-2.50 Euros approx.2.83 US dollars -12.5 Euros approx.14.16 US dollars -75.00 Euros approx.85 US dollars -100.00 Euros approx.113.00 US dollars -375.00 Euros approx.425.00 US dollars -25,000.00 Euros approx.28,316.00 US dollars -50,000 Euros approx.56,632.00 US dollars -125,000.00 Euros approx.141,581.00 US dollars</p>

	<p>(unlimited)</p> <p><b>Brussels:</b></p> <p><i>Shipment without a prior notification or consent:</i></p> <p>Imprisonment from three (3) to twelve (12) months</p> <p><i>Intentional false notification:</i></p> <p>Imprisonment from one (1) to six (6) months</p> <p><i>Shipment of waste without a financial guarantee:</i></p> <p>No criminal offence</p>	<p><i>Shipment without prior notification and/or consent causing harm to human health:</i></p> <p>Criminal fine from seventy five (75.00) to fifty thousand (50,000) Euros and From seventy five (75.00) to three hundred thousand (300,000.00) Euros if intentional offence</p> <p><b>Brussels:</b></p> <p><i>Shipment without prior notification and/or prior consent:</i></p> <p>Criminal fine from three hundred seventy five (375.00) to twenty five thousand (25,000.00) Euros and From twenty five thousand (25,000.00) to one hundred thirty thousand (130,000.00) Euros if it concerns dangerous waste</p> <p><i>False notifications:</i></p> <p>Criminal fine from twelve fifty (12.50) to one hundred (100.00) Euros increased if it concerns danegerous waste</p>	<p>-130,000.00 Euros approx.147,244.00 US dollars</p> <p>-300,000.00 Euros approx.339,795.00 US dollars</p> <p>-596,000 Euros approx.675,059.00 US dollars</p>
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Belize	- Offence and on a summary conviction a fine of not less than twenty thousand (20,000.00) dollars or to - Imprisonment for a term not exceeding two (2) years or both	Not specified	Hazardous Waste Regulations (2009)  - 20,000.00 Belize dollars approx. 10,026.00 US dollars
Benin	Imprisonment five (5) to twenty (20) years and a Fine of twenty five million (5,000,000.00) to five hundred million (500,000.00) Francs		Loi-Cadre Sur L'Environnement En Republique du Benin (1999)  - 5,000,000.00 Francs approx. 7,661 US dollars - 500,000,000.00 Francs approx. 766,140 US dollars
Bhutan	- Depending on the magnitude of the offence and the intention of the offender, <b>a criminal penalty of imprisonment ranging from one (1) month to one (1) year may be applied in addition</b> to cost of the environmental damages.	Not specified	National Environment protection Act (2007)
Bolivia	Administrative Offences	Not specified	Ley No. 1333 – Ley Del Medio Ambiente (1992)
Bosnia and Herzegovina	a: Imprisonment three (3) months to three (3) years b: Imprisonment 1 year to 5 years	Not specified	Law on Waste Management
Botswana	a: fine not exceeding P eight thousand (8,000.00) or b: Imprisonment not exceeding seven (7) years	Not specified	Waste Management Act 1998  - 8,000.00 P approx. 836.00 US dollars
Brazil	<b>*- Imprisonment</b> of one (1) to four (4) years and <b>Fine</b>  *- If the crime is involuntary – Penalty, detention of six (6) months to one (1) year and fine	Not specified	National Environmental Council – Resolution N0 452 (2012) *LEI N 9.605 (1998) – punitive actions
Brunei	- Fine not exceeding hundred thousand (100,000.00) US dollars or - Imprisonment for a term not exceeding two (2) years or both	- Fine not exceeding three hundred thousand (300,000.00) US dollars	Hazardous Waste (Control of Export, Import and Transit) Order 2013

Bulgaria	- <b>Fine</b> of five thousand (5,000.00) BGN but not exceeding twenty five thousand (25,000) BGN	<b>Pecuniary Penalty</b> of ten thousand (10,000) BGN but not exceeding fifty thousand (50,000) BGN	Waste Management Act (2012)  -5,000.00 BGN approx. 2,882.00 US dollars -10,000.00 BGN approx. 5,764.00 US dollars -25,000.00 BGN approx.14,40800 US dollars -50,000.00 BGN approx.28,817.00 US dollars
Burkina Faso	- Offence: <b>Imprisonment from twenty (20) to thirty (30) years</b> and a <b>Fine of one hundred million (100,000,000.00) to five hundred million (500,000,000.00) FCFA</b>	Fine (not specified)	CODE DE L'ENVIRONNEMENT (loi n° 002/94)  - 100,000,000.00 FCFA approx.177,253.00 US dollars - 500,000,000.00 FCFA approx. 886,265.00 US dollars
Burundi	- Crime and is liable to a <b>fine of ten (10,000,000.00) million to hundred million (100,000,000.00) F</b> and to <b>imprisonment for five (5) years to twenty (20) years</b> , or one of the penalties	Not specified	LOI N° 1/010 PORTANT CODE DE L'ENVIRONNEMENT DE LA REPUBLIQUE DU BURUNDI 30 JUIN 2000  - 10,000,000.00 F approx.6,424.00 US dollars - 100,000,000.00 F approx.642,235.00 US dollars
Cabo Verde	////////////////////	////////////////////	Currently, there are no punitive actions in place. The legislation is in progress.
Cambodia	- Violation of written order: <b>Administrative Fine from one million (1,000,000.00) Riel to ten million (10,000,000) Riel</b>  - In case of a <b>repeat offense, Fine from twenty one million (21,000,000.00) Riel to thirty million (30,000,000) Riel</b> or <b>Imprisoned from one (1) month to one (1) year</b> or	Not specified	- Sub-Decree on Solid Waste Management N. 36 ANRK.BK (punitive action Ref: Law on Env. Protection and Natural Resource Management – 1996) - Law on Environmental Protection and Natural Resource Management (1996)

	<b>both.</b>  - If the violation causes danger to human bodies or lives, <b>Fine from ten million (10,000,000.00) to fifty million (50,000,000.00) Riel</b> or <b>Imprisoned from one (1) year to five (5) years</b> , or both.		-1,000,000.00 Riel approx.220.00 US dollars -10,000,000.00 Riel approx.2,204.00 US dollars -21,000,000.00 Riel approx.4,629.00 US dollars -30,000,000.00 Riel approx.6,613.00 US dollars -50,000,000 Riel approx.11,022 US dollars
Cameroon	Punished by a Fine of fifty million (50,000,000.00) to five hundred million (500,000,000.00) CFA francs and a Prison sentence	No specified	Loi N 96/12 du 5 Aout 1996 – Portant Loi-Cadre Relative a la Gestion de l’Environnement - 50,000,000.00 CFA Francs approx.86,103.00 US dollars - 500,000,000.00 CFA Francs approx. 861,035 US dollars
Canada	Offence: <b>Fine of five thousand (5,000.00) to one million (1,000,000.00) Canadian dollars</b> and/or - term of <b>Imprisonment of up to three (3) years</b>	Offence: <b>Small-revenue corporations Fine</b> between twenty five thousand (25,000.00) to four million (4,000,000.00) Canadian dollars  <b>Corporations: payable Fines</b> between hundred thousand (100,000.00) to six million (6,000,000.00) Canadian dollars	Environmental Law in Canada (2012)  -5,000.00 Canadian dollars approx.3,986 US dollars -1,000,000.00 Canadian dollars approx.797,130.00 US dollars
Central African Republic	Punishable by hard labour and Fine of ten million and two (10,000,002.00) to five hundred million (500,000,000.00) FCFA		EDITION SPECIALE LOI PORTANT CODE DE L'ENVIRONNEMENT DE LA REPUBLIQUE CENTRAFRICAINE (2008)  - 10,000,002.00 FCFA approx.17,131.00 US dollars - 500,000,000.00 FCFA approx.856,575.00 US dollars

Chad	<ul style="list-style-type: none"> <li>- <b>Imprisonment from two (2) months to six (6) months</b> and a</li> <li>- <b>Fine of thirty thousand (30,000.00) to five hundred thousand (500,000.00) F</b> or one of these penalties</li> <li>- In case of recidivism the penalties are doubled.</li> </ul>	Not specified	LOI N 014/PR/98 DEFINISSANT LES PRINCIPES GENERAUX DE LA PROTECTION DE L'ENVIRONNEMENT  - 30,000.00 F approx. 51.00 US dollars - 500,000.00 F approx. 849.00 US dollars
Chile			- REGLAMENTO SANITARIO SOBRE MANEJO DE RESIDUOS PELIGROSOS – Decreto Supremo N 148 (2003)  The punitive action is determined upon of the respective sanitary investigation, in accordance with the Health Code
China	Not specified	Fine: not more than thirty thousand (30,000.00) yuan	Administrative Measures for Examination and Approval of the Export of Hazardous Wastes (2008)  - 30,000.00 Yuan approx. 4,796.00 US dollars
Colombia	*- <b>Imprisonment of three (3) to eight (8) years</b> and a - <b>Fine of one hundred (100.00) to twenty thousand (20,000.00)</b> statutory minimum monthly wages	Not specified	- LEY No 1252 – 2008 “POR LA CUAL SE DICTAN NORMAS PROHIBITIVAS EN MATERIA AMBIENTAL, REFERENTES A LOS RESIDUOS Y DESECHOS PELIGROSOS Y SE DICTAN OTRAS DISPOSICIONES” - *Ley N° 599 de 2000 (24 de julio) - Por la cual se expide el Código Penal (Artículo 358)
Comoros	- <b>Imprisonment for one (1) to five (5) years</b> and a - <b>Fine of five million (5,000,000.00) CF</b> or one those penalties	Not specified	Loi cadre relative a l'environnement – Loi n 94-018 (1994)  - 5,000,000.00 CF approx. 11,602.00 US dollars
Congo	- <b>Fine of ten million (10,000,000.00) to fifty</b>	Not specified	Loi No.003/91 du 23 Avril 1991 sur la protection de

	<b>million (50,000,000.00) F and a</b> <b>- Sentence of ten (10) to twenty (20) years imprisonment</b>		l'Environnement  - 10,000,000.00 F approx. 107,787.00 US dollars - 50,000,000.00 F approx. 538,935.00 US dollars
Cook Islands	////////////////////////////////////	////////////////////////////////////	<b>No legislation exists that address illegal traffic of hazardous waste</b>
Costa Rica	Offence: Fine of one hundred (100.00) to two hundred (200.00) minimum wages  Crime: Imprisonment from two (2) to fifteen (15) years	Not specified	LEY PARA LA GESTIÓN INTEGRAL DE RESIDUOS (2010) – Leyes 8839
Cote d'Ivoire	- Imprisonment from <b>ten (10) to twenty (20) years and a</b> <b>- Fine of five hundred million (500,000,000.00) to five (5,000,000,000.00) billion Francs</b>		Loi n° 96-766 du 3 octobre 1996 portant Code de l'Environnement  - 100,000,000.00 CFA Franc approx. 176,480.00 US dollars - 5,000,000,000.00 CFA Franc 8,823,978.00 US dollars
Croatia	- Fine for legal or natural person from fifty thousand (50,000.00) to eighty thousand (80,000.00) Kuna		Law on Waste (1995)  - 50,000 Kuna approx. 7,415.00 US dollars - 80,000 Kuna approx. 11,863.00 US dollars
Cuba			- RESOLUCION No. 87/99  - Sanctions are administrative fines, seizures and destruction of waste materials, confiscation and compensation for damage, prohibition to unload and transshipment
Cyprus	Offence and liable to Imprisonment not exceeding three (3) years or to a fine not exceeding twenty thousand (20,000.00) pounds or both	Not specified	ΝΟΜΟΣ ΠΟΥ ΠΡΟΝΟΕΙ ΓΙΑ ΤΗΝ ΔΙΑΧΕΙΡΙΣΗ ΤΩΝ ΣΤΕΡΕΩΝ ΚΑΙ ΕΠΙΚΙΝΔΥΝΩΝ ΑΠΟΒΛΗΤΩΝ (2002) - Law 215 (I) - 20,000.00 pounds approx. 39,138.00 US dollars

Czech Republic	Prison penalty from one (1) to five (5) years  - Imprisonment from two (2) to ten (10) years if the act causes serious injury to health - Imprisonment from eight (8) to fifteen (15) years if the act causes serious injury to two or more persons or death	Not specified	Criminal Code (2007) Provision 186
Democratic People's Republic of Korea	////////////////////////////////////	////////////////////////////////////	<b>Data inconclusive</b>
Democratic Republic of the Congo	<b>- Prison term of five (5) to ten (10) years</b> and a <b>- Fine of one hundred (100,000,000.00) million Congolese Francs to two hundred (240,000,000.00) and forty million Congolese Francs</b> or one of those penalties	Criminal liability not specified	LOI N° 11/009 DU 09 JUILLET 2011 PORTANT PRINCIPES FONDAMENTAUX RELATIFS A LA PROTECTION DE L'ENVIRONNEMENT  - 100,000,000.00 Congolese Francs approx. 108,137.00 US dollars - 240,000,000.00 Congolese Francs approx. 259,528.00 US dollars
Denmark	<b>Prison up to two (2) years</b> (if serious offence that causes damage to the environment or imminent danger for such damage: up to four (4) years)	Criminal fine: no limitation	European Commission (2007) <a href="http://ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf">ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf</a>  These sanctions relate to illegal shipments of waste
Djibouti	<b>- Criminal Sanction: Fine of fifty thousand (50,000.00) to five hundred thousand (500,000.00) Djibouti Franc</b> and a <b>- term of three (3) to six(6) months imprisonment</b> or one of these penalties  - In case of recidivism the fines are doubled.	Not specified	Loi n°106/AN/00/4ème L portant sur le Cadre de l'Environnement.  - 50,000.00 Djibouti Franc approx. 282.00 US dollars - 500,000.00 Djibouti Franc approx. 2,817.00 US dollars

Dominica	<ul style="list-style-type: none"> <li>- Offence and on conviction on indictment to <b>Imprisonment for not more than ten (10) years</b> and a</li> <li>- <b>Fine of three million (3,000,000.00) US dollars</b> or</li> <li>- <b>On summary conviction to a fine of two hundred and fifty thousand (250,000.00) US dollars</b></li> </ul>		Solid Waste Management Act 1 (2002)
Dominican Republic	<ul style="list-style-type: none"> <li>- Natural or legal person: correctional imprisonment of <b>six (6) days to three (3) years</b> and</li> <li>- If they have deceased people because of the violation, the provision of the Penal Code applies</li> <li>- <b>Fine one fourth (1/4) of the minimum wage to ten thousand (10,000.00) current minimum wages</b> in the public sector</li> </ul>		General Environment Law relating to the Environment and Natural Resources, August 2000 (No. 6418-2000)
Ecuador	<ul style="list-style-type: none"> <li>- Shall be punished with <b>Imprisonment of three (3) to five (5) years</b></li> </ul>		LEY DE GESTION AMBIENTAL. LEY NO. 37. RO/ 245 DE 30 DE JULIO DE 1999
Egypt	<ul style="list-style-type: none"> <li>- <b>Imprisonment for a term of not less than five (5) years</b> and a</li> <li>- <b>Fine twenty thousand (20,000.00) to forty thousand (40,000.00) Egyptian Pounds</b></li> <li>- In addition, the violator has to re-export the hazardous wastes at his own expense</li> </ul>	Not specified	<p>The Environment Law and its Executive Regulation (1994)</p> <ul style="list-style-type: none"> <li>- 20,000.00 Egyptian Pounds approx. 2,703.00 US dollars</li> <li>- 40,000.00 Egyptian Pounds approx. 5,406.00 US dollars</li> </ul>
El Salvador	- Administrative Sanction	Not specified	Decreto N° 41 - Reglamento especial en materia de sustancias, residuos y desechos peligrosos
Equatorial Guinea	////////////////////	////////////////////	<b>Data inconclusive</b>
Eritrea	////////////////////	////////////////////	<b>Data inconclusive</b>
Estonia	- Fine of up to three hundred (300) fine units	- Fine of up to fifty thousand (50,000.00) kroons.	<p>Waste Act (2004)</p> <ul style="list-style-type: none"> <li>- 50,000.00 Kroons approx. 4,262.00 US dollars</li> </ul>
Ethiopia	<ul style="list-style-type: none"> <li>- Punishable with fine not exceeding five thousand (5,000.00) Birr, or</li> <li>- Rigorous imprisonment not exceeding three (3) years, or</li> </ul>	Not specified	Proclamation No.414/2004, The Criminal Code of the Federal Democratic Republic of Ethiopia (Article 520)

	with both.		- 5,000.00 Birr approx.247.00 US dollars
Finland	<p>Impairment of the environment: <b>Fine or - Imprisonment for at most two (2) years</b></p> <p>Aggravated impairment of the environment: <b>Imprisonment for at least four (4) months and at most six (6) years.</b></p>	- Fine is at least eight hundred fifty (850) Euros and at most eight hundred thousand (850,000.00) Euros	<p>The Criminal Code of Finland (Chapters 9 and 48)</p> <p>- 850 Euros approx. 965 US dollars - 850,000.00 Euros approx. 965,294.00 US dollars</p>
France	<b>Prison:</b> up to two (2) years and <b>Fine of</b> seventy five thousand (75,000.00) Euros	*Legal person may incur criminal liability and/or fine	<p>Code de l'environnement (these sanctions relate to illegal shipments of waste)</p> <p>*Penal Code</p>
Gabon	<p>- Fine of two (2,000,000.00) million Francs to fifty (50,000,000.00) Francs and</p> <p>- Imprisonment from six(6) months to two (2) years, or one of these penalties</p>	Not specified	<p>Loi n° 16/93 relative à la protection de l'environnement (1993)</p> <p>- 2,000,000.00 Francs approx.3,400.00 US dollars - 50,000,000 Francs approx.85,017.00 US dollars</p>
Gambia	<p>- Fine of not more than one hundred thousand (100,000.00) dalasis or</p> <p>- <b>Imprisonment of not more than six (6) years.</b></p>	- Fine of not more than five hundred thousand (500,000.00) dalasis.	<p>National Environment Management Act (1994)</p> <p>- 100,000.00 Dalasis approx. 2,320.00 US dollars - 500,000.00 Dalasis approx. 11,602.00 US dollars</p>
Georgia	<p>- <b>Fine or by imprisonment for up to two (2) years</b> in length</p> <p>- In case of <b>negligence: Imprisonment ranging from three (3) to five (5) years</b></p> <p>- If <b>negligence caused a person's death or mass illness of humans: Imprisonment up to eight (8) years</b></p>	Not specified	Georgia, Criminal Code (1999) - (Article 288)
Germany	Prison up to five (5) years (except for especially serious environment crime up to ten (10) years)	<p>- No corporate criminal liability</p> <p>- Administrative fine</p>	<p>European Commission (2007) <a href="http://ec.europa.eu/environment/legal/crime/">ec.europa.eu/environment/legal/crime/</a></p>

		up to five hundred thousand (500,000.00) Euros	pdf/crime_annex3.pdf - 500,000.00 Euros approx. 567,875.00 US dollars  <b>These sanctions relate to illegal shipments of waste</b>
Ghana	////////////////////	////////////////////	<b>Data inconclusive</b>
Greece	////////////////////	////////////////////	<b>Data inconclusive</b>
Guatemala	////////////////////	////////////////////	<b>Data inconclusive</b>
Guinea	- Fine of fifty thousand (50,000.00) to one million (1,000,000.00) FG and a - Prison sentence of one (1) to three (3) years	Not specified	Code de la protection et de la mise en valeur de l'environnement Ordonnances n°045/PRG/87  - 50,000.00 FG approx.7.00 US dollars - 1,000,000.00 FG approx. 142.00 US dollars
Guinea-Bissau	////////////////////	////////////////////	<b>Data inconclusive</b>
Guyana	Offence: on summary conviction to a <b>Fine of not less than seventy thousand (70,000.00) dollars nor more than three hundred thousand (300,000.00) dollars</b> and  <b>- Imprisonment for three (3) months</b>	- Fine of not less than twice such prescribed maximum fine, and  - where the offender liable to a prescribed term of imprisonment under any of these Regulations is a body corporate, the body corporate shall be liable to twice such term of imprisonment.	Environmental Protection Act (1996) – (No.11 of 1996)  - 70,000.00 Dollars approx. 338.00 US dollars - 300,000.00 Dollars approx.1,448.00 US dollars
Honduras	- Imprisonment of one (1) to five (5) years	Not specified	LEY GENERAL DEL AMBIENTE - DECRETO No. 104-93
Hungary	- Felony: <b>Imprisonment of up to five (5) years</b>  - In case of negligence: <b>Misdemeanor, Imprisonment of up to two (2) years</b>	*Criminal fine can range from five hundred thousand (500,000.00) Forints to a sum three times the financial advantage the crime originally aimed at.	Act IV of 1978 on the Criminal Code (Article281/A)  * European Commission (2007) ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf  -500,000.00 Forints approx.1,815.00 US dollars

Iceland	Violation: <b>Fines</b> if they are committed intentionally or through gross negligence.  Cases of serious or repeated deliberate violation shall furthermore be liable to Imprisonment for up to four (4) years	Not specified	Regulation 806 (1999) on Hazardous Waste
India	Imprisonment for a term which may extend to five (5) years with Fine which may extend to one lakh Rupees or with both  In case the contravention continues: <b>additional fines which may extend to five thousand (5,000.00) Ruppes for every day</b>	Offence: shall be liable to be proceed against and punished accordingly	The Environment (Protection) Act (1986)  -5,000.00 Ruppes approx.81.00 US dollars
Indonesia	- <b>Imprisonment for five (5) years at the minimum and fifteen (15) years at the maximum and</b> - Fine minimum five billion (5,000,000,000.00) Rupiah and maximum fifteen billion (15,000,000,000.00) Rupiah		Environmental Protection and Management (Law No. 32/2009)  - 5,000,000,000.00 Rupiah approx.401,035.00 US dollars - 15,000,000,000.00 Rupiah approx. 1,203,105.00 US dollars
Iran	- <b>Cash penalty from two million (2,000,000.00) Rls to hundred million (100,000,000.00) Rls</b> - In case of repeating the offence, twice as much as the amount of the cash penalty	Not specified	Waste Management Law (2004)  - 2,000.000.00 Rls approx.73.00 US dollars - 100,000,000.00 Rls approx. 3,647.00 US dollars
Iraq	- Prison time (year is not specified) - Pay compensation	Not specified	Law No 27 of 2009 for Protection and Improvement of Environment
Ireland	- On summary conviction to a fine not exceeding level five (5) on the standard scale - On conviction on indictment to a fine or to imprisonment for a term not exceeding two (2) years or both		163/1998 Waste Management (Hazardous Waste) Regulations
Israel	- Offense: <b>Imprisonment three (3) years</b> or - Fine: <b>three times the fine</b>	- Fine: six times the fine (NS 202,000.00) determined in the	- Hazardous Substances Law 5753-1993 - Penal Law section 61(a) (4)

	<p><b>(NS 202,000.00)</b> determined in the Penal Law</p> <ul style="list-style-type: none"> <li>- Offense committed in an aggravated manner: three (3) years Imprisonment and double the fine which the Court will determine</li> <li>- Continuing offense: the Court may impose additional fine, at the rate of 5% of the fine set for that offense</li> </ul>	<p>Penal Law</p> <ul style="list-style-type: none"> <li>- Offense committed in an aggravated manner: eight times the Fine (NS 202,000.00) determined in the Penal Law</li> </ul>	<p>- 202,000.00 NS approx. 50,382.00 US dollars</p>
Italy	<ul style="list-style-type: none"> <li>- <b>Imprisonment from six (6) months</b> to two (2) years</li> <li>- Fine of five million (5,000,000.00) to fifty million (50,000,000.00) pounds</li> </ul>	Not specified	<p>D.Lgs. 5 febbraio 1997, n. 22. Attuazione della direttiva 91/156/CEE sui rifiuti, della direttiva 91/689/CEE sui rifiuti pericolosi e della direttiva 94/62/CE sugli imballaggi e sui rifiuti di imballaggio</p> <p>- 5,000,000.00 pounds approx. 7,609,000 US dollars - 50,000,000.00 pounds approx. 76,090,000 US dollars</p>
Jamaica	<ul style="list-style-type: none"> <li>- Offence: <b>on summary conviction a Fine not exceeding fifty thousand (50,000) dollars</b> or</li> <li>- <b>Imprisonment for a term not exceeding two (2) years</b> or both</li> </ul>	Not specified	<p>The Natural Resources Conservation Authority Act (2002)</p> <p>- 50,000.00 Jamaican Dollars approx. 434.00 US dollars</p>
Japan	<ul style="list-style-type: none"> <li>- <b>Imprisonment with labour of not more than three (3) years</b> or a</li> <li>- <b>Fine of not more than three million (3,000,000.00) yen</b>, or both</li> </ul>	Fine: set forth in the relevant Article.	<p>Law for the Control of Export, Import &amp; Others of Specified Hazardous Wastes and Other Wastes (1992)</p> <p>- 3,000,000.00 yen approx. 25,473.00 US dollars</p>
Jordan	<ul style="list-style-type: none"> <li>- <b>Imprisonment not less than three (3) years and not exceeding fifteen (15) years</b></li> <li>- Fine of not less than twenty thousand (20,000.00) Dinars</li> </ul>	Not specified	<p>Environmental Protection Law No. 52 of 2006</p> <p>- 20,000 Dinars approx. 28,193.00 US dollars</p>

Kazakhstan	- Fine up to <b>ten (10) monthly calculation indices.</b>	- Small business: <b>Fine up to twenty (20) to fifty (50) monthly calculation indices</b>  - Large business: <b>Fine up to seventy (70) to one hundred (100) monthly calculation indices</b> (no calculation provided)	Administrative Offences Code (2001)
Kenya	-Offence: on <b>conviction, imprisonment</b> for a term of <b>not less than two (2) years or to a fine of not less than one million (1,000,000.00) shillings</b> or to both.	Not specified	Environmental Management and Co-ordination Act (1999) (Revised in 2012)  - 1,000,000.00 Schillings approx. 10,892.00 US dollars
Kiribati	////////////////////	////////////////////	Legislation: in preparation (Secretariat of the Basel Convention)
Kuwait	////////////////////	////////////////////	<b>Data inconclusive</b>
Kyrgyzstan	Natural or legal persons guilty of violations shall be liable in accordance with the legislation of the Kyrgyz Republic		ПОЛОЖЕНИЕ О ГОСУДАРСТВЕННОМ РЕГУЛИРОВАНИИ ТРАНСГРАНИЧНЫХ ПЕРЕВОЗОК ОПАСНЫХ И ДРУГИХ ОТХОДОВ (Governmental Order No.193 on transboundary movement of hazardous Waste)
Lao People's DR	////////////////////	////////////////////	<b>Data inconclusive</b>
Latvia	***The applicable sentence: Imprisonment not exceeding six (6) years (substantial harm caused to the environment or human health) or a  ***Fine not exceeding one hundred (100.00) and twenty times the minimum monthly wage	*Criminal penalty: monetary levy** (not less than one thousand (1,000.00) and not exceeding ten thousand (10,000.00) times the minimum monthly wage specified in the Republic of Latvia	*European Commission (2007) <a href="http://ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf">ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf</a>  **IMF Country report No. 07/189 (2007)  ***The Criminal Law (Section 99)
Lebanon	////////////////////	////////////////////	<b>Data inconclusive</b>
Lesotho	- Offence: on conviction to a fine not less than twenty thousand (20,000.00) M or	- Offence committed under this Act, the director or officer of	Environment Act 2008  -20,000.00 M

	- Imprisonment for a term not less than ten (10) years or to both	the corporation shall also be deemed to be guilty of the offence  - In the case of partnership, every partner or officer of that body shall also be deemed to be guilty of that offence	approx.6,817.00 US dollars
Liberia	Offence: on conviction liable to a Fine not exceeding fifty thousand (50,000.00) US dollars or to Imprisonment for a period not exceeding twenty (20) years or to both		An Act Adopting the Environment protection and Management Law of the Republic of Liberia (2002)
Libya	////////////////////	////////////////////	<b>Data inconclusive</b>
Liechtenstein			Due to the customs treaty between Liechtenstein and Switzerland, the procedure in the movement of goods and waste in Liechtenstein is delegated to the Swiss authorities.
Lithuania	<p>* - Poses a threat to the life or health of a large number of people or this could have caused major damage to the environment shall be punished by a <b>fine or by restriction of liberty or by arrest or by imprisonment for a term of up to three (3) years</b></p> <p>*- Causes major damage or other serious consequences to the environment, shall be punished by a <b>fine or by arrest or by imprisonment for a term of up to six (6) years</b></p> <p>*- Causes minor damage or negligible consequences to the environment, shall be considered to have committed a misdemeanour and shall be punished by community service or by a fine or by restriction of liberty or by arrest</p>		<p>Law on Waste Management (1998)</p> <p>*Criminal Code (Article 270)</p>
Luxembourg	- Imprisonment from <b>eight (8) days to six (6) months</b> and a  - <b>Fine of two thousand five hundred and one (2,501.00) to five million (5,000,000.00) francs</b> or one of these penalties	Not specified	Loi du 17 juin 1994 relative à la prévention et à la gestion des déchets.
Madagascar	////////////////////	////////////////////	<b>In preparation</b> (SADC Environmental Legislation handbook (2012)

			<a href="http://www.saiea.com/dbsa_handbook_update2012/pdf/c_hapter07.pdf">http://www.saiea.com/dbsa_handbook_update2012/pdf/c_hapter07.pdf</a> .
Malawi	<ul style="list-style-type: none"> <li>- Offence: <b>on conviction, Fine of not less than twenty thousand (20,000) K and not more than one million (1,000,000.00) K</b> and</li> <li>- <b>Imprisonment for ten (10) years</b></li> </ul>	Not specified	Environment Management Act (No. 23 of 1996)  - 20,000.00 K approx.44.00 US dollars - 1,000,000.00 K approx.2208.00 US dollars
Malaysia	<ul style="list-style-type: none"> <li>- Offence: <b>Fine not exceeding five hundred thousand (500,000.00) Ringgit</b> or</li> <li>- <b>Imprisonment for a period of not exceeding five (5) years</b> or both</li> </ul>	Not specified	Environmental Quality Act (1974)  -500,000.00 Ringgit approx.140,339.00 US dollars
Maldives	<ul style="list-style-type: none"> <li>- <b>Minor offences in breach of the Act: Fine ranging between five (5) – five hundred (500.00) Rufiyaa</b> (depending on the actual gravity of the offence)</li> <li>- <b>All major offences under this Act: Fine not more than one hundred million (100,000,000.00) Rufiyaa</b> (depending on the seriousness of the offence)</li> </ul>	Not specified	Environment Protection and Preservation Act of Maldives (Law No:4/93)  - 5.00 Rufiyaa approx.0.33 US dollars - 500.00 Rufiyaa approx.32.54 US dollars - 100,000,000.00 Rufiyya approx.6,506,181.00 US dollars
Mali	<ul style="list-style-type: none"> <li>- Imprisonment from <b>one (1) year to two (2) years</b> and a</li> <li>- <b>Fine of one million (1,000,000.00) CFA to ten million (10,000,000.00) CFA</b> or one of these penalties</li> <li>- For repeat offences fines and penalties could be doubled</li> </ul>	<ul style="list-style-type: none"> <li>- Fine of <b>one million (1,000,000.00) CFA to ten million (10,000,000.00) CFA</b> or one of these penalties</li> </ul>	Loi N°01-020/DU 30 Mai 2001 Relative Aux Pollutions Et Aux Nuisances  - 1,000,000.00 CFA approx. 1,722.00 US dollars - 10,000,000.00 CFA approx.17,226.00 US dollars
Malta	<ul style="list-style-type: none"> <li>- Offence: <b>on a first conviction, Fine of not less than five hundred (500.00) LM but not exceeding fifty thousand (50,000.00) LM</b></li> <li>- On a second or subsequent conviction, <b>Fine of not less than one thousand</b></li> </ul>	<ul style="list-style-type: none"> <li>*- Criminal Fine from one thousand one hundred and fifty five (1,155.00) Euros to one hundred fifteen thousand and five hundred (115,500.00)</li> <li>*- In case of re-</li> </ul>	Environment Protection Act (L.N. 205 of 2000) * European Commission (2007) <a href="http://ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf">ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf</a>

	(1,000.00) LM but not exceeding one hundred thousand (100,000.00) LM or - Imprisonment for a term not exceeding two (2) years or both	offending, fine from two thousand three hundred (2,300.00) Euros to one hundred thousand (100,000.00) Euros  These sanctions relate to illegal shipments of waste	- 500.00 LM approx. 1,304.00 US dollars - 50,000.00 LM approx. 130,520.00 US dollars - 1,000.00 LM approx. 2,610 US dollars - 100,000.00 LM approx. 261,041.00 US dollars
Marshall Islands	////////////////////	////////////////////	<b>Data Inconclusive</b>
Mauritania	- Life Imprisonment - Death penalty when the crime results in death of man	- Offense: the responsibility lies with the leaders of the entity. However, any individual proposed or not that company or enterprise, which without perpetrator or accomplice, will nevertheless competed negligent because of the functions which it assumes in the management, control or supervision of the activity, <b>shall be punished by five (5) to ten (10) years imprisonment and a fine of four million (4,000,000.00) to sixty (60,000,000.00) million UM</b>	Loi n° 2000-045 portant Code de l'Environnement  - 4,000,000.00 UM approx. 13,701.00 US dollars - 60,000,000.00 UM approx. 205,518.00 US dollars
Mauritius	- On a first conviction: <b>Fine not exceeding fifty thousand (50,000.00) Rs and Imprisonment for a term not exceeding two (2) years</b>  - On a second or subsequent offence: <b>Fine not exceeding one hundred thousand (100,000.00) Rs and Imprisonment for a term not exceeding eight (8) years</b>	Not specified	Guidance Notes for the Implementation of the Environment (Standards for Hazardous Wastes) Regulations 2001  - 50,000.00 Rs approx. 1,524.00 US dollars - 100,000.00 Rs approx. 3,048.00 US dollars

Mexico	Administrative Sanctions (Fine)	Not specified	LEY GENERAL PARA LA PREVENCIÓN Y GESTIÓN INTEGRAL DE LOS RESIDUOS
Micronesia	////////////////////	////////////////////	<b>Data inconclusive</b>
Monaco	////////////////////	////////////////////	<b>Data inconclusive</b>
Mongolia	In case of no criminal liability: Fine between thirty five thousand (35,000.00) and fifty thousand (50,000.00) MNT	In case of no criminal liability: Fine between one hundred fifty thousand (150,000.00) and two hundred fifty thousand (250,000.00) MNT	- Law on the Import, Export and Cross-border Transport of Hazardous Wastes (2000)  - 35,000.00 MNT approx.18.00 US dollars - 50,000.00 MNT approx.26.00 US dollars - 150,000.00 MNT approx.77.00 US dollars - 250,000.00 MNT approx. 129.00 US dollars
Montenegro			Environment Law "Official Gazette of the Republic of Montenegro, No 12/1996" <b>- Punitive actions are not established</b>
Morocco	////////////////////	////////////////////	<b>In progress</b>
Mozambique			Decreto n. 13/2006 REGULAMENTO SOBRE A GESTÃO DE RESÍDUOS <b>- No provision</b>
Namibia	////////////////////	////////////////////	<b>Data inconclusive</b>
Nauru	////////////////////	////////////////////	<b>Data inconclusive</b>
Nepal	- Fine: from <b>fifty thousand (50,000.00) to one hundred thousand (100,000.00) Rupees</b> - If the same offence committed again the fine is doubled	Not specified	Solid Waste Management Act (2011)  - 50,000.00 Rupees approx.508.00 US dollars - 100,000.00 Rupees approx.1,1016 US dollars
Netherlands	Maximum six (6) years prison and a fine of seventy six thousand (76,000.00) Euros	Maximum fine seventy six hundred thousand (760,000) Euros per offence	Secretariat of the Basel Convention (2012)
New Zealand	Offence: on summary <b>conviction Imprisonment for a term not exceeding three (3) months or a Fine not exceeding five hundred thousand (500,000.00) US dollars.</b>  If the offence is a continuing one, <b>further Fine not exceeding fifty thousand (50,000.00) US dollars for every day</b> or part of a day during which the offence has continued		Hazardous Substances and New Organisms Act 1996

Nicaragua	<p>*- Imprisonment from six(6) months to two (2) years</p> <p>- Fine ten thousand (10,000.00) Cordobas</p>	Fine: fifty thousand (50,000.00) Cordobas	<p>LEY QUE PROHIBE EL TRAFICO DE DESECHOS PELIGROSOS Y SUSTANCIAS TOXICAS</p> <p>LEY No. 168 de 1 de diciembre de 1993</p> <p>*Código Penal (Ley N° 641) – Artículo 331</p> <p>- 10,000.00 Cordobas approx.375.00 US dollars</p> <p>- 50,000.00 Cordobas approx.1,874.00 US dollars</p>
Niger	////////////////////////////////////	////////////////////////////////////	<b>Data inconclusive</b>
Nigeria	- Imprisonment for life	- Crime and shall be liable to be proceeded against and punished accordingly	Harmful Waste (Special Criminal Provision) Act – Chapter 165
Norway	<p>- Coercive Fine</p> <p>*There is a proposal for penalty up to two (2) years in addition to fines for illegal transboundary movements of waste.</p>		<p>FOR 2004-06-01 nr 930: Forskrift om gjenvinning og behandling av avfall (avfallsforskriften)</p> <p>*Norwegian minister proposes heavier penalty for illegal waste export</p>
Oman	////////////////////////////////////	////////////////////////////////////	<b>Data inconclusive</b>
Pakistan	<p>- <b>Fine</b> that may extend to <b>one million (1,000,000.00) rupees,</b></p> <p>- in the case of a continuing contravention or failure, with an <b>additional fine that may extend to one hundred thousand (100,000.00) rupees for every day</b> during which such contravention or failure continues.</p>	Corporate liability exists, however the nature of the punitive action is not determined.	<p>Environmental Protection Act 1997</p> <p>-100,000.00 Rupees approx.9,914 US dollars</p> <p>-1,000,000.00 Rupees approx.991.00 US dollars</p>
Palau	////////////////////////////////////	////////////////////////////////////	<b>Data inconclusive</b>
Panama			ACUERDO REGIONAL SOBRE MOVIMIENTO TRANSFRONTERIZO DE DESECHOS PELIGROSOS (1992) – <b>No punitive action established</b>

Papua New Guinea	- Convicted on offense: <b>Fine</b> not exceeding one hundred thousand <b>(100,000.00) K</b> or <b>imprisonment for a term not exceeding two (2) years, or both.</b>	Fine: one hundred thousand (100.000) K	Environment Act 2000 (Article 133 (2) zb)  - 100,000.00 K approx. 34,000.00 US dollars
Paraguay	<b>Prohibits any import of hazardous waste for individual or legal entity.</b>  <b>- Crime against human and environmental health: Imprisonment from 2 to 10 years and also, as appropriate with the penalty of dismissal of the officials involved and disqualification to hold public office or trade to 15 years.</b>		LEY No 42/90 QUE PROHÍBE LA IMPORTACIÓN, DEPÓSITO, UTILIZACIÓN DE PRODUCTOS CALIFICADOS COMO RESIDUOS INDUSTRIALES PELIGROSOS O BASURAS TÓXICAS Y ESTABLECE LAS PENAS CORRESPONDIENTES POR SU INCUMPLIMIENTO
Peru	////////////////////////////////////	////////////////////////////////////	<b>Data inconclusive</b>
Philippines	<b>- Imprisonment of twelve (12) years and one day to twenty (20) years, shall be imposed upon any person</b>  - the offender is a foreigner, he or she shall be deported and barred from any subsequent entry into the Philippines after serving his or her sentence;	<b>- Five hundred thousand pesos (P500,000.00)</b>  - it is a foreign firm, the director and all officers of such foreign firm shall be barred from entry into the Philippines, in addition to the cancellation of its license to do business in the Philippines.	Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990 (Republic Act No. 6969)  - P500,000.00 approx. 11,202 US dollars
Poland	- Imprisonment from 3 months to 5 years  - if the act specified unintentional, subject to a fine, imprisonment or imprisonment for 2 years.	*No criminal and administrative fine	1956 USTAWA z dnia 30 lipca 2004 r. o międzynarodowym obrocie odpadami  * European Commission (2007) <a href="http://ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf">ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf</a>

Portugal	<p>- No provision for criminal sanction</p> <p>- Fine between two hundred thousand (200,000.00) and five hundred thousand (500,000.00) US dollars</p>	<p>- No criminal liability established</p> <p>- Fine up to six million (6,000.000.00) US dollars</p>	Decreto-Lei no 296/95 de 17 de Novembro de 1995
Qatar	<p>- Sentenced to remain in <b>jail for minimum three (3) years and maximum ten (10) years</b> and</p> <p>- to pay a <b>fine that isn't less than two hundred thousand (200,000.00) riyals and doesn't exceed five hundred thousand (500,000,00) riyals</b>, or he shall be submitted to one of these penalties.</p>		<p>DECREE-LAW NO. (30) OF 2002 ENVIRONMENT PROTECTION</p> <p>- 200,000.00 riyals approx. 54,931.00 US dollars</p> <p>- 500,000.00 riyals approx. 137,327.00 US dollars</p>
Republic of Korea	<p>- <b>Imprisonment for not more than five (5) years</b> or</p> <p>- <b>Fine not exceeding thirty million (30,000.000.00) won</b></p>	Fine: not exceeding thirty million (30,000.000) won	<p>Act on the Control of Transboundary Movements of Hazardous Waste and their Disposal (1992)</p> <p>- 30 million won approx. 27,791.00 US dollars</p>
Republic of Moldova	<p>(1) <b>Fine in the amount of 200 to 600 conventional units or by imprisonment for up to 3 years</b>, whereas a <u>legal entity</u> shall be punished by a <b>fine in the amount of 1000 to 3000 conventional units</b> with the deprivation of the right to practice certain activities.</p> <p>(2) The same actions</p> <p>2. c) resulting in polluting, poisoning or infecting the environment;</p> <p><b>Fine in the amount of 300 to 800 conventional units or by imprisonment for up to 5 years</b>, whereas a <u>legal entity</u> shall be punished by a <b>fine in the amount of 3000 to 5000 conventional units</b> with the deprivation of the right to practice certain activities or by the liquidation of the legal entity.</p> <p>(3) a) massive infections of people; b) the death of a person was caused</p> <p><b>Imprisonment for three (3) to seven (7) years</b>, whereas a <u>legal entity</u> shall be punished by a <b>fine in the amount of 5000 to 10000 conventional units</b></p>		The Criminal Code of the Republic of Moldova (2009) Article 224 (1), (2), (3), (4)

	with the deprivation of the right to practice certain activities or by the liquidation of the legal entity.  (4) The actions set forth in par. (1) resulting in death of two or more persons: <b>Imprisonment for 5 to 10 years</b> , whereas a <b>legal entity shall be punished by a fine in the amount of 5000 to 10,000 conventional units</b> with the deprivation of the right to practice certain activities or by the liquidation of the legal entity.		
Romania	<p>*- Imprisonment from two (2) to seven (7) years</p> <p>*- Endangered the health of a great number of persons, penalty shall be imprisonment from three (3) to ten (10) years</p> <p>*- If the death of one or several persons was caused, the penalty shall be severe detention from twenty (20) to twenty five (25) years</p> <p><b>These sanctions relate to illegal shipments of toxic waste and residue</b></p>	<p>Criminal Fine from two hundred ninety six (296.00) to two hundred twenty two thousand six hundred forty nine (222,649.00) Euros</p> <p><b>These sanctions relate to illegal shipments of waste</b></p>	<p>European Commission (2007) <a href="http://ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf">ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf</a></p> <p>- 296.00 Euros approx.342 US dollars - 222,649.00 approx.257,404.00 US dollars</p> <p>*The Criminal Code (Article 382)</p>
Russian Federation	<p>1. - <b>Fine in the amount of two hundred (200) to five hundred (500) minimum wages</b>, or in the amount of the wage or salary, or any other income of the convicted person for a period of two to five months, or - <b>Imprisonment three (3) years,</b> - <b>or by deprivation of liberty for a term of up to two (2) years.</b></p> <p>2. The same acts, which have involved the pollution, poisoning, or contamination of the environment, the infliction of harm on human health or mass-scale injury</p>	Not specified	<p>The Criminal Code of the Russian Federation (1996) Article 247</p>

	<p>to of animals, and likewise acts committed in a zone of ecological distress or in a zone of ecological emergency,</p> <p>- <b>Imprisonment for up to five (5) years.</b></p> <p>3. Acts provided for by the first or second part of this Article, and entailing by negligence the death of a man or mass disease inflection of people,</p> <p>- <b>Imprisonment for a term of three (3) to eight (8) years.</b></p>		
Rwanda	<p>- <b>Imprisonment</b> ranging from <b>ten (10) to twenty (20) years</b> and a</p> <p>- <b>Fine</b> ranging from <b>fifty million (50,000,000) to two hundred million (200,000,000) Rwandan francs.</b></p>	Not specified	<p>Organic Law determining the modalities of protection, conservation and promotion of environment in Rwanda (N° 04/2005 of 08/04/2005)</p> <p>- 50,000,000.00 Rwandan francs approx.72,677.00 US dollars</p> <p>- 200,000,000.00 Rwandan francs approx.290,708.00 US dollars</p>
Samoa	<p>- Offence and shall be liable upon conviction to a <b>fine not exceeding 1,000 penalty units or to imprisonment for a term not exceeding five (5) years, or both.</b></p>	Not specified	<p>Waste Management (No. 13/2010)</p> <p>Penalty unit shall be the amount of “\$100” for each penalty unit (<a href="http://www.paclii.org/ws/legis/num_act/faaa1998241.rtf">http://www.paclii.org/ws/legis/num_act/faaa1998241.rtf</a>.)</p>
Sao Tome and Principe	////////////////////////////////////	////////////////////////////////////	<b>Data inconclusive</b>
Saudi Arabia	////////////////////////////////////	////////////////////////////////////	<b>Data inconclusive</b>
Senegal	<p>- <b>Fine of ten million (10,000,000.00) to fifty million (50,000,000.00) FCFA and imprisonment of one (1) to five (5) years</b> (smuggled imports hazardous toxic waste to Senegalese territory)</p>		<p>Loi portant Code de l’environnement (2001)</p> <p>- 1 million (1,000,000.00) FCFA approx.1767 US dollars</p> <p>- 10 million (10,000,000.00) FCFA approx. 17,646.00 US dollars</p>

	<p>- <b>Fine of one million (1,000,000.00) to ten million (10,000,000.00) FCFA</b> and a penalty of <b>imprisonment of two (2) to five (5) years</b> (imported, produced, owned or used contrary to the regulations)</p> <p><b>In the case of recidivism, the maximum penalties are doubled.</b></p>		<p>- 50 million (50,000,000.00) FCFA approx.88,230.00 US dollars</p>
Serbia	<p>*- Imprisonment up to three (3) years</p> <p>*- Organizes committing of such offence, shall be punished by imprisonment of one (1) to eight (8) years</p>	<p>Commercial Offences: Fine ranging from 150,000 to 3,000,000 dinars</p>	<p>Law on Environmental Protection</p> <p>*Criminal Code (Article 266)</p>
Seychelles	<p>- Imprisonment for <b>six (6) years and a fine of two hundred fifty thousand (250,000.00) R</b></p> <p>- If the offence is continued after conviction, is liable to a further <b>fine of five thousand (5,000.00) R for each day</b> during which the offence is so continued.</p>	<p>There is a provision in the act for corporate liability (the individual(s) are punished according to the Act.</p>	<p>Environment Protection Act (1994)</p> <p>-250,000.00 R approx.17,798.00 US dollars</p> <p>-5,000.00 R approx.355.00 US dollars</p>
Singapore	<p>- Fine not exceeding <b>\$50,000 or to imprisonment for a term not exceeding 2 years or to both</b> and,</p> <p>- in the case of a continuing offence, to a further <b>fine not exceeding \$2,000 for every day</b> or part thereof during which the offence continues after conviction.</p>	<p>Not specified</p>	<p>Environmental Protection and Management Act (Chapter 94A)</p>
Slovakia	<p>- Imprisonment of <b>one (1) to five (5) years</b>.</p>	<p>*Fine up to two million one thousand sixty eight hundred</p>	<p>Criminal Code (2005) Section 298</p>

	<p>- Imprisonment of <b>ten (10) to (20) twenty years if causes grievous bodily harm or death through its commission</b></p> <p>- Imprisonment of <b>twenty (20) to twenty-five (25) years or to life imprisonment if causes grievous bodily harm or death to several persons through its commission</b></p>	<p>and eight hundred eighteen (2,168.818) Euros</p> <p>This sanction relate to illegal shipments of waste</p>	<p>*European Commission (2007) ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf</p>
Slovenia	- Imprisonment for not more than <b>three (3) years.</b>	Not specified	Penal Code (2004) Article 335
Somalia	////////////////////	////////////////////	<b>Data inconclusive</b>
South Africa	- Fine or to imprisonment for a period not exceeding two (2) years or to both.	Not specified	Hazardous Substances Act (No. 15 of 1973)
Spain	Administrative fine from fifty million and one (50,000,001.00) to two hundred million (200,000,000.00) Pesetas		<p>Ley 10/1998, de 21 de abril, de Residuos. BOE número 96 (1998)</p> <p>- 50,000,001.00 Pesetas approx.339,743.00 US dollars</p> <p>- 200,000,000.00 Pesetas approx.1,358,975.00 US dollars</p>
Sri Lanka	*Offence: on conviction, Imprisonment not exceeding two (2) years or to a Fine not exceeding one thousand five hundred (1,500.00) Rupees or both		<p>Guidelines for the Implementation of Hazardous Waste Management Regulations (1999)</p> <p>*National Environmental Act (1980)</p>
St. Kitts and Nevis	<p>- Summary conviction, <b>Fine not exceeding two hundred fifty thousand (250,000.00) US dollars</b></p> <p>- On conviction on indictment, <b>Fine not exceeding five million (5,000,000.00) US dollars and imprisonment for a term not exceeding ten (10) years</b></p>		The Solid Waste Management Bill, 2001
St. Lucia	////////////////////	////////////////////	<b>Data inconclusive</b>
St. Vincent and the Grenadines	////////////////////	////////////////////	<b>Data inconclusive</b>
Sudan	////////////////////	////////////////////	<b>Data inconclusive</b>
Suriname	////////////////////	////////////////////	<b>Data inconclusive</b>

Swaziland	<p>- Offence and is liable on conviction to a <b>fine not exceeding twenty five thousand (25,000.00) Emalangeni</b> and</p> <p>- On a second or subsequent conviction, to a fine not exceeding <b>fifty thousand (50,000.00) Emalangeni and imprisonment to a term not exceeding two (2) years, or both.</b></p>	<p>- Offence and is liable on conviction to a <b>fine not exceeding twenty five thousand (25,000.00) Emalangeni</b> and</p> <p>- On a second or subsequent conviction, to a fine not exceeding <b>fifty thousand (50,000.00) Emalangeni</b></p>	<p>The Waste regulation (2000)</p> <p>- 20,000.00 Emalangeni approx. 2,185.00 US dollars</p> <p>- 50,000.00 Emalangeni approx. 4,297.00 US dollars</p>
Sweden	<p>- Prison up to two (2) years or</p> <p>- Prison from six (6) months up to six (6) years if the offence is serious</p>	<p>No criminal sanction</p> <p>Administrative sanction from Euros five hundred (500.00) to one hundred thousand (100,000.00) Euros</p>	<p>European Commission (2007)</p> <p><a href="http://ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf">ec.europa.eu/environment/legal/crime/pdf/crime_annex3.pdf</a></p> <p>- Euros 500.00 approx. 582 US dollars</p> <p>- Euros 100,000.00 approx. 116330 US dollars</p> <p><b>These sanctions relate to illegal shipments of waste</b></p>
Switzerland	- Imprisonment three (3) years or fine (20,000.00) Francs	Not specified	Loi federale sur la protection de l'environnement – (Etat le 1 Juillet 2014)
Syrian Arab Republic	////////////////////	////////////////////	<b>Data inconclusive</b>
Thailand	- Imprisonment <b>not exceeding one (1) year</b> or a <b>fine not exceeding one hundred thousand (100,000.00) Baht</b> or both.	Not specified	<p>HAZARDOUS SUBSTANCE ACT B.E. 2535</p> <p>- 100,000.00 (Baht) approx. 3,059.00 US dollars</p>
The Former Yugoslav Republic of Macedonia	- Fine ranging from three thousand (3,000.00) to ten thousand (10,000.00) Denars	- Fine for misdemeanour with a fine ranging from one hundred thousand (100,000.00) to three hundred thousand (300,000.00) denars.	<p>Law on Waste Management (2004)</p> <p>- 3,000.00 Denars approx. 56.00 US dollars</p> <p>- 10,000.00 Denars approx. 186.00 US dollars</p> <p>- 100,000.00 Denars approx. 1,884.00 US dollars</p> <p>- 300,000.00 Denars approx. 5,654.00 US dollars</p>

Togo	- Life Imprisonment	<p>- If the offense was committed within the framework of the activity of a legal person, the responsibility lies with the leaders of the company or enterprise.</p> <p>- However, any individual worker or not that company or enterprise which without being perpetrator or accomplice, will nevertheless competed negligent because of the functions it assumes in the management, control or supervision of the activity shall be punishable by <b>five (5) to ten (10) years imprisonment and a fine of five (5,000,000.00) million to hundred (100,000,000.00) million CFA francs.</b></p>	<p>LOI N 88-14 DU 3 NOVEMBRE 1988 INSTITUANT CODE DE L'ENVIRONNEMENT</p> <p>- 5,000,000.00 (CFA Francs) approx.8,831.00 US dollars - 100,000,000.00 (CFA Francs) approx.176,635.00 US dollars</p>
Tonga	- Fine not exceeding <b>\$500,000 or to imprisonment for a term not exceeding twenty (20) years</b> imprisonment.	- <b>Fine not exceeding \$1,000,000.</b>	Hazardous Wastes and Chemicals Act 2010
Trinidad and Tobago	- Fine of five hundred thousand (500,000) dollars and two (2) years imprisonment.	Not specified	<p>The Waste Management Rules, 2008</p> <p>- 500,000.00 dollars approx.78,660.00 US dollars</p>
Tunisia	<p>- Punishable by Imprisonment from one (1) month to five (5) years and a</p> <p>- Fine of ten thousand (10,000.00) to five hundred (500,000.00) Dinars</p>	Pecuniary penalty	<p>Loi n. 96-41 du 10 juin 1996, relative aux dechets et au controle de leur gestion et de leur elimination</p> <p>- 10,000.00 Dinars approx.5,177.00 US dollars</p>

			- 500,000.00 Dinars approx. 258,834.00 US dollars
Turkey	- Imprisonment from two (2) months to one (1) year.	Not specified	Criminal Code Law Nr. 5237 (2004) Article 193
Turkmenistan	Penalty or Suspension (not defined the terms)	Termination	ЗАКОН ТУРКМЕНИСТАНА Об охране природы (2014)
Uganda	- Offence: <b>Imprisonment for a term of not less than thirty six (36) months</b> and to a fine of not less than three hundred and <b>sixty thousand (300,060.00) and not more than thirty six (36,000,000.00) million or both.</b>	Not specified	The National Environment Statute (1995)  - 300,060.00 (Ugandan Shilling) approx. 104.00 US dollars - 36,000,000.00 (Ugandan Shilling) approx. 12,423.00 US dollars
Ukraine	////////////////////////////////////	////////////////////////////////////	<b>Data inconclusive</b>
United Arab Emirates	- <b>Imprisonment and fine</b> not less than one hundred and fifty thousand <b>(150,000.00) Dirhams and not exceeding one million (1,000,000.00) Dirhams</b>		Protection and Development of the Environment (Federal Law No. (24) of 1999)  - 150,000.00 Dirhams approx. 40,837.00 US dollars - 1,000,000.00 Dirhams approx. 272,246.00 US dollars
United Kingdom of Great Britain and Northern Ireland	Offence, liable on summary conviction, to a fine not exceeding the statutory maximum or to imprisonment not exceeding three (3) months or to both;  Offence, liable: on conviction on indictment, to a fine or to imprisonment for a term not exceeding two (2) years or to both.		The Transfrontier Shipment of Waste Regulations 2007
United Republic of Tanzania	- On conviction: fine of not less than fifty thousand (50,000.00) shillings but not exceeding fifty million (50,000,000.00) shillings or to imprisonment for a term of not less than three (3) months but not exceeding seven (7) years or to both.	Civil proceeding	The Environmental Management Act 2004  - 50,000.00 (schillings) approx. 28.00 US dollars - 50,000,000.00 (schillings) approx. 27,592.00 US dollars
Uruguay	Punished with Imprisonment twelve (12) months to twelve (12) years  (Special aggravating circumstances: if the act	Punished by Fine of one thousand (1,000.00) indexed units to ten thousand (10,000.00) indexed units	Ley No 17.220 Prohibise La Introduccion En Calquier Forma o Bajo Cualquier Regimen en las Zonas Sometidas a la Jurisdiccion Nacional, de Todo Tipo de

	results in death or injury to a person or persons and if the act proves environmental damage)		Desechos Peligrosos (1999)
Uzbekistan	The punitive action is not determined	Not specified	ЗАКОН РЕСПУБЛИКИ УЗБЕКИСТАН «ОБ ОТХОДАХ» (2002)
Venezuela	<ul style="list-style-type: none"> <li>- Imprisonment from three (3) months to one (1) year and a</li> <li>- Fine three hundred (300) tax units to one thousand (1,000.00) tax units</li> </ul>	Not specified	LEY SOBRE SUSTANCIAS, MATERIALES Y DESECHOS PELIGROSOS (No 5554 Ext. DEL 13-11-2001 <a href="http://www.acnur.org/biblioteca/pdf/6665.pdf?view=1">http://www.acnur.org/biblioteca/pdf/6665.pdf?view=1</a>
Viet Nam	Depending on the nature and seriousness of the breach, be subject to an administrative penalty or be criminally prosecuted		Law on Protection of the Environment, National Assembly No. 52/2005-QH11
Yemen	Address the matter concerning both (individual and corporate) but the penalty is not detailed in the law.		Environment Protection Law (No. 26 of 1995)
Zambia	<ul style="list-style-type: none"> <li>- Offence: upon conviction, to a <b>fine not exceeding one million (1,000,000.00) penalty units</b>, or to</li> <li>- <b>Imprisonment for a period not exceeding ten (10) years, or to both</b></li> </ul>	Not specified	<p>The Environmental Management Act (2011)</p> <p>- a penalty unit is twenty ngwee (the 1,000,000.00 penalty units is less than 40.00 US dollars taking the Zambian kwacha into consideration)</p>
Zimbabwe	<p>Convicted on Offence:</p> <ul style="list-style-type: none"> <li>- On a first conviction, to a <b>fine not exceeding level fourteen (14) or to imprisonment for a period not exceeding twelve (12) months</b> or to both such fine and such imprisonment;</li> <li>- On a second or subsequent conviction, to a <b>fine not exceeding level fourteen (14) or to imprisonment for a period not exceeding four (4) years or to both such fine and such imprisonment.</b></li> </ul>	Not specified	<p>Environmental Management Act (2002)</p> <p>- According to the Competition Act level fourteen (14) fines are equivalent to 5,000.00 US dollars <a href="http://www.bgafricagroup.com/Competition-Law-Africa/zimbabwe.asp">http://www.bgafricagroup.com/Competition-Law-Africa/zimbabwe.asp</a></p>

Notes: 1) **Natural Person:** refers to an individual who is not affiliated with a

corporation

**2) Legal Person:** refers to an individual(s) who are associated with a corporation, an organization or any legal entity

**3) Data inconclusive:** Situations through the web and other references that could not obtain specific information concerning the illegal transboundary movements of hazardous waste

**4) Not specified (in the legal person column):** indicated where the legislation did not clearly make a distinction between the natural or the legal person in which case the punitive action was only considered for the natural person

## Appendix I. Illegal Traffic Reported by Brazil to the Secretariat

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(Form for)

### CONFIRMED CASES OF ILLEGAL TRAFFIC

#### A. TRANSMITTING AUTHORITY

Name: Head of the Division of Environmental  
Policy and Sustainable Development.

Ministry of External Relations

Address: Esplanada dos Ministérios, Bloco H,  
anexo II, 3° floor, room 204.

ZIP Code: 70170-900

Brasília – Distrito Federal – Brasil

Tel: +55 61 34119288

Fax: +55 61 34119199

E-mail: dpad@mre.gov.br

Party **X**

Competent Authority

National Authority

Focal Point **X**

Date of transmission:

#### B. REPORTING BODY

Name: Ministry of Environment

Address: Esplanada dos Ministérios, Bloco B,  
8° andar. ZIP Code: 70068-900

Brasília – Distrito Federal – Brasil

Tel: +55 61 33171468

Fax:

E-mail: asin.mma@mma.gov.br

Party **X**

Observer State

NGO

Company

Individual

#### C. DESCRIPTION OF THE ILLEGAL ACT

Cl. Act(s) found to be illegal traffic (please include information on which Basel  
Convention provisions has (have) been contravened). Description:

##### Basel Convention text

##### Article 4 - General Obligations

1 - (b) Parties shall prohibit or shall not permit the export of hazardous wastes and other wastes to the Parties which have prohibited the import of such wastes, when notified pursuant to subparagraph (a) above.

2- (e) Not allow the export of hazardous wastes or other wastes to a State or group of States belonging to an economic and/or political integration organization that are Parties, particularly developing countries, which have prohibited by their legislation all imports,

##### Article 6 - Transboundary Movement between Parties

1 - The State of export shall notify, or shall require the generator or exporter to notify, in writing, through the channel of the competent authority of the State of export, the competent authority of the States concerned of any proposed transboundary movement of hazardous wastes or other wastes.

##### Article 9 – Illegal Traffic

1. For the purpose of this Convention, any transboundary movement of hazardous wastes or other wastes:

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- (a) without notification pursuant to the provisions of this Convention to all States concerned; or
- (b) without the consent pursuant to the provisions of this Convention of a State concerned; or
- (c) with consent obtained from States concerned through falsification, misrepresentation or fraud; or
- (d) that does not conform in a material way with the documents; or
- (e) that results in deliberate disposal (e.g. dumping) of hazardous wastes or other wastes in contravention of this Convention and of general principles of international law, shall be deemed to be illegal traffic.

#### Brazil National Legislation

1. Federal Decree. 4581 /2003 – ratifies the Amendment to Annexes I, III, VIII and IX of the Basel Convention text;
2. Environmental Crimes Law. 9605 /1998;
3. Federal Decree 6514/2008;
4. CONAMA Resolution. 08/1991 – prohibits the entrance of residual material for final disposal and incineration;
5. CONAMA Resolution. 23/1996 – classifies wastes, lists hazardous wastes and prohibits the import of hazardous wastes and other wastes.

#### CII. Name of States affected by the illegal traffic (i.e. country of origin, transit or destination):

Origin: Port of Felixstowe - United Kingdom

States of Transit: Spain (Port of Algeciras), Belgium (Port of Antwerp), Germany (Port of Bremerhaven).

Destination: Port of Rio Grande/RS and Port of Santos/SP, Brazil

#### CIII. Brief description of the waste(s) subject to the illegal act, including modes of transport, place of discovery, environmental conditions of the location:

Waste classified as "other wastes".

Waste that belong to the category *Y46 Wastes collected from households* contained in Annex II.

Major constituents may be classified as a mix of plastic and other polymers with wastes collected from household. The potential hazards posed by this type of waste are not yet fully documented; tests to define quantitatively these hazards do not exist.

The first case of illegal containers was discovered in the TECON terminal in Port of Rio Grande and in the Customs Office in Caxias do Sul.

After investigation, more containers were discovered in Port of Santos in two different occasions.

**Date of discovery of the wastes:** first case 16/06/2009 (Port of Rio Grande and Customs Office in Caxias do Sul); second case 26/06/2009 (Port of Santos); third case 17/07/2009 (Port of Santos).

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**Date of the infraction:** first case: 24/07/2009; second case: 08/07/2009; third case: 20/07/2009.

## **D WASTE IDENTIFICATION**

### **D.1 Description of the waste:**

**Name of the waste:** Wastes, mostly collected from households

**Origin of waste:** England, UK

**Physical form:** Solid

**Major constituents:** Mix of Plastics

**Typical contaminants:** unknown

**Volume/Quantity of wastes:** 89 containers, approximately. 1.621,675 tons

**Waste code:**

**UN number:** not applicable

**IWIC:**

**OECD:**

**HS:**

**EWC:**

**Y number(s):** Y46, Y1

**H number(s):** H13, and probably H6.1, H6.2 and H12.

**UN Class:**

### **D.2 Sampling and testing:**

A rigorous visual inspection was carried out in order to identify the type of waste.

At the Customs Office in Caxias do Sul, all containers were opened and the load was visually inspected in order to qualify the waste and search for hazardous wastes mixed with the load.

**Results:** Major constituents may be classified as a mix of plastic and other polymers with wastes collected from household. Some organic matter and humidity was found in several containers and these caused some leachate.

### **D.3 Other relevant information (e.g. containment appearance, etc.):**

Once the first cases of illegal traffic of "other wastes" were confirmed, the Brazilian Institute of Environment and Renewable Resources - IBAMA started a national investigation in collaboration with other authorities, in order to trackback all plastic waste loads that might have been imported in the last few years. Some suspected cases are now under investigation, and Brazil will keep the Basel Secretariat informed of all cases related to the present one.

## **E. DETECTION OF ILLEGAL TRAFFIC, TYPES OF DAMAGES, REMEDIAL ACTIONS AND DISPOSAL**

### **E.1 Detection of illegal traffic**

**By whom:** Customs authority

**Where:** Port of Rio Grande and Port of Santos

**When:** The first detected case was found in 16/06/2009 at Port of Rio Grande/RS

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and at the Customs Office in Caxias do Sul/RS and covered an amount of 48 containers, approximately 899.149kg (~900 tons). The Brazilian Competent Authority for the Basel Convention, IBAMA, notified the companies in 24/06/2009.

The second case was found in 26/06/2009 at Port of Santos/SP and covered an amount of 16 containers, approximately 293.530kg (~294 tons). IBAMA notified the companies in 08/07/2009.

The third case was found in 17/07/2009 at Port of Santos/SP and covered an amount of 25 containers, approximately 428.996kg (~429 tons). IBAMA notified the companies in 20/07/2009.

## E.2 Damages

Details of type and extent of known damages:

## E.3 Remedial actions

Type of action(s):

Date:

Cost:

Allocation:

## E.4 Final disposal of wastes subject to illegal traffic (i.e. measures taken, State of disposal, etc.):

## F PUNISHMENT

F.1. States of conviction: Brazil (Rio Grande do Sul State and São Paulo State)

F.2. Date of conviction: Rio Grande do Sul State: 24/06/2009  
São Paulo State: 08/07/2009 and 20/07/2009

## F.3. Description of punishment by the authority in the State of conviction:

All companies involved in the illegal import were notified to return the waste to its origin immediately.

In Rio Grande do Sul State, the companies were issued a fine of approximately US\$ 215.000,00.

In São Paulo State, the companies were issued a fine of approximately US\$ 81.300,00 for the first confirmed case and a fine of approximately US\$ 123.611,00 for the second case.

*If more space required, please use additional sheet(s)  
Authority completing the Form shall forward a copy to all Competent Authorities  
or Focal Points in the State(s) concerned as appropriate.*

Adopted by the fourth meeting of the

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Conference of the Parties to the Basel Convention  
February 1998

# Appendix J: Traffic in Hazardous and Toxic Products and Wastes Proposed for Entry into the Latin American and Caribbean Region

GEOGRAPHICAL AND QUANTITATIVE ASSESSMENT OF THE ORIGIN AND DESTINATION OF TRAFFIC IN HAZARDOUS AND TOXIC PRODUCTS AND WASTES PROPOSED FOR ENTRY INTO THE LATIN AMERICAN AND CARIBBEAN REGION

Recipient country	Country of origin	Year	Hazardous wastes and products			Volume	Purported destination
			Type	Components	Characteristics		
Antigua and Barbuda Netherlands Antilles	USA	1988	Municipal wastes		Potentially toxic and eco-toxic	> 1,000,000 tons/year	Incineration
	USA	1988	Garbage				Road construction
	Europe	1987	Garbage		Toxic, explosive		Methane gas facility
	USA	1987	Municipal incinerator ash	Dioxins, heavy metals and other chemicals	Potentially toxic and eco-toxic	100,000 barrels/month	
Argentina		1989	Various toxic substances	Solvents containing PCB, heavy metals, dioxides, ... and asbestos	Carcinogenic		Incineration
	USA	1989	Petrochemical substances				
	USA	1980	Pesticides, paint, Metal plating wastes	Metals	Toxic Toxic		Dumping
	USA (Philadelphia)	1986	Municipal incinerator wastes	Ash	Potentially toxic and eco-toxic		Fertilizer
Bahamas	USA (New York)	1987	Garbage		Potentially toxic, eco-toxic and explosive	3,186 tons	Methane recovery
	USA	1989	Liquid hazardous waste			80,000 tons/year	Cement kiln fuel

Recipient country	Country of origin	Year	Hazardous wastes and products			Volume	Purported destination
			Type	Components	Characteristics		
Belize	USA	1987	Garbage		Potentially toxic, eco-toxic and explosive	3,186 tons	Methane recovery
	USA	1987	Industrial waste		Toxic		Incineration
	USA	1987	Sewage sludge				Dumping
Bermuda	USA	1986	Municipal incinerator wastes		Toxic		Fertilizer
Brazil	Puerto Rico	1987			Toxic		
	USA	1988			Toxic		Recycling
	USA	1988		Dioxins	Toxic		Incineration
	USA	1988	Lead		Toxic		Recycling
	Belgium	1989	Zinc and copper residues			2,000 tons of zinc oxide wastes	Recovery for use as fertilizer
Colombia	Denmark and Italy	1989	Zinc and copper wastes	Cadmium, nickel, chrome and lead	Toxic	1,000 tons	Recovery for use as fertilizer
	USA	1990	Municipal incinerator wastes	Dioxins, heavy metals and other chemicals	Potentially toxic and eco-toxic		
	USA	1985	Residual toxic gases		Toxic		Transfer to subsidiary company
Costa Rica	USA	1987	Municipal incinerator ash	Dioxins			
	USA	1987	Paper waste				Recycling, land recovery
	Europe	1990	Industrial waste				Electricity generation
Chile	USA	1980	Hazardous wastes				

Recipient country	Country of origin	Year	Hazardous wastes and products			Volume	Purported destination
			Type	Components	Characteristics		
	USA	1987	Municipal incinerator ash	Dioxins, heavy metals and other chemicals	Potentially toxic and eco-toxic	400,000 tons/year	Dumping
	USA	1989	Municipal incinerator ash		Toxic	4,800 tons	
Dominican Republic	USA	1980	PCB waste		Carcinogenic		Dumping
	USA	1983	Chemical wastes		Toxic		Topsoil
	USA	1987	Municipal incinerator waste	Dioxins, heavy metals and other chemicals	Potentially toxic and eco-toxic		Fertilizer
	Northern Europe	1988	Liquid wastes		Toxic		Water purification (dilution)
	USA	1988	Garbage				Electricity generation
	Puerto Rico	1989	Antibiotic production waste		Toxic and harmful to ecosystem		Cattle feed
	USA	1988	Garbage			3,650,000 tons	Electricity generation
	USA	1988	Industrial waste				Electricity generation
	Undetermined	1988	Industrial and household waste			1,000,000 tons in a 3- to 5-year period	Dumping
	USA	1990	Municipal incinerator ash	Dioxins, heavy metals and other chemicals	Potentially toxic and eco-toxic		Road building material
	USA	1990	Solid waste				Dumping and biogas recovery
	USA	1990	Treated wood products				Incineration

Recipient country	Country of origin	Year	Hazardous wastes and products			Volume	Purported destination
			Type	Components	Characteristics		
Ecuador	USA and Canada		Veterinary and radioactive wastes		Toxic and radioactive		
El Salvador	Europe	1990	Industrial liquid wastes, liquids				Energy
	USA	1990	Incinerator ash		Potentially toxic and eco-toxic		
Guatemala	USA	1987	Sewage sludge			125,000 tons/year	Fertilizer
	USA	1988	Mineral waste	Asbestos		365,000 cubic yards/year	Reuse in brake linings
	USA	1990	Incinerator ash		Malformations in newborns, cancer, liver problems, neurological damage and malfunctioning of immune system	540,000 tons of ash the first year and following that, over half a million tons a year	Road building material
	Europe	1990	Liquid chemical waste	Halogenated and benzene-based solvents	Potentially toxic and eco-toxic, carcinogenic	1,200,000 tons a year	Electricity generation
	USA	1990	Slag	Lead		245,000 metric tons	Rail and road beds
Guyana	USA	1988	Industrial waste			60,000 tons/year	Incineration
Haiti	Unknown	1982	Unknown			40,000 metric tons/year	Dumping
	USA	1987	Sewage sludge	Dioxins, heavy metals and other chemicals	Potentially toxic and eco-toxic	4,000 tons	Dumping
	USA	1987	Sewage sludge				Fertilizer

Recipient country	Country of origin	Year	Hazardous wastes and products			Volume	Purported destination
			Type	Components	Characteristics		
Honduras	USA	1988	Incinerator ash	Dioxins, heavy metals and other chemicals	Potentially toxic and eco-toxic		Fertilizer
	USA	1990	Industrial waste		Toxic and eco-toxic	35,000 barrels/month	Dumping
	Unknown	1990	Radioactive waste	Cardboard and paper	Radioactive	1,000 bales (300 tons)	Recycled materials for sanitary products, roofing and other products
	USA	1988	Petrochemical waste		Toxic and eco-toxic	1,800,000 pounds/year	Incineration
	USA	1988	Municipal incinerator ash	Dioxins, heavy metals and other chemicals	Potentially toxic and eco-toxic		Fertilizers
Jamaica	USA	1987	Sewage sludge				Dumping
	USA	1970s	Nuclear wastes		Radioactive		Storage
	USA	1990	Municipal incinerator ash	Dioxins, heavy metals and other chemicals	Potentially toxic and eco-toxic		Road building material
	USA	1988	Chemical wastes	Solvents, liquid fuels	Toxic and eco-toxic		Dumping
	European Economic Community	1987	Skim milk		Radioactive	20,000 bags	Human consumption
Mexico	Local and USA	1990	Waste				Incineration
	Europe	1989-1990	Industrial waste, garbage				Incineration

Recipient country	Country of origin	Year	Hazardous wastes and products			Volume	Purported destination
			Type	Components	Characteristics		
	USA	1985-1986	Industrial waste	Arsenic and cyanide Paint waste Asbestos	Toxic Toxic Toxic	180-200 litres 20 litres 90 cubic metres	
	USA		Chemical waste	Solvents	Toxic	> 90 tons	
	USA	1986-1988	Ash from steel/mills furnaces	Zinc, lead, cadmium	Toxic	Millions of tons	Recycling
	USA	1986	Ash from steel mills		Toxic	25 tons	Recycling
	USA	1981	Chemical waste	PCB, mercury	Toxic	17 barrels 5,000 tons of mercury ash 120 barrels	Recovery
	USA	1981	Metallic wastes	active carbon	Toxic	36,000 tons	Recovery
	USA	1987	Sludge	Lead	Toxic		Incineration
	USA	1987	Hazardous wastes			60,000 litres/year	Dumping
	Unknown	1990	Liquid chemical waste	Acetone, benzene, methanol, alcohol, oils, fats and other materials	Explosive, toxic and corrosive		Electricity generation
	Industrialized countries	1990	Chemical and radioactive wastes		Radioactive, toxic	500,000 tons/year	Electricity generation
	USA	1990	Slag	Lead			Road building material and landfill
	USA	1990	Municipal incinerator ash	Dioxins, heavy metals and other chemicals	Potentially toxic and eco-toxic	200,000 tons/month	Road building material
	Nicaragua						

Recipient country	Country of origin	Year	Hazardous wastes and products			Volume	Purported destination
			Type	Components	Characteristics		
Panama	USA	1990	Tire pieces and other waste	Rubber			Power production
	Germany	1985	Sewage sludge			600,000 tons/year	
	USA	1990	Municipal incinerator ash	Dioxins, heavy metals and other chemicals	Potentially toxic and eco-toxic	30,000,000 metric tons	Landfill
	USA	1988	Garbage				Landfill or incineration
	USA	1987	Municipal incinerator ash	Dioxins, cadmium	Potentially toxic and eco-toxic	250,000 tons	Road bed material
Paraguay	Austria	1988	Nuclear wastes	Ash	Radioactive	4,500 barrels	Dumping
	USA	1987		Solvents, lubricants and other chemical residues	Toxic and eco-toxic	100,000 barrels/month	
	USA	1989	Garbage			100,000 to 200,000 tons over 10 years	US\$ 15 million to finance agrarian reform programmes
Peru	USA	1988	Municipal incinerator ash	Dioxins, heavy metals and other chemicals	Potentially toxic and eco-toxic		Dumping
	USA	1987		Solvents, lubricants and other chemical residues	Toxic and eco-toxic	100,000 barrels/month	Incineration
	USA and Europe	1988	Hazardous wastes		Toxic and eco-toxic		Toxic waste processing plant
Suriname	Europe	1987	Industrial waste	PCB	Carcinogenic	2,000,000 tons	Dumping

Recipient country	Country of origin	Year	Hazardous wastes and products			Volume	Purported destination
			Type	Components	Characteristics		
Turks and Caicos	USA	1986	Sewage sludge				Dumping
Uruguay	USA	1987	Municipal incinerator ash	Dioxins, heavy metals and other chemicals	Potentially toxic and eco-toxic	100,000 barrels/month	
	USA	1988	Industrial waste				
Venezuela	Europe	1987			Toxic	2,000 tons	Dumping
	Europe	1987			Toxic		Dumping

Source: Jim Valette, *El comercio internacional de desechos: un inventario de Greenpeace*, fourth edition, 1989; United Nations Environment Programme/Greenpeace, *The Transboundary Movement of Hazardous and Nuclear Wastes in the Wider Caribbean Region - A Call for a Legal Instrument within the Cartagena Convention*, Kingston, Caribbean Environment Programme, 1991; United Nations Development and international economic cooperation: environment. Illegal traffic in toxic and dangerous products and wastes. Report of the Secretary-General (A/44/362), New York, 18 July 1989 and Greenpeace, *El comercio internacional de desechos: un inventario de Greenpeace*, fifth edition, 1990.

\* Account is taken both of requests for the introduction of waste materials in an indeterminate state which have been rejected by countries of the region and of those which have been approved.

Table 6. Transboundary Movements of Hazardous Waste per Parties - Export (all figures are in metric tons)

<b>Party</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
Andorra	869	875	1,031	966	718
Argentina	119	269	214	N/A	N/A
Armenia	N/A	N/A	92	292	2,000
Australia	29,240	25,960	38,620	20,937	40,310
Austria	187,283	339,305	346,347	575,061	533,465
Azerbaijan	1,184	2,056	N/A	241	N/A
Bahrain	N/A	788	N/A	N/A	493
Belarus	1,384	N/A	N/A	29,148	N/A
Belgium	982,145	1,579,045	667,015	666,701	787,437
Bosnia and Herz.	4,971	3,145	4,870	N/A	N/A
Brazil	1,420	9,780	N/A	2,090	4,502
Bulgaria	293	863	394	9,366	4,958
Canada	452,398	457,806	423,788	405,245	443,604
Chile	N/A	N/A	N/A	N/A	375
China	1,083	969	1,353	1,424	N/A
Colombia	N/A	133	435	162,185	316
Croatia	13,742	19,073	17,510	17,728	21,050
Czech Rep.	3,544	6,146	7,287	8,005	11,570
Cyprus	4,073	2,098	2,267	315	2,227
Denmark	116,962	215,290	141,703	133,791	63,734
Dominican Rep.	N/A	N/A	N/A	N/A	56,200
Ecuador	N/A	N/A	43	N/A	N/A
Estonia	2,663	714	4,662	942	1,596
Finland	74,199	113,543	106,971	121,402	100,868
Germany	249,307	516,484	163,751	513,887	316,988
Greece	8,518	25,450	N/A	38,989	44,148
Honduras	N/A	1,700	1,820	1,700	9,600
Hungary	72,170	76,633	69,257	48,889	18,393
Indonesia	1,353	N/A	N/A	N/A	N/A
Iran	N/A	N/A	N/A	221	N/A
Ireland	161,445	231,133	172,882	197,167	N/A
Israel	9	8,163	9,885	N/A	N/A
Italy	1,244,672	1,139,444	1,261,480	1,458,741	1,350,492
Jamaica	2,500	N/A	N/A	N/A	N/A
Japan	48,788	54,204	81,358	75,354	85,577
Kazakhstan	73	N/A	437	10,130	N/A
Korea (Rep. of)	N/A	276	N/A	N/A	N/A
Kyrgyzstan	N/A	N/A	1,366	N/A	3,672
Latvia	N/A	1,620,060	10,897	17,414	14,429
Liechtenstein	143	171	105	161	302,275
Luxembourg	72,686	44,296	114,067	88,430	82,485

<b>Party</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>
Malaysia	7,108	5,720	2,833	1,517	1,960
Malta	1,782	1,966	1,853	4,943	10,129
Mexico	31,189	28,241	N/A	11,274	9934
Montenegro	210	N/A	105	8,030	N/A
Morocco	92	N/A	N/A	N/A	1,316
Netherlands	3,120,550	3,030,894	N/A	N/A	N/A
New Zealand	N/A	24,127	N/A	14,125	12,073
Nigeria	N/A	N/A	N/A	N/A	111,334
Norway	207,662	N/A	171,822	190,383	N/A
Panama	2,400	N/A	N/A	N/A	1,000
Philippines	72,180	N/A	N/A	12,914	10,805
Poland	65,929	12,961	25,660	20,271	13,462
Portugal	7,521	6,363	61,365	3,179	4,824
Qatar	N/A	N/A	N/A	735	735
Romania	N/A	2,362	7,412	3,871	10,470
Serbia	1,710	8,285	714,790	N/A	12,954
Singapore	162,803	25,988	25,979	125,687	39,334
Slovakia	4,531	2,380	4,485	11,944	4,364
South Africa	19,781	N/A	N/A	25,270	N/A
Spain	60,179	52,134	53,886	52,695	N/A
Sri Lanka	N/A	250	N/A	N/A	N/A
St. Lucia	25	N/A	N/A	N/A	N/A
Sweden	168,696	255,592	178,943	301,349	269,885
Switzerland	172,327	231,179	261,961	234,685	302,275
Thailand	N/A	2,441	703	2,531	3,773
Togo	N/A	N/A	N/A	1,171	N/A
Tunisia	54	609	609	N/A	N/A
United Kingdom	150,466	193,339	266,782	574,669	235,708
Ukraine	20,420	39,080	47,905	44,405	N/A
United Arab Emirates	990	769	545	16,130	N/A
Uzbekistan	N/A	N/A	5,442	9,115	21,457
Venezuela	1,401	N/A	1,454	7,658	2,090

Source: Secretariat of the Basel Convention (data as reported by Parties)

Table 7. Chi-Square Test for  
2008, 2010 and 2011

Year 2008	Category 3	Category 2	Category 1	Row Totals
Category 2 (self reporting data)	8	15	5	28
Category 1 (self-reporting data)	9	7	6	22
Column Totals	17	22	11	50 (Grand Total)

The Chi-square statistics is 2.373 and the p-value is 0.3052 (DF=2)

The result is not significant at  $p < 0.05$

Year 2010	Category 3	Category 2	Category 1	Row Totals
Category 2 (self reporting data)	11	17	5	33
Category 1 (self-reporting data)	11	5	5	21
Column Totals	22	22	10	54 (Grand Total)

The Chi-square statistics is 4.0803 and the p-value is 0.13001 (DF=2)

The result is not significant at  $p < 0.05$

Year 2011	Category 3	Category 2	Category 1	Row Totals
Category 2 (self reporting data)	10	13	7	30
Category 1 (self-reporting data)	10	6	3	19
Column Totals	20	19	10	49 (Grand Total)

The Chi-square statistics is 1.8003 and the p-value is 0.4065 (DF=2)

The result is not significant at  $p < 0.05$

Table 8. Chi-Square Test for  
2007 and 2009

Year 2007	Category 3	Category 2	Category 1	Row Totals
Category 2 (self reporting data)	5	16	5	26
Category 1 (self-reporting data)	15	7	8	30
Column Totals	20	23	13	56 (Grand Total)

The Chi-square statistics is 8,9741 and the p-value is 0.0113 (DF=2)

The result is significant at  $p < 0.05$

Gamma is 0.26

Year 2009	Category 3	Category 2	Category 1	Row Totals
Category 2 (self reporting data)	5	15	5	25
Category 1 (self-reporting data)	14	6	5	25
Column Totals	19	21	10	50 (Grand Total)

The Chi-square statistics is 8,1203 and the p-value is 0.0172 (DF=2)

The result is significant at  $p < 0.05$

Gamma is 0.40

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Supervisor, United Nations Headquarters (New York) - Department of Safety and Security/SSS  
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Investigator – Field Service, United Nations – Dili, East Timor (UNTAET)  
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During my tenure at the police force, I have served on a United Nations peacekeeping mission, Western-Sahara (MINURSO – 1999-2000) and in Sinai Peninsula for a period one year as a member of the Multinational Force and Observers (MFO – 1995-1996)