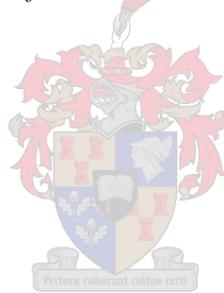


Toxic Trade: E-Waste Disposal and Environmental Governance in West Africa

By

Michael Carl Hector

Thesis presented in partial fulfilment of the requirements for the degree of Master of Arts (International Studies) in the Faculty of Arts and Social Sciences at Stellenbosch University



Promotor: Dr D. Lambrechts

Faculty of Arts and Social Sciences

Department of Political Science

December 2017

Declaration

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof (save to the extent explicitly otherwise stated), that reproduction and publication thereof by Stellenbosch University will not infringe any third-party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Michael Carl Hector

Abstract

The following research aims to approach the illicit e-waste trade from a transnational environmental crime perspective. The study of environmental crime is one that is defined in various ways. This study defines environmental crime as a crime which violates existing national and international law, has identifiable negative consequences (health and environmental); and that the consequences are a result of human action(s). This study also makes use of the concept of Environmental Governance, which is defined as being regulatory processes, organizations, rules, laws and international state and non-state organizations whose political and economic actions influence the environment and the global environmental regime. Here focus is placed on multinational environmental agreements (MEAs), with attention being paid to international regulations (in the form of the Basel Convention) and national regulations (in the form of e-waste specific legislation) in both Ghana and Nigeria.

This study also pays attention to the relationship between the global North (developed) and the global South (developing) using the concept of Global Political Economy (GPE). It is argued that the trade in hazardous waste and more specifically e-waste is more complex than the notion that the global North is dumping hazardous wastes in the global South. This study is likewise focused on the position that the global South occupies within the international environmental regime and how this regime has provided the global South with a platform to challenge Northern dominance. This thesis is particularly concerned with the actors involved in the illicit e-waste trade in West Africa. The research question is thus: *Who are the main actors in facilitating the illicit e-waste trade to and within West Africa?* The mapping of the actors involved in this illicit trade is done using a waste cycle presented by Massari & Monzini (2004).

West Africa was chosen as a case study and sites within Ghana and Nigeria act as focus areas due to the prominence and noticeable effects of e-waste disposal within these West African states. Here it is argued that these states act as facilitators in the illicit e-waste trade due to the ease with which international and national regulations are exploited for personal gain and due to the absence of political will, financial and human capital, and enforcement capacity. This analysis allows for the research question to be answered. The mapping of the actors involved in the illicit e-waste trade likewise provides information to suggest that the trade in illicit e-waste is one that requires increased attention and that the dumping of hazardous wastes is an issue that is more complex than the notion that the global South is being exploited by the global North, but that the global South is party to its own victimization.

Opsomming

Die navorsing poog om die onwettige e-afvalhandel vanuit 'n transnasionale omgewingsmisdaad-perspektief te benader. Die studie van omgewingsmisdaad is een wat op verskillende maniere omskryf word. Hierdie studie definieer omgewingsmisdaad as 'n misdaad wat die bestaande nasionale en internasionale reg oortree, identifiseerbare negatiewe gevolge (gesondheid en omgewing) het; en dat die gevolge 'n resultaat van menslike aksie(s). Hierdie studie maak ook gebruik van die konsep Omgewingsbestuur, wat gedefinieer word as regulatoriese prosesse, organisasies, reëls, wette en internasionale staats- en nie-staatsorganisasies wie se politieke en ekonomiese optrede die omgewing en die globale omgewingstelsel beïnvloed. Hier word fokus geplaas op multinasionale omgewingsooreenkomste (MOO's), waar aandag geskenk word aan internasionale regulasies (in die vorm van die Basel Konvensie) en nasionale regulasies (in die vorm van e-afval spesifieke wetgewing) in beide Ghana en Nigerië.

Hierdie studie gee ook aandag aan die verhouding tussen die globale Noorde (ontwikkelde) en die globale Suide (ontwikkelende) met gebruik van die konsep Globale Politieke Ekonomie (GPE). Daar word aangevoer dat die handel in gevaarlike afval en meer spesifiek e-afval meer ingewikkeld is as die idee dat die globale Noorde gevaarlike afval in die globale Suide stort. Hierdie studie is ook gefokus op die posisie wat die globale Suide binne die internasionale omgewingsregime beklee en hoe hierdie regime die globale Suide 'n platform bied om die Noordelike dominansie uit te daag. Hierdie tesis is veral gemoeid met die akteurs wat by die onwettige e-afvalhandel in Wes-Afrika betrokke is. Die navorsingsvraag is dus: *Wie is die hoofakteurs in die fasilitering van die onwettige e-afvalhandel na en binne Wes-Afrika?* Die kartering van die akteurs wat by hierdie onwettige handel betrokke is word gedoen met behulp van 'n afvalsiklus wat deur Massari & Monzini (2004) aangebied word.

Wes-Afrika is as gevallestudie gekies en plekke in Ghana en Nigerië dien as fokusareas as gevolg van die prominente en merkbare gevolge van e-afvalverwydering binne hierdie Wes-Afrikaanse state. Hier word aangevoer dat hierdie state as fasiliteerders optree in die onwettige e-afvalhandel as gevolg van die gemak waarmee internasionale en nasionale regulasies vir persoonlike gewin uitgebuit word en as gevolg van die afwesigheid van politieke wil, finansiële en menslike kapitaal, en handhawing kapasiteit. Hierdie analise laat toe dat die navorsingsvraag beantwoord word. Die kartering van die akteurs wat betrokke is by die onwettige e-afvalhandel verskaf ook inligting om te suggereer dat die handel in onwettige e-afval meer aandag vereis en dat die storting van gevaarlike afval 'n kompleksere probleem is as die idee dat die globale

Suide uitgebuit word deur die globale Noorde, maar dat die globale Suide in party is tot sy eie viktimisering.

Acknowledgements

I would like to thank my supervisor Dr Derica Lambrechts for supporting me through this process of completing this thesis. It has been a long two years, which she has guided me throughout and has pushed me to always do more than my best. She has played the role of mentor, confidant and role model. Without her guidance, support and words of wisdom, this thesis would have never come to fruition.

Furthermore, I would like to thank the Ernst & Ethel Erikson Trust. Without their financial support, I would not be able to complete my Masters at Stellenbosch University. Their financial support since 2016 has allowed me to study full time and accomplish my goals.

Lastly, I would like to thank my family and friends. Your support and listening to my constant discussions on E-waste trade and environmental crime has allowed me to get through the difficult times and your willingness to listen has provided me with new ideas and ways to approach my research.

I would like to especially thank my grandmother, Mrs. Jones. You have always supported me throughout my studies and have become my pillar in life when times were tough, thank you for your love and support and I dedicate this research study to you.

Abbreviations

AU	African Union
BAN	Basel Action Network
CITES	Convention on International trade in Endangered Species
COP	Conference of the Parties
CPI	Corruption Perceptions Index
CPU	Central Processing Unit
CRT	Cathode Tube
DELC	UN Division of Environmental Law and Conventions
EIA	Environmental Investigation Agency
EJ	Environmental Justice
EOL	End-of-Life
EPA	Environmental Protection Agency
EU	European Union
Europol	European Agency for Law Enforcement Cooperation
FDI	Foreign Direct Investment
FEPA	Federal Environmental Protection Agency
FME	Federal Ministry of Environment
GDP	Gross Domestic Product
GESTA	Ghana Electronic Service Technicians Association
GPE	Global Political Economy
HDI	Human Development Index
ICC	International Criminal Court
ICT	Information & telecommunications technology

INECE	International Network for Environmental Compliance and Enforcement
INTERPOL	International Police Organization
IR	International Relations
IUU	Illegal, Unregulated and Unreported
Kg	Kilograms
Kt	Kiloton
LSWMA	Lagos State Waste Management Authority
MEA	Multinational Environmental Agreement
MNCs	Multinational Corporations
NARAP	Nigeria Association of Refrigerator & Air-Condition Practitioners
NARWOA	National Refrigeration Workshop Owners Association
NCS	Nigerian Customs Service
NESREA	National Environmental Standards and Regulations Enforcement Agency
NETAN	National Electronics Association of Nigeria
NGO	Non-governmental Organization
OAU	Organization of African Unity
ODS	Ozone-depleting Substances
OLPC	One Laptop per Child
PAH	Polycyclic aromatic hydrocarbon
SAPs	Structural Adjustment Programmes
SON	Standards Organization of Nigeria
SSS	State Security Services
Step	Solving the E-Waste Problem
TEC	Transnational Environmental Crime
TOC	Transnational Organized Crime

UN	United Nations
UNCED	UN Conference on Environment and Development
UNCHE	United Nations Conference on Human Environment
UNEP	United Nations Environmental Programme
US	United States
USD	United States Dollar

Table of Content

Chapter 1: Introduction	1
1. Background	1
1.2. Literature Review	2
1.2.1. Environmental Crime	3
1.2.2. Environmental Governance	5
1.3. Relevance of Research	7
1.4. Research Design & Methodology	8
1.4.1. Research Design	8
1.4.2. Research Question(s)	9
1.4.3. Variables & Unit of Analysis	10
1.4.4. Limitations of Research	10
1.5. Outline of Research Study	11
1.6. Conclusion	11
Chapter II: Theoretical Foundation & Concepts	12
2.1 Introduction	12
2.2 Environmental Crime	12
2.2.1 Transnational Environmental Crime (TEC)	15
2.3 Illicit Global Economy	18
2.4. Environmental Governance	21
2.4.1 The State & the Environment	25
2.4.2 North/South Relations	27
2.5 Conclusion	31
Chapter III: The Global Hazardous Waste Trade & Africa	33
3.1. Introduction	33
3.2 Defining hazardous waste	33

3.3 The Hazardous Waste Trade.....	34
3.4 The Basel Convention.....	37
3.4.1. The Basel Ban Amendment	39
3.4.2. Loopholes & a Black Market to the Basel Convention	41
3.5. E-Waste.....	45
3.6 Conclusion	52
Chapter IV: West Africa & the E-Waste Trade.....	54
4.1. Introduction.....	54
4.2. E-waste & West Africa	55
4.3. E-waste Governance: An Introduction.....	57
4.4 Ghana	61
4.4.1 Ghana’s E-waste	62
4.4.2 E-Waste Governance: Ghana.....	67
4.5 Nigeria.....	69
4.5.1 Nigeria’s E-waste.....	70
4.5.2 E-waste Governance: Nigeria	75
4.6. The waste Actors: An introduction	78
4.7. E-waste Cycle: West Africa.....	81
4.8. Conclusion	87
Chapter V: Conclusion	90
5.1 Introduction.....	90
5.2 Progress of the Research Study.....	90
5.3. Evaluation of the Research Study	90
5.4 Recommendations for Future Research	94
5.5 Conclusion	96
Bibliography	97

Chapter 1: Introduction

No environmental contraband is as mysterious as the tons of hazardous waste that vanish every year into illicit dumps around the world – Charles W. Schmidt (2004:100)

1. Background

The disposal of hazardous waste¹ involves the efforts and inputs of states, multinational corporations (MNCs), small businesses, recyclers, individuals and even organized criminal organizations (be it national or transnational). What is important to note however, is that the disposal of hazardous waste has resulted in the establishment of new markets (licit and illicit), which is estimated to be a multi-billion-dollar industry. According to Massari & Monzini (2004:287), about 300 million tons of hazardous and non-hazardous waste was produced in Western countries during the 1980s and about 50 million tons of that waste was exported to African countries. It was found that during the 1980s nearly 15 African states were involved in providing dumping sites for hazardous waste. In return, these African states received money for the provision of their land.

In Nigeria in 1988, it was found that approximately 800 million pounds of industrial and nuclear (hazardous) waste was disposed of in Koko. The waste was dumped by an Italian company that never disclosed the true nature of the waste and as a result, hazardous chemicals leaked into a nearby river, which resulted in serious negative medical consequences (Pinzon, 1994:176). These statistics received the attention of non-governmental and governmental actors, which resulted in the call for legislative frameworks in order to deal with this toxic waste issue. In 1989, the United Nations' (UN) Environmental Programme (UNEP) established the Basel Convention. The Convention was created for the sole purpose of regulating the movement of hazardous waste across international borders (Controlling transboundary movements of hazardous wastes, 2015).

Regardless of this, structural issues still exist in the enforcement of this treaty which has resulted in the creation of “a highly lucrative black market of hazardous waste”, the scale of which, has become increasingly difficult to measure (Massari & Monzini, 2004:287). The involvement of organized criminal groups became known during the 1990s when it was found that an estimated 11 million tons of hazardous waste was dumped on illegal sites, in Italy. It was reported that Mafia groups were involved in the dumping, (later became known as the

¹ Hazardous waste refers to materials that cause injury, disease or death and is harmful to the environment.

“eco-Mafia”) and had also monopolized the waste disposal industry in Italy. According to Walters (2012), in a 2008 study it was estimated that the illegal waste disposal industry in Italy was worth about 20.8 billion Euros.

Despite the ‘toxic’ and harmful nature of (illegal) transnational hazardous waste disposal, these environmental crimes, amongst others, are often not defined as being serious international crimes (Michalowski & Bitten, 2005:139). The reason for this is due to the low priority relegated to environmental crimes within international organizations and national governments. Despite this, the transboundary movement of hazardous waste remains a complex focus area, due to the myriad of actors involved in the disposal of hazardous waste and it has always remained a complicated task of gathering data, due to the covert nature of the trade in hazardous waste.

The remainder of this chapter will now focus on theories that will be integral to the understanding of hazardous waste trade, namely; environmental crime and environmental governance. The following sections of this chapter will then motivate the relevance of this research, discuss the research questions and objectives and develop a suitable research design and methodology. To conclude, an outline of the research study will be provided.

1.2. Literature Review

The context which has been laid out above, allows for a variety of different theoretical approaches from a number of disciplines, such as Green Criminology, Green Political Theory and International Relations (IR), specifically Green Theory. A Green criminological perspective will aid in understanding environmental crime, and aiding in mapping the actors involved in the trade of electronic waste (e-waste) in West Africa. Green Political theory and Green Theory will be beneficial to the understanding of environmental governance and the role developing states play in the international environmental regime.

Within IR, the environment has become increasingly important. The reason for this is that authors such as Bergenas and Knight (2015) have started to locate environmental crime within international security. According to Bergenas & Knight (2015:127), “environmental crime is emerging as a geostrategic challenge, threatening not only conservation efforts, but national and international security alike”. The reason as to why the environment is increasingly being viewed as an international security issue is mainly due to the involvement of terrorist organizations in the exploitation of the environment for profit to fund their activities.

Environmental crimes, such as illicit hazardous waste disposal, form part of a larger environmental issue such as global warming and deforestation. State and non-state actors are thus attempting to address these issues through environmental governance. This is evidenced by focusing on the shift in the late 20th century, whereby states started to become politically concerned about the environment and adopted environmentally friendly policies. Thus, this has seen the creation of institutions concerning hazardous waste disposal, such as the Basel Convention².

The purpose of this research is, however, to locate the situation in West Africa within a wider context of environmental governance. The extent of illegal hazardous waste dumping remains largely uncertain and one cannot deny the health consequences it will have in the long term. It is estimated that 180 million tons of both hazardous and household waste are generated per year worldwide. The majority of this is exported illegally and dumped in developing countries who are unable to dispose of it (Global Initiative Against Transnational Organised Crime, 2014).

Although in Italy, the Italian Mafia was involved in the illegal disposal of hazardous waste, it is not however always the case that organized criminal groups are involved in every illegal waste disposal case. Thus, the main purpose of this thesis is to map-out the actors involved in the illicit trade of electronic waste/e-waste within and to West Africa. The profits of such illegal activities have been very lucrative; thus, the waste industry became an attractive industry for organized crime groups, especially in the United States. However, one should note that although this industry is attractive to organized crime groups, it has likewise become an attractive and cost-effective industry for MNCs as well as for individuals seeking to make money by acting as a middle-man in the disposal process.

1.2.1. Environmental Crime

Environmental crime or ‘green crime’ comes in various forms and can be defined in various manners depending on the harm that they inflict. Environmental crime can thus range from endangered species poaching to the illegal disposal of hazardous waste. The effects of environmental crimes are both short and long term and according to Shover & Routhe (2005:324), “environmental crime can victimize entire populations or nations...” Environmental crime is therefore not an issue that should be dealt with solely by the states or

² This will be discussed in detail in Chapter III.

nations that are affected but by all within the international community as it does not adhere to international borders.

Environmental crime is described by the United Nations Division of Environmental Law and Conventions (DELC) as, “criminal activities undertaken by persons acting across national borders including illegal logging and timber smuggling, species smuggling, the black market in ozone depleting substances, the illegal movement of toxic and hazardous waste and other prohibited chemicals etc.” (DELC, 2016). According to DELC (2016) environmental crimes also contain other crimes such as corruption, financial crime, other forms of illicit activities and it also distorts the licit market.

Within green criminology, the Environmental Justice (EJ) perspective regards environmental crimes as being any act that “(1) may or may not violate existing rules and environmental regulations; (2) has identifiable environmental damage outcomes; and (3) originated in human action” (Lynch & Stretsky, 2003:227). However, it is often the case that most environmental harms are not regarded as being crimes, regardless of whether or not they are harmful to the environment. According to Lynch & Stretsky (2003), this is due to the fact that the environment is not high on the agenda within criminology or any other Social Science for that matter.

Gibbs, Gore, McGarrell & Rivers (2009) state that the reason as to why environmental crime has not been of utmost importance to most within Social Sciences, is due to the fact that there is no concrete definition of what constitutes as environmental crime and as a result, there are various definitions and perspectives of environmental crime³. What is of utmost importance to this research study is the notion of transnational environmental crime, or TEC, as the trade in hazardous waste and more specifically, the trade in electronic waste is located within this field.

Transnational Environmental Crime

TEC has been somewhat understudied and ignored within the discourse of transnational organized crime (TOC). Wright (2011) states that the focus of academics has been placed on the crimes themselves and not on the theoretical foundation of TEC and how it should be defined. Wright (2011:334) similarly notes that criminologists and states have tended to view TEC from a natural resource and conservation perspective and have thus “[neglected] to criminalise TEC, or otherwise attend to it with the same level of urgency commanded by traditional forms of TOC”.

³ Which will be discussed in Chapter II

TECs and environmental crimes are however, in general being fought via multinational environmental agreements (MEAs), such as the Basel Convention. Authors such as Schmidt (2004), Walters (2012) and Massari & Monzini (2004) criticize these MEAs for not being effective and lacking the ability to enforce environmental treaties and law. Authors such as Elliott (2007) see TECs as being global security threats that cannot be ignored, among them being hazardous waste disposal.

According to Hyatt & Trexler (1996), contrary to popular belief, trade in hazardous waste and endangered species takes place within an unorganized system. This is mainly due to the fact that the risks often outweigh the profits; however, this is subject to change as the demand and illicit market grows. It is also important to note that ‘transit nations’ are important for the movement of illegal trading as it becomes an opportunity for criminals to launder money, and to disguise the origins of possibly dangerous substances and so forth.

It should be noted that environmental crime and the MEAs put in place to combat environmental crime, fall within the scope of environmental governance. The understanding of environmental governance will be important in understanding the trade of hazardous waste from the global North to the global South and the actors involved in this trade. Environmental governance will thus be used as an analytical tool in Chapter IV to analyse e-waste management in West Africa.

1.2.2. Environmental Governance

Environmental governance⁴ can best be understood through Green Political theory and Green Theory within IR. Green concerns, or concerns about the environment is not foreign to IR as issues of pollution, global warming and natural resource depletion were already regarded as dire issues by some before the advent of green political theory in IR. Ecological concerns are influencing other ‘high politics’ issues increasingly, such as human rights as the protection thereof has become integral to stability.

Before the early 1970s, the environment was not seen as being important within the international regime and movements for the protection of the environment were seen as being informal and ad hoc. According to Eckersley (2004:212), the United Nations Charter had no previous mention of environmental protection or its role with regards to environmental governance. It was only during the early 1970s at the United Nations Conference on the Human

⁴ The concept of governance will be elaborated on in Chapter II.

Environment (UNCHE) in Stockholm, that environmental concerns started to become of significance to the UN and the international community as a whole (Eckersley, 2004:212).

As with other forms of governance, states play a major role in environmental governance. It is therefore that the state can become a powerful vehicle to create awareness, create regimes and establish treaties. Eckersley (2004) agrees with this notion, however, she adds that although states are the most legitimate actors to finding solutions to environmental problems, they may prove reluctant to do so because they are indebted to capitalistic interests. States are therefore by-products of environmental degradation. Eckersley (2004:70) therefore argues that the issue lies within the fact that states enact environmental policies which solely relate to their own territories, and tend to ignore the fact that environmental degradation goes beyond their sovereign territories. States are thus essential to controlling and navigating environmental issues, however, from the abovementioned one could state that although states seek to protect the environment, they make policy decisions that economically suit them the best. The most economical decision may not always be the most environmentally sound decision, which in turn may result in ecological destruction beyond their control.

North-South Relationship

Of importance to this thesis, is the relationship between the developed and developing world (referred to as the global North and the global South respectively) within environmental governance. According to Miller (1995) if one is to understand this relationship, then one needs to understand the place of the global South within the global political economy (GPE)⁵. Within the GPE, Miller (1995) notes that the global South occupies an inferior position due to it being vulnerable to the interests and actions of the global North.

Of specific interest with regards to the relationship between the global North and South is the trade in hazardous waste, which usually takes the form of hazardous waste being traded from the global North to the global South. Krueger (1999) notes that the trade in the environment has been continuing since the 1990s. With regards to the trade in hazardous waste, Clapp (2001) notes that economically, the transfer of hazardous wastes from rich to poor countries seems viable. However, in reality it is rather “insane”, as poorer countries (usually in the global South) lack the financial and physical resources to effectively manage hazardous waste and protect their environments and the health of their people.

⁵ Elaborated on in Chapter III.

Despite the creation of the Basel Convention, hazardous waste sites (specifically e-waste) remain and dumping continues, often without the knowledge of the import/target states. This has resulted in authors such as Miller (1995), Clapp (1999) and Krueger (1999) criticizing the Basel Convention for being ineffective and allowing this trade to continue. Miller (1995:90) states that, in theory the Basel Convention allows the global South to prohibit the disposal of hazardous wastes in their territories. However, in reality “their internal administrative weakness [makes] this difficult”.

It is thus clear from this brief overview, that there is a need to further discuss TEC, specifically hazardous waste disposal and its relation to states, organized crime and MNCs, in order for one to provide a clear analysis of why the illegal trade in hazardous waste still occurs despite the creation of MEAs to regulate this trade.

1.3. Relevance of Research

It is evident from the above background and literature review that environmental issues are important within IR theory and global politics. The focus area of this study is on the movement/trade of hazardous waste, especially from developed (Northern) to developing (Southern) countries. The above literature has pointed out that Africa has become the prime destination for those who dispose of their hazardous waste in an illicit manner. This process, although complex, involves various actors from the corporate private sector, local and national government sectors and organized crime syndicates.

Because of the above-mentioned complexity, the disposal of hazardous waste, and other environmental crimes are starting to become more prominent in international security and stability. This can be evidenced by the creation of the United Nations Environmental Programme (UNEP), the Basel Convention and International Police Organization’s (INTERPOL) Hazardous Waste task force or division. The disposal of hazardous waste is a particular threat, as it poses a great risk to the health of those who live near legal and illegal dumping sites.

The study will pay particular attention to the illegal disposal of e-waste in West African states, Ghana and Nigeria. This issue has garnered serious attention over the years, as many continue to suffer from the long-term health effects of hazardous substances, despite the short-to-medium term economic benefits. By studying this trend, this study will draw on the growing research of environmental crime and green political theory, especially environmental governance. Because concerns for the environment are relatively new, environmental crime

remains an understudied field. Thus, by situating the study of e-waste trade (in West Africa) in the wider context of TEC, it will provide a deeper understanding of hazardous waste disposal and the trade thereof.

1.4. Research Design & Methodology

1.4.1. Research Design

The approach of this thesis will be qualitative in nature and a single-case study. The study will thus place a focus on the West African region as a collective and reference will be made to specific sites in Nigeria and Ghana. The reason for this is because e-waste dumping has been prominent in this region for years, and is a region that proves to be an excellent example of North/South trade in hazardous substances.

The case study design is often used by qualitative researchers who seek to narrow an issue down through focusing on a specific group, organization or institution (Babbie & Mouton, 2008:279). More specifically, it also allows for the creation of an in-depth look at the case study (Burnham, Lutz, Grant & Layton-Henry, 2008:63). Due to this, the case study method or design is seen as a good research tool (Babbie & Mouton, 2008:279). According to Babbie & Mouton (2008:281), “most case studies involve the examination of multiple variables”. It is therefore that this method is able to take various perspectives into account and make use of various sources of data. A qualitative method is thus suited to this study, as it allows the focus to be placed on the process and not emphasise the outcome. It similarly has a greater emphasis on the perspective of the actor(s), in this case; states, non-governmental organizations, organized crime and MNCs (Babbie & Mouton, 2008:270).

Because the method of this thesis is qualitative multiple sources will have to be used. It is thus necessary for this study to focus on multiple perspectives, in order to attempt to be objective. The issue of using multiple sources (such as books, academic articles, newsletters and news articles) is thus, that the researcher might over-generalize. The case study approach was thus chosen to try and avoid generalizations, and in order for the study to connect the micro-level to the macro-level (Neuman, 2005:41). In the case of e-waste dumping in West Africa, to the macro level, environmental governance and TEC.

The purpose of this study can also be regarded as explanatory, as the field of TEC is usually understood in global terms and not local, or in the case of this thesis, regional terms. According to Babbie & Mouton (2008:79), explanatory research as an approach is “typical when the subject of the study itself is relatively new”. This is true when one looks at TEC as it has been

relatively understudied, especially the illicit trade in hazardous waste. The study could, however, also be viewed as descriptive as it would attempt to describe the situation within West Africa (e-waste dumping), and how that affects the region and North-South relations.

This study will likewise make use of secondary data; as primary data tends to be difficult to obtain due to the often-clandestine nature of the subject in question. Primary data is also difficult to obtain due to the complexity of the subject and the fact that accurate data pertaining to the trade of hazardous waste is scarce, and often incomplete. Through analysing secondary data well informed and academic assumptions and conclusions could thus be made with regards to the trade of e-waste in West Africa to overcome the aforementioned limitation.

1.4.2. Research Question(s)

The global recycling industry has emerged as a growing industry and is regarded as the most environmentally sound method of disposal in the modern age. However, as will be shown in this study, many believe that the recycling industry has been doomed from the start. The reason for this is due to the fact that the global trade in illicit electronic waste or e-waste and other hazardous wastes continue to make their way to developing and underdeveloped countries in the global South (such as Ghana and Nigeria), where they are improperly disposed of. Despite the negative consequences of improper e-waste disposal, the informal recycling of e-waste provides many poor people within the global South with a source of income.

Due to the complexity of defining e-waste and lack of enforcement, there is a lack of focus regarding this TEC. This study thus aims to focus on the actors which allow for the trade and crude recycling of illicit e-waste to take place. The involvement of organized crime, state officials and MNCs makes studying this trend highly complex. Additionally, the space for this study is limited due to the myriad of research and points of views on environmental crime.

This study will focus on one aspect of TEC, which is the trade in illicit e-waste. The trade in illicit e-waste is important because it brings to light the issues within global environmental regulation. The primary research question will thus be:

Who are the main actors in facilitating the illicit e-waste trade to and within West Africa?

The research can likewise lead to the creation of sub-questions regarding the disposal of e-waste in West Africa. The following sub-research questions will facilitate the answering of the main research question:

- 1) *What is the North-South divide in hazardous waste disposal?*
- 2) *How does the externalization of risks (environmental and health) regarding e-waste affect West African states?*
- 3) *What factors cause limitations to the Basel Convention to regulate hazardous waste trade to West Africa?*
- 4) *How does the illicit trade in e-waste continue, despite international regulation?*

The underlying objective of this study is thus to examine and to do a critical analysis of the movement/trade of hazardous waste, especially e-waste, from developed countries in the West (global North) to developing countries (global South) in Africa, particularly West Africa. This study will also examine the dumping of hazardous waste that is produced and dumped within the global South. This focus will not only contribute to the field of TEC but also provide insights to the study of environmental governance within International Relations.

1.4.3. Variables & Unit of Analysis

The independent variable in this research is TEC, as part of environmental crime, including its components, illicit hazardous waste disposal and more specifically e-waste. The dependent variable will thus be the issue of environmental governance in combating hazardous waste trade, in this case, in West Africa, while issues of corruption and the ‘mislabelling’ of hazardous waste products may act as intervening variables. The unit of analysis will thus be states in West Africa, specifically Ghana and Nigeria, and the level of analysis will vary accordingly during the analysis. The analysis will thus first start at an analysis of environmental crime, TEC and hazardous waste disposal and then ‘narrow down’ into focusing on the trade of e-waste in West Africa, in order to have a better understanding of this trend.

1.4.4. Limitations of Research

The limitations of this research relate to the clandestine nature of illicit hazardous waste disposal and the fact that in the majority of countries gathering adequate and exact data is difficult. The reason for this is because most states in West Africa have weak state capacity and environmental issues are often not regarded as being of utmost importance. The colonial legacy of countries in Africa had changed the political and administrative structure of many countries and thus it had altered the way in which these states saw and managed their environments and populations (Bryant & Bailey, 1997: 7). Due to environmental issues, not being top policy priorities and data from these countries not being reliable, this study will predominately have to make use of data compiled by non-African states and organizations.

To overcome this, secondary data pertaining to the trade of e-waste in West Africa, environmental governance and organized crime must be used from various sources (news, academic journals and books). This study is thus limited to secondary data related to hazardous waste disposal and specifically e-waste. Another limitation would be the limited time and restricted length of the thesis and the fact that research is solely focused on West Africa

1.5. Outline of Research Study

The aim of Chapter II in this thesis will be to focus on and further discuss and elaborate on the concepts and variables, such as environmental crime, environmental governance, TEC and the illicit global economy. The second chapter will thus expand on the literature focused on in the above literature review.

Chapter III will further discuss the global issue of hazardous waste disposal and the trade thereof and focus on the theories/views around hazardous waste disposal. The focus of Chapter III will be narrowed down to the trade of hazardous waste and how environmental governance (specifically the Basel Convention) seeks to regulate this trade.

In Chapter IV, research will turn to the issue of e-waste in relation to the West African region and it will attempt an analysis of the primary research question. The chapter will start with an overview of e-waste in West Africa and focus on the trade of e-waste in the West African countries of Ghana and Nigeria. In relation to answering the primary question, this chapter will attempt to map-out the actors involved in the trade of illicit e-waste to West Africa. Finally, Chapter V will summarise the findings in a conclusion and link the concepts and variables of chapter II and III, and the findings of chapter IV. This will be done in order to discuss the possible implications of these findings.

1.6. Conclusion

Chapter I briefly discussed the background of the issue of hazardous waste disposal and gave a brief overview of the concepts (environmental crime, TEC and environmental governance) that will be used in this study. This chapter provided a research design and research question for this study; as a result, this study will be qualitative in nature and make use of the case study method in order to contribute to environmental crime theory and environmental governance. Furthermore, an outline for the study was provided in this chapter.

Chapter II: Theoretical Foundation & Concepts

2.1. Introduction

The purpose of this chapter is to explore the theoretical foundation for this study. The following theories and concepts that were briefly discussed in Chapter I will be expanded on: Environmental crime, transnational environmental crime (TEC), the illicit global economy and environmental governance (with a focus on the relationship between the global North and South and the position of the global South within the international environmental regime).

These concepts are essential to the understanding of e-waste trade within the West African region and aid in understanding why international regulation of e-waste (namely through the Basel Convention) has been so complex. This chapter will thus start by defining environmental crime and TEC.

2.2. Environmental Crime

The consequences of environmental crimes are short term, long term or immediate and victims are often only identified after the damage has already been done. According to Shover & Routhe (2005), environmental crimes can victimize entire populations, as it does not concern itself with international borders. As a result of this danger, nations have been motioning to regulate and control a wide range of illegal environmental activities.

There is no universally agreed upon definition of what environmental crime is, and as such, scholars within green criminology tend to focus on the activities of environmental crime. According to Brisman (2014:21), "...green criminologists have devoted most of their attention to illuminating and describing different types of environmental harm". It should likewise be important to note that environmental crimes can be categorized in various ways, and how they are categorized influences how they are approached and studied (White, 2010). Martini (2012) defines environmental crime as being any crime that breaks or violates any national or international environmental law/regulation or convention.

Environmental crime can thus be understood as a collective term used to describe illegal activities that harm the environment "and... [benefits] individuals or groups or companies from the exploitation of, damage to, trade or theft of natural resources, including, but not limited to transnational organized crime" (Nellemann, Henriksen, Kreilhuber, Stewart, Kotsovou, Raxter, Mrema & Barrat, 2016: 17).

The definition of environmental crime that will be used in this study is the definition espoused by Environmental Justice (EJ) scholars. As such, an environmental crime is defined as being an act that (1) may or may not violate an existing environmental law and/or regulation/convention; (2) the consequences or outcome of the crime has identifiable environmental damage(s); and (3) the harm caused by the crime is a result of human action(s) (Lynch & Stretsky, 2003:227).

According to Martini (2012), there are five main areas of offences; namely, (1) the trade in ozone-depleting substances (ODS), (2) the dumping and illegal trade of hazardous waste, (3) illegal trade in wildlife, (4) illegal, unregulated and unreported (IUU) fishing and (5) the illegal trade and harvesting of timber. Although these offences are regarded as being criminal (environmental) offences by international organizations such as the UN, INTERPOL and the European Union (EU), environmental illegalities continue to be regarded as sub-par and are not taken seriously (compared to traditional criminal acts) and convictions often carry minor penalties (Shover & Routhe, 2005).

Although the view of regarding environmental crimes as sub-par has changed since the late 1990s and early 2000s, the minor penalties that environmental crimes carry remain the same. This is largely due to fact that data collection is difficult to obtain. Tompson & Chainey (2011:184) note that, “environmental crimes are predominantly derived from regulatory activity such as inspections or investigations”, unlike other crimes (such as drug dealing/smuggling) which are made known through police activity. This in turn results in environmental crimes often not being recorded or identified. The severity of the crime may be influenced and “made and unmade through acts of social construction and deconstruction” (Lynch & Stretsky, 2003:228). It is thus that the severity and seriousness of the crime depends heavily on the importance placed on the crime in question and data collected.

The severity of the consequences of environmental crimes however, cannot be ignored. According to Nellesmann *et al.* (2016), environmental crime poses a major threat to human security and sustainable development. This has been evidenced in the International Criminal Court (ICC) ruling that it would start prosecuting environmental crimes as crimes against humanity. According to Taylor (2016), “it also raises the question of whether international corporations and other businesses could become embroiled in cases in a court better known for cases against dictators and warlords”. As a result, this will have a major impact on how environmental crime is viewed and dealt with on an international stage.

One needs to note that the jurisdiction of the ICC does not extend to corporations, thus it cannot prosecute entire corporations. However, corporate executives can be held accountable for environmental destruction or land-grabbing (Crockett & de Sousa, 2016). Due to the fact that the ICC does not have jurisdiction over large MNCs, and because executives are solely being held responsible, corporations could find a way to continue their practices in a different way (more discretely) in the future. However, there is no doubt that it will change the way business is done and force MNCs and governments to consider the environment when doing business. This ruling likewise, extends the scope of what we consider to be crimes against humanity, as it effectively adds an environmental dimension to crimes against humanity.

The actions of the ICC highlight the importance of environmental crime and could mean a move away from the traditional view that the environment is solely an issue for ecologists or conservationists. Environmental crimes are all-encompassing, as it not only poses a threat to the ecosystem, but also to human security, and the global economy. According to Simon & Hagan (1999), environmental crimes do not only break international environmental laws/regulations, but it also involves other law-breaking practices such as corruption.

There are similarly various dimensions to and actors involved in environmental crime. Firstly, some actors are pushed into environmental crime as a result of poverty; secondly, others commit environmental crime as part of a criminal organization/network, as it is viewed as being a low-risk and high-profit industry. Lastly, some environmental crimes are used to fund non-state armed groups and conflicts (Nellemann *et al.*, 2016). According to Bergenas & Knight (2015) transnational organized crime networks and terrorist groups exploit the environment to fund other illegal activities.

Environmental criminals are thus integrated within transnational criminal and terrorist networks “most often associated with the illicit trade in drugs, arms, humans, and counterfeit goods” (Bergenas & Knight, 2015: 120). Shover & Routh (2005) state that large MNCs are likewise guilty of large-scale environmental destruction. From this, one could deduce that environmental crime can be committed by individuals, MNCs, transnational organized crime networks and terrorist organizations.

It is hence from the above mentioned that one can argue that environmental crime “has all of the characteristics of a twenty-first century problem” (Bergenas & Knight, 2015: 120). It should however be noted that not all people experience the harms of environmental crime the same way. According to Simon & Hagan (1999:37), “populations who [suffer] at the hands of

polluting multinational corporations and lax, sometimes corrupt, governmental policies are overwhelmingly people of colour, and among the poorest and most powerless of the world's population". Environmental crime is prevalent across all fields of study and spheres of human life, such as security, development and conservation and most importantly, it is transnational in nature and has no respect for national/international borders. Due to the transnational nature of e-waste, thus it is important for this study to focus on transnational environmental crime or TEC.

2.2.1 Transnational Environmental Crime (TEC)

TEC can be regarded as being a sub-category of transnational organized crime or TOC. Although there is no universally agreed upon definition of TOC, TOC can be briefly explained as encompassing all transnational illicit activities and threats (Andreas, 2004). Shelley (1995:465) states that the growth of transnational illicit activities is as a result of "the increasingly international scope of legitimate business and the ease with which it is conducted". It is also noted that the increase in trade across borders has also resulted in the trade of illicit goods across those very same borders and therefore it could be said that licit trade has facilitated the growth of illicit markets alongside the legitimate (global) markets.

It is for this reason that IR scholars such as Castle (1997), Ciro (2010) and Mittelman & Johnston (1999) regard globalization as the most important driver of TOC. With the advent of globalization, TOC networks have been provided with an opportunity to expand and flourish. However, one should bear in mind that although globalization has made it much easier for illicit trade to take place, it has also made it more difficult to commit transnational crimes due to the creation of international crime enforcement, such as INTERPOL and the European Union Agency for Law Enforcement Cooperation (Europol) (Levi, 2014).

The definition of TEC, much like TOC, is not agreed upon and how it is defined differs. According to the United Nations Environmental Programme (UNEP) Division of Environmental Law and Conventions (DELIC) TEC can be defined as being any "criminal [activity] undertaken by persons acting across national borders including illegal logging and timber smuggling, species smuggling, the black market in ozone depleting substances, the illegal movement of toxic and hazardous waste and other prohibited chemicals etc." (DELIC, 2016).

Authors such as Elliot (2007), regard TEC as being a major security challenge. According to Elliott (2007:502), TEC is regarded as "a form of enterprise crime in pursuit of profit,

characterized by high returns and low risk, or as a means of avoiding excise, taxes and high disposal costs”. One therefore cannot deny that TEC has become one of the fastest growing (illicit) industries to date, and the scale and scope thereof should not be underestimated. Elliott (2012) makes note of the seriousness of TEC and states that environmental crimes are fast becoming a transnational issue due to individuals/organizations/groups exploiting the characteristics of globalization, such as free trade. Globalization thus provides environmental criminals with an opportunity to launder money through legitimate enterprises and banking systems.

On a national and international level, TEC has the ability to hamper efforts at sustainable development and likewise opens the door for corruption at the state level. Because of the complexity of TEC, Elliott (2012) states that the exact size and value of the TEC market remains speculative, as with other forms of illegal trade. In tandem with this is the fact that the illicit TEC market runs alongside and often overlaps with the legal market for environmental goods, which complicates efforts to place an exact value on TEC.

Although the value of the TEC market is speculative it has, however, been valued as being a multi-billion-dollar industry. According to Nellemann *et al.* (2016:17), the environmental crime market is valued as being worth between 91 and 259 billion USD, of which millions or even billions will be reintroduced into the legitimate economy. Thus, it cannot be denied that the financial gain from environmental crime is enormous and ever expanding. However, one should keep in mind that environmental crime does not only greatly affect individuals, organizations, and states, but also the larger ecological environment.

An illegal waste activity is defined by Tompson & Chainey (2011) as being the illegal trade of waste that violates any environmental regulation(s). Therefore, for the purpose of this thesis, the illicit e-waste trade will be regarded as an ‘illegal waste activity’. “At the gravest end of the scale it refers to the illegal trading of hazardous waste and the sequential illegal dumping of it, often in developing nations”, and it similarly refers to the improper disposal and storage of hazardous waste(s) (Tompson & Chainey, 2011:180). Thus, illegal waste activities are a subset of environmental crime and are often regarded as crimes that go unnoticed and unreported. Waste crime(s) differs from traditional crimes such as drug dealing/trading, “as it takes place in the context of a much broader chain of legal operations, with advantage being taken of loopholes in control regimes and control capacity” (Rucevska, Nellemann, Isarin, Yang, Liu, Yu, Sandaes, Olley, McCann, Devia, Bisschop, Soesilo, Schoolmeester, Henriksen & Nilsen, 2015:31). When it is however reported, damage has already been done and those

responsible have already fled the scene. It is therefore that Baird, Curry & Cruz (2014:98) state that “the true extent of waste crime...will continue to remain largely unknown”.

The issue of the illicit trade with regards to the environment, especially the trade in e-waste, is of importance to this thesis. The environment and the global economy cannot be separated, as the one affects the other. As technological advancements were made and trade improved because of globalization, so did issues of pollution and the depletion of natural resources. Clapp (1994) notes that the environment has also had a negative effect on the global South, as poverty levels have been gravely exacerbated by environmental degradation.

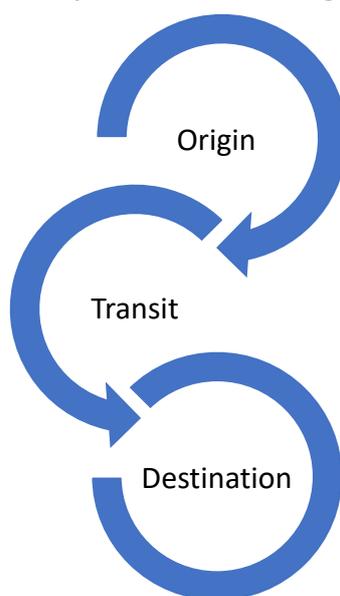


Figure 1: Waste Cycle (Produced from Massari & Monzini, 2004)

Illegal waste activities such as the trade in hazardous wastes can be explained using Massari & Monzini's (2004:291) “waste cycle” (*Figure 1*). The first stage pertains to its origin; whereby waste is produced within various sectors (factories, hospitals etc.) which should then be legally disposed of or incinerated, however, many waste producers tend to give disposal contracts to those who will do it for less (usually those who dump it illegally).

The second stage of the cycle is the transit stage; whereby hazardous waste is transferred from the producer or originator “to a storage centre or intermediate stockpiling area, which then becomes the new producer of the waste materials” (Massari & Monzini, 2004:294). This may be shipping firms transporting the waste, firms that collect and store waste or firms who run treatment facilities. It is usually at this stage where documents are forged and containers are mislabelled as ‘non-hazardous’ or ‘second-hand goods’. It is important to note that ‘transit

nations' are central to the movement of illegal trading, as it becomes an opportunity for criminals to launder money, disguise the origins of possibly dangerous substances, and so forth.

The third stage relates to the destination of the (untreated) waste. It is customary that the cycle of hazardous waste ends at a recycling centre or incinerators, however, the illegal cycle ends in legal garbage sites, the ocean, and underground, mixed to create construction materials, and disclosed (illegal) dumping sites. The allowance to dump hazardous wastes in certain areas is often the result of a lack of knowledge about the toxic nature of certain wastes. According to James (1996), the disposal of hazardous wastes on landfills has become the preferred method of disposal. This method is essentially increasingly dangerous, not only to the environment but also to the health of the people in the area of disposal. As a result, this can have a negative effect on the life expectancy of people in less developed countries. The cycle presented by Massari & Monzini (2004) will thus be used as an analytical framework in Chapter IV to map the actors involved in the illicit e-waste trade in West Africa.

The 'waste cycle' Massari & Monzini (2004) is in its simplified form, however, especially when referring to the second stage of the cycle, it is not always the case that organized crime groups are involved. Despite there being evidence of organized crime involvement within the hazardous waste trade, most notably within Italy⁶, the hazardous waste trade industry is one of complexity. This complexity arises from the myriad of actors involved in the waste industry (licit and illicit), ranging from waste producers, waste management firms, brokers, transport companies and even organized crime syndicates.

The debate regarding international trade and the environment has been gaining popularity since the 1990s. The major issue within this debate is the relationship between economic growth and the environment (Krueger, 1999). The relationship between the illicit economy and the environment has thus been overshadowed by this debate. It is therefore necessary to briefly discuss the concept of the illicit global economy.

2.3. Illicit Global Economy

The very forces of globalization that has allowed for easier trade and communication has also allowed for the creation of a global illicit economy, otherwise known as the 'dark side of

⁶ Evidenced in the work of Liddick, D. 2010. The traffic in garbage and hazardous wastes: an overview. *Trends in Organised Crime*, 13: 134-146. & Massari, M. & Monzini, P. 2004. Dirty businesses in Italy: A case-study of illegal trafficking in hazardous waste. *Global Crime*, 6(3&4):285-304.

globalization'⁷. The reason for globalization allowing for the growth of a global illicit economy is due to the fact that globalization resulted in state control being loosened with regards to the economy, and as such facilitated the criminalization of economic sectors (Andreas, 2004).

The illicit global economy can be defined as being the “clandestine cross-border flows of people, goods, money and information that are unauthorized by the sending or receiving country” (Andreas, 2015:782). These cross-border flows may be simplified to meaning illicit trade. Illicit trade cannot be easily defined, as it consists of various factors and practices. According to INTERPOL (2014:5), illicit trade can be defined as being a process consisting of various illicit activities where the end goal is to provide goods and services that violate relevant laws to consumers. It should thus be noted that the illicit global economy consists of various actors, from non-state (illegal arms dealers, drug traffickers, terrorist groups, organized crime networks and so forth) to state actors (government officials, police, border guards etc.). It is therefore that the trade in illicit goods cannot be regarded as the action(s) of one person. “The level of sophistication and coordination necessary to produce counterfeit goods have them smuggled across borders and distribute them requires managerial competencies and coordinated action by several people” (INTERPOL, 2014: 7).

Andreas (2004:643) states that the illicit market(s) are often categorized under the broad and often vague term of TOC. According to Andreas (2004), this term takes the focus away from the (illicit) market sectors and places the focus on mafia-like organizations and actors. Andreas (2015) notes that scholars within the subfield of International/Global Political Economy (IPE/GPE) have tended to ignore the ‘dark side of globalization’ and tend to devote their attention towards the formal and much more visible (legal) side of globalization (trade and global finance). However, this trend has changed since the 1990s as TOC has become viewed as an international security threat.

It should be noted that the illicit global economy has coexisted alongside the licit global economy for decades. Since the 1990s the illicit global economy has become much more prominent and was able to evolve alongside the rapid advances made by globalization (Friman & Andreas, 1999). As new markets and economic opportunities arose, so did “new patterns and fresh opportunities for crime amid a backdrop of patchy and inadequate local, national and international controls” (Gobert & Punch, 2003:2).

⁷ This term was first introduced by Heine & Thakur (2011) in their book, *the Dark Side of Globalization*.

Firman & Andreas (1999:2) state that the illicit global economy has increasingly become “an important source of conflict and cooperation between nation-states, state agents, nonstate entities, and international organizations”. The source of conflict between global governance actors stems from the criminalization of economic activities which in turn, encourages the creation of new (illicit) markets. By criminalizing certain activities, global governance actors allow for non-state actors to dominate a specific market. Through defining certain markets as being illicit, governments therefore withdraw themselves from regulation duties (Firman & Andreas, 1999).

The illicit global economy thus poses a major threat to the state and state systems, due to the fact that the licit and illicit economies are intertwined. States face the challenge of acting as facilitator for the (legal) flow of economic activities, while also acting as the enforcer of rules and norms against the illegal flow of economic activities. Within the context of this thesis, states are responsible under the Basel Convention to facilitate the legal trade (destined for recycling and re-use) of e-waste. However, they are also responsible for enforcing the rules of the Convention in order to curb the illicit e-waste flows.

Globalization has likewise presented states with an even greater challenge as “opportunities for hiding illicit economic activities and clandestine actors lie in the sheer magnitude and global nature of licit trade flows, financial transactions, and migration” (Firman & Andreas, 1999:11). According to Clapp (1999), the authority of the state has been weakened due to its inability to stop these illicit economic flows. The inability to curb illicit economic flows is due to the fact that when it comes to illicit trade, state response tends to be selective. Clapp (1999:92) also notes that:

It appears that certain undesirable economic activities continue to be risked by smugglers in part because the global nature of the world economy enables them to continue their business undetected despite prohibition of the activity, and also because states have chosen to police these activities on a selective basis.

Despite this, one cannot deny that TOC in general poses a major threat to the “territorial sovereignty of states and, in particular, any notion that states can determine who or what comes across their border, and what activities are permissible in the territory under their jurisdiction” (Williams, 2002:165). Weak states are often the target for TOC as they are often unable to control cross-border flows. The reason as to why weak states tend to be so attractive is due to the fact that weak states tend to have low levels of legitimacy, weak border controls, public interest is often ignored, business is not regulated, weak justice system and other state functions

are not carried out effectively or efficiently (Williams, 2002). This is especially applicable to TEC, as states are often unable to regulate illicit e-waste trade to, and within Africa.

States around the world have likewise found it challenging to combat environmental crime, as the obstacles of weak state capacity, lack of resources, corruption and ineffective judicial support hamper the ability of governments, state and non-state organizations to effectively deal with TEC. However, despite these issues regional directives continue to grow, in order to address environmental crime with INTERPOL taking the lead (Bergenas & Knight, 2015).

It is therefore that attention needs to be paid to the international environmental regime and environmental governance. Environmental governance is integral to combatting the illegal hazardous waste trade and more specifically, to assess the actors involved in the illicit e-waste trade.

2.4. Environmental Governance

The term governance is best understood through the definition provided by the Commission on Global Governance, who in 1995 defined governance as “the sum of the many ways individuals and institutions, public and private, manage their common affairs. It is a continuing process through which conflicting or diverse interests may be accommodated and cooperative action may be taken...” (Commission on Global Governance, 1995: 2, quoted in Karns & Mingst, 2004:4). Additionally, according to Dingwerth & Pattberg (2006) governance is likewise used by academics to refer to a set of public and private processes. It should thus be noted that governance does not simply mean the state or government. Governance can likewise be described as formal and informal agreements between two or more parties/actors. This does however blur the definition of the term, creating complexity and confusion.

The term ‘governance’ in this study is thus understood as a set of laws, rules, regulations, norms and so forth that have been put into place by public and private actors in order to deal with and/or solve existing problems (i.e. the issue of illicit e-waste disposal). In order to accomplish this, the term ‘environmental governance’ is best suited for this study.

Environmental governance may be defined as being regulatory processes, organizations, rules, laws, and international state and non-state organizations, whose political and economic actions influence the environment and the global environmental regime. According to Lemos & Agrawal (2006:298), “environmental governance is synonymous with interventions aiming at changes in environment-related incentives, knowledge, institutions, decision making, and behaviors”. As of late, the environment has been placed near the top of the global agenda along

with other important issues such as international security. It should be noted that environmental concerns are not new, “though it is true that they now occupy a more prominent and visible position in international affairs, it must be remembered that environmental issues have played a role in international society since the beginning of our modern state system” (Rowlands, 1992:287). Early examples of environmental governance can be supported by environmental organizations such as the International Joint Commission (between the United States and Canada in 1909)⁸ and the Sierra Club (1892)⁹.

Although these examples were present before the 21st century, they were not global in scale and did not have the support of national governments (Karns & Mingst, 2004). Prominent authors, such as Rachel Carson (*Silent Spring*, 1962) and Jacques Yves (*The Living Sea*, 1936) and Garret Hardin (*The Tragedy of the Commons*, 1968) laid the foundation for what we now know as environmentalism. “Each galvanized environmental activists and helped to cement in the public consciousness the notion of the interdependence of all living things” (Karns & Mingst, 2004:464). Despite these contributions, global environmental issues were still regarded as not being ‘high politics’.

Chasek, Downie & Welsh Brown (2010) state that environmental issues have become of utmost importance due to their inter-connectedness with other political issues such as economic development, international trade, and North-South relations (which will be discussed later in this chapter). It should thus be reiterated that environmental issues do not submit to national boundaries and they certainly do not respect human rights. It is, therefore, that the environment cannot be relegated to the background (Chasek *et al.*, 2010:14). Authors such as Rowlands (1992) and Lemos & Agrawal (2006) note that global cooperation is of utmost importance to address environmental issues. Per the work of Rowlands (1992:291), the environment cannot be managed by one sovereign state, it thus needs “co-operative action between states [that] could help to realize mutual benefits”.

Chasek *et al.* (2010) note that for one to understand environmental politics and essentially environmental governance, one needs to understand the role of international regimes (set of norms, rules, and so forth). With regards to regimes, states are viewed as the most prominent actors as they are essential in the creation of regimes whereby a binding agreement is made.

⁸ The International Joint Commission’s main focus is on the protection of lake and river systems between the US/Canada borders (IJC, 2013).

⁹ The Sierra Club was founded in 1892 by conservationist John Muir. The focus of the Club is on various environmental issues, such as protecting wildlife and forests, ecosystems, and the promotion of clean energy use, amongst others (Sierra Club, 2016).

According to Chasek *et al.* (2010), environmental problems are often dealt with through conventions. “A convention may contain all the binding obligations expected to be negotiated or followed by a more detailed legal instrument, often called a protocol, which elaborates more specific norms and rules” (Chasek *et al.*, 2010:23).

As stated by Schmidt (2004), environmental crimes are largely being fought via multinational environmental agreements (MEAs). These MEAs form part of the larger international environmental regime. However, Schmidt (2004) criticizes them for lacking the ability to enforce environmental treaties and law. It is therefore that he states that, “even an informed judiciary, well-trained investigators, and the political will to promote environmental enforcement [cannot] necessarily prevent illegal trading, which will be exploited by criminals as long as they perceive a demand” (Schmidt, 2004:98). Krueger (1999) notes that MEAs, such as the Montreal Protocol on Substances that Deplete the Ozone Layer, the Convention on International Trade in Endangered Species (CITES) and the Basel Convention (which will be discussed in Chapter III) are important and necessary to deal with vast global environmental issues. At present, there are over 250 MEAs, of which 20 of these agreements affect international trade, which illustrates the impact environmental issues can have on not just the global economy, but on all spheres of life (The Doha Mandate on environmental agreements (MEAs), 2016).

One could thus note that states have started to police illicit environmental activities with increased attention and to various degrees. However, although most states (specifically in the global North) are able to address environmental issues, others (primarily in the global South) are unable to effectively deal with these environmental issues. Clapp (1999) states that the importance of environmental issues on the global agenda is influenced by three factors. The first factor is the involvement of non-state actors, which has an impact on a state’s willingness to regard an issue as important. The second factor relates to the structural position of states within the global political economy, which influences a state’s interest in an environmental issue. This factor is of utmost importance for this thesis, as it could be simplified by the North/South debate with regards to the attention being given to environmental issues and politics. The third and final factor is the role of ‘powerful industry players’ or MNCs. MNCs have the ability to influence a state’s stance towards various issues, especially environmental issues. “There is growing attention being paid to the influence that industry has, not just in contributing to environmental problems in the first place but also determining state response” (Clapp, 1999: 93).

According to Speth & Haas (2006), the greatest challenge for the global environment is that of effective environmental governance. The reason for this is due to the fact that the population of Earth has expanded exponentially, which has in turn resulted in the expansion of economic activity and the growth of human consumption. These issues have thus come at a great cost to the environment. Environmental issues such as pollution, the over-consumption of natural resources, and environmental crime, poses a major threat to the effectiveness of global environmental governance. Alongside this threat to global environmental governance lies the notion that environmental issues (such as acid rain, ozone depletion and global warming) likewise poses a major threat to national security.

The notion that environmental issues pose a threat to national and international security were reiterated at the UN Conference on Environment and Development (UNCED) in 1992 (also known as the Rio Earth Summit). This notion has been reinforced by the fact that, environmental security has a large impact on various spheres of life such as food and health security. According to Lawson (2015:239), the environment can also pose a traditional security threat, as access to natural resources could become a source for violent conflict.

Thus, state and non-state actors have started to come together on a global scale in order to cope with these threats to the environment. However, Speth & Haas (2006) state that these efforts by states and international state and non-state organizations have been subpar, tend to fail, or have been and remain inadequate. With regards to environmental security, Lawson (2015) notes that the failure thereof is due to international organizations/institutions and their inability to not securitize the environment at a politico-institutional level.

Zakri (2004) argues that the failure of environmental efforts is mainly due to the gaps within the current (global and liberalized) system and the fact that environmental concerns are not mainstreamed by decision makers at the national and international levels and are relegated to a special realm. Zarki (2004) therefore states that we should prioritize environmental issues within all national and international institutions and incorporate these issues within all judicial, educational, social, health, financial and security-related spheres.

The need for strong environmental governance is thus increasingly important, especially due to globalization. Globalization has both positive and negative effects on the environment, as it has intensified the depletion of natural resources (such as oil) and has intensified waste production. However, globalization has also allowed for the intensification of environmental regimes, organizations and the importance of non-governmental organizations (NGOs) (Lemos

& Agrawal, 2006). In accordance with Zakri (2004), Lemos & Agrawal (2006) state that due to neoliberal policies, environmental governance has become complicated thus hindering its efficiency and effectiveness. Due to the complicated nature of environmental governance, this thesis will focus on environmental regulations/ MEAs in Chapter III, specifically the Basel Convention and the Bamako Convention and how environmental regulations seek to control and combat the illicit e-waste trade.

Although there is a myriad of actors involved in the e-waste trade, the regulation of this trade and other environmental issues and crimes is often left to the state. The reason for this is due to the fact that the state, regardless of theories about the regression of the state, remains the most important actor in global governance. The same can be said for states within environmental governance, as they have the power to adopt economic, trade, regulatory, and development policies that affect the environment.

2.4.1 The State & the Environment

States have the power to adopt environmental regimes and determine the effectiveness of those regimes. According to Chasek *et al.* (2010), the reality is that the costs and risks of environmental degradation is not distributed equally among states and, as a result, states view environmental threats in various ways and respond differently to environmental regimes. Green Politics or Green Theory within IR provides a perfect analysis of the state within the environment.

Green theorists are highly critical of the state and sceptical about its role in dealing with environmental threats. The reason for this is due to the fact that states are essentially to blame for environmental degradation, which is espoused by scholars such as Eckersley (2004). Paterson (2005:242) notes that not only are states partly to blame for environmental degradation, but they are also “too big and too small” to deal with environmental issues. It is for this reason that Green theorists such as Eckersley (2004) call for the creation of a ‘green state’. According to Eckersley (2004:2), a ‘green state’ is a “democratic state whose regulatory ideals and democratic procedures are informed by *ecological* democracy rather than liberal democracy”. It is important to note that the ‘green state’ would not fully reject liberal democracy, but rather that its decision-making process will be informed by environmental concerns. Eckersley (2004) likewise notes that, the state has a contradictory relationship with the environment, as it acts as both a facilitator of environmental degradation and a protector of the environment.

Death (2016) however, argues that the ‘green state’ debate championed by Eckersley (2004), has neglected states in the developing world. According to Death (2016), developing states, and African states in particular, can be viewed from the ‘green state’ perspective. By viewing African states from this perspective, it will also allow for new questions being raised about environmental governance. Death (2016) argues that African states tend to be ignored when it comes to environmental governance. African countries tend to have poor results on environmental governance indexes, such as Yale’s Environmental Performance Index (EPI), and developed states are often the ones that have good performance ratings. The focus on developed states has also been due to the notion that environmental issues have not been a priority in Africa and due to the fact that Africa is often characterized by weak, failing and underdeveloped state-systems.

Death (2016) does however note that the ‘green state’ debate has been experiencing changes over the years within political science and IR and states in Africa have started to give more attention towards environmental issues, however, one should bear in mind that environmental issues have not been completely non-existent in Africa. “...States such as Egypt, South Africa, Sudan, Nigeria, Ghana, and Ethiopia have long histories of large modernist development projects, often with the aim of managing more sustainable resource use, mitigating environmental threats, or protecting sites of natural and national heritage” (Death, 2016:120).

The idea that Africa has been neglected within environmental governance can be evidenced by the illegal trade in e-waste and the creation of dumpsites in Nigeria and Ghana, despite MEAs, such as the Basel Convention. Environmental governance will therefore be used as an analytical tool in Chapter IV to assess the management of the e-waste trade and the recycling thereof in West Africa. It will likewise be used to analyse the actors involved in the illicit e-waste trade and determine whether international and national environmental governance is to blame for the continuation of the illicit e-waste trade.

As with all global focus areas, such as globalization, the debate of inequality has made its way into environmental governance. According to Roberts & Parks (2006), those that do focus on global inequality seldom attempt to explain why and how inequality matters and how it affects international environmental politics. At the heart of the debate is the issue that developed or industrialized countries (global North) are unwilling to curb their own ecocidal activities, and developing states (global South) are waiting for developed states to take the lead.

This debate, as epitomized by Roberts & Parks (2006:6), is taking place “at a time when concerns about Northern callousness and opportunism in matters of international political economy are rising, levels of generalized trust are declining, and calls for fair outcomes are being marginalized”. As a result of this, cooperation within environmental governance has become increasingly hindered. The following section will therefore pay attention to this North-South relationship, as it is important to the understanding of the international trade in electronic waste.

2.4.2 North/South Relations

The North-South divide has become an increasingly prominent debate within global governance/politics, and as such, has become increasingly prominent within global environmental politics. The reason for this is partly due to the fact that environmental politics is viewed differently in the ‘North’ and ‘South’ and the fact that the conditions (politically and economically) are different between the developed and developing nations.

According to Najam (2005:111), “developing countries were not the original *demandeurs* of global environmental policy”. It is therefore that, as a collective, states of the global South have argued that the ‘historic responsibility’ of climate change rests on the shoulders of the developed world or global North. It is thus believed that climate change has come as a result of past overconsumption and rapid industrialization of developed countries and the effects of which has been borne by the developing world (Hurrell & Sengupta, 2012). This rapid industrialization has resulted in the increased generation of waste. This increase in waste coupled with strict environmental regulations in the global North, has resulted in a demand for efficient and cheaper disposal methods.

Before, and at the time of the Stockholm Conference in 1972, developing countries have always resisted the global environmental politics espoused and led by the developed world. However, the global South have started using environmental governance/politics as a driving force in questioning the dominance of the global North within global politics and global governance in general. Najam (2005:112) states that, “...global environmental politics is one subset of discussions within the larger enterprise for more just and meaningful North-South relations”. According to Hurrell & Sengupta (2012), this has led to the notion that the global South has started to pose a threat to northern dominance within the international system. There is likewise the perception that there is a power shift taking place within global politics and that emerging powers, such as China, Brazil and South Africa are starting to play an important role within global governance. “On this account the global system is increasingly characterized by a

diffusion of power, to countries including emerging and regional powers; by a diffusion of preferences, with many more voices demanding to be heard both globally and within states as a result of globalization and democratization...” (Hurrell & Sengupta, 2012: 463).

Despite this challenge to Western/Northern dominance, Hurrell & Sengupta (2012) do, however, state that although emerging powers in the global South have gained increased importance and influence, their rise has made the complex issue of climate change even more complex. The reason for this is due to the notion that they have failed to live up to the responsibilities of being an emerging power. It should thus be noted that how they develop will be integral to climate change and environmental governance in the future. Although the global South has been effective in curbing the dominance of the global North within the global political arena, they are however, not able to / going to fundamentally overturn the current system in the near future (Najam, 2005).

Nevertheless, the global South has been able to take advantage of the environmental debate through the concept of ‘sustainable development’. By 2002 at the Johannesburg Summit in South Africa, developing states started to become increasingly active and engaged in the environmental debate¹⁰. The reason for this, as noted by Najam (2005:117), is due to the South viewing sustainable development “as a means to actualize its long-standing desire for more just and fair international order and of more balanced North-South relations...”. Najam (2005) states that sustainable development might also be the ‘trump card’ that the global South needs in order to address global inequality. It has also allowed for developing states to gain considerable bargaining power within environmental negotiations, as without the cooperation of the global South, environmental governance would remain ineffective.

Of particular importance with regards to the North-South debate, is the position that the global South holds within environmental governance.

The Global South & the International Environmental Regime

Within IR, the North-South debate is particularly emphasized within a sub-field of Green Theory, known as ‘Third World ecology’. This sub-field grew to prominence during the 1980s, as there was a need to integrate environmental issues of the Third World/ developing world into the broader debate of political ecology. According to Bryant & Bailey (1997:3), Third

¹⁰ The Johannesburg Summit was not the only summit in which the global South played an important role. Prior to the 2002 Summit, at the 1992 Rio Summit, the global South was able to play a central role as well. According to Hurrell & Sengupta (2012:467), the Rio Summit was a success for the global South, as it saw an acceptance by northern countries for past environmental harms, and “the acceptance of the idea of common but differentiated responsibilities; and the incorporation of resource and technology transfers”.

World ecology is based on a radical perspective as “these scholars nonetheless continue to orient their work around [a] radical agenda that usually set them apart from other scholars conducting research on environmental problems in the Third World”.

These scholars agree, likewise, on two important points. The first is based on the idea that the environmental issues in the developing world is not only a reflection of the failure of policies and markets, but also broader economic and political influences. These influences are usually related to the growth of neo-liberalism and capitalism that have had a drastic impact on the environments of developing states. Issues such as pollution and the trade in toxic by-products (from developed to developing countries) are also receiving greater attention from Third World ecologists. However, it should be noted, that political ecologists also stress the issue of the state becoming increasingly involved in environmental degradation in search of capitalist expansion, national security, or for the self-enrichment of leaders. The second agreement is based on the need for the restructuring of the regional, and especially the global politico-economic system, as the system is highly based on unequal relationships between the global North and global South. Radical change is thus required if we are to attempt to solve the current environmental crisis in the developing world (Bryant & Bailey, 1997:3).

According to Miller (1995), if one seeks to understand the role of the global South within environmental governance, then it would be useful to understand its role within the global political economy. It is widely accepted that the global South has for long occupied an inferior position within the global economy. States within the global North are thus positioned (due to their relative economic and political ‘power’) to take advantage of the current world system and shift the ecological burden to weaker states in the global South. States within the global North can do this since “poor nations are passive or negligible actors in global environmental policy decisions, and represent the path of least or no resistance, [therefore] environmental burdens are continuously directed to them” (Adeola, 2000:691). Thus, it comes as no surprise that the need for economic gains coupled with lax environmental regulations, or laws within the global South, creates an attractive setting for the actors involved in the e-waste trade.

Therefore, the global South becomes increasingly vulnerable to the interests and actions of developed states in the global North. The vulnerability of the global South is often attributed to its legacy of colonialism and foreign domination or exploitation. Bryant & Bailey (1997) note that the environmental issues within the developing world is also characterized by its past, for example, many African countries are characterized by its colonial past. According to Bryant & Bailey (1997:7), “colonial rule also led to political and administrative changes that

fundamentally altered the ways in which states went about managing the peoples and environments under their jurisdiction”.

It could be argued that even after colonialism the environment was not of key concern, as the focus was often placed on economic growth and integration within the global capitalist system. As a result, e-waste trade is often viewed from an economic perspective, due to its short-term financial benefits for the actors involved. Today, many developing and underdeveloped states in the global South remain highly dependent on the production and sale of natural resources regardless of the environmental impact. Bryant & Bailey (1997) note that developing countries, such as Nigeria, face a double burden as they are dependent on the export of oil to survive and are dependent on the activities of MNCs such as Shell. “Many Third World leaders thus have little choice but to perpetuate practices that contribute to environmental degradation in the absence of alternative sources of national income” (Bryant & Bailey, 1997:59).

Byrant & Bailey (1997) also note that the debt crisis and structural adjustment programmes (SAPs) that swept through the developing world during the late 1980s and 1990s has had a significant impact on the spending of developing states. Developing states, thus opted to cut spending on environmental policies and programmes in favour of policies that would secure economic growth despite their negative effect on the environment. Another issue is that of corruption, as environmental stewardship is not seen as economically viable to some political leaders, and also due to the fact that they tend to gain more from the exploitation and export of their country’s natural resources.

Although there have been some improvements in the developing world, structural differences remain, as many developing states still rely on the export of raw materials and continue to rely on international loans, for development. With regards to the trade of hazardous waste, Miller (1995) states that this trade has always been prominent amongst developed states in the global North, however, most of this waste tends to end up in the global South (developing and underdeveloped). Most developing and underdeveloped states also do not have the capacity to properly dispose of this waste, thus making this trade one which is highly unequal. The targeted countries in the global South do not benefit from this trade (aside from personal financial gain) and the costs (environmental and health) of hazardous waste dumping are not shared amongst the global North and South (Miller, 1995). Since the 1980s, developing countries in the global South have been unable to successfully deter the hazardous waste trade, which is partly due to weak environmental laws and poor enforcement of international regulations (Clapp, 1999).

One could argue that the relationship between the global South and the global North, with regards to the trade of e-waste is one of injustice and inequality, as countries in the global South often do not have the capacity to dispose of e-waste in an environmentally sound manner. Due to the lax laws and weak capacity within these states in the global South, actors involved in the illegal e-waste trade find it easier to use developing and underdeveloped states as a ‘global trashcan’. The abuse of lax environmental laws and weak state capacity within periphery states and how this allows for the continuation of illegal e-waste dumping, will be explored in Chapter III.

2.5. Conclusion

Chapter II has discussed the theoretical foundation and concepts that were introduced in Chapter I, to gain a better understanding and definition of transnational environmental crime or TEC, which will be used to examine the illicit trade of e-waste in West Africa. This chapter placed a focus on concepts such as environmental governance, whereby the relationship between the global North and global South was of utmost importance.

The relationship between the global South and global North is fundamental to this study due to prominence of e-waste that is generated in the global North and being illegally dumped in Africa. By focusing on environmental governance one can understand and locate the actors involved in the illegal e-waste trade. This chapter has also discussed the debate surrounding the position of the state within environmental governance. It was found that the state has a contradictory role with regards to the environment, as it acts as a steward of environmental protection and as a facilitator of environmental degradation.

It was shown within this chapter that TEC should be discussed within the broader scope of the global illicit economy and more specifically, environmental governance, as environmental governance is key to the fight against TEC. It was likewise shown that various actors, from state to non-state, play an important role in environmental crime, whether they be contributing to the fight against environmental crime or are themselves perpetrators of environmental crime. Environmental crime theory has, likewise, proven to be useful not only in terms of framing the illegal disposal of hazardous waste as an ecological crime, but also in framing it as a crime against humanity.

The following third chapter of this thesis will examine the literature and debates surrounding hazardous waste disposal and the trade thereof, specifically the export of hazardous waste to the global South. Chapter III will thus act as a contextualization of hazardous waste and e-

waste, as it is important for one to grasp the larger issue at hand, hazardous waste, before placing a focus on the sub-issue of e-waste.

Chapter III: The Global Hazardous Waste Trade & Africa

3.1. Introduction

The purpose of this chapter is to provide a contextualization of the environmental crime issue of hazardous waste disposal and more specifically electronic waste or e-waste. As will be explored later in this chapter, the illicit trade and the disposal of hazardous wastes constitutes as an environmental crime. From the EJ view one can frame hazardous waste dumping as an environmental crime, as it (1) violates international environmental law/norms/rules; (2) it has identifiable negative environmental consequences; and (3) the negative consequences of dumping hazardous waste is caused by human action(s).

This chapter is integral to this thesis, as it lays the foundation for locating the actors involved within the illicit e-waste trade and dumping in West Africa. The importance of this chapter is thus to answer the sub-questions relating to how the illicit trade continues despite international regulation and the factors which hinder and limit the Basel Convention. Chapter III will likewise be of a two-fold nature. The first section will define hazardous waste and focus on the trade thereof. The second half of this chapter will deal with the concept of e-waste in order to provide an understanding of why e-waste is traded and why the illicit disposal thereof is environmentally damaging and life-threatening.

3.2. Defining hazardous waste

As with other forms of environmental crime, there is no clear and agreed upon definition of hazardous waste. Article 2(1) of the Basel Convention defines hazardous waste as being “substances or objects which are disposed of or are intended to be disposed of by the provisions of national law” (Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 2014:10). This definition provided by the Basel Convention is open-ended and could lead to confusion due to its flexible nature. According to Hippolyte (2012:311), this may lead to “countries [claiming] that they are legitimately trading in commodities”. The reason for this is because the use of the word ‘substances’ could mean anything, ranging from pharmaceutical products and paint to lead and asbestos.

As such, a clearer definition is therefore needed for the purpose of this thesis. Hazardous waste can be defined as being “any unwanted materials either in solid, liquid, or contained gaseous form discarded by being disposed of, buried burned or incinerated or recycled” (Adeola, 2011:16-17). According to Adeola (2011), the terms ‘hazardous’ and ‘toxic’ are not synonymous and should not be used interchangeably. Toxic waste, as described by Adeola

(2011) is a subcategory of hazardous waste that may have severe permanent or even deadly consequences upon contact. On the other hand, hazardous waste is regarded as being materials that cause long-term injury, disease, or death, and long-term environmental damage.

The result of there being no agreed upon definition is that it has led to the complexity of regulating the international trade in hazardous waste. The issue of defining hazardous waste is also the result of a historic view, whereby hazardous waste was simply termed ‘waste’ and as such, was dumped with ordinary waste. According to Rebovich (1992), hazardous waste only garnered special attention after the Love Canal disaster¹¹ in 1978, in New York. This resulted in several laws being passed in the United States with regards to the regulation of hazardous waste disposal. Similarly, Szasz (1986:1) states that before environmental degradation became a political, economic, and social issue, hazardous waste was not “legally distinguished... [and] was disposed of with ordinary garbage, at a very low cost”. As stated by the International Network for Environmental Compliance and Enforcement & Seaport Environmental Security Network (2009), the major issue arises when one attempts to separate second hand goods from hazardous waste, especially in the case of electronic goods.

“Although some national guidelines exist to determine waste versus second hand goods, accepted international guidelines are lacking” (International Network for Environmental Compliance and Enforcement & Seaport Environmental Security Network, 2009: 5). As a result of this confusion arises, as there are various definitions across states and international organizations which in turn, results in attempts to monitor and regulate hazardous waste trade failing or becoming complex tasks. The regulation of hazardous waste trade thus poses a challenge to environmental governance, as it has proved nearly impossible to control and enforce the trade thereof. As mentioned before in this study, the Basel Convention has become integral to the control of hazardous waste generation and the trade thereof. However, for one to understand the Convention one needs to understand the trade of hazardous wastes.

3.3. The Hazardous Waste Trade

The advent of hazardous waste trade can be traced back to the 1970s and has been expanding ever since due to the globalization of trade. According to Clapp (1994:506), “extensive and

¹¹ The Love Canal was intended to be a community, inspired by William T. Love. However, this did not materialize and by the 1920s the area was turned into a dumping ground for municipal and industrial waste. By 1953, the area containing the hazardous waste was covered with earth and sold to the city of New York. Following the sale, nearly 100 homes and a school was built on the former dumpsite. In 1978, it was reported that drums containing hazardous waste started to explode and burst through the soil above ground, leading to the waste leaking into the homes and backyards of people living in the area. The effects of the leakage were visible, as children were reported to have burns on their hands and faces and the United States (US) Health Department reported an increase in birth defects among pregnant women living in the area at the time (Beck, 2016).

inexpensive transport and communications networks, put in place for trade in commodities, has only facilitated the trade in [hazardous] wastes”. Hazardous waste has thus become and continues to be a lucrative market. It should be noted that it is a difficult task to acquire exactly how much hazardous waste is being imported and exported as most of these deals tend to be clandestine in nature. The international trade in hazardous waste only came to the attention of the public and politicians in the late 1980s, due to incidents of hazardous waste being transported to less developed countries in the global South from industrialized countries in the North. UNEP has estimated that over 400 million tons of hazardous waste is generated globally each year, of which the majority is generated in the global North. 10% of this waste ends up beyond the borders of the industrialized states in the North and the majority makes its way to less developed countries in the global South (Orloff & Falk, 2003).

Due to the process of globalization and the liberalization of global trade, strict environmental regulations in the global North and the increase in the cost of legal waste disposal, has triggered a North-South relationship regarding (illicit) hazardous waste trade and its disposal. It should be noted that the liberalization of trade and globalization is not the sole cause of this trade, it has merely facilitated its growth. Clapp (2001:24) adds, that globalization and liberalized trade and communication has facilitated “lower transportation and communication costs, the relative ease with which trade routes are established and abandoned, and the difficulties in checking every import container, especially in developing countries...”.

The North-South relationship was spurred on by the fact that as the use of hazardous materials increased in the global North, hazardous waste facilities in these states found it difficult to cope with the increased generation of waste (Krueger, 1999). This toxic relationship is therefore not one that should be taken lightly as the “environmental and social consequences of the illicit traffic in garbage and hazardous wastes are prodigious and global in scope” (Liddick, 2010: 135). According to Castleman (2016), it is not only the export of hazardous waste that has increased, but also the export of hazardous industries to the global South¹². Similar to the export of hazardous waste, this export of hazardous industries coincides with the strict environmental regulations in the United States (US) and Europe during the late 1970s. “Government authorities enforced new laws [in the global North] to regulate airborne exposure to toxic

¹² An example of this has been the establishment of maquiladora firms in Mexico, to avoid strict environmental regulation in the United States of America (USA). These American factories were established for producing goods for export to the USA. According to Clapp (2001), during the 1960s and 1970s, most of these factories produced garments and other non-hazardous materials. However, by the 1990s, nearly 87% of these factories made use of hazardous materials.

substances at work and pollution in the environment. Most of the new industry set up in the [global South] was just the global expansion of business-as-usual...” (Castleman, 2016:2).

There is however reason for this rapid rise in the trade of illicit hazardous waste, chief among them being the cost of disposal. Clapp (1994) illustrates that the cost for disposing of hazardous waste in the US rose from \$15USD per ton in 1980, to \$250USD per ton in 1988. This rapid increase in cost, due to stricter environmental regulations, had resulted in firms and brokers seeking cheaper and cost-effective alternatives. Krueger (1999:21) notes that one of the most important reasons for this trade is due to the potential economic value of hazardous waste as “secondary raw materials to be recovered, reused and recycled”. Debt, and by extension the need for foreign exchange within the global South (especially in Africa) is often regarded as a major cause for lax environmental regulations regarding the import of hazardous waste in the global South.

“The poorest and weakest countries riddled with international debts and other problems such as famine and war, have been desperate for foreign exchange” (Clapp, 1994:506). This meant that the cost of exporting hazardous waste to less developed countries was far more cost-effective. “These costs were low because [hazardous] waste disposal facilities and regulations governing [hazardous] waste disposal were virtually nonexistent in developing countries” (Clapp, 2001:23). The result being that African states often accept illegal hazardous waste due to their need for foreign exchange. It is because of these reasons that states in the global South are often the preferred targets for illicit hazardous waste dumping due to low labour, recycling and disposal costs, and weak environmental laws.

The global North consequently needs an outlet for the increased generation of waste within their borders and as such actors within the global North take advantage of the lax environmental laws, and lack of information and knowledge regarding the environment in the global South. Due to the lack of knowledge regarding the safe disposal of hazardous waste, it becomes much easier for disposers to trade and illegally dump hazardous wastes, as the economic incentives often overshadow health and environmental risks. The illegal disposal of hazardous waste has, over time, become a serious environmental crime, garnering attention from various fields of study.

Since the 1980s, legislations have been adopted regarding the trade and the environment. However, the scope and effectiveness of these legislations differs between states and regions. With regards to the trade of hazardous waste to the global South, UNEP takes the lead with the

establishment of the Basel Convention. The Basel Convention has been successful in normalizing the fact that hazardous waste should not be traded and dumped in the global South, however issues still exist. Despite a decrease in North-South hazardous waste trade since the 1990s, the trade still continues. According to Tladi (2000:211), “the issue of controlling or banning the transboundary movement of hazardous waste from the developed to the developing countries, represents a conflict between the economic interests, of both the developed and developing countries, and the health and lives of people in developing countries”. These conflicting interests were prominent during the establishment of the Basel Convention and continue to plague the Convention amid the 21st Century.

3.4. The Basel Convention

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Basel Convention) is the result of the Conference of Plenipotentiaries on the Global Convention on the Control of Transboundary Movements of Hazardous Wastes, held in Basel Switzerland, in 1989 and was adopted on 22 March 1989 (Kummer Peiry, 2010). The Convention entered into force in 1992 and by the late 1990s there were 122 Parties to the Convention (Krueger, 1999). To date there are 184 Parties to the Convention. According to Krueger (1999:5), the Basel Convention “seeks to protect human health and the environment from the negative effects of hazardous wastes and to create a framework for their environmentally sound management”.

The need for stricter regulations regarding the trade in hazardous waste came as a result of highly publicized incidents in the 1980s of illegal hazardous waste disposal, whereby hazardous wastes were being transported from developed states within the global North to less developed states in the global South. The most widely known incident was the dumping of hazardous wastes from Italy to Koko, Nigeria in 1987. These highly toxic and radioactive wastes were dumped under the pretence of “substances relating to the building trade” (Lipman, 2002:67). The Basel Convention was therefore established in order to control the North-South movement of hazardous wastes.

Kummer Peiry (2010:2) states that the Convention is thus “seen by many primarily as an opportunity to put a stop to illegal international waste traffic from North to South”. The most integral part of the Convention is the fact that it is based on the concept of ‘prior informed consent’. This means that the party that wishes to export the waste, needs to have the consent of the importing and transit party and “providing them with detailed information on the intended movement” (Kummer Peiry, 2010:4).

Parties to the Convention are obligated to take the most suitable measures when trading in hazardous wastes. According to the Basel Convention, the transport of hazardous waste is only allowed if three specific conditions are met. The first condition notes that waste may only be exported if the exporting state does not have the capacity and facilities to dispose of the waste in an environmentally sound manner. The second condition emphasizes that the waste in question must be acquired for the purpose of recycling or recovery. The third and final condition that needs to be met is that the waste in question is in accordance with the criteria decided by the Parties to the Convention (Controlling Transboundary Movements of Hazardous Wastes, 2015). If these conditions are not met, then the movement of the hazardous wastes in question will be termed as being illegal. Rucevska *et al.* (2015) regard the Convention as the only MEA to term illegal activities that violate its laws as being a crime. The Basel Convention likewise regards the trade of hazardous wastes between non-Parties as illegal. Trade between non-Parties are only regarded as legal when there is a special agreement between the states involved. Parties to the Convention are however required to minimize the trade in hazardous wastes across their borders and “to treat and dispose of wastes as close as possible to their place of generation and to prevent or minimize the generation of wastes at source” (The Basel Convention at a Glance, 2007:2).

It is important to note that the Convention does not seek to ban/regulate the generation of hazardous waste but rather the trade thereof. According to Krueger (1999:82), “...the Basel Convention was in many ways negotiated to try and address the concerns of developing countries, and particularly those in Africa, about the dumping of industrialized countries’ hazardous waste on their territories”. During these negotiations, which took place between 1987 and 1989, various actors were involved in the creation of the Convention. States in the global South wanted hazardous wastes to be banned and made illegal, however, those within the global North saw the trade in hazardous waste as a component of global trade and only sought to regulate it. Environmental Non-Governmental Organizations (NGOs) sided with the global South in seeking to ban hazardous waste trade. MNCs (such as Siemens and Boeing) likewise played a major role during these negotiations and were concerned about strict regulations and the future of cheaper disposal options in the global South (Miller, 1995).

According to Krueger (1999), the main issue for the global South was the issue of the illegal trafficking of hazardous wastes to the global South. They were particularly concerned with the issues of ‘sham recycling’ and ‘dirty’ recycling. The former relates to items that are marked as being destined for recycling, when in reality they are being illegally dumped. The latter refers

to recycling which is done in an un-environmentally sound manner. As mentioned above, during the negotiations, the global South advocated for a complete ban of the hazardous waste trade and even cited the act as being ‘toxic imperialism’. However, despite the efforts of the global South (and environmental NGOs), the global South failed to overcome the interests of global North and large MNCs and as a result, the Convention became one of consent and notification instead of placing an outright ban on the North-South trade in hazardous wastes.

3.4.1. The Basel Ban Amendment

The Convention was however, followed by the creation of the Basel Ban/ Ban Amendment in 1994. According to Orloff & Falk (2003:294) the Amendment, if ratified, would ban the export of hazardous wastes from the developed global North to the less-developed global South. Some Parties to the Convention have become reluctant to ratify the Ban Amendment, as this would restrict the export-import of raw materials for recycling operators. The Ban has thus “effectively divided the Basel signatory parties into two blocs of countries, developed versus developing, and [seeks] to halt transboundary movements of waste from the former to the latter” (Lepawsky & McNabb, 2010:178). This division of signatories into blocs has not come without controversy and has likewise resulted in the Convention becoming ineffective at times. According to Chasek, Downie & Welsh Brown (2010), the export of wastes destined for recycling has become the most controversial issue relating to the Ban. The controversy stems from the fact that some actors (from the North and South), see the export and import of wastes for recycling as a lucrative market. Wynne (1989:123) states that:

Pro-export interests [argued] that a ban on waste trading would not only deprive the poor countries for a means to earn hard currencies, but that the lack of clear distinctions between toxic wastes and raw materials which may be imported for recycling as inputs to industrial processes would also curtail waste management technology transfer and discourage other industrial development.

Thus, within this logic it is believed that by banning the trade in hazardous wastes, it would curtail the development of recycling or waste management industry within less-developed states within the global South. This frame of thought led to those within the recycling industry to try and redefine the meaning of hazardous waste within the Convention, in order to ensure that the Ban would not hurt them financially. However, the fear remains that potential environmentally damaging hazardous wastes will be labelled as goods destined for recycling and that large MNCs would relocate their hazardous activities to the global South (Clapp, 2001).

An outright ban of hazardous waste exports could be beneficial to the global South, as it “would mean that the ‘able’ developed country would control the movement of hazardous waste on the exit side, while the developing nation would control the entry side...” (Tladi, 2000:213). This would bode well for the global South as they will have the opportunity to cooperate with the global North to curb the illicit flow of hazardous wastes. The cooperation between the two would aid in the development of waste management in countries that need it the most as without this cooperation the less-developed states within the global South would fail.

As of this writing, according to the Basel Convention there are 89 Parties to the Ban out of the 186 Parties to the Convention (Amendment to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 2011). In October of 2011, after decades of negotiations and controversies, the Ban Amendment entered into force. It is, however, important to note that the Ban Amendment is not a legally binding agreement (Lucier & Gareau, 2016).

As mentioned above, the issue of recycling remains an issue within the Ban Amendment. As such, it should not be assumed that all developing states within the global South agree that the Ban is needed. Some states within the global South, who have large recycling industries (such as South Africa) fear that a total ban on the trade in hazardous wastes may result in them losing much needed financial resources. Lipman (2002:71) states that “regardless of the legality of such actions, developing countries may continue to import hazardous waste as long as it remains profitable”. The result of the Basel Ban failing to be a legally binding agreement resulted in the creation of regional agreements within the global South, most notably the Bamako Convention in Africa¹³.

Despite the creation of the agreements such as the Basel Convention and the abovementioned Bamako Convention, the illicit trade in hazardous wastes, more specifically e-waste has not stopped. In fact, it continues to increase as actors find new ways of disguising their shipments and taking advantage of loopholes within international legislation.

¹³ The Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa entered into force in 1998 and was established by the Organization of African Unity (OAU), now the African Union (AU). It is loosely based on the principles of the Basel Convention and condemns all hazardous waste trade to the African continent (Ognibene, 2007). Although the Bamako Convention bans all imports of hazardous wastes into the African continent, it however, does not make provision for intra-African trade in hazardous wastes. Much like the Basel Convention, the Bamako Convention is not legally binding.

3.4.2. Loopholes & a Black Market to the Basel Convention

Regardless of the Convention and the subsequent Ban Amendment, the illicit trade continues to grow. This has led to some arguing that the Basel Convention has been a failure and that it is the reason why illegal hazardous waste trade continues. Tompson & Chainey (2011) argue that the introduction of strict regulations (i.e. the Basel Convention) has made the management of hazardous waste a much more complicated and financially exorbitant practice. Although the regulations and laws put in place by the Convention have resulted in a decrease in hazardous waste trade, it has created a black market for waste disposal.

Consequently, environmental criminals have become smarter when exporting, by marking the wastes as ‘recyclable’, ‘re-usable’ or ‘second-hand’ goods. This apparent loophole stems from the fact that the Convention does not clearly distinguish between hazardous wastes and recycling wastes. According to Clapp (1999: 108), due to these loopholes (mislabelling and recycling), “more firms in recent years have begun to relabel hazardous wastes as commodities to be recycled rather than as wastes to be dumped”. In order for an exporter to conceal the true nature of their commodity (being hazardous in nature), they could for example make use of a non-hazardous waste customs code which does not fall under the regulations of the Convention (Rucevska *et al.*, 2015).

There are thus two important markets within the waste trade. The first being the second-hand market and the other being the black market. The former is often abused by waste brokers as cover to disguise potential hazardous substances which are then exported to and within the global South (this market is especially important within the discussion of e-waste disposal). “...the trademark of ‘second-hand goods’ is often used or abused, making it an important focal point and a vulnerable aspect” (van Daele *et al.*, 2007:37). The latter is often used to quickly get rid of waste in the most cost effective way (which is often the most illegal way) to make a large profit. It can also be used to commit other crimes, such as financial crimes. Clapp (1994) notes that the Basel Convention has been a failure from the start as it did not seek to ban the hazardous waste trade but rather to regulate it. With regards to the regulation of the hazardous waste trade, it is proving to be a difficult task for the Convention as it cannot prevent the illicit trade in hazardous wastes. “In short, while the Basel Convention has provided the ability to monitor the movement of toxic waste from rich countries to poor ones, it has not been able to prevent this flow” (Hippolyte, 2012:315).

Lepawsky & McNabb (2010) state that there are three major loopholes within the Convention. The first is that there is no internationally agreed upon definition of hazardous wastes, which

becomes problematic as national and organizational definitions become contradictory. Secondly, the Convention makes provisions for bi-lateral and multilateral agreements between Parties and between non-Parties as long as those agreements are environmentally sound. However, the term ‘environmentally sound’ is not clearly defined by the Convention, allowing for a loophole to exist. Thirdly, the Convention allows for hazardous wastes to be exported if they are destined to be re-used or recovered by way of recycling. This has evidently led to the issue of exporters relabelling/mislabelling hazardous materials as materials destined for recycling.

The Convention likewise does not distinguish between second hand goods and waste when defining hazardous wastes, thus creating the loophole of mislabelling and recycling (International Network for Environmental Compliance and Enforcement & Seaport Environmental Security Network, 2009). To some authors, such as Lucier & Gareau (2016), this ‘recycling’ loophole is the reason why illegal dumping still continues, as it allows those within the waste management sector to continue “business-as-usual” practices. It should be noted that during the Ban Amendment negotiations, those within the waste management and recycling sectors outnumbered environmental NGOs and countries within the global South. According to Lucier & Gareau (2016:499), the Basel Ban was thus influenced and “moulded” by the interests of powerful actors in order to serve their interests.

Article 4 of the Basel Convention states that among others that Parties to the Convention, may (a) ban the import of hazardous wastes and wastes into their countries, (b) countries that export hazardous wastes should abide by the rules of the country which has banned the import of hazardous wastes and (c) Parties may not export their wastes if “the State of import does not consent in writing to the specific import...” (Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 2014:14). The aforementioned should in theory, allow the importing and exporting countries to control and regulate the flow of hazardous wastes. As a result of this control the international trade in hazardous wastes should decrease, however, this is not the case. “Although they were likely intended to increase transparency and to create an incentive for countries to join the convention...these components of the Convention did more to legitimize international waste trade than reduce it” (Kellenberg & Levinson, 2014:140). This is possible through the fact that the import and export of hazardous wastes is so financially attractive (to both the importer and exporter), even more so when the disposer offers to do it at an inexpensive rate.

The Parties to the Convention likewise have the duty to ensure that if hazardous wastes are consented for and imported that it should be dealt with in an environmentally sound manner as not to cause any human and environmental harm. This is often not possible, as many countries, predominantly in the developing global South, do not have proper control and monitoring mechanisms in place. O'Neil (2001) notes that it has become difficult to establish hazardous waste disposing facilities in the developed global North, as people within those countries have become aware of the dangers of hazardous wastes and thus are unwilling to host these facilities. This becomes a problem, as more and more firms would prefer the exporting method rather than having to deal with vocal citizens.

The Basel Convention's Article 9 regards hazardous waste to be illegal if it contravenes any of the obligations placed on signatory states. Wastes will thus be regarded as illegal if they are (a) dumped without consent or prior notification of the state(s) concerned and the Convention, (b) dumped with consent but under false pretences and misrepresentation, (c) "does not conform in a material way with the documents; or 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..."(Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, 2014:23).

Article 9 likewise notes that hazardous wastes found to be dumped illegally needs to be removed and taken back by the exporter in question, with the cooperation of the country of import. However, it makes no mention of reparation or compensation that may result from the illegal dumping of hazardous wastes. Krueger (1999) states that although this is an apparent weakness, one should bear in mind that the prosecuting of those liable, becomes an indirect weakness of the Convention, as it is difficult to determine what waste is being exported or transported illegally. According to Krueger (1999), the major issue however is the fact that the Convention has a blanket definition of hazardous waste, recycling and disposal, which results in products that are seen as secondary raw materials being classified as hazardous waste.

One of the major issues with the Basel Convention is the fact that it treats the global South as a monolithic grouping that is affected by the exportation of hazardous wastes from the global North. The Basel Convention thus frames the countries of the global South as 'disadvantaged' in terms of hazardous waste disposal and management compared to their global North signatory counterparts. The Basel Convention likewise does not make mention of the "significant uneven political-economic relations between developing countries that might also be important in

driving transboundary movements of hazardous waste in general...” (Lepawsky & McNabb, 2010:179)¹⁴.

It is important to note that one of the most important effects of the Basel Convention has been the common thread that developed countries in the North should not dump their wastes in less-developed countries in the South. Citizens in the global North and in some parts of the global South have also started to become aware of the effects of improper hazardous waste disposal, which has resulted in governments often refraining from exporting and importing hazardous wastes. However, this does not affect MNCs, organized crime syndicates and waste brokers. “Developing countries in particular have consistently expressed concerns about illegal traffic because they often lack the resources and ability to monitor movements and are most vulnerable to health and environment problems resulting from illegal shipments” (Krueger, 2001:480).

Although the Basel Convention has been effective in pressuring exporting countries and MNCs in the North, limitations still exist. Despite bringing the issue of a North-South trade in hazardous waste to light, the Convention continues to remain inconsistent (regarding reliable data collection, monitoring, enforcement and concrete definitions). This inconsistency allows for the facilitation of an illicit trade in hazardous wastes (specifically e-waste) through the use of existing loopholes within the Convention. However, one cannot deny that the hazardous waste trade regime has strengthened since the creation of the Basel Convention in 1989. As stated by Chasek *et al.* (2010), the Convention has been able to curb hazardous waste dumping and the international management thereof has somewhat improved since the late 1980s.

In keeping with the above-mentioned, if the frameworks, guidelines and amendments are correctly and efficiently implemented then the Convention will be able to become stronger. However, this is where the deep-rooted issue lies. Most of the Convention’s motions have not been ratified, powerful Northern/Western states such as the US have not ratified the Ban or are Party to the Convention and the Convention itself is not legally binding, which is due to the differences between the Parties to the Convention. These differences are exacerbated by the fact that states within the developing South seek to develop, modernize and catch-up with the ‘rest’ of the world, resulting in the generation of hazardous wastes and a need for technological

¹⁴ It should thus not be assumed that the global North is solely responsible for the illegal dumping of e-waste in Ghana and Nigeria. This issue will be further discussed in Chapter IV.

commodities. The latter is particularly important to this study, as it is a key driver of the increase in e-waste imports into countries like Ghana and Nigeria.

For the purpose of this research study, a few key points are integral to remember as they allow for the continuation of the illicit e-waste trade to and within West Africa. Firstly, regulations have made the disposal of hazardous wastes and e-waste expensive within the global North; resulting in there being a high demand for inexpensive disposal methods. Secondly, to bypass international regulation put forth by the Basel Convention, e-waste and other hazardous wastes are being mislabelled as 'recyclable', 're-usable' and 'second-hand goods'. Thirdly, the advent of strict environmental regulation has facilitated the creation of illicit trade in hazardous waste; and environmental regulations such as the Convention is not legally binding and Parties are able to act with relative freedom. Lastly, the Convention is inconsistent and does not distinguish between what is deemed waste and what is regarded as second-hand materials, thus creating confusion and hindering enforcement.

3.5. E-Waste

Much like other forms of hazardous wastes, there is likewise no agreed upon definition of what electronic waste or e-waste is and what it should be. However, the only component that is seemingly agreed upon is the fact that e-waste contains hazardous materials which can harm the environment and human health. No-longer are states, people, organizations, and MNCs able to ignore the ecocidal and health effects of e-waste. The generation of e-waste continues to grow as technological advancements are made and expanded, which has resulted in the electronics industry becoming the largest manufacturing industry in the world.

The International Network for Environmental Compliance and Enforcement & the Seaport Environmental Security Network (2009) estimated that the global e-waste market grows by 9% each year. It showed that between 2004 and 2009, the e-waste market grew by 3.8 billion USD (from \$7.2 billion USD in 2004 to \$11 billion USD in 2009). In addition, Greenpeace International has estimated that e-waste makes up nearly 5% of all global municipal solid waste and will continue to grow (Toxic Tech: Pulling the Plug on Dirty Electronics, 2005).

Due to the rapid advancement of technology, the obsolescence of electronic consumer goods has increased resulting in high volumes of e-waste, compared to other forms of consumer generated waste. Amankwah-Amoah (2016) notes that in 2014 alone it was found that nearly 41.8 million metric tons of e-waste was generated on a global scale and this number is expected to increase to nearly 50 metric tons in 2018. According to Puckett, Byster, Westervelt,

Gutierrez, Davis, Hussain & Dutta (2002:5), "...the increasingly rapid evolution of technology combined with rapid product obsolescence has effectively rendered everything disposable".

The term e-waste is defined differently within various organizations and government legislations, which has led to a global inconsistency in understanding what e-waste is. The most important part of the term 'e-waste' is the word 'waste', which according to Solving the E-waste Problem or SteP (2014:4) logically means "that the item has no further use and is rejected as useless or excess to the owner in its current condition". E-waste can thus be described as being any "obsolete, broken, or irreparable electronic devices like televisions, computer central processing units (CPUs), computer monitors (flat screen and cathode ray tubes), laptops, printers, scanners, and associated wiring" (Luther, 2012:66-67). Similarly, Adeola (2011:58) adds that e-waste "implies any old, [end -of-life] (EOL) electronic or electrical equipment that has been disposed of by their original owners because it is obsolete, broken beyond repair, or considered undesirable".

What makes e-waste dangerous to the environment and human health is the components that go into making electronic goods. For example, a computer consists of 23% plastic, 32% ferrous metals (containing iron and are mostly magnetic and have little resistance to corrosion), and 18% non-ferrous metals (such as lead, cadmium and mercury), 12% electronic boards (which contain gold, palladium, silver and platinum) and 15% glass. According to Baker, Bournay, Harayama & Rekacewicz (2004), only 50% of a single computer can be recycled and reused, and the rest, which cannot be recycled, can contain up to 2 kilograms (kg) of lead and other hazardous materials which are often dumped at dumping sites. People at dump sites attempt to extract the small amount of valuable materials such as gold, capacitors, and copper wires through burning them in open fires. These actions thus cause great harm to the environment and the health of the people in the vicinity¹⁵.

Much of the world's e-waste is generated in the developed global North, as these countries have larger economies and a greater consumer base. Of the waste which is generated in the global North and sent for recycling, 80% is usually exported (often illegally) to the countries in the global South, such as China, India, Ghana, and Nigeria (Lundgren, 2012). It is however important to note that not all e-waste and hazardous wastes in general are generated in the global North, as many countries in the global South are generating significant amounts of e-waste themselves. As the trade in e-waste continues to expand, trade between countries in the

¹⁵ The extent of these actions in Ghana and Nigeria will be outlined and discussed in Chapter IV.

global South are increasing. According to Lepawsky & McNabb (2010:184), in 2001 it was found that most of the e-waste exported from the African continent ended up in Korea and Spain and “over ten percent of Africa’s trade was internal by 2006, while for the Caribbean and the Middle East the figure was 20 percent...”. Lundgren (2012:14) thus states that one should not assume that the trade in e-waste is solely between the global North and global South as the “flow of e-waste encompasses more than movement from developed to developing countries, as regionalized, intra-regional flow accounts for most the trade”.

With the increase in public awareness on the issue of e-waste, many MNCs and states find it easier to export their e-waste than to deal with public outcry. Although many citizens within the global North condemn the act of exporting hazardous waste to developing countries in the global South, the trade still continues. However, this trade continues under the umbrella of ‘recycling’ and is “motivated by brute global economics” (Puckett *et al.*, 2002: 11). It is usually that the e-waste that is exported under the umbrella of ‘recycling’, ‘reuse’, or ‘charity’ is exported illegally and ends up on landfills in the global South (Schwarzer, De Bono, Giuliani, Kluser & Peduzzi, 2005).

One should however not discredit the benefits of recycling. The method of recycling is regarded as the most environmentally sound and accepted method of disposal, as it preserves landfill space, saves energy, positively affects greenhouse gas emissions and reduces the chances of hazardous chemicals (lead, mercury) from affecting human health and the environment. Another seemingly beneficial aspect of recycling is the re-use of electronic goods, due to the emergence of a large second-hand goods market in the global South¹⁶. However, this presents the issue of the loophole discussed earlier, whereby containers may be mislabelled, thus creating the issue of distinguishing what is (legal) second-hand goods and what is unusable (illegal) e-waste. According to van Erp & Huisman (2010), this creates more opportunities for fraud as it is easy to label e-waste as second-hand goods. Similarly, some actors may use the ‘idea’ of second-hand goods or re-useable goods as a loophole to overcome the laws set by the Basel Convention. Robinson (2009) notes that it is often the case that containers with second-hand electrical and electronic goods destined for export often contain up to 75% of e-waste. This makes it increasingly difficult to determine the exact amount of e-waste being exported illegally.

¹⁶ This demand for second-hand electronic goods is the result of economic growth, population increases and urbanization within developing countries in the global South. The demand for electronic and electrical goods has also increased as people within underdeveloped states seek to extract precious metals from e-waste.

Despite the benefits of recycling, in states such as the USA recycling is becoming increasingly more and more expensive (due to regulations) which in turn intensifies incentives for export. It should likewise be noted that the term ‘recycling’ can be misleading and the industry proves to be one of under-regulation and “often creates additional hazards itself” (Schwarzer *et al.*, 2005:2). According to Ladou & Lovegrove (2008), the recycling industry has been doomed from the start. The reason for this is because the industry itself is one plagued by deceit and corruption. Adding to this is the fact that manufacturers are refusing to eliminate the use of hazardous materials from their electronic and electrical goods and are “slow to design products for eventual ease of disassembly and recycling” (Ladou & Lovegrove, 2008:3).

Drayton (2007:160) states that it becomes less expensive to dispose of e-waste on landfills than it is to recycle it. The reason for this is due to the fact that recycling is an expensive method and the costs often outweigh the profits, especially in countries where environmental regulation is strong. Additionally, it is often the case that states within the underdeveloped global South do not have the capacity to recycle e-waste and thus landfills become the only affordable option available. “Since landfills have no clearly defined or enforceable property rights, they are subject to the phenomenon of the ‘tragedy of the commons’¹⁷” (Drayton, 2007:160). Through exportation, the risks of e-waste are thus externalized to underdeveloped states in the global South.

Historically, the weaker countries within the global South have borne the negative effects of industrialization within the global North (and now within the global South) namely; the generation of waste. E-waste is thus a new dimension to this historical trend. According to Olowu (2012), although the developed states within the global North were able to establish strong environmental regulations, some states do not have the capacity to deal the high rate of e-waste generation within their borders. This rapid generation of e-waste is caused by the rapid advancements in technology, which in turn has resulted in more efficient electrical and electronic goods, however, it has shortened the lifespan of these goods. In an example used by Robinson (2009), the lifespan of CPUs used in computer technology has dropped from 4-6 years in 1997 to just over 2 years in the late 2000s.

The rapid advancement of technology has likewise made it cheaper to dispose of and buy new electronic and electrical goods, than it is to repair them. It has thus become popular a perception

¹⁷ This term was made popular by Garret Hardin (1968). The commons are referred to as any unregulated space (in Hardin’s article, he makes use of a pasture open to all). Each actor within ‘the commons’ seeks to maximize their gains from ‘the commons’ and a ‘tragedy’ occurs when the personal goals (to gain as much as possible) of the actors overshadow the needs and well-being of society.

that upgrading/replacing a device is better and cheaper than repairing it. Iles (2004) quoted in Adeola (2011:69) comments on this perception, and states that:

People have this perception simply because they are oblivious to the devastating effects of the production of computers and other electronic equipment on the environment and human health since the true costs of their production is externalized.

The externalization of the risks of the production of electronic and electrical consumer goods extends to the export of e-waste, as it is often those within the global South who bear the negative effects of e-waste disposal.

As mentioned before, large markets for second-hand electronic and electrical goods have started to emerge within the global South. Therefore, the exportation of second-hand electronic and electrical goods is legal under regulations such as the Basel Convention. However, the exportation of e-waste is largely illegal under the Convention, due to the danger it poses to human health and the environment. But, as demand for second-hand goods within countries in the developing and underdeveloped global South started to increase, the exportation of e-waste under false pretences (i.e. second-hand goods) has met this demand. These illegal shipments are essentially “liberating developed countries of the electronic waste problem, at the expense of the human residents in the recipient developing [and underdeveloped] world” (Olowu, 2012:65).

The recycling of e-waste has become a profitable formal business for many due to the valuable makeup of most electrical and electronic goods. Widmer, Oswald-Krapf, Sinha-Khetriwal, Schnellmann & Böni (2005) state that 1 ton of e-waste contains nearly 0.2 tons of copper, which in turn could be sold in Europe for about 500 Euros. The formal recycling of e-waste thus becomes a profitable sector within regions such as Europe. However, the import of e-waste to countries in the global South not only has the ability to create job opportunities and a source of income, but at the same time it placates the high demand for second-hand electronic and electrical goods within these states. One could thus state that it has fueled the creation of an informal recycling economy within many developing and underdeveloped states. “An entire new economic sector is evolving around trading, repairing and recovering materials from redundant electronic devices” (Widmer *et al.*, 2005:438). The creation of informal e-waste recycling sectors across the global South is thus evidence of the globalization and commodification of e-waste.

In China, the recycling of e-waste has played an important role in the industrialization process of rural areas in the country and has become an integral source of local residential and local governmental income. More than 30 large un-licensed e-waste recycling firms have been established in the Luqia region and the surrounding regions of Taizhou in the Zhejiang Province. According to research by Zhang, Schnoor & Zeng (2012), these facilities have provided nearly 13 000 people with employment. It is thus that the export of e-waste to countries like China are viewed as a win-win situation in monetary terms. The country of import therefore benefits financially from the import of e-waste, and the exporting party is able to (a) get rid of the wastes and (b) save money through outsourcing the recycling efforts (Ray, 2008).

Despite the creation of jobs and sources of income for the urban and rural poor in many countries in the global South, the methods of recycling used, pose a critical threat to human health and the environment in those areas. Widmer *et al.* (2005) note that it is often the case that people in those urban and rural areas do not have the know-how when it comes to environmentally sound recycling methods, they do not have the infrastructure or the capital and are not aware of the risks involved. These same countries often have lax to no environmental regulations and cheap labour, which has resulted in them becoming magnates for e-waste disposal. And if there is some form of national regulation regarding e-waste, then it is easily bypassed by exporters and importers through mislabeling (Adeola, 2011).

Although informal e-waste recycling provides people in rural areas with a source of income, the practice of e-waste import/export can have negative effects not only on human health and the environment, but also have negative political and economic side effects. These effects are seen through unfair price setting, low material recovery rates and the undermining of international environmental regulations/laws, such as the Basel Convention (Bisschop, 2012). The export of e-waste to countries in the developing and underdeveloped global South becomes an issue due to the often primitive and un-environmentally sound methods used to recycling these wastes, which puts the health of the workers, the people in the surrounding area, and the environment at serious risk.

Traditionally, countries in Asia have been the prime destinations for e-waste dumping. However, according to Bhutta, Omar & Yang (2011) this trend has started to subside as Asian countries have started to issue stricter environmental regulations. The result being that countries in Africa have started to become the prime targets for e-waste (often illegal) dumping. Lundgren (2012) states that exports to African regions such as West Africa are small in scale,

while the large-scale exports are sent to South-East Asia. Additionally, Lundgren (2012) estimates that this flow will change as the e-waste market expands and environmental regulations become stricter in the Asian region.

Within the African continent there is a legal capacity to regulate the recycling of electronic and electrical equipment, however, much of what is transported to Africa is irreparable and unusable. This has thus resulted in improper disposal due to high costs of environmentally sound methods, which sees the burning of e-waste in open fires in order to recover precious metals. Ladou & Lovegrove (2008:3) therefore state that, “the open burning, acid baths, and toxic dumping of e-waste introduce unconscionable levels of contaminants into fragile environments, and expose the world’s poorest people to a large number of toxic materials”. The costs of high-tech electronics and electrical equipment production and the disposal of end-of-life products are thus not borne by the consumers or manufactures, but by the poorest of the world’s poor.

West Africa has been positioned as the most used destination for e-waste dumping due to lax environmental laws, cheap labour and low recycling costs. Nigeria for example has seen a rapid growth in electronic related technology, which has been fuelled by second-hand equipment imports from developed countries in the global North. However, much of this waste entering countries like Nigeria in the West African region, are considered to be unusable and irreparable junk (Hawari & Hussan, 2008). E-waste within the West African region has also been on the rise due to the growth of information and telecommunications technology (ICT) in the global South, which has allowed for more and more people to have access to mobile telephones and computer technology¹⁸.

According to Osibanjo & Nnorom (2007), the ICT growth in countries like Nigeria has been driven by the import of second-hand electrical and electronic goods. One could thus state that in combination with the export of e-waste to West Africa, countries in this region are likewise internally generating e-waste. However, as mentioned above, e-waste can provide many people with never before seen opportunities and has become what Baldé, Wang & Huisman (2015:50) term, an “urban mine” for many in developing countries like Ghana and Nigeria. This ‘urban mine’ thus provides many with secondary resources and has bolstered the refurbishing, repairing and recycling sectors in the global South. However, with increased second-hand ICT

¹⁸ This can be evidenced by the access to the Internet in Nigeria, which rose from 100 000 users in 2000 to nearly 2 million users in 2004/2005 (Osibanjo & Nnorom, 2007).

flows, e-waste in Ghana and Nigeria is becoming a great challenge to environmental governance in the West African region.

3.6. Conclusion

Chapter III served as a contextualization of the core issues of hazardous waste trade and e-waste. The purpose was thus to provide a better understanding of what hazardous waste is and why e-waste is regarded as hazardous waste. Likewise, focus was placed on the most prominent international regulation regarding the trade of hazardous waste, namely the Basel Convention and despite this regulation (amongst others, such as the Bamako Convention) the illicit trade in e-waste continues to expand.

This chapter has shown the dangers that illegal hazardous waste dumping, specifically e-waste, pose to the environment and human health. International regulation, such as the Basel Convention (Basel Ban) have proven to be inadequate in attempting to ban the trade in e-waste and other hazardous wastes. The failure to ban hazardous wastes such as e-waste is largely since the Convention is not legally binding, thus allowing for Parties to the Convention to establish and interpret international waste legislation as they wish, and allowing for loopholes to present themselves to waste exporters and importers. Another issue, which hinders the effectiveness of the Convention and the Ban Amendment, is the fact that its establishment was influenced by actors who benefitted (and still benefit) from the trade in hazardous wastes and sought to regulate the trade instead of banning it.

By making use of the EJ definition of environmental crime, one can determine that the trade and dumping of hazardous waste is an environmental crime. The illegal dumping of hazardous waste thus (1) violates the rules and regulations of the Basel Convention; (2) the consequences of illicit dumping are seen through the destruction of the environment and poses a risk to human health; (3) the identifiable consequences are long-term and caused by the actions of humans. The issue of e-waste disposal is one of utmost importance to this study. This chapter has shown that e-waste continues to grow despite regulation attempts by the Basel Convention. By focusing on the Basel Convention, one can see the loopholes present within international environmental regulation/governance which are exploited by the actors in the second-hand goods/e-waste trade. The e-waste market is able to grow due the phenomenon of recycling and the demand for second-hand electrical and electronic goods in the global South, especially in West African states such as Ghana and Nigeria. It is important to note that although much of the e-waste which is dumped at sites in the global South is generated in the global North, they are not the sole generators of e-waste.

This chapter has provided information which suggests that due to an increase in ICT in countries like Nigeria, which is driven by increased second-hand goods imports, e-waste is likewise being generated and traded within and between the global South. This adds another dimension to the complexity of regulating the e-waste trade and creates problems for the now seemingly outdated Basel Convention.

On the surface, the import of second-hand or used electronics as a way of industrializing/ 'catching up' to the global North has shown good results (evidenced in this chapter by the access to internet in Nigeria). However, once these used goods reach their EOL or end-of-life it creates the issue of e-waste. As mentioned in Chapter II, how the global South develops will be integral to the future of environmental governance in the global South. Research does however, suggest that the environment and efficient environmental governance often takes the 'back-seat' to economic concerns and needs. The subsequent chapter (Chapter IV) will critically discuss the e-waste phenomenon in West Africa, using the sites of Ghana and Nigeria to illustrate the severity and consequences of the dumping of e-waste in West Africa. Chapter IV will therefore present the case study of this thesis and will attempt to answer the main research question through analysing the illicit e-waste trade in West Africa using the waste cycle presented by Massari & Monzini (2004) in Chapter II. Ghana and Nigeria will be the focus of this analysis, as they are the most prominent e-waste trading hubs in the West African region.

Chapter IV: West Africa & the E-Waste Trade

“Hungry for information technology but with a limited capacity to manufacture it, Africa has become the world’s latest destination for obsolete electronic equipment”.

(Orisakwe & Frazzoli, 2010: 44)

4.1. Introduction

With the focus on stricter environmental regulations in the Asian region¹⁹, the flow of e-waste and other hazardous wastes to Asian states have subsided, resulting in Africa becoming the prime destination for second-hand and e-waste shipments. As Africa seeks to bridge the ‘digital divide’ and catch up to the rest of the world (namely the global North), the importation of second-hand or used ICT continues to grow. ICT and the access to information is important to any country’s development. However, this comes at a price - especially for Africa. The access to ICT has especially grown within the global South - particularly in Africa, however, there is a major difference between the access to ICT in the global North and South. This difference is often referred to as the ‘digital divide’. The notion of ‘bridging the digital divide’ is however one that comes with dangerous consequences. “The so called ‘digital divide’ only helps to open up ‘a digital dump’ in developing countries, especially Nigeria [and Ghana]” (Obaje, 2013:33).

These second-hand or used ICTs are regarded as a cheaper alternative for many within the global South and have become a means of connecting those who were previously side-lined in the global technological revolution. However, despite the apparent advantages of this trade, when these second-hand goods become obsolete or reach their EOL they not only provide people with a source of income (through recycling), but pose a serious risk to the environment and human health. The purpose of this chapter is therefore to analyse the issue of e-waste in West Africa by focusing on the two key e-waste hubs in the region; Ghana and Nigeria. This chapter will thus seek to answer the main research question: *Who are the main actors in facilitating the illicit e-waste trade to and within West Africa?*

The purpose of answering this question is to provide an understanding of the key actors within the illicit e-waste trade. However, as will be explored in this chapter, ascertaining which actors are legal and which are illegal is a complex task. The reason for this (as with other forms of environmental crime) is due to the fact that there is an element of transnational organized crime,

¹⁹ For example, in 2009 the Chinese government outlawed the importation of e-waste into its borders and approved national legislation regarding the collection and recycling of e-waste (Regulations on Recovery Processing of Waste Electrical and Electronic Products). For more information refer to: <http://www.chinarohs.com/chinaweee-decree551.pdf>

therefore there is a presence of ‘shadow actors’²⁰. The mapping of the actors involved in this trade will thus be focused towards those that are known.

It should likewise be noted that the answering of the primary research question will be guided by the sub-question: *How does the externalization of risks (environmental and health) regarding e-waste affect West African states?* This chapter will follow the order of briefly contextualizing the two states in question, Ghana and Nigeria respectively, before assessing the issue of e-waste within each state. Finally, a mapping of the actors involved in the illicit e-waste trade in West Africa will be done.

4.2. E-waste & West Africa

As has been mentioned in Chapter III, electronics and other electrical appliances become e-waste once they reach their EOL cycle and cease to be of any use to the consumer. Various states across the world deal with e-waste in varying ways through physical management and policy efforts. In the global North, highly complex and advanced systems have been established to deal with e-waste. However, on the other hand, in the global South it is the case that these systems have not been established and cheaper means of recovering/recycling are used. Practices such as incineration, open burning and landfill disposal are therefore the means with which e-waste is dealt with in the global South.

These methods may directly and indirectly affect the air, soil, water sources and biota of animals and humans in the area and may have long-term effects on people and the environment (Umesi & Onyia, 2008). It is often the case that those that make use of the abovementioned rudimentary methods of recycling are part of poor communities, and the ‘recycling’ of e-waste is a means to provide for their families despite the severe affects it causes to their health and the environment. Furthermore, exposure to the effects of e-waste may affect the health of those in the area and those working with the e-waste on various levels, either through the contamination of soil, water and air; or through the ingestion of contaminated food sources.

According to Grant, Goldizen, Sly, Brune, Neira, van den Berg & Norman (2013:351), children are in particular serious danger as they are affected by e-waste through breastfeeding, hand-to-mouth contamination and “take-home contamination from their parents’ clothes and skin and direct high-level exposure if recycling is taking place in their homes”. Grant *et al.* (2013) likewise found that the hazardous materials found in e-waste (such as polybrominated diphenyl,

²⁰ ‘Shadow actors’ refers to those actors that operate in a clandestine/secret manner, away from the prying eyes of governments.

polychlorinated biphenyls, lead and mercury) have negative neurodevelopmental and neurobehavioral effects in children.

Much of the global generation of e-waste is sent to underdeveloped and developing states within the global South, such as Ghana and Nigeria. Baldé, Wang & Kuehr (2016) note that between the years 2008 and 2013, 1.6 kilotons (kt) - worth 4.2 million Euros of e-waste, were exported from the European Union (EU) to West Africa. It should be reiterated that the trade in illicit e-waste is much more complex than the notion that developed states in the North are dumping their wastes in the global South. As has been evidenced in Chapter III, there has been an increase in intra e-waste trade within the global South. There is however, a clandestine flow of e-waste into the West African region which poses a major threat to the environment and the people of West Africa. Consumers International (2008) reported that hundreds of tons of obsolete electrical and electronic goods, among second-hand goods, are being imported into Ghana and Nigeria each year. Whereas the second-hand goods are repaired and re-sold, much of these imports are not in working order and are dumped on landfills or end up in dumpsite fires.

While both Ghana and Nigeria are Parties to the Basel Convention and Bamako Convention, the trade in e-waste continues under the guise of second-hand goods imported into the West African region. According to the Environmental Investigation Agency (EIA) (2011), up to 75% of the electrical and electronic goods arriving at ports in the West African region could be regarded as e-waste. This occurs due to the fact the demand for second-hand electronic and electrical goods in West Africa is high. “Importers seem willing to bring in containers mostly filled with e-waste because the demand for electronics is so high that buyers are prepared to purchase untested items” (EIA, 2011:2).

It was stated in Chapter II, that the illicit market is facilitated by the licit market and that the former is intertwined with the latter. In the case of the illicit e-waste trade, the growth of the illicit e-waste market is being facilitated by the (licit) second-hand electronics and electrical equipment market. Furthermore, the illicit e-waste trade can be framed as a TEC that is characterized by high returns and low risk, despite increased legislation. Actors within this trade are thus able to avoid certain levies/taxes and high disposal costs using the second-hand electronic and electrical equipment market. The illicit e-waste trade was therefore framed in Chapter II as being an ‘illegal waste activity’ that takes place within a legal second-hand market that is exploited due to loopholes present in international and national legislation or regulation.

With lax environmental laws in the global South, illicit e-waste shipments have become common place. As states in West Africa (and Africa in general) seek to bridge the digital divide and as their economies develop, so does the demand for electronics. This demand however, increases the volumes of e-waste within the region and poses a risk not only to the environment, but also to the health of the people in the surrounding areas. The management and regulation of e-waste thus becomes integral to these states.

4.3. E-waste Governance: An Introduction

In a perfect world electronics and electrical goods that have reached their EOL would be recycled and their hazardous components removed and separated from non-hazardous and recyclable materials; without causing harm to the environment or human health. “Effective recycling operations not only save resources, but also contribute to reducing greenhouse gas emissions that are produced when e-waste is recycled through mining, smelting, refining and concentrating” (Terada, 2012: 158). The export of second-hand ICTs is not illegal however, due to loopholes within international regulation (i.e. the Basel Convention), illegal shipments of e-waste are accompanying the second-hand ICT trade.

Governance plays an important role albeit one that is rather complex. The complexity stems from the notion that by criminalizing markets, new (illicit) markets are created and governments essentially withdraw themselves from regulating that specific market (as noted in Chapter II by Friman & Andreas, 1999). The illicit e-waste market is one such market, as states are increasingly criminalizing the act of e-waste trade and unregulated dumping. The advent of environmental governance (i.e. stricter rules and regulations) in the global North has resulted in the safe and environmentally friendly disposal of e-waste and other hazardous wastes becoming a costly method of disposal. Furthermore, as actors sought to minimize their financial losses and increase their financial gains, cheaper disposal methods presented themselves in the global South - predominantly in Asia and Africa.

The management of e-waste has been largely ineffective, despite international regulation under the Basel Convention. The liberalization or deregulation policies that became popular in the late 1980s and which still dominate today, have created an environment where national, international, and multinational actors can operate in with relative freedom. Thus, according to Boudier & Bensebaa (2011:40), “control by means of regulation appears at first glance to be an appropriate response to the problem of hazardous waste”. The regulatory response thus refers to the regulations put in place by the Basel Convention.

Despite strong international regulation states in the North, such as the US (which is one of the largest e-waste generators), have yet not ratified the Basel Convention and do not regulate the trade/export of e-waste at a federal level. Furthermore, the Convention is seemingly invalid when powerful states in the North, such as the US do not ratify and adopt the Convention's rules and regulations. Moreover, the EU has strong regional e-waste regulations and has as a collective signed and ratified the Basel Convention and the Ban Amendment. Regardless of being able to curtail the export of e-waste to Africa and the rest of the global South, large amounts of e-waste continues to leave the borders of the EU. The issue of ambiguous definitions of e-waste and hazardous wastes of the Basel Convention (discussed in Chapter III) continue to plague the regulation of hazardous waste and e-waste on, not only an international level, but also on a regional and national level. According to Khan (2016: 251), this allows for "global traders... to move massive quantities of hazardous e-waste across borders, without effective environmental or social constraints".

Effective environmental governance, in the case of the e-waste trade, requires the input of both exporting and importing parties and cooperation between states in the global North (who have the expertise) and states in the global South (who lack the expertise). Without cooperation, e-waste management becomes a resource-intensive activity for developing and less developed states in the global South. Institutional capacity within the global South is often weaker than that of its Northern counterpart, resulting in receiving countries being unable to protect themselves against the negative effects of e-waste. Boudier & Bensebaa (2011:41) state that, "such institutional weakness can be partly explained by a political climate that favors corruption and the protection of short-term economic interests". It is usually the case in Africa that the economic benefits outweigh the environmental and health risks, thus e-waste management/governance in countries like Nigeria and Ghana fall victim to a lack of resources (financial and human).

Corruption plays a major role in the effectiveness of environmental governance as it can directly and indirectly effect implementation of policies and enforcement capabilities. For example, Nigeria has had a long history of corruption. Corruption affects the capabilities of enforcement and how effective the state is in combating the illicit e-waste trade. With regards to e-waste, corruption takes place "in the process of licensing disposal facilities or authorizing persons to transport hazardous wastes" (Terekhova, 2012:11). The lack of a clear distinction between second-hand goods and e-waste and a lack of binding criteria at the international and

national level has resulted in confusion and complexity. Confusion and complexity which, according to Terkhova (2012), allows for corruption to take place.

On an international level, e-waste regulation or e-waste governance has been spearheaded by the Basel Convention. Under Annex VIII of the Basel Convention, e-waste is regarded as being illegal due to its hazardous contents (such as lead and mercury) (Basel Convention, 2014). The export and import of e-waste between signatory parties thus needs to follow the rules and guidelines of the Convention. According to Khan (2016), the Convention itself creates an exception under Annex IX, whereby second-hand electrical and electronic products are exempted from being termed ‘hazardous waste’ if they are for the purpose of ‘direct use’. This exception was thus added to allow for states such as Ghana and Nigeria to benefit from the trade in used ICT, since they rely heavily on this trade to develop and ‘bridge the digital divide’.

In 2006, the Convention (Conference of the Parties 8/COP8) adopted the Nairobi Ministerial Declaration on the environmentally sound management of electrical and electronic waste. The declaration calls for states to promote awareness on the issue of e-waste, exchange information, and technology transfer between states in the global North and South with regards to the environmentally sound management of e-waste, to promote clean technology and green electronic and electrical products, to fully respect the laws and regulations of the Basel Convention, prevent and combat illegal e-waste trade, and to promote the creation of robust national policies regarding the environmentally sound management of e-waste; amongst other requests²¹ (Basel Convention, 2006).

The 2006 COP8 was followed in 2008 by the Durban Declaration on E-Waste Management in Africa in Durban, South Africa. The Declaration calls for African states to follow their own process of defining and dealing with the growing e-waste issue in Africa, and to review their current waste management policies/legislation(s) as well as to amend those regulations to allow for the inclusion of e-waste management (Lundgren, 2012). The Declaration likewise called for the creation of regional African cooperative forum on e-waste. The creation of an African forum was achieved in 2012 with the establishment of the Pan-African Forum on E-waste. The Forum “calls for action outlining a set of priorities to support development of a regional approach for the legal transboundary movements and the environmentally sound management

²¹ For more information see:

<http://www.basel.int/Portals/4/Basel%20Convention/docs/meetings/cop/cop8/NairobiDeclaration.pdf>

of e-waste for the African continent to protect human health and the environment as well as to promote opportunities for social and economic development”²² (Basel Convention, 2012).

Considering the loopholes plaguing the Basel Convention and allowing for illegal trade to prosper, the Convention has developed a set of technical guidelines that would assist in combating the illicit e-waste trade. The technical guidelines on transboundary movements of electrical and electronic waste and used electrical and electronic equipment, in particular regarding the distinction between waste and non-waste under the Basel Convention or the ‘E-Waste Guidelines’, was adopted at COP12 in 2015 and places an emphasis on “clarifying aspects related to transboundary movements of e-waste and used equipment that may or may not be e-waste” (Basel Convention, 2015:5).

The key objective of the guidelines is to address the “transboundary transport of whole used equipment and components that can be removed from equipment, be tested for functionality and either be subsequently directly reused or reused after repair or refurbishment...”²³ (Basel Convention, 2015:5)²⁴. It should however be noted that the guidelines were adopted on an interim basis and are not legally binding. As of this writing, the effects of the guidelines are yet to be seen and it is uncertain whether it will be effective in curbing the illicit e-waste trade. Likewise, it remains uncertain whether the E-Waste Guidelines will address the shortcomings of the Convention’s regulations and mechanisms (Khan, 2016).

The demands of the Pan-African Forum and other regulations under the Basel Convention/Ban and the Bamako Convention have not yet been incorporated into national legislation - specifically in Africa. Much of the complexity surrounding the management of e-waste (especially in Africa) stems from the conceptualization of e-waste. According to Khan (2016), it is often the case that e-waste is conceptualized based on its hazardous components and the environmental and health dangers which arise from it. Khan (2016:251) thus states that by exclusively framing e-waste based on human and environmental harm, we “ignore the fact that culturally, socially and economically, e-waste is not treated as a hazard, but understood and

²² For more information see:

<http://www.basel.int/implementation/Ewaste/EwasteinAfrica/Overview/Workshops/PanAfricanForumonEwaste,Nairobi,March2012/tabid/2656/Default.aspx>

²³ The Basel Convention (2015:5-6) likewise states that the guidelines are “intended for government agencies including enforcement agencies that wish to implement, control and enforce legislation and provide training regarding transboundary movements. They are also intended to inform all actors involved in the management of e-waste...”.

²⁴For more information see:

<http://www.basel.int/TheConvention/ConferenceoftheParties/Meetings/COP12/tabid/4248/mctl/ViewDetails/EventModID/8051/EventID/542/xmid/13027/Default.aspx>

used by society as a resource and livelihood strategy”. The view of e-waste and by extension second-hand ICT in Ghana and Nigeria is that it is (a) a source of income and (b) an important resource for future development, as has been explored above.

As has been mentioned in previous chapters, the illicit trade in e-waste is common in states and regions where state capacity and waste management infrastructure is lacking. In the wake of this, in Ghana and Nigeria, the informal waste management sector has become the dominant actor. However, Khan (2016) notes that the informal sector is associated with environmental degradation and negative human health effects. It should be noted that the weak capacity to deal with e-waste is largely the result of a lack of resources and political will. “Both in countries of origin and destination, there are a limited number of people involved in detection, despite the multitude of government agencies dealing with it” (Bisschop, 2014: 87). Furthermore, environmental governance is not a priority for Ghana and Nigeria, as economic development and other socio-political issues are of more importance to political elites. The e-waste trade and the recycling thereof is thus viewed as an economic activity and because it provides many with a source of income (previously not available), it is seen as a driver of economic development and not a risk, despite the visible environmental and human health damage.

The economic benefits arising from the import of second-hand ICT and e-waste in Ghana and Nigeria has hindered the effective management of e-waste in both states. Given the opportunities that second-hand ICT and e-waste has created in Ghana and Nigeria, the outright banning of the e-waste trade is unrealistic. Therefore, e-waste governance is of utmost importance not only for the West African region, but also for Africa. It is however, common place within the global South, that there is a lack of established e-waste management systems and laws specific to e-waste. Where there are laws, enforcement of existing e-waste laws is often lacking. Due to the abovementioned factors, informal recycling (through rudimentary methods) become common place which is prevalent in the cases of Ghana and Nigeria.

4.4. Ghana

The formally known Gold Coast, is considered one of the most stable states in terms of violent conflict within the West African region and has been hailed as the model for African growth. Ghana’s growth has been fuelled by gold, cocoa and oil. Despite economic woes in the country, Ghana has seen a growth in foreign direct investment (FDI) and has earned the moniker of being one of the ‘gateways’ to Africa (Amankwah-Amoah, 2016).

In terms of development, Ghana has a medium Human Development Index (HDI) rank of 139/188 countries, alongside states such as Zambia and Bangladesh- meaning that Ghana is considered to be a developing country with below average to average life expectancy, literacy levels, and gross domestic product (GDP) per capita (Human Development report 2016: Development for everyone, 2016). With regards to corruption, Ghana is ranked 70/176 in Transparency International's 2016 Corruption Perceptions Index (CPI), which is an improvement of 2015's rank of 57 (Transparency International, 2016). On the CPI scale, which scores countries on a scale of 0 (highly corrupt) to 100 (very clean), Ghana scored 40/100. This indicates that corruption in Ghana is not rampant, but it remains an issue in the country and can have an impact on the enforcement of government legislation regarding e-waste and other environmental issues.

In order to develop and to bridge the 'digital divide', Ghana has made use of the ICT sector since 2003. "The premise of the policy is that Ghana's development process can be accelerated through the development and deployment of ICTs" (Amoyaw-Osei, Agyekum, Pwamang, Mueller, Fasko & Schlupe, 2011: 1). In 2009 the Ghanaian government started its 'One Laptop per Child' or OLPC education programme. "The vision of OLPC is to allow children who might otherwise not have access to quality educational opportunities to use the laptops to access knowledge and provide them the opportunity to engage their own capacity for learning, regardless of their physical location or financial limitations" (Oteng-Ababio, 2010:195). In addition, the Ghanaian government implemented a 'Laptop per Household' initiative which sought to provide laptops and other computer accessories at an affordable price.

Despite ICT being integral to development within the country, the growth of ICT in the country has likewise resulted in an increase in e-waste. Because Ghana relies on the import of second-hand ICT in order to meet ICT demands in the country, it has opened the door for increased e-waste imports. Much of the imports entering the ports of Ghana are unusable, unrepairable, and old. In addition, environmentally sound e-waste facilities are few and far between.

4.4.1. Ghana's E-waste

It has been estimated that in 2010, 31 400 metric tons of used electronic and electrical goods were imported into Ghana. This saw a 74.6% increase in second-hand electronic and electrical goods imported since 2009 (Amankwah-Amoah, 2016). The rise in second-hand electronic and electrical appliances can be attributed to the country's tax-exemption of computers and computer accessories in 2004. This was done due to the government wanting to promote the use of ICT to bolster the economy. According to Oteng-Ababio (2010), the focus was placed

on second-hand goods due to the poor financial situation of the majority of Ghana's population. The importation of second-hand ICT thus allows for affordable computers, cell-phones, and other ICT goods. Amankwah-Amoah (2016) and Oteng-Ababio (2010) note that this method has allowed for many to have access to information and has aided in bridging the 'digital divide' and improved the living standards of the average Ghanaian citizen.

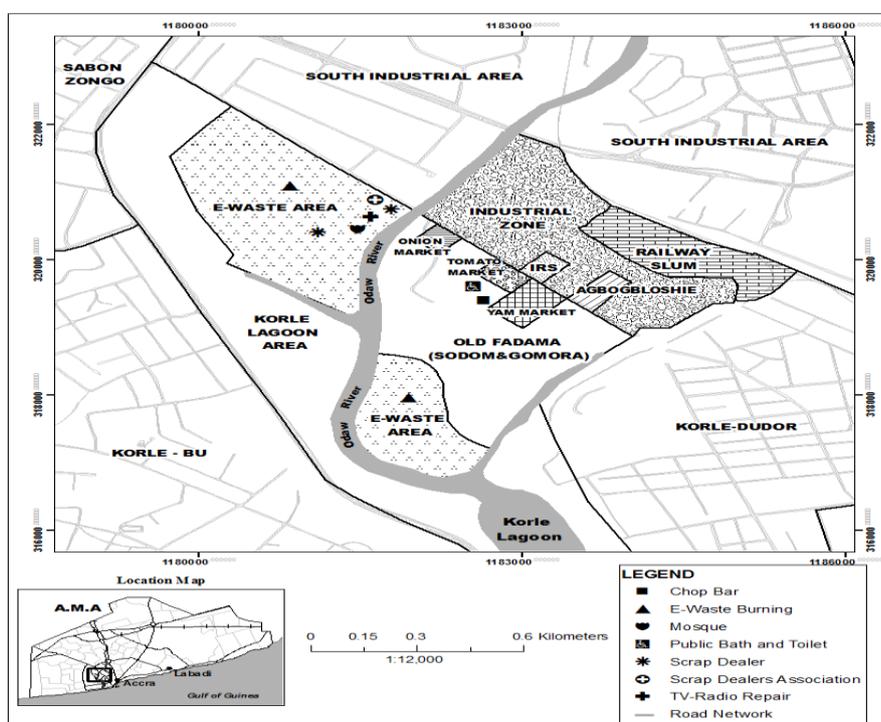
However, a major problem arises when these second-hand goods reach their EOL which creates the seriously damaging issue of e-waste. Ghana lacks the capacity to deal with large quantities of e-waste generated within the country and through imports. According to Amankwah-Amoah, (2016), much of the e-waste entering Ghana is due to illegal imports. These illegal imports are able to enter the country due to its ineffective enforcement of national and international environmental laws. The severity of which is noted by environmental journalist, Mike Anane:

Ghana is increasingly becoming a dumping ground for waste from Europe and the US. We are talking about several tons of obsolete discarded computers, monitors etc. We don't have the mechanism or the system in place in this country [Ghana] to recycle these wastes. Some of these items come in under the guise of donations, but when you examine the items they don't work.

(Quoted in Consumers International, 2008)

The importation of legal second-hand electronic and electrical and illegal e-waste into Ghana go hand in hand, as the former creates a loophole for the latter to occur. However, the large quantities of e-waste entering the country has allowed for a growth in informal economic activities and rapid urbanization in Ghana's capital, Accra (Grant & Oteng-Ababio, 2012). The importation of second-hand electronic and electrical goods has likewise allowed for the bolstering of the refurbishing and repairing sectors in Ghana (Prakash & Manhart, Amoyaw-Osei & Agyekum, 2010). Daum, Stoler & Grant (2017:135) state that the e-waste 'sector' generates between \$105 and \$268 million USD annually and supports up to 200, 000 people financially throughout Ghana.

However, although there is a creation of jobs within formal and informal economies, there is also the exacerbation of environmental and health degradation associated with the increase in e-waste. The informal waste management sector within Ghana is of utmost importance as the collection, recycling, and dumping of e-waste, is largely managed by the informal sector. According to Prakash *et al.* (2010:20), “the economic motivation behind e-waste recycling in Ghana is the possibility to recover metals, such as aluminium, copper and iron/steel using simple tools, such as hammers, chisels, stones etc. Often, fire is used to burn cables and wires to recover copper”. The recovery of these precious metals has thus become a lucrative market for some and a means of earning an income through the sale of these precious metals. This is especially evident in the Agbogbloshie market²⁵ (See *Map 1*).



Map 1: Agbogbloshie e-waste hub, Accra, Ghana (Source: Oteng-Ababio, 2012)

The Agbogbloshie market and e-waste hub is located in central Accra and according to Daum *et al.* (2017), it is regarded as the world’s most polluted slum. Agbogbloshie is likewise known as one of the world’s most infamous e-waste recycling and dumping hubs. In a study by Amoyaw-Osei *et al.* (2011) it was shown that in the year 2009, over 30 000 tons of potentially hazardous e-waste (CRT monitors, CRT-glass, circuit boards, batteries etc.) was dumped in Agbogbloshie and other similar dump sites.

²⁵ It should be noted that Agbogbloshie is not the only e-waste treatment site in Ghana. However, it is the largest and the most infamous site in the country.

In close proximity to the site is the informal settlement, Old Fadama. The e-waste site and the informal settlement are intertwined to the extent that the Agbogbloshie e-waste site has become “integrated within the social geography of the community” (Daum *et al.*, 2017: 137). The common practice within Agbogbloshie is to burn (in open fires) cables, and electrical and electronic materials in order to extract the precious metals. The work is mostly carried out by children in the vicinity using basic tools such as hammers or stones without any protective gear (Oteng-Ababio, 2010). The burning of the e-waste usually takes place at night, in order to hide the black smoke originating from the burning process.

Within the market, the dismantling of electronics and electrical goods are done at various small workshops within the area. Materials that contain precious metals that need to be burnt are transported to the outskirts of the market to separate them from the precious metals. The materials that are of no use are likewise discarded of on the outskirts among other general wastes. Amotaw-Osei *et al.* (2011) explain that once precious metals are removed from products such as CRT-monitors and televisions, the glass and plastic are crushed to remove the last metal parts. The glass used in CRT-monitors and television sets are highly toxic and through the “crushing and weathering of CRT-glass leads to long term emissions into soil and groundwater...” (Amoyaw-Osei *et al.*, 2011:75-76). This creates further environmental damage, which is becoming evident within and around dumping sites in Ghana.

In a study done by Greenpeace International (Brigden, Labunska, Santillo & Johnston, 2008) the long-term effects of these rudimentary disposal methods have resulted in the soil at the open burning sites to contain high levels of toxicity. This becomes worrying due to the market’s close proximity to two water sources, the Odaw River and the Korle Lagoon. The region usually experiences high levels of rain and as a result, flooding (Huang, Nkrumah, Anim & Mensah, 2014). According to Brigden *et al.* (2008:5), “during periods of heavy rainfall much of the site becomes flooded and, during these times, it is likely that surface dusts and soils, along with any chemical contaminant that may contain, are carried into the adjacent, lower-lying lagoons the Odwa river which ultimately flows into the ocean”. Thus, there is a threat that the contaminants from the open fires are polluting the nearby water resources and affecting the local aquatic organisms (Huang *et al.*, 2014). Evidence from a study by the Öko-Institut noted that:

According to local residents, the lagoon used to be a common fishing ground for the local communities until some years ago. However, disposal and e-waste recycling activities near the lagoon have eliminated all kind of lives in the lagoon. Many interviewees reported that large

quantities of unusable waste, such as broken CRT glass, is frequently dumped in the lagoon in order to avoid over-accumulation in the scrap-yard, and also to prevent injuries to the workers.

(Prakash *et al.*, 2010:38)

These rudimentary practices not only endanger the environment, but also the health of those within the vicinity of the e-waste site. Due to the rudimentary methods of those on the Agbogbloshie e-waste site, not only are those that physically recycle the e-waste at risk, but also those in the nearby area. Daum *et al.* (2017) note that urine samples were taken of the people that work at the Agbogbloshie e-waste site showed evidence of high levels of heavy metals, polycyclic aromatic hydrocarbons (PAHs) and other carcinogens. It has also been found that the breast milk samples of the women in the area show abnormal levels of polychlorinated biphenyls and brominated flame retardants. Despite the negative health effects, many within Agbogbloshie e-waste site see no other alternative for income.

In an interview with someone working at the site, the worker noted that, “we get a lot of health problems here, but we manage, because we need the money” (Hirsch, 2013). Another interviewee revealed that, “I make between two and five cedis (£0.50 to £1.30) each day, and each month I send 50 cedis (£13) back to my family in the north. I would like to go back home, but my family needs the money, so I stay. We get too many problems here- sometimes I have to go to the hospital. It is not good for us” (Hirsch, 2013). Those interviewed provides information that those that work within the e-waste site are aware of the consequences of burning and stripping used electronic and electrical equipment, however, they see it as a necessary risk as they do not have any other source of income to support themselves and their families.

Despite the knowledge of the negative effects of recycling e-waste through rudimentary methods, the issue remains rampant in the country. Environmental governance thus becomes important in the case of Ghana, as the e-waste problem continues to grow. The growth of the e-waste problem in the country has led the government to take steps in trying to alleviate the problem whilst attempting to bridge the ‘digital divide’.

4.4.2. E-Waste Governance: Ghana

Ghana ratified and accepted the Basel Convention in 2003 and became a signatory to the Bamako Convention in 2004²⁶. With regards to environmental governance, the ruling authority in Ghana is the Environmental Protection Agency (EPA) which was established in 1994. According to the EPA, their mission is to “co-manage, protect and enhance the country’s environment, in particular, as well as seek common solutions to global environmental problems” (Environmental Protection Agency, Ghana, 2017). Ghana’s efforts towards the environmentally sound management of hazardous chemicals/waste has been improving since the 1992 UN Conference on Environment and Development (Amoyaw-Osei *et al.*, 2011). Since then, Ghana has been involved in the Nairobi Ministerial Declaration in 2006 and the Abuja Platform on e-Waste in 2009²⁷ (alongside states from the global North and South).

Under the Environmental Protection Agency Act (Act 490), Section 10 of the Act established the Hazardous Chemicals Committee (Republic of Ghana, 1994). According to Amoyaw-Osei *et al.* (2011) the Hazardous Chemicals Committee was established to monitor the use, import/export, distribution, and sale of hazardous chemicals. Although it provides a framework for the management of hazardous chemicals, it does not make specific reference to e-waste. With regards to e-waste, the Ghanaian government has had an indirect approach to the management of e-waste using workshops and informational seminars to raise awareness about the environmental and human health dangers of e-waste (Daum *et al.*, 2017).

It was only in 2012 that a bill regarding e-waste management was proposed, known as the Hazardous and Electronic Waste Control Management Bill. The Bill proposed that a tax levy be placed on the importation and manufacturing of electronic equipment. According to former director of Chemicals Control and Management in Ghana, John A. Pwamang (2013:15), “the levy is to cater for the costs of collection, treatment, recovery and environmentally sound disposal and recycling of electronic waste”. It was also proposed that a fund be established, called the Electronic Waste Recycling Fund. The purpose of the Fund is to provide financial resources for the environmentally sound management of e-waste and for the protection of the environment and those effected by e-waste (Pwamang, 2013).

²⁶ Despite being a signatory to the Bamako Convention, Ghana has not ratified the Convention.

²⁷ The Abuja Platform was held in Nigeria in 2009 which called for the strengthening of regulations regarding e-waste and implement strict laws regarding the burning of e-waste etc. It also calls for the implementation of laws/regulations set by the Bamako and Basel Conventions into national legislation, amongst other requirements.

The Hazardous and Electronic Waste Control and Management Bill was passed and approved by the Parliament of Ghana in August 2016. The Hazardous and Electronic Waste Control and Management Act (Act 917) most notably prohibits, the import and export of hazardous wastes, the transport of hazardous wastes across the borders of Ghana and the sale, and purchase or trade of hazardous waste. The Act likewise prohibits the disposal of hazardous wastes on unauthorized landfills and territorial waters. The Act states that no person shall be allowed to import or export used or discarded electronic or electrical products unless they are; (1) registered with the EPA, (2) obtained a permit from the EPA and (3) pays the stipulated ‘eco levy’ (Republic of Ghana, 2016).

Those who are convicted of contravening Act 917 with regards to hazardous waste, will be liable to a fine or imprisonment in serious cases (not more than 20 years) or both. Furthermore, the Act makes mention of the establishment of recycling plants, incentives for collection of e-waste, research into recycling methods, public education on disposal, monitoring and training, using monies gained from the Electronic Waste Recycling Fund (Republic of Ghana, 2016). It should be noted that the Act is largely influenced by the language of the Basel Convention, not only mentioning the Convention directly but also making use of the system of prior consent and a take-back scheme.

Ghana’s first e-waste bill presents a positive outlook for, not only Ghana, but also for the West African region. By passing the Act, the Ghanaian government has met the demands of the Basel Convention regarding the management of e-waste. However, Daum *et al.* (2017:143) note that the Act could present some confusion and complexities, most notably with the take-back scheme. “Forcing exporters to take-back shipments may be impossible to enforce due to fictitious naming of entities. This bill is also complicated by the reality that these items would be classified as “hazardous” under the Basel Convention and thus illegal to re-export into many countries”.

The Ghanaian government’s decision to pass this e-waste bill has likewise garnered positive attention for the West African country. In 2016, the EPA, alongside e-waste recycling stakeholders UNEP and the EU, put in motion a plan for the creation of e-waste recycling facilities in Ghana. “The project is expected to help in proper disposal of toxic e-waste components such as mercury, lead and cadmium in a safe and environmentally sound manner” (Bokpe, 2016). The project likewise seeks to create a platform for cooperation between formal and informal recyclers/collectors, consumers and markets (locally and internationally), such as that in Agbogbloshie.

In 2017, The German government applauded Ghana for passing the e-waste management bill and has donated 25 million Euros for the management of e-waste in Ghana (Dogbevi, 2017). According to Bentil (2017), the donation “includes funding for a pilot programme that seeks to alleviate the environmental impact of electronic waste in Ghana for at least three years”. The money will also be used to improve the working conditions of those in the e-waste “value chain” and for the development of a framework to enforce the new e-waste law (Bentil, 2017). It is yet uncertain how the new e-waste specific legislation will impact the management of e-waste. More specifically, it remains to be seen how the enforcement of this legislation will affect the illicit e-waste trade in Ghana and the informal waste/recycling sector in the country. The financial support from the German government bodes well for Ghana, especially in its efforts to establish formal e-waste recycling facilities, however, there remains the question of corruption and enforcement of national e-waste legislation. As of this writing, there has been no establishment of a formal recycling centre and it is yet to be seen how donated money will affect the lives of those in the ‘e-waste value chain’.

Although the extent of the e-waste issue in Ghana is known, few studies have been done regarding the severity of this problem. Studies that have been conducted focus primarily on the case of the Agbogbloshie site. It is therefore necessary to place a focus on Nigeria, as it is the most well-known and most studied e-waste case on the African continent.

4.5. Nigeria

Nigeria is Africa’s largest oil exporting country and the second largest economy on the African continent. Nigeria also has an abundance of natural resources and has large natural gas reserves (World Bank, 2017). However, Nigeria’s profiting of its oil reserves has come at a great environmental cost. Human development in Nigeria is low, with the country having a HDI rank of 152, as poverty in the country continues to rise (Human Development report 2016: Development for everyone, 2016). Corruption has plagued this West African state since independence in 1960. Nigeria is thus regarded as one of the most corrupt states in the world and Transparency International’s CPI ranks Nigeria 136/176 (Transparency International, 2016). On the CPI’s scale of 0 (highly corrupt) to 100 (very clean), Nigeria had scored 28/100. This indicates that corruption is felt in every sphere of Nigerian society and that citizens are severely affected by corruption in the country. According to Terada (2012:169), “given the history and prevalence of corruption, it is easier to understand why the country would have a hard time controlling an illegal e-waste trade”.

Nigeria similarly has a history of environmental issues. In 1988, Nigeria gained international attention due to the involvement of two Italian firms dumping hazardous waste in the country. The waste was stored on the residential property of a Nigerian citizen who entered an agreement with the two firms regarding the disposal of the hazardous wastes. The Nigerian government had only responded to the case after the media had made it known that the wastes were being stored illegally. It was later found, that the drums which contained the hazardous wastes were leaking and that the chemicals were absorbed by the soil. The result of this was that the workers tasked with removing the drums, the host and those in area close to the dumpsite were severely affected by the chemicals.

“The exposure suffered by the workers and the residents of Koko, including the host, led to severe adverse health consequences including burns, and deaths, including the death of Sunday Nana, the host, who died of cancer of the throat” (Adeola, 2011:134). The long-term effects of this dumping remain (high rate of birth defects, cancer and other pathological conditions), despite international intervention and the removal of the waste. The Koko, Nigeria incident and its consequences greatly influenced the creation of the Basel Convention in 1989. Despite being signatory to the Convention, hazardous wastes continue to enter Nigeria in the form of e-waste.

4.5.1. Nigeria’s E-waste

It has been estimated that nearly 500 containers filled with second-hand electronics and other electrical appliances enter Nigeria each month, however much of the contents are unusable e-waste (Obaje, 2013). Much like Ghana, there is a need and demand for electronic goods, as the country seeks to bridge the digital divide. In 1999, 35 000 people in Nigeria had access to mobile phones, in a span of 5 years by 2004/2005 that number had risen to 9.1 million people and 1.8 million people had access to the Internet (The Basel Action Network, 2005).

The Nigerian state of Lagos is home to a robust and growing electronic and electrical repair and refurbishing market, which provides many with an important source of income. Lagos is likewise integral to the second-hand electronic and electrical goods market in West Africa, not only does it host the biggest electronics and electrical appliances market in West Africa, but also much of the exports destined for West Africa come through its ports (TinCan Island Port and Apapa Port) (Manhart, Osibanjo, Aderinto & Prakash, 2011). However, considerable amounts of containers labelled as second-hand electronic and electrical equipment that enters Lagos are packed with unusable e-waste.

According to Umesi & Onyia (2008), it is estimated that up to 75% of the used electronics and electrical appliances entering Lagos is e-waste. The result of this is that the unusable and irreparable junk is often dumped on unregulated landfills and are regularly burned to extract precious metals. The Basel Action Network (BAN) (2005) reported that in Nigeria, there is no special requirement for second-hand electronic and electrical goods to be tested for functionality before being imported into the country. "...most equipment is not pre-tested because tested equipment is said to cost the buyers significantly more, and is not reliable or certified in any case" (Basel Action Network, 2005: 13). To date, Nigeria has sought to rectify the issue of e-waste being imported alongside second-hand goods shipments. However, the pre-testing of equipment is a complex task with extensive human and financial capital requirements.

It is thus often the case that most vendors take their chances and trust brokers selling the second-hand goods, as they cannot afford to go abroad to test the equipment. The result is then that at times they may receive entire containers filled with e-waste. In 2010 alone, nearly 100 000 tons of e-waste entered Nigeria illegally (Ogungbuyi, Nnorom, Osibanjo & Schluep, 2012). Along with the increase in illegal e-waste imports, Nigeria has a rapidly growing domestic e-waste generation issue. This has come because of an increase in the consumption of electronic and electrical appliances, which has made Nigeria's e-waste generation the highest in the West African region (Manhart *et al.*, 2011). With the growth of the repairing and refurbishing market in Nigeria, there is a need for safe e-waste disposal. However, Nigeria seemingly does not have the capacity to deal with imported e-waste and domestic e-waste generation, thus resulting in the growth of unregulated and dangerous e-waste dump sites (Schmidt, 2006).

Nigeria is home to four major repair and refurbishing markets, each serving a different role in the refurbishing or repairing of used electronic and electrical goods and recycling of e-waste. The four main markets are the Alaba Market, which was founded in 1978 and deals solely in second-hand electronic and electrical goods. Another, smaller market, called the Westminster Market is located close to the ports in the city of Lagos and deals with the used electronic and electrical appliances originating from the Tinian Island port. Another small market, is the Lawanson Market, and it is known for trading in refrigerators, freezers, and air conditioners and other smaller appliances (Manhart *et al.*, 2011). There is also a fifth but minor market called the Ojota Scrap Market, which deals in scrap metals and is a popular dismantling destination.

The most well-known and infamous market is the Ikeja Computer Market – also referred to as Computer Village (*see Map 2*). “Nowhere is the Information Technology explosion better realized than in the Computer Village in Ikeja” (Puckett, Westervelt, Gutierrez & Takamiya, 2005:16). The Computer Village has likewise been central to the manufacturing sector in Nigeria since the 1960s and has been a major contributor to the country’s Gross Domestic Product (GDP). Ikeja is thus a mix of various sectors, ranging from cotton textiles and plastics and paper products, to pharmaceuticals, paints and electronics (Sullivan, 2014). According to a study by BAN, around 80% of electronic appliances and accessories found at Computer Village is second-hand and very few original/new hardware from firms such as Dell and Apple were present. However, the new hardware being sold, originated from within Nigeria or China (Puckett *et al.*, 2005).



Map 2: Ikeja Computer Village, Lagos, Nigeria (Source: Google Maps, 2017)

The Computer Village is also known for its high levels of crime, piracy and financial crimes, which continue to persist due to a lack of interest by the Nigerian government. Ajaja (2016) notes that the market is also characterized by chaos, due to the abundance of street traders. Ajaja (2016) alludes to the crime and chaos at Computer Village and states that:

Apart from the genuine commercial activities, many customers and sometimes traders, lose their money, phones and valuables to thieves and pickpockets who roam the market at every hour of the day, a development that has force some major dealers to relocate to the fringes. The chaotic nature of the market is further exacerbated by the poor power supply, which compel traders to resort to using generators since most of the activities there are dependent on electricity.

There is also the concern of a growing illegal market within Computer Village, consisting of stolen and fake products. Also, there is evidence which suggests that corruption is taking place, as it is often the case that local government officials are being bribed by informal traders. There is also a growth in piracy as the market has seen an increase in pirated items. “Pirates or sellers of pirated items openly display their wares in the glare of everyone, including the various security agents who have offices in the market, whilst enjoying robust patronage from their teeming customers” (Ajaja, 2016). Furthermore, the land where the market is located is also under dispute, as it was originally a residential area until the late 1990s. Thus, there are some which call for the market to be moved to a different location or close altogether. The practice of burning and other rudimentary recycling methods have further intensified calls to close Computer Village. In response to this, the Lagos State Waste Management Authority (LSWMA) have provided bins within the market for e-waste disposal and have banned the burning of cables and plastic in the area (Manhart *et al.*, 2011).²⁸

The importance of Computer Village to Nigeria cannot however be understated, as it has been a major driver behind the country’s efforts to bridge the digital divide. “Just as the discovery of oil fuelled national economic and political independence in the 1960s, information and communication technology (ICT) has become the means by which individuals are experiencing economic – and potentially political – independence” (Sullivan, 2014:92). BAN has also noted that the level of education in the area is surprising, as it was found that many working at the market had high levels of training and expertise and some having graduate degrees in electronic/electrical engineering (Puckett *et al.*, 2005).

This can largely be attributed to the fact that jobs in Nigeria have been scarce and that most Nigerians have been excluded from the distribution of wealth in the country, resulting in many living in poverty. The access to the Internet, mobile phones, and other electronic devices has allowed for new opportunities for acquiring information, education, and jobs. According to Sullivan (2014:94):

Many Nigerians have become knowledgeable electronics technicians, and Lagos’s repair market takes full advantage of this skill. Technology schools and vocational training programs proliferate, particularly in Lagos. For-profit companies and nonprofit nongovernmental

²⁸ A decision was made by the Lagos State government in 2017 to relocate Computer Village to ICT Park in Kantangowa, Agbado. This decision came as a result of the government wanting to convert Lagos into a mega city, and concerns over environmental degradation in the area (Fadoju, 2017).

organizations have developed training programs that seize on the demand for skills that will bring Nigerian workers into the digital age through the electronic repair market...

It is likewise noted by Sullivan (2014:94) that computer-education is available at universities in the country, which could aid in transforming the informal repair/recycling industry in the country into a full-fledged “legitimate research and manufacturing [venture]”. However, there is little to no interest of the Nigerian government in supporting such a venture. “The Nigerian government neither supports nor attracts external investment, nor does it make this education accessible to Nigerians as it needs to be” (Sullivan, 2014:94).

Although many in the repair and refurbishing sector are highly skilled, they remain low-waged workers. Due to this, the importation of used and obsolete electronic and electrical goods will continue to grow in the name of bridging the ‘digital divide’ (Ongunbuyi *et al.*, 2012). The importation of second-hand ICT has provided Nigerians with an opportunity to bridge the digital divide and have access to information, however, with a lack of government interest and without proper methods to manage the increase in e-waste, e-waste generation and improper disposal will continue to expand in the country.

Similar to Ghana, e-waste ends up on unregulated dump sites in Nigeria and are burned in open air fires or disposed of in nearby rivers. Apart from the formal dumpsites, which are often not monitored and regulated, there exists many more informal dumpsites. According to Puckett *et al.*, 2005:22), “it is very common practice to simply find an unused patch of ground or wetlands and use it as a dumpsite”. The burning of wastes on these sites have become a common practice to either extract precious materials or to lower the volumes of e-waste on the site. This activity may prove dangerous as it may allow for soil and water contamination, thus exacerbating human health issues and environmental degradation.

“And yet, on the dumps, both informal and formal, children, scavengers and livestock, such as goats and chickens, routinely pick over or play on the sites, creating dangerous probabilities for contamination and infection” (Puckett *et al.*, 2005:23). Evidence of the dangers posed by unsound e-waste dumping were found in some lagoons in Lagos which were contaminated with high levels of cadmium, lead, mercury and copper (Sullivan, 2014). The rudimentary activities of the people on the site is not only because there are little-to-no proper e-waste recycling centres, but also due to them not having the knowledge or know-how about proper recycling methods and the dangers that burning cables and other e-waste poses to their health and the environment.

The dumping of e-waste and the externalization of the environmental and health risks associated with e-waste in countries like Nigeria may be the “tip of the iceberg”, as the data concerning the e-waste trade is unreliable and incomplete at best (Orisakwe & Frazzoli, 2010). Data regarding e-waste flows are thus not accurate, as there is a myriad of methodologies for gathering data related to e-waste volumes and flows. The transboundary movement of e-waste thus becomes a difficult task to monitor, therefore creating an issue for e-waste management. According to Baldé *et al.* (2016), the management of second-hand electronics, electrical appliances and e-waste has become the biggest challenge for global (environmental) governance. Additionally, the management of e-waste is not only an issue for global environmental governance, but also for national environmental governance.

4.5.2. E-waste Governance: Nigeria

Nigeria signed the Basel Convention in 1990 and ratified and accepted the Convention in 1991. Furthermore, Nigeria signed the Bamako Convention in 2008, however it has not ratified the Bamako Convention. Environmental governance in Nigeria was influenced by the dumping of hazardous waste in Koko, Nigeria in 1988. Before the events of 1980, only a select educated few saw a need for environmental protection in Nigeria. According to Badaiki (2003), the concerns of an educated few regarding the environment were based on local environmental issues such as the exploitation of natural resources. The events in Koko, Nigeria thus saw the creation of the Harmful Waste Decree of 1988, which sought the creation of the Federal Environmental Protection Agency (FEPA) in 1988. Along with other departments regarding the environment, FEPA was merged to form the Federal Ministry of Environment (FME) in 1999 (NESREA, 2011). For the purpose of enforcing environmental law in the country, the FME established the National Environmental Standards and Regulations Enforcement Agency (NESREA) in 2007.

“The Agency is charged with responsibility for the protection and development of the environment, biodiversity conservation and sustainable development of Nigeria’s natural resources as well as environmental technology” (Ladan, 2012:121). The Nigerian government hopes that NESREA will be able to overcome the shortcomings of its predecessor (FEPA) regarding the enforcement of environmental laws. Ladan (2012) notes that NEREA cannot succeed purely on ‘wishful thinking’ and that the environmental body requires adequate financial, and human resources in order to effectively perform its enforcement duties.

Before 2011, environmental law in Nigeria had not made specific reference to e-waste. It should be noted, that Nigeria has historically had many government agencies that are involved

(directly and indirectly) in e-waste governance in the country. Alongside NESREA is the National Emergency Management Agency (NEMA), the National Space Research and Development Agency (NASRDA) and the Nigeria Customs Service (NCS). Attempts were made in 2009 to encourage the Nigerian government to establish an e-waste specific legislation through the Abuja Platform on E-waste held in Nigeria. Additionally, in 2011 the first International Summit on Regulation and Management of E-Waste (EKO E-Waste Summit) was held in Lagos, Nigeria (Adediran & Abdulkarim, 2012).

According to the Basel Convention Co-ordinating Centre for the African Region in Nigeria (BCCC-Africa), the first EKO E-Waste Summit's purpose was to share the experiences and the environmental and health effects of e-waste in Nigeria, paying close attention to the poor management thereof in the country (BCCC-Africa, ND). The conference did however, call for the Nigerian Federal Government to establish and encourage the reuse, collection, recovery and recycling of e-waste in Nigeria (Adediran & Abdulkarim, 2012). The result of the 1st EKO E-waste Summit saw the establishment of the National Environmental (Electrical/ Electronic Sector) Regulations in 2011. According to Ladan (2012:137), the purpose of this regulation is "to prevent and minimise pollution from all operations and ancillary activities of the electrical/electronic sector".

It should likewise be noted that, the legislation covers new and used electrical/electronic goods. The regulation is also based on what is termed the '5Rs' (Reduce, Repair, Reuse, Recycle and Recover) and it adopts the "polluter pays" method and requires importers on new and second-hand electronics to apply for a permit(s) (Amachree, 2013). Since the new legislation, Nigeria has seen some success in combatting the illicit e-waste trade to Nigeria. At the 3rd Annual Meeting of the Global E-Waste Management Network (GEM3) held in San Francisco, United States in 2013, it was noted by Amachree (2013) that the Nigerian government will be in cooperation with international organizations such as INTERPOL, and the International Network for Environmental Compliance and Enforcement (INECE) as well as US, German and UK governments.

Cooperation has proven effective for Nigeria, especially when in 2013 three containers containing illegal e-waste shipments were seized in a joint operation between the NCS, State Security Services (SSS), Standards Organization of Nigeria (SON), NESREA and INTERPOL (NESREA, 2016)²⁹. Since the 1st EKO E-Waste Summit, the Nigerian government have

²⁹ For more information see: <http://www.nesrea.gov.ng/news/ewaste.php>

likewise intercepted 14 containers and 12 trucks containing e-waste and have charged various persons due to them not having obtained a permit for new/second-hand electrical/electronic goods (Amachree, 2013).

Considering the 2011 e-waste legislation, the Nigerian government created a set of guidelines for those importing second-hand electrical/electronic goods into Nigeria (Guide for Importers of Used Electrical and Electronic Equipment into Nigeria). Amongst other things, the guidelines stipulate that exporting countries need to follow their own national laws and international rules and regulations regarding e-waste; the Nigerian government supports the importation of new and second-hand (functional) electrical/electronic goods; however, the importation of e-waste or equipment that is near EOL is outlawed under Nigerian legislation; each importer needs to register with NESREA; and that those who import e-waste will be prosecuted and fined and the wastes shall be sent back to its port of origin (NESREA, 2013). In summation, the guidelines serve as the 'do's' and the 'do not's' of electrical/electronic importation into Nigeria and act as a summary of the abovementioned Nigerian e-waste legislation.

However, despite the small advances made by the Nigerian government, in terms of holding those found guilty of illegal e-waste transport, the collection and recycling of e-waste remains dominated by the informal sector and are subsequently dumped along with regular waste or burned. Amachree (2013) reported that large amounts of used electrical/electronic goods are being stockpiled in homes and offices and by states such as Lagos, pending the creation of e-waste recycling facilities in Nigeria. Nigeria does not lack legislation, as is evident by its numerous environmental laws. However, the problem of enforcement still plagues the country as there is a lack of political will to enforce environmental legislation. The issue of corruption plays a major role in this West African state, as polluters of the environment often get away with the breaking of environmental legislation. Chinwe (2010) states that, not only does corruption hamper enforcement, but also the lack of knowledge and awareness of environmental issues. "Illiteracy and ignorance constitute a great obstacle to the regulation and enforcement of environmental legislation and the remedies available at law" (Chinwe, 2010: 500).

The illicit e-waste trade, despite national and international regulations, continues to expand in Ghana and Nigeria. The reason as to why the illicit e-waste trade grows is due to the large profits that can be made as the costs remain evidently low. According to INTERPOL (2009:14), "individual shipments can potentially provide three sources of income: one from waste

collection on behalf of local authorities trying to achieve recycling targets; a second from companies obligated under the Producer Responsibility Regulations; and a third from brokers abroad whom the waste is sold”. The actors involved in this trade vary, as it is often difficult to differentiate between legal and illegal actors due to the complexity of the e-waste trade. The following section will thus attempt to map the actors involved in the West African e-waste trade.

4.6. The waste Actors: An introduction

Waste (hazardous and non-hazardous) is a product that is easily manipulated and the product itself has been linked to other illegal markets. Like the product, the process of collecting, recycling, and the overall disposing of hazardous wastes could be regarded as being sector(s) that are vulnerable to crime (Bisschop, 2014). The rapid growth of e-waste and the illegal trade thereof, has likewise allowed for a diverse range of actors to be involved, from brokers to transport companies, and recycling firms.

Every actor involved in the trade of e-waste, and hazardous waste in general, have different interests. The generators of the waste want their waste removed and as cost-effectively as possible. They may even establish plants/factories in the global South in order to avoid certain environmental regulations imposed in the global North. Secondly, the global North as an actor sets the rules and regulations regarding the disposal of hazardous waste, which are essentially designed to “protect the environment and the citizens of the respective developed nations” (Tladi, 2000:210).

The consequence of this is that the global South is often viewed as a monolithic group (i.e. the victims). States in the global South, namely in Africa, are thus automatically viewed as being victims or disadvantaged, thereby reinforcing the idea that Africa cannot combat environmental crime on its own and that the notion that the ‘green state’ is not possible on the continent. As noted by Death (2016) in Chapter II, this is however possible as Africa has had a long history of ‘modernist development’, environmental protection and more recently, sustainable development. The notion of the ‘green state’ in Africa is possible, as can be seen with the seriousness of environmental policy and e-waste legislation in Ghana and Nigeria. However, it should be noted that although it is possible, it essentially becomes a matter of political will and state capacity. The global South should thus not be regarded as a passive actor, but as a significant actor within the hazardous waste and e-waste trade.

Lastly, the disposer of the hazardous waste seeks to make as much profit as possible, whether this be in a legal or illegal manner. Not only does the disposer seek to make as much profit as possible, waste generators also seek to maximize their profits and minimize their expenses, thus they tend to seek out the most cost effective disposer. Therefore, this desire to maximize profits becomes a key driver of the illegal hazardous waste trade (International Network for Environmental Compliance and Enforcement & the Seaport Environmental Security Network (2009)).

According to Baird *et al.* (2014: 99), that due to the myriad of actors involved in the waste trade cycle it has become “difficult to distinguish between the legal and illegal actors and the nature of interface between them”. Each of these actors likewise compete within the waste market for “their share” at different stages of the waste cycle. Tompson & Chainey (2011:183) add to this by stating that within this waste cycle, if one were to attempt to determine which of the waste is illegal, then “it requires strict adherence to data recording practices across the private waste management sector if illegal activity is to be suspected and identified...”. However, as this would be a task of immense complexity and confusion, it is seldom not done and thus data that arises from the illegal hazardous waste trade is often not complete or non-existent. It is well documented by organizations such as INTERPOL, that organized crime groups have been taking advantage of weak environmental regulations and have been active in environmental crime. It should be noted that “the involvement of organized criminality in [environmental crimes] is more loosely structured” and not structured in the traditional hierarchical structure or ‘mafia-type’ (INTERPOL, 2009: 368). Although organized crime groups are involved, they are by no means the major actor in the illegal disposal of hazardous waste.

Hyatt & Trexler (1996) state that organized crime groups are not directly involved in its recycling, but indirectly control companies through providing them with economical ways to dispose of their toxic wastes. It should be noted that contrary to popular belief, the trade in hazardous waste does not take place within an organized system, rather within an unorganized one. What makes this trade so unorganized is due to the fact that illegal actors are in competition with legal actors, often at times whereby the legal actors do not have any knowledge about where or how their waste is being disposed. According to Baird *et al.* (2014:99), it is regularly the case that legal actors “[outsource] where the illegal waste activity may be undertaken by an illegal actor as part of a contracted relationship, or in collaboration, cooption or reciprocity, and synergy”. One could likewise speculate that these seemingly legal

waste disposal firms are shell companies or ‘fronts’ for organized crime syndicates (Clapp, 1999). These shell companies are often located within tax havens, and “once a transaction [is] complete, the firm in question [is] often dissolved, and the waste traders simply [create] another for the next deal” (Clapp, 2001:31).

Thus, it becomes possible for the legal and illegal waste sectors to become intertwined, as the illegal sector may take the legal sector hostage, resulting in the legal sector becoming a victim and facilitator of illegal trade and other criminal activities such as money laundering (Van Daele, van der Beken & Dorn, 2007). Rucevska *et al.* (2015) note that illegal activities may be hidden within seemingly good or upstanding waste firms that promote green or sustainable management. It is usually the case that within such firms, small groups of people who are opportunity-based are involved in the illicit waste trade.

It has been mentioned that the increase in hazardous waste trade, is largely the result of industrial/technological advancements and globalization. One of the major effects of globalization has been the rise in large corporations or MNCs. The introduction of MNCs within the hazardous waste trade has made the trade even more complex. The complexity comes as a result of the fact that states and companies are forced to create new and free markets, which in return has led to large scale waste materials and “the unfortunate compromising of ethics in the disposal of the wastes” (Rebovich, 1992:3). “From both the corporation’s and the criminal’s point of view, this is a win-win situation” (Hyatt & Trexler, 1996:254).

The increased liberalization due to globalization has somewhat minimized the actions of MNCs with regards to health, safety, and the environment. This, coupled with the fact that there are so many actors involved in the hazardous waste trade, makes it difficult for governments and law enforcement to hold a large corporation accountable. It is also often the case that these MNCs do not take responsibility for environmental damage, especially within the global South (Castleman, 2016). Government officials should likewise be regarded as another important actor within this trade, as it is known that state and government officials have become involved, especially within the global South³⁰. These government officials have allowed hazardous waste to be dumped within their regions, affectively sweeping environmental concerns aside for short-term economic gains.

³⁰ This was the case in Guinea-Bissau, whereby the government was offered double its external debt if it took nearly 15 million tons of toxic waste. Despite not having the capacity to dispose of the waste in an environmentally sound manner, the government originally agreed. However, the deal was cancelled after the government was pressured by other African governments to not import the waste (Clapp, 1999: 96).

As has been shown in the case of Ghana and Nigeria, it is often the case that the illegal trade in e-waste results in the waste being disposed of on landfills within countries in the global South, leading to the loss of lives, wildlife, the contamination of water and soil and the atmosphere. O’Neil (2001:79) states that when waste is taken from the hands of the generators, “once they have paid to have the waste removed from their hands, and in the absence of liability laws, have no incentive to see that it is disposed of safely as long as they never see it again”. This becomes increasingly problematic, as this leaves the door open for the illegal disposal of hazardous waste, usually in less developed states such as Ghana and Nigeria. The disposers of hazardous wastes thus make use of Africa as its trashcan, as the lack of hazardous waste management within Africa and the lack of strict environmental regulations makes Africa the most attractive dumping destination.

The e-waste trade is one of complexity and follows a long route from consumer to recycling and involves many actors, from the informal to the formal sector. “Used electronics travel murky routes populated by numerous recyclers and brokers working in an unregulated market, devoid of government certification programs” (Orisakwe & Frazzoli, 2010:45). The following section will thus attempt to map these actors within the ‘waste cycle’.

4.7. E-waste Cycle: West Africa

As has been evidenced by the cases of Nigeria and Ghana, much of the second-hand electronic and electrical equipment that is exported to the West African region, does not end up in the second-hand market but makes its way to landfills. Given the nature of the second-hand electronic and electrical equipment trade, it is difficult to determine exactly which actors are involved and which actors are legal and which are illegal. Furthermore, the effective enforcement of international and national regulation is a resource-intensive activity and requires an efficient and effective operational network (Rucevska *et al.*, 2015).

With reference to the waste cycle produced from the work of Massari & Monzini (2004) in Chapter II (*page 17*), the following section of this chapter will map the actors involved in the illicit e-waste trade in West Africa along the waste cycle.

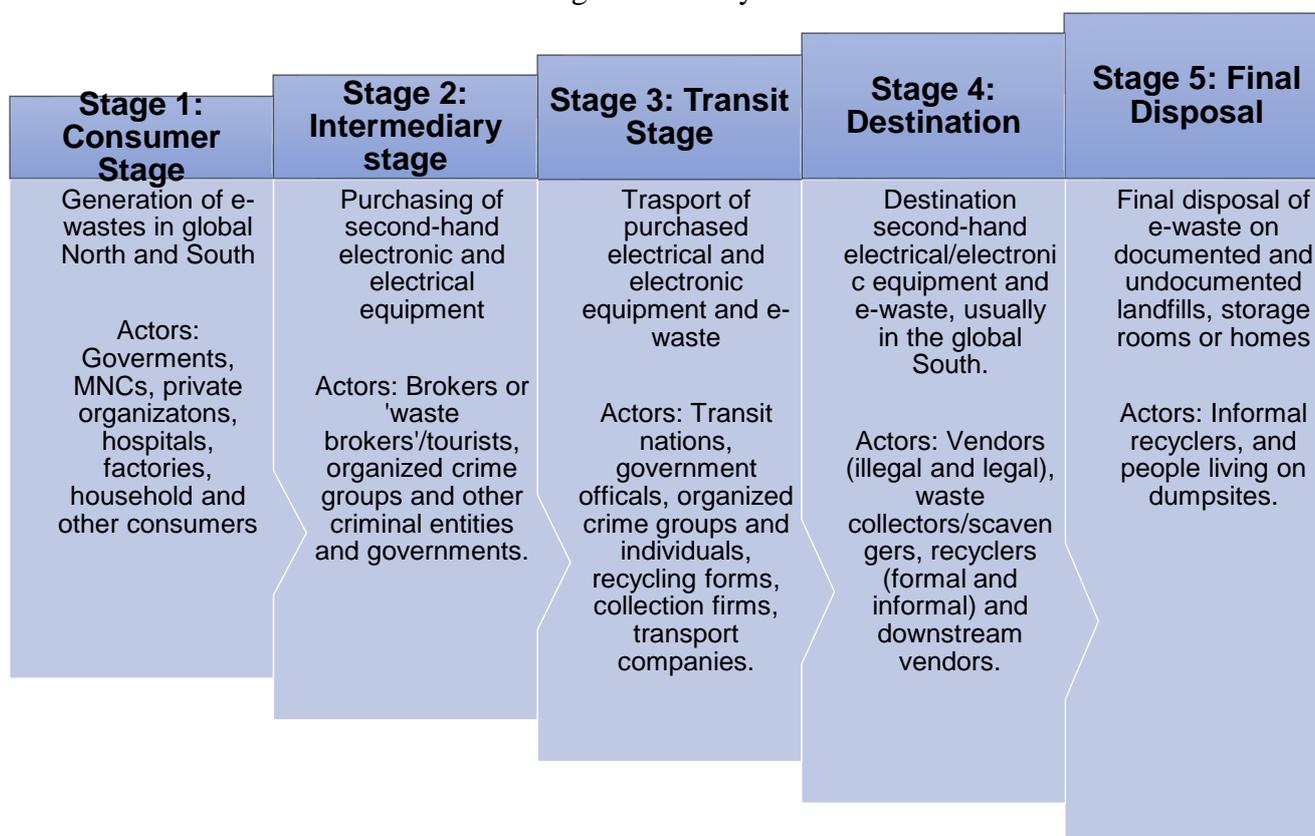


Figure 2: E-waste Cycle (Produced by the author for this study)

Figure 2 indicates five stages of the e-waste cycle, namely the consumer stage; intermediary stage; transit stage; destination and final disposal. As mentioned, this cycle is based on Massari & Monzini's (2004) three stage waste cycle which focuses on generation, transit and destination. The E-waste Cycle above (*figure 2*) illustrates the actors involved in the waste cycle, from generation of the waste to its final disposal. As can be noted, the E-waste Cycle (*figure 2*) adds two additional stages, namely the intermediary stage and the final disposal stage. This differs slightly from the waste cycle produced from the work of Massari & Monzini (2004), as it has been adjusted to show the complexity of the trade in illicit e-waste and the overlapping of the licit and illicit actors within the second-hand electronic and electrical trade.

i. Stage One: The Consumer Stage

The first stage of the cycle relates to the origin of the e-waste. This stage is concerned with the producer of the wastes, whether this be factories, hospitals, companies, government agencies or households. For the purpose of the 'E-waste Cycle' (*figure 2*), this stage is referred to as the consumer stage. It should be noted that consumers play a large, if not the largest, role in the

global generation of e-waste. As has been mentioned in Chapter III, there is a growing trend of South-South e-waste trade. Thus, it should be stated that West Africa is likewise a victim of its own e-waste generation, due to its rapid increase, need and support for electronic and electrical equipment. The consumer stage therefore represents the generation of e-waste in both the global North and the global South.

ii. Stage Two: Intermediary Stage

The second stage of the cycle relates to the purchasing of containers of second-hand electronic and electrical equipment before they are transported. Within this stage brokers and ‘waste tourists’ purchase used electronic and electrical equipment. It is often at this stage of the cycle that containers are often mislabelled as being ‘second-hand’ and or for ‘donation’ before transport takes place. The EIA’s 2011 investigation revealed that some brokers in the UK were willing to sell both tested and untested CRT screens to exporters. The EIA (2011) likewise found that traders mislabelled their e-wastes as generic terms, such as “used personal effects”.

This stage presents illegal opportunities for consumers of electronic and electrical equipment, as they can sell their e-waste to unregulated contractors and brokers or ‘waste tourists’ (INTERPOL, 2009). The mislabelling of containers may involve the bribing of government officials in order to obtain falsified documentation terming the contents of container(s) as being non-hazardous or not containing illicit e-waste. Within Europe, waste tourists have become associated with the e-waste trade. According to the EIA (2011:2), “much of this export from Europe is carried out by West African nationals...with family or business contacts in countries such as the UK”. It is common for these brokers or waste tourists, to operate until they have been caught. However, “even then, individuals and companies found guilty of offences tend to re-establish themselves quickly in the waste sector by using slightly altered names and titles or by moving to another country” (Rucevska *et al.*, 2015:31). It thus becomes an issue of enforcing environmental regulations, especially with regards to the illicit e-waste trade. The lax view that is placed on environmental law provides these waste tourists or brokers with easy opportunities and an illicit market where enforcement, costs, and risks are low and profits are high.

Within this second stage, recyclers within the global North are just as important as the brokers who purchase from them. Although many recyclers are legitimate businesses, others are not so legitimate. It is a common practice for some recycling firms to work alongside brokers or waste tourists, by selling useless electronic and electrical junk to them. It is likewise known, as with other forms of hazardous waste, that organized crime groups may be involved at this stage-

especially considering the issuing of falsified documents, passports, and shell companies. However, as has been noted throughout this study, it is difficult to determine their direct influence within the illicit e-waste trade as they operate in a clandestine manner alongside the licit second-hand electronic and electrical market.

iii. Stage Three: Transit

The third stage in the E-waste Cycle (*figure 2*) relates to the transport of e-wastes through transit nations. Due to forged documents either within the transit nation or at the intermediary stage, containers with illicit e-waste (marked as second-hand) are then able to be transported without the knowledge of governments or enforcement agencies. This act does however violate the Basel Convention's rule of prior consent. According to Lundgren (2012), the ports of Amsterdam and Antwerp are considered to be the gateways of the e-waste trade from Europe, and are popular destinations for waste tourists from Africa and Asia (Lundgren, 2012).

E-wastes (and other hazardous wastes) pass through several hands before reaching their destination. The actors vary within this stage but transport companies are the most common. It should not be assumed that transport companies within the e-waste cycle are directly or indirectly influenced by organized crime groups. Because it is a complex and time-consuming task to test electronic and electrical equipment, transport companies may be transporting e-wastes without knowing it (due to falsification of documents and mislabelling). As has been noted by Massari & Monzini (2004), the wastes are transferred from the producer or originator to storage centres or temporary stockpiling areas awaiting sale. The transit stage and intermediary stage overlap, as at both stages there is a strong possibility that documents may be forged and containers mislabelled by brokers and 'waste tourists'. INTERPOL (2009) notes that waste tourists are directly involved in the illicit disposal of e-waste, as they knowingly sell containers packed with e-waste to misinformed/uninformed buyers in West Africa. Waste tourists are also difficult to track, as they make use of falsified passports to travel and secure potential e-waste shipments (Baird *et al.*, 2014).

iv. Stage four: Destination

The fourth stage of the E-waste Cycle (*figure 2*) is related to the destination of the e-waste. Within this stage once containers are purchased it is often the case that e-waste is transported alongside second-hand/used electronic and electrical equipment. There are multiple important actors within this stage, ranging from refurbishes to collectors. The collectors of the used equipment are usually young children (who are the majority of the workforce in the e-waste

trade in Ghana and Nigeria) who do door-to-door collection from households, institutions, dumpsites, and transfer stations. According to Oteng-Ababio (2012) the competition within this informal sector is highly competitive. In Ghana, due to the competitive nature of this sector, many collectors/scavengers have to collect e-wastes outside of Agbogbloshie and “spend days in targeted areas, build bulk before returning to base at Agbogbloshie with their booty” (Oteng-Ababio, 2012: 159). The result of this is that because people now have to travel long distances to collect used equipment, the collection of used electronic and electrical equipment may become an economic burden rather than a viable and beneficial economic option.

As is evidenced in this chapter, both Ghana and Nigeria have growing electronic and electrical refurbishing/repair sectors. The refurbishing actors are those who are willing to repair faulty equipment and are often located near residential areas, offices or markets. It is often that those who repair/refurbish used electrical and electronic appliances are also vendors, and sell repaired goods such as computers and cellphones at the markets in Ghana and Nigeria. Amongst them, as has been shown previously in this chapter, is the criminal element. This criminal element consists of illegal vendors selling fake/pirated or even near-EOL electronics. Within Ghana and Nigeria, the refurbishing sectors are organized into associations. In Ghana, associations such as the Ghana Electronic Service Technicians Association (GESTA) and the National Refrigeration Workshop Owners Association (NARWOA) are the most popular. In Nigeria, associations such as the Nigeria Association of Refrigerator and Air-condition Practitioners (NARAP) and the National Electronics Association of Nigeria (NETAN) are the most popular. These associations essentially act as guardians and regulate the activities of the refurbishes/repairers, however, despite the presence of associations, the people who work within the refurbishing/repair sector largely form part of the informal economy (Ogunbuyi *et al.*, 2012 & Amoyaw-Osei *et al.*, 2011). Despite the formation of organized associations in Ghana and Nigeria, many people remain informal refurbishes as the informal recycling/refurbishing economy is not as (if not at all) regulated as the formal economy.

Recyclers are another key player in the E-waste Cycle (*figure 2*) who are responsible for the dismantling, separating of electronic/electrical components and the recovery of precious metals from e-waste. The recycling of e-waste is dominated by the informal sector in Ghana and Nigeria. These informal recyclers either manually dismantle the e-waste to extract precious metals or burn wires and other plastic casings to extract metals. Much of this work is done by children using rudimentary tools such as hammers and rocks and without any protective gear (Oteng-Ababio, 2012). Poor protection results in illness for not only those who work with the

e-waste, but may cause harm to those in the surrounding areas especially children. As stated in earlier in this chapter, pregnant women and children are the most at risk.

Although there is very little evidence to suggest a robust formal recycling sector in Nigeria, there is however, a growing formal sector in Ghana. According to Amoyaw-Osei *et al.* (2011), a company called City Waste Recycling Limited is the biggest recycling firm in Ghana. “City Waste Recycling collects [e-waste] from companies, dismantles it and separates the fractions. Iron, copper and aluminium are sold within Ghana. All other fractions will be exported to a recycling partner in Europe to treat the hazardous fractions” (Amoyaw-Osei *et al.*, 2011: 53). Although there is evidence of a formal recycling sector in Ghana, the informal sector continues to dominate and remains largely unregulated.

Recyclers sometimes make use of collectors or scavengers to collect e-waste within a given region. These collectors work informally and are paid per the amount and value of the wastes they have acquired for the recycler. Many of these collectors seek to earn money for themselves and/or families. It should be noted that these ‘waste collectors’ or scavengers, also partake in the recycling of e-waste. In the studies done by Amoyaw-Osei *et al.* (2011) & Ogungbuyi *et al.* (2012) it was found that before the final disposal of e-wastes, there is another actor which is often ignored. Amoyaw-Osei *et al.* (2011) & Ogungbuyi *et al.* (2012) note that ‘downstream vendors’ are integral to the continuation of the e-waste trade. Downstream vendors are those individuals or organizations who purchase the recovered precious metals and can be national or international and range from jewellers to smelters. They often operate unregulated and form part of the formal economy, and the precious metals such as gold and copper that are exported through their hands, are exported without any form of processing being done

v. Stage Five: Final Disposal

The final stage of the E-waste Cycle is the most documented, especially in the case of West Africa. This stage is the stage of disposal. Oteng-Ababio (2012) notes that much of the obsolete electronic and electrical equipment could be found in storage rooms and homes (due to their perceived value) before they are finally disposed of. Before the advent of informal e-waste recycling practices in Ghana and Nigeria, used electronic and electrical equipment were disposed of on dumpsites. Oteng-Ababio (2012) states that in Ghana, with advent of informal recycling, much of what could be considered ‘e-waste’ is the ashes from informal recycling methods and plastic casings. These materials that are burnt pose a greater threat to the environment, as the ash from the burning of plastics, and other associated materials, can now be easily absorbed by the soil or make its way into nearby rivers/water sources.

Once recyclers have removed the most valuable metals and materials, the unsalable and less profitable elements are then disposed of on regulated and unregulated dumpsites and are burnt, either at these dumpsites (due to space) or by the informal recyclers themselves (to recover the precious metals). As has been shown in this chapter, informal recyclers make use of crude methods to acquire valuable materials from e-waste, and many of them are not aware of the dangers of their rudimentary recycling methods. These informal recyclers seek to manually dismantle e-waste for precious metals such as copper, iron, and aluminium.

The components or parts that are not valuable/needed, such as plastic casings, are then disposed of on dumpsites and/or burned at a later stage – usually at night to hide the black smoke emitting from these operations, as to not alert government authorities (Ogungbuyi *et al.*, 2012 & Amoyaw-Osei *et al.*, 2011). The latter is especially important to note, as e-waste legislation grows in Ghana and Nigeria, disposers of e-waste seek to find new ways to dispose of their unwanted wastes – away from the prying eyes of their respective governments.

Many of these actors outlined above are participating in the often-illicit, e-waste trade because they have no other option for income, specifically informal recyclers. Actors such as the waste brokers or tourists could be viewed as opportunistic individuals or groups, who have taken advantage of the apparent loopholes within international environmental regulation, such as those present in the Basel Convention. The use of Massari & Monzini's (2004) waste cycle to map the actors involved in the illicit e-waste trade highlights the complexity of not only the e-waste trade but the hazardous waste trade in general. The E-waste Cycle (*figure 2*) illustrates that the illicit e-waste trade is not solely dominated by the global North, but that actors from the global South are increasingly becoming prominent – this is shown in (*figure 2*) through the dominance of waste brokers/tourists traveling from West Africa to Europe to purchase second-hand equipment and e-waste.

4.8. Conclusion

Chapter IV has answered the primary research question and has presented a mapping of the actors involved in the illicit e-waste trade in West Africa. By mapping the actors involved in the illicit e-waste trade in West Africa, this study has found that the dumping of illicit e-waste is much more complex than the notion that the global North dumps their unused e-waste in the global South. The E-Waste Cycle (*Figure 2*) showed that various actors from the global North and South are involved in the illicit trading of e-waste.

As with all forms of environmental crime, the illicit trading of e-waste has a criminal dimension to it. This criminal dimension is the possible involvement of organized crime syndicates or groups (especially in stage two of the E-Waste Cycle). It should be noted that the involvement of organized crime in the dumping of e-waste is uncertain due to their clandestine nature, which makes the gathering of concrete information regarding their direct involvement challenging.

This chapter was guided by the issue of the externalization of health and environmental risks, and has shown that, despite international and national regulation, the export of illegal e-waste continues. It has likewise shown that in the West African states of Ghana and Nigeria, e-waste is viewed as a commodity and the recycling thereof for economic reasons, despite environmental and health consequences. This finding illustrates that the global South is as much an ‘aggressor’ of environmental degradation as the global North. Although the notion persists that the global South is a victim of environmental externalities (i.e. the effects of the illicit e-waste trade and other hazardous wastes). With the lack of proper/formal e-waste recycling/treatment infrastructure in Ghana and Nigeria, the informal recycling sector will continue to dominate, thus continuing to expose people and the environment to toxic chemicals.

The globalization of trade and the nature of the e-waste trade has created a multitude of challenges for international and national law enforcement. These challenges require extensive human and financial resources and immense political will. Despite e-waste legislation in Ghana and Nigeria being present, issues persist. Issues such as enforcement and political will are the most prominent and will determine the effectiveness of e-waste regulations. Chapter II made note of the sub-par view of environmental crimes compared to traditional crimes, which often carry minor penalties. This is still the case today, as can be seen with the e-waste legislations in Ghana and Nigeria where the violation of these e-waste laws is predominantly focused on financial punishments. Both legislations in Ghana and Nigeria are however, relatively new and the effects on e-waste trade/disposal, as of this writing, is yet to be seen.

In both Ghana and Nigeria, the socio-economic benefits of the second-hand electronics and electrical trade is enormous and thus provides many with opportunities not seen before in their countries. However, herein lies the issue, as the opportunity to make money trumps that of the negative effects that come with the discarding of those second-hand electronics and electrical appliances and the ease with which e-waste can be illegally exported to countries like Ghana and Nigeria.

Due to current trends and the popular view of seeing second-hand electronics and electrical equipment as a commodity and a tool with which to bridge the ‘digital divide’, it is possible to forecast that these e-waste specific legislations will not be able to fully curb the illicit e-waste trade. Alongside corruption, weak political will, weak waste management capacity, and dominant economic perspectives, legislations on e-waste in both Ghana and Nigeria do not prohibit the import of second-hand electronic/electrical equipment, thus facilitating the import of illicit e-waste into West Africa.

E-waste/hazardous waste regulations and other environmental laws consequently amount to ‘lip service’ and African governments such as Nigeria continue to focus on ‘more important’ environmental issues such as oil reserves and other natural resources. Legislations within Ghana and Nigeria regarding e-waste likewise have not included the social aspect of e-waste recycling as has been shown in this chapter. Areas such as Agbogbloshie have become homes to many and the recycling of e-waste has become the livelihood for many of these people. Both West African states thus need to address the socio-economic aspect of e-waste recycling in the wake of outlawing the rudimentary practices of informal recyclers.

The dumping and burning of illicit e-waste in Ghana and Nigeria is a classic example of an environmental crime, as the victims of this environmental crime are only known once the damage has already been done. The effects of this has been shown in this chapter, with the cases of Ghana and Nigeria where it was found that water and food sources have been contaminated with deadly toxic chemicals due to the dumping and burning of e-waste.

Chapter II likewise framed an environmental crime as being a crime that violates any national or international law/convention or regulation. As has been evidenced in this chapter, illicit e-waste is one such crime, as it violates international and regional regulation (in the form of the Basel Convention and the Bamako Convention respectively) and national regulation (in the form of Ghana and Nigeria’s respective e-waste legislations). It should be noted that the export of e-waste to Ghana and Nigeria likewise reflects the environmental injustice that has plagued the global South for decades. Actors such as waste brokers and waste tourists have taken advantage of the impoverished and undereducated in West Africa in order to make large profits.

Chapter V: Conclusion

5.1. Introduction

The final chapter seeks to bring together and summarize the findings of this thesis. This chapter will begin by briefly discussing the progression of this study by revisiting its aims, purpose, research question, and design as well as the theoretical framework used. The second part of this chapter will provide a discussion regarding the issue of e-waste in Ghana and Nigeria and what it means for West Africa. The final section of this chapter will then conclude with a discussion on possible areas of study for future research.

5.2. Progress of the Research Study

At the start of this thesis the creation of the multi-billion-dollar hazardous waste market was brought to light. It was shown that Africa has historically been playing an active role within this market. This role has however been one of exploitation. During the 1980s, the events in Koko, Nigeria spurred the creation of international hazardous waste regulation, namely through the Basel Convention. However, despite regulation, a black market for hazardous waste persists. The aim of this thesis was to explain and locate the situation of West Africa within the field of TEC and Environmental Governance.

The literature review showed that much has been written on the concepts of TEC and Green Theory. It was thus found to be necessary to provide a more detailed conceptualization of TEC and Environmental Governance. The literature review also made note of the importance of the relationship between the developed states in the global North and the developing and underdeveloped states in the global South. It was therefore stated that the concepts/theories of GPE and Environmental Governance, would be used in this study to understand this relationship. The relevance of this study was based on the argument that actors within the global North have been dumping hazardous wastes in the global South and that Africa has become a prime destination for this illicit activity. The rationale of this study was to examine the situation of the e-waste trade (in West Africa) in the wider context of TEC.

Consequently, it was decided that the focus of this study would be on one aspect of TEC; the trade in illicit e-waste. The purpose of this study was thus to map-out the actors involved in the illicit e-waste trade, and the primary research question was formulated to focus on this: *Who are the main actors in facilitating the illicit e-waste trade to and within West Africa?* The research design of this study was descriptive in nature and a qualitative single-case study, in

which West Africa was chosen as a focus area. Due to the variety of states in the West African region, two prominent states, Ghana and Nigeria were chosen as sites of study.

Chapter II discussed the theoretical foundation, analytical tools, and concepts of this thesis. It was noted here that environmental crime would be defined in terms of the EJ perspective. As such, environmental crime was defined as being any act which violates existing environmental laws/regulations; the consequences thereof having identifiable environmental damage(s); and the harm being caused as a result of human action(s). It was argued that environmental crime poses a major threat to human security and sustainable development. This view has changed the way people and organizations, such as the ICC, frame and view environmental crime.

It was likewise noted that there are various actors involved in environmental crime and as such, environmental crime overlaps with other forms of crime. It was argued that TEC is a facet of TOC and encompasses much of the same aspects as TOC. Globalization was regarded as the main driver in the advent of TOC and by extension, TEC. TEC was thus defined using the UNEP DELC (2016) definition, defining TEC as being an illegal activity which is carried out across national borders. In this chapter, e-waste trade was regarded as being an illegal waste activity, due to the violation of environmental regulations that covers this trade (Thompson & Chainey, 2011).

The waste cycle by Massari & Monzini (2004) was discussed and explained and it was stated that this cycle would be used as an analytical tool to answer the primary research question of this thesis. The illicit global economy was used to explain the growth of illicit markets and how it has manifested alongside the licit global economy. It was also emphasized here that assessing the actors involved in TEC would be a difficult task, due to the overlap between the licit and illicit economies. A second analytical tool was likewise presented, in the form of Environmental Governance. It was argued here that environmental issues are intertwined with issues such as economic development, international trade, and North-South relations. It was noted that environmental crimes are largely being fought via the use of MEAs, however, there remains the issue of enforcement at the national and international levels.

Chapter III provided a contextualization of hazardous waste and e-waste, and framed hazardous waste as an environmental crime through the EJ perspective. Hazardous waste was defined as being any material in solid, liquid, or gaseous form that is disposed of, buried, burned, or recycled. Because there is no agreed upon definition of hazardous waste, the regulation thereof

becomes a complex task, often resulting in an unregulated and unmonitored North-South hazardous waste trade.

Chapter III answered the sub-questions related to the limitations of the Basel Convention and the continuation of illicit e-waste trading despite international regulations. Loopholes have become apparent in international regulations and law and these loopholes present opportunities for environmental criminals and those seeking to circumvent international standards and regulations. With regards to e-waste, the most common loopholes were found in the trade of second-hand electronic and electrical equipment. It was made known in this chapter that illicit e-wastes are hidden within the licit second-hand electronic and electrical equipment trade, thus presenting an issue of the illicit economy overlapping with the licit.

The fourth chapter consequently made use of Massari & Monzini's (2004) waste cycle in answering the primary research question: Who are the main actors in facilitating the illicit e-waste trade to and within West Africa? And it was guided by the sub-question relating to externalization of environmental and health risks. Chapter IV was also guided by the second analytical tool of Environmental governance, which was used to assess the management of e-waste in the West Africa. This chapter had likewise shown the severity of the illicit e-waste trade and how the health of those working with the e-waste and those in surrounding areas are affected by the illicit burning and smelting of e-wastes. Furthermore, it was found that actors from the global South (shown in *figure 2*) dominate the e-waste trade. Using Environmental Governance, this chapter had shown that, despite legislation being enacted in both Ghana and Nigeria, they continue to struggle with the management of the illicit e-waste trade and the enforcement of national and international legislation (i.e. the Basel Convention). It was likewise found that many see the illicit trade in e-waste to provide for their families, despite having knowledge about the negative effects of informal e-waste recycling and disposal.

5.3. Evaluation of the Research Study

The use of the concept/theory of TEC has framed the issue of illicit e-waste dumping as an environmental crime. Despite international regulation through the Basel Convention and other MEAs, this trade persists and continues to grow. By approaching this trade through the illicit global (political) economy perspective, one is able to deduce why this trade continues. As has been stated in Chapter II; the criminalization of a specific market allows for it to continue and grow unmonitored and unregulated.

The rudimentary methods of recycling (such as the burning of plastic casing to retrieve precious metals) in Ghana and Nigeria have proven to have a drastic effect on human health and the environment, as shown in Chapter IV. From the evidence provided in this research study (especially the contamination of rivers in Ghana and Nigeria which affects water and food sources) it is possible to deduce that these methods have a long-lasting impact on the environment and people in the areas and could thus be framed as an issue of human rights violation – as it is directly violating the right to an access to clean water and food. Chapter II made note of the changing perspective of environmental crime at an international level. This change is seemingly being driven by the ICC discussion on prosecuting environmental crimes as crimes against humanity. However, as of this writing the discussion and debate continues and a decision has not yet been made.

It was noted at the start of this thesis that the common understanding regarding the dumping of hazardous waste is that the global North dump their wastes in the global South. Through the mapping of the actors in Chapter IV (*see figure 2*), it was found that the global North is not solely to blame for the continuation of the illicit e-waste trade. The actors from the global South have become prominent in this trade, especially if one looks at the second stage of the E-waste Cycle (*figure 2*). The global South is thus as much an aggressor and facilitator as it is a victim within this trade.

The focus on Ghana and Nigeria in Chapter IV showed the facilitating role played by states in the global South. Both Ghana and Nigeria have e-waste specific legislations, however, these legislations have not stopped the illicit e-waste trade. It was shown in Chapter IV that as with regulations such as the Basel Convention and Bamako Convention, loopholes exist and criminals, organizations, brokers and so forth are able to take advantage of these loopholes. Ghana and Nigeria likewise prove to be perfect examples of facilitating actors, as both states have supported and encouraged the import of second-hand electronic and electrical equipment to bridge the ‘digital divide’.

Despite e-waste specific legislation present in the aforementioned states, the continuation of illicit e-waste trade and the dumping thereof will continue due to these states allowing for loopholes to persist. Furthermore, although legislation is present, it should be noted that both Ghana and Nigeria have historically faced issues of enforcement, political will, and human and financial capital which has had a severe impact on how environmental crime is dealt with. Evidence of organized crime groups being involved in the West African illicit e-waste trade could not be found, however, the illicit trade does present them with an opportunity, as the

illicit e-waste trade is one of low risk and high reward– Much like how the waste industry created opportunities for the Italian Mafia in Italy and the United States. There is thus a strong possibility that organized crime groups could be involved in the international e-waste trade.

The plethora of environmental legislation, especially in Nigeria thus becomes little more than lip service, while attention is being paid to more ‘important’ matters. The mapping of the actors (licit and illicit) in the E-waste Cycle (Chapter IV, *figure 2*) does however allude to not only the complexity of the second-hand electronic and electrical trade, but also the difficulty of regulating a market/trade/industry where there is a presence of shadow actors and where hundreds if not thousands of people financially rely on. The socio-economic dimension of the e-waste trade (licit and illicit) thus becomes evident, as by totally outlawing the trade in used electronic and electrical equipment, it may have a devastating economic effect on the lives of those in West Africa’s recycling and refurbishing (be it formal or informal) sectors.

Lastly, as has been seen in this study through environmental governance, green political concerns remain state centric – as it is the state which ultimately establishes environmental policy (in the case of this thesis, e-waste policy) and regulates the trade thereof. However, the grassroots should be made prominent and given a more active role. Although the state can create environmental legislation, the implementation thereof is lacking. The inability of the state to effectively manage e-waste and other environmental issues is due the double burden the state faces (serving capitalistic interests and regulating the environment), as mentioned by Eckersley (2004) in Chapter II of this study. Additionally, the ‘green state’ is possible in Africa, as has been shown in Ghana and Nigeria with regards to e-waste legislation, however, there is a major lack in implementation. Trough the improvement of the position and importance of the grassroots level, there could be a possibility that both states will be able to manage their respective e-waste problems more effectively.

5.4. Recommendations for Future Research

Several implications and recommendations can be deduced from the mapping of the actors involved in the illicit e-waste trade in West Africa. Firstly, the mapping the actors that are visible has shown an increasing involvement of actors from the global South (especially waste brokers) which is contrary to the underlying rationale that developed states in the global North are the ones to blame for the illicit e-waste trade. Although they are present, they are by no means pervasive. This will therefore have an impact on how policy, especially international regulation is framed regarding the trade in illicit e-waste and hazardous waste in general.

The implication is related to how international regulation views the global South. As stated in Chapter III, international regulations such as the Basel Convention repeatedly frame the global South (Africa in particular) as victims of TEC and other environmental issues. This study showed the plethora of actors involved in the hazardous waste trade and more specifically the illicit e-waste trade. Future research could therefore challenge the notion of a dominant North-South trade and focus on the growing South-South trade in hazardous waste.

Secondly, the ICC debate regarding the framing and prosecution of environmental crime as a crime against humanity (discussed in Chapter II) requires further discussion of the environment and human rights. Although it has not been sanctioned as of this writing, it will impact how environmental crime is framed and defined. If this decision is to be passed, future research could focus on how the ICC's ruling would impact environmental policy making and enforcement, specifically the trade in e-waste and other hazardous wastes.

Chapter III & IV made note of the risks involved in the trade and poor dismantling of e-waste which has resulted in severe health issues for those affected, due to the contamination of water and food sources. The recycling of e-wastes thus goes beyond e-waste management and international regulation but includes the notion of human rights, especially the right to life and the right to food – which are basic human rights. Due to the restricted length of this study, a discussion on the human rights aspect of environmental crime could not be done. Future study could thus focus on the violation of human rights which stems from environmental crimes such as the illicit dumping of hazardous wastes, illicit fishing and illicit logging. Furthermore, future study could place a focus on how the tourism industry in Africa has been affected by environmental crime, especially with regards to the illegal hunting of rhinos and elephants in Southern Africa.

As has been made known in Chapter II and III, by authors such as Liddick (2010) and Massari & Monzini (2004), organized crime groups have for long been involved in the illicit disposal of wastes (hazardous and non-hazardous). One should therefore not discredit the idea that organized crime groups could be involved in the illicit e-waste trade, as it presents them with an easy financial opportunity. Future research could thus focus on the extent to which organized crime groups have been or are involved in the illicit e-waste trade.

As of this writing, Gambian conservationists have sued a Chinese firm (Golden Lead) for pollution. It was noted that the Chinese firm had dumped wastes into the sea, which the Gambian conservationists believe have polluted a nearby lagoon (Gambian Environmentalists

to sue ‘polluting’ Chinese Firm, 2017). This recent finding proves a growing increase in South-South relations regarding environmental crime. The implication of this growing South-South relationship in environmental crime alludes to a changing GPE and more specifically, the relationship between African states and other state and non-state actors with regards to the environment.

5.5. Conclusion

By mapping the actors involved in the E-waste Cycle (*figure 2* in Chapter IV), one can understand how the plethora of actors (licit and illicit) make the enforcement of e-waste specific legislation a complex task, especially in the case of West Africa – where economic capital, waste management expertise/capacity, and political will are lacking. As of this writing, it is not yet known how the e-waste specific legislation in Ghana and Nigeria will impact the fight against the illicit e-waste trade, and the West African people who see this trade as their only source of income. However, the future does look positive for the West African region, as Ghana and Nigeria have become prime examples of a new wave of ‘green states’ in Africa. Although problems such as enforcement capacity, political will and economic capital remain, there is increased attention being paid to the issue of e-waste management in West Africa (as has been evidenced in Chapter IV, with regards to the German government funding the creation of an e-waste management/recycling plant in Ghana). This cooperation is one step closer to the effective management of e-waste. For now, the illicit e-waste trade will continue to expand beyond West Africa, as environmental regulation seems to be becoming the norm in the region. It is thus not necessarily the fault of poor environmental governance that the issue of illicit e-waste continues to grow. The biggest issue lies within the variety of definitions within national and international environmental regulations (such as that of the Basel Convention) which create confusion and a platform for loopholes to become prominent. These loopholes create opportunities for criminals, whether they be organized or not.

Lastly, to suggest that the second-hand electronic and electrical trade should be criminalized would be detrimental to the West African region, especially Ghana and Nigeria. This is mainly because this trade has become an important source of economic survival for many West Africans and has spurred on a technological ‘revolution’ in these states. For enforcement and control to be effective in combatting the illicit e-waste trade, there needs to be a comprehensive and universal definition of what is termed hazardous waste. Furthermore, international, regional and national regulations should further consider the inclusion of the socio-economic aspect of the e-waste trade.

Bibliography

- Adediran, Y.A. & Abdulkarim, A. 2012. Challenges of electronic waste management in Nigeria. *International Journal of Advances in Engineering & Technology*, 4(1): 640-648.
- Adeola, F.O. 2011. *Hazardous wastes, industrial disasters, and environmental health risks: Local & Global environmental struggles*. New York: Palgrave Macmillan.
- Adeola, F.O. 2000. Cross-national environmental injustice and Human Rights issues: A review of evidence in the developing world. *American Behavioral Scientist*, 43(4): 686-706.
- Ajaja, T. 2016. *Inside Computer Village, Nigeria's chaotic 'Silicon Valley'*. [Online]. Available: <http://punchng.com/inside-computer-villagenigerias-chaotic-silicon-valley/> [2016, March 10].
- Amachree, M. 2013. Update on E-waste Management in Nigeria. 3rd Annual Meeting of the Global E-Waste Management Network, San Francisco. [Online]. Available: <https://www.epa.gov/sites/production/files/2014-05/documents/nigeria.pdf> [2017, June 30].
- Amankwah-Amoah, J. 2016. Global business and emerging economies: towards a new perspective on the effects of e-waste. *Technological Forecasting & Social Change*, 105: 20-26.
- Amoyaw-Osei, Y., Agyekum, O.O., Pwamang, J.A., Mueller, E., Fasko R. & Schluep, M. 2011. *Ghana E-waste Country Assessment: SBC e-waste Africa Project*. [Online]. Available: <http://www.basel.int/Portals/4/Basel%20Convention/docs/eWaste/E-wasteAssessmentGhana.pdf> [2017, June 24].
- Andreas, P. 2004. Illicit international political economy: the clandestine side of globalization. *Review of International Political Economy*, 11(3): 641-652.
- Andreas, P. 2015. International politics and the illicit global economy. *Perspectives on Politics*, 13(3): 782-788.
- Babbie, E. & Mouton, J. 2008. *The Practice of Social Research*. Cape Town: Oxford University Press South Africa.
- Badaiki, A.D. (ed.). 2003. *Landmarks in Legal Development: Essays in Honour of Justice C.A.R. Momoh, Honorable Chief Judge of Edo State, Nigeria*. Nigeria: Nobility Press.
- Baird, J. & Curry, R. Cruz, P. 2014. An overview of waste crime, its characteristics, and the vulnerability of the EU waste sector. *Waste Management & Research*, 32(2): 97-105.

- Baker, E., Bournay, E., Harayama, A. & Rekeciewicz, P. 2004. *Vital E-waste Graphics*. [Online]. Available: <http://www.grid.unep.ch/waste/download.html> [2017, March 23].
- Baldé, C.P., Wang, F. & Kuehr, R. 2016. Transboundary movements of used and waste electronic and electrical equipment. United Nations University, Vice Rectorate in Europe- Sustainable Cycles Programme (SCYCLE), Bonn, Germany. [Online]. Available: <http://www.step-initiative.org/files/step-2014/Publications/Green%20and%20White%20Papers/UNU-Transboundary-Movement-of-Used-EEE.pdf> [2017, June 12].
- Baldé, C.P., Wang, F., Kuehr, R. & Huisman, J. 2015. The global e-waste monitor – 2014, United Nations University, IAS – SCYCLE, Bonn, Germany.
- Basel Convention. 2006. *Nairobi declaration on the environmentally sound management of electrical and electronic waste*. [Online]. Available: <http://www.basel.int/Portals/4/Basel%20Convention/docs/meetings/cop/cop8/NairobiDeclaration.pdf> [2017, June 24].
- Basel Convention. 2011. *Amendment to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal*. [Online]. Available: <http://www.basel.int/Default.aspx?tabid=1344> [2017, March 7].
- Basel Convention. 2012. *Call for Action on E-waste in Africa: Set of Priority Actions*. [Online]. Available: <http://www.basel.int/Implementation/Ewaste/EwasteinAfrica/Overview/Workshops/PanAfricanForumonEwaste,Nairobi,March2012/tabid/2656/Default.aspx> [2017, June 25].
- Basel Convention. 2015. *Technical guidelines on Transboundary Movements of Electrical and Electronic Waste and used Electrical and Electronic Equipment, in particular regarding the distinction between Waste and Non-Waste under the Basel Convention*. [Online]. Available: <http://www.basel.int/TheConvention/ConferenceoftheParties/Meetings/COP12/tabid/4248/mctl/ViewDetails/EventModID/8051/EventID/542/xmid/13027/Default.aspx> [2017, June 26].
- Basel Convention. 2014. *Protocol on liability and compensation for damage resulting from transboundary movements of hazardous wastes and their disposal*. [Online]. Available: <http://www.basel.int/TheConvention/Overview/TextoftheConvention/tabid/1275/Default.aspx> [2017, January 31].

- BCCC-Africa. ND. *The International Summit on Regulation and Management of E-Waste (1st EKO E-Waste Summit) Took Place in Lagos, Nigeria on the 24th to 25th of February, 2011*. [Online]. Available: <http://www.basel.org.ng/index.php/1st-eko-e-waste-summit#> [2017, June 30].
- Beck, E. C. 2016. *The Love Canal Tragedy*. [Online]. Available: <https://archive.epa.gov/epa/aboutepa/love-canal-tragedy.html> [2017, February 24].
- Bentil, N.L. 2017. *Germany supports Ghana with €25 million to tackle e-waste menace*. [Online]. Available: <http://www.graphic.com.gh/news/general-news/germany-supports-ghana-with-25-million-to-tackle-e-waste-menace.html> [2017, June 28].
- Bergen, J. & Knight, A. 2015. Green Terror: Environmental Crime and illicit financing. *SAIS Review*, 35(1): 119-131.
- Bhutta, M.K.S., Omar, A. & Yang, X. 2011. Electronic Waste: A growing concern in today's environment. *Hindawi Publishing Corporation: Economics Research International*: 1-8.
- Bisschop, L. 2012. Is it all going to waste? Illegal transports of e-waste in a European trade hub. *Crime, Law & Social Change*, 58(3): 221-249.
- Bisschop, L. 2014. How e-waste challenges environmental governance. *International Journal for Crime, Justice and Social Democracy*, 3(2): 82-96.
- Bokpe, S.J. 2016. *EPA, others to set up e-waste recycling facility*. [Online]. Available: <http://www.graphic.com.gh/news/general-news/epa-others-to-set-up-e-waste-recycling-facility.html> [2017, June 28].
- Boudier, F. & Bensebaa, F. 2011. Hazardous waste management and corporate social responsibility: illegal trade of electrical and electronic waste. *Business and Society Review*, 116(1): 29-53.
- Brigden, K., Labunska, I., Santillo, D. & Johnston, P. 2008. *Chemical Contamination at e-waste recycling and disposal sites in Accra and Korforidua, Ghana*. [Online]. Available: <http://www.greenpeace.org/international/Global/international/planet-2/report/2008/9/chemical-contamination-at-e-wa.pdf> [2016, November 26].
- Brisman, A. 2014. Of theory and meaning in green criminology. *International Journal for Crime, Justice and Social Democracy*, 3(2): 21-34.
- Bryant, R.L. & Bailey, S. 1997. *Third World Political Ecology*. London: Routledge.
- Burnham, P., Lutz, K.G., Grant, W. & Layton-Henry, Z. 2008. *Research Methods in Politics*. 2nd ed. New York: Palgrave MacMillan.

- Castleman, B. 2016. The export of hazardous industries in 2015. *Environmental Health*, 15(8): 1-6.
- Chasek, P.S., Downie, D.L. & Welsh Brown, J. 2010. *Global Environmental Politics (5th ed.)*. Boulder: Westview Press.
- Chinwe, N.C. 2010. Legal framework for the regulation of waste in Nigeria. *African Research Review*, 4(2): 491-501.
- Ciro, A. 2010. *A study of Organised Crime from an International Relations perspective: IR Theory and case study*. U.S.A: Lambert Academic Publishing.
- Clapp, J. 1994. The toxic trade with less-industrialised countries: Economic linkages and political alliances. *Third World Quarterly*, 15(3): 505-518.
- Clapp, J. 1999. The illicit trade in hazardous wastes and CFCs: international responses to environmental “bads”, in H.R. Friman & P. Andreas (eds.). *The Illicit Global Economy & State Power*. Maryland: Rowman & Littlefield Publishers, Inc. 91- 125.
- Clapp, J. 2001. *Toxic Exports: The Transfer of Hazardous Wastes from Rich to Poor Countries*. New York: Cornell University Press.
- Consumers International. 2008. *The Real Deal: Exposing Unethical Behaviour: E-waste: West Africa continues to drown in the rich world's obsolete electronics*. [Online]. Available: <http://www.consumersinternational.org/media/105613/ewastereport-140408.pdf> [2017, February 15].
- Controlling Transboundary Movements of Hazardous Wastes*. 2015. [Online]. Available: <http://www.basel.int/Implementation/Publications/BrochuresLeaflets/tabid/2365/Default.aspx> [2016, September 20].
- Crockett, A. & de Sousa, M. 2016. *International Criminal Court to prioritise prosecution of crimes involving destruction of the environment, illegal exploitation of natural resources and land grabbing*. [Online]. Available: <http://www.lexology.com/library/detail.aspx?g=24e2c508-0e7c-4a70-baa6-cd4b7a8e7ddb> [2016, November 2].
- Daum, K., Stoler, J. & Grant, R.J. 2017. Toward a more sustainable trajectory for e-waste policy: a review of a decade of e-waste research in Accra, Ghana. *International Journal of Environmental Research and Public Health*, 14(135): 135- 150.
- Death, C. 2016. Green states in Africa: beyond the usual suspects. *Environmental Politics*, 25(1):116-135.

- DELC: Division of Environmental Law and Conventions. 2016. *Transnational Environmental Crime*. [Online]. Available: <http://www.unep.org/delc/EnvironmentalCrime> [2016, May 16].
- Dingwerth, K. & Pattberg, P. 2006. Global governance as a perspective on world politics. *Global Governance*, 12: 185-203.
- Dogbevi, E. K. 2017. *Germany commends Ghana for passing E-waste law, provides €25m financing for sector*. [Online]. Available: <https://www.ghanabusinessnews.com/2017/04/21/germany-commends-ghana-for-passing-e-waste-law-provides-e25m-financing-for-sector/> [2017, June 28].
- Drayton, H.L.2007. Economics of electronic waste disposal regulations. *Hofstra L. Rev.*, 36:149-183.
- Eckersley, R. 2004. *The Green State: Rethinking Democracy and Sovereignty*. Cambridge: MIT Press.
- Elliott, L. 2007. Transnational environmental crime in the Asia Pacific: an ‘un(der)securitized’ security problem?. *The Pacific Review*, 20(4): 499-522.
- Elliott, L.2012. Fighting Transnational Environmental Crime. *Journal of International Affairs*, 66(1):87-104.
- Environmental Investigation Agency (EIA). 2011. System Failure: The UK’s harmful trade in electronic waste. [Online]. Available: <https://eia-international.org/report/system-failure> [2016, November 7].
- Environmental Protection Agency, Ghana. 2017. *About us: Mission Statement*. [Online]. Available: <http://www.epa.gov.gh/epa/about> [2017, June 28].
- Fadoju, T. 2017. *BREAKING: Lagos State government to relocate Computer Village*. [Online]. Available: <https://techpoint.ng/2017/04/25/lagos-government-relocate-computer-village/> [2017, April 25].
- Friman, H.R. & Andreas, P. 1999. Introduction: International Relations and the Illicit Global Economy, in H.R. Friman & P. Andreas (eds.). *The Illicit Global Economy & State Power*. Maryland: Rowman & Littlefield Publishers, Inc. 1-23.
- Gambian Environmentalists to sue ‘polluting’ Chinese Firm*. 2017. [Online]. Available: <http://www.news24.com/Africa/News/gambian-environmentalists-to-sue-polluting-chinese-firm-20170802-2> [2017, August 10].

- Gibbs, C., Gore, M. L., McGarrell, E.F. & Rivers, L. 2009. Introducing conservation criminology: Towards interdisciplinary scholarship on environmental crimes and risks. *British Journal of Criminology*, July: 1-21.
- Global Initiative Against Transnational Organised Crime. 2014. *The Global Response to Transnational Organised Environmental Crime*. [Online]: Available: <http://www.globalinitiative.net/download/global-initiative/Global%20Initiative%20-%20Organized%20Environmental%20Crime%20-%20Baseline%20Assessment%20-%20June%202014.pdf> [3, March 2015].
- Gobert, J. & Punch, M. 2003. *Rethinking Corporate Crime*. London: Butterworths.
- Grant, K., Goldizen, F.C., Sly, P.D., Brune, M., Neira, M., Van den Berg, M. & Norman, R.E. 2013. Health consequences of exposure to e-waste: a systematic review. *Lancet Global Health*, 1: 350-361.
- Grant, R. & Oteng-Ababio, M. 2012. Mapping the invisible real “African” economy: urban e-waste circuitry. *Urban Geography*, 33(1): 1-21.
- Hawari, M. & Hassan, M.H. 2008. E-waste: Ethical implications for education and research. *IJUM Engineering Journal*, 9(2): 11-26.
- Hippolyte, A.R. 2012. Calls for national intervention in the toxic waste trade with Africa: A contemporary issue in the Environmental Justice debate. *Loyola Law Review*, 58: 301-323.
- Hirsch, A. 2013. ‘This is not a good place to live’: Inside Ghana’s dump for electronic waste. [Online]. Available: <https://www.theguardian.com/world/2013/dec/14/ghana-dump-electronic-waste-not-good-place-live> [2016, November 7].
- Huang, J., Nkrumah, P.N., Anim, D.O. & Mensah, E., 2014. E-Waste disposal effects on the aquatic environment: Accra, Ghana. In *Reviews of Environmental Contamination and Toxicology*, 229: 19-34.
- Human Development Report 2016: Human Development for Everyone*. 2016. [Online]. Available: <http://hdr.undp.org/en/2016-report/download> [2017, May 26].
- Hurrell, A. & Sengupta, S. 2012. Emerging powers, North-South relations and global climate politics. *International Affairs*, 88(3): 463-484.

- Hyatt, W.D. & Trexler, T.L. 1996. Environmental crime and organized crime: What will the future hold?, in S.M. Edwards, T.D. Edwards & C. B. Fields (eds.). *Environmental Crime and Criminality: Theoretical and Practical Issues*. New York: Garland Publishing, Inc. 245-261.
- International Joint Commission. 2013. *Who are we*. [Online]. Available: http://www.ijc.org/en/backgroundX/ijc_cmi_nature.htm#role [2016, November 9].
- International Network for Environmental Compliance and Enforcement and Seaport Environmental Security Network. 2009. The International Hazardous Waste trade through seaports. Working Paper 24 November. [Online]. Available: <http://www.inece.org/seaport/SeaportWorkingPaper24November.pdf>. [2017, January 28].
- INTERPOL. 2009. Electronic waste and organized crime-assessing the links: Phase II Report for the INTERPOL Pollution Crime Working Group. *Trends in Organized Crime*, 12: 352-378.
- INTERPOL: Office of Legal Affairs. 2014. *Countering Illicit Trade in Goods: A Guide for Policy-Makers*. [Online]. Available: <https://www.interpol.int/Crime-areas/Trafficking-in-illicit-goods-and-counterfeiting/Legal-assistance/Events> [2016, October 31].
- James, V.U. 1996. Hazardous waste problems and management in developing countries: An examination of Africa, in V.U. James (ed.). *Sustainable Development in Third World Countries: Applied and Theoretical Perspectives*. Westport: Praeger Publishers: 89-101.
- Karns, M.P. & Mingst, K.A. 2004. *International Organizations: The Politics and Process of Global Governance*. Colorado: Lynne Rienner Publishers, Inc.
- Kellenberg, D. & Levinson, A. 2014. Waste or effort? International Environmental Agreements. *Journal of the Association of Environmental and Resource Economists*, 1(1/2): 135-169.
- Khan, S.A. 2016. E-products, e-waste and the Basel Convention: Regulatory challenges and impossibilities of International Environmental Law. *Review of European Community & International Environmental Law*, 25(2): 248-260.
- Krueger, J. 1999. *International Trade and the Basel Convention*. London: Royal Institute of International Affairs.
- Krueger, J. 2001. The Basel Convention and the International trade in Hazardous Wastes. *Yearbook of International Co-operation on Environment and Development*: 43-52.

- Kummer Peiry, K. 2010. *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal*. [Online]. Available: <http://legal.un.org/avl/ha/bcctmhwd/bcctmhwd.html> [2017, March 1].
- Ladan, M.T.2012. Review of NESREA Act 2007 and regulations 2009-2011: A new dawn in environmental compliance and enforcement in Nigeria. *Law Environment and Development Journal*, 8(1): 118-140.
- Ladou, J. & Lovegrove, S. 2008. Export of electronics equipment waste. *International Journal of Occupational and Environmental Health*, 14(1): 1-10.
- Lawson, S. 2015. *Theories of International Relations: Contending Approaches to World Politics*. Cambridge: Polity Press.
- Lemos, M.C. & Agrawal, A. 2006. Environmental Governance. *Annu. Rev. Environ. Resourc*, 31: 297-325.
- Lepawasky, J. & McNabb, C. 2010. Mapping International flows of electronic waste. *The Canadian Geographer*, 54(2): 177-195.
- Levi, M. 2014. Thinking about organised crime. *The RUSI Journal*, 159(1): 6-14.
- Liddick, D. 2010. The traffic in garbage and hazardous wastes: an overview. *Trends in Organised Crime*, 13: 134-146.
- Lipman, Z. 2002. A dirty dilemma: The Hazardous Waste trade. *Harvard International Review*, 23(4): 67-71.
- Lucier, C.A. & Gareau, B.J. 2016. Obstacles to preserving precaution and equity in global hazardous waste regulation: an analysis of contested knowledge in the Basel Convention. *International Environmental Agreements*, 16: 493-508.
- Lundgren, K. 2012. *The global impact of e-waste: Addressing the challenge*. [Online]. Available: http://ilo.org/sector/Resources/publications/WCMS_196105/lang--en/index.htm [2017, March 24].
- Luther, L. 2012. Managing electronic waste: Issues with exporting E-waste, in J.L. Price & R.C. Cooper (eds.). *Electronic Waste: Refuse, Recycling and Export Considerations*. New York: Nova Science Publishers. Pp. 65-83.
- Lynch, M.J. & Stretsky, P.B. 2003. The meaning of green: Contrasting criminological perspectives. *Theoretical Criminology*, 7: 217-238.

- Manhart, A., Osibanjo, O., Aderinto, A. & Prakash, S. 2011. *Informal e-waste management in Lagos, Nigeria – socio-economic impacts and feasibility of international recycling co-operations*. [online]. Available: <http://www.basel.int/Implementation/Ewaste/EwasteinAfrica/Overview/PublicationsReports/tabid/2553/Default.aspx> [2016, November 16].
- Martini, M. 2012. Environmental crime and corruption. *Transparency International*, 326: 1-9.
- Massari, M. & Monzini, P. 2004. Dirty businesses in Italy: A case-study of illegal trafficking in hazardous waste. *Global Crime*, 6(3&4):285-304.
- Michalowski, R. & Bitten, K. 2005. Transnational environmental crime, in P. Reichel (ed.). *Handbook of Transnational Crime & Justice*. Thousand Oaks: SAGE Publications, Inc. 139-160.
- Miller, A.L. 1995. *The Third World in Global Environmental Politics*. Colorado: Lynne Rienner Publishers.
- Mittelman, J.H. & Johnston, R. 1999. The globalization of organized crime, the courtesan state, and the corruption of civil society. *Global Governance*, 5: 103-126.
- Najam, A. 2005. Why environmental politics looks different from the South, in P. Dauvergne (ed.). *Handbook of Global Environmental Politics*. Massachusetts: Edward Elgar Publishing, Inc. 111-126.
- Nellemann, C., Henriksen, R., Kreilhuber, A., Stewart, D., Kotsovou, M., Raxter, P., Mrema, E. & Barrat, S. (eds.). 2016. *The Rise of Environmental Crime: A growing threat to natural resources, peace, development and security: A UNEP-INTERPOL Rapid Response Assessment*. [Online]. Available: http://unep.org/documents/itw/environmental_crimes.pdf [2016, July 25].
- NESREA. 2011. *About NESREA*. [Online]. Available: <http://www.nesrea.gov.ng/about/index.html> [2017, June 30].
- NESREA. 2013. *Guide for Importers of Used Electrical and Electronic Equipment into Nigeria*. [Online]. Available: https://www.env.go.jp/recycle/yugai/reg/nigeria_20130419_2.pdf [2017, July 4].
- NESREA. 2016. *Repatriation: NESREA Steps Up Exercise, Returns Three Offensive Containers*. [Online]. Available: <http://www.nesrea.gov.ng/news/ewaste.php> [2017, July 4].

- Neuman, W.L. 2005. *Social research methods: Qualitative and Quantitative Approaches*. 6th ed. New York: Pearson.
- O'Neil, K. 2001. The changing nature of global waste management for the 21st Century: A mixed blessing?. *Global Environmental Politics*, 1(1): 77-98.
- Obaje, S.O. 2013. Electronic waste scenario in Nigeria: Issues, problems and solutions. *International Journal of Engineering Science Invention*, 2(1): 31-36.
- Ognibene, L. 2007. Dumping of toxic waste in Côte d'Ivoire: The international framework. *Environmental Policy and Law*, 37(1): 31-33.
- Ogungbuyi, O., Nnorom, I.C., Osibanjo, O. & Schluep, M. 2012. *E-waste Country Assessment Nigeria: e-waste Africa project of the Secretariat of the Basel Convention*. [Online]. Available: http://www.ewasteguide.info/Ogungbuyi_2012_BCCC-Empa [2017, June 13].
- Olowu, D. 2012. Menace of E-wastes in developing countries: An agenda for legal and policy responses. *Law, Environment and Development Journal*, 8(1): 61-75.
- Orisakwe, O.E. & Frazzoli, C. 2010. Electronic revolution and electronic wasteland: The West/waste Africa experience. *Journal of Natural Environmental Sciences*, 1(1): 43-47.
- Orloff, K. & Falk, H. 2003. An international perspective on hazardous waste practices. *International Journal of Hygiene and Environmental Health*, 206: 291-302.
- Osibanjo, O. & Nnorom, I.C. 2007. The challenge of electronic waste (e-waste) management in developing countries. *Waste Management & Research*, 25: 489-501.
- Oteng-Ababio, M. 2010. E-waste: An emerging challenge to solid waste management in Ghana. *International Development Planning Review*, 32(2): 191-206.
- Oteng-Ababio, M. 2012. Electronic waste management in Ghana – Issues and practices, in Curkvic, S (ed.). *Sustainable Development – Authoritative and Leading Edge Content for Environmental Management*. Pp 149-166. [Online]. Available: <https://www.intechopen.com/books/sustainable-development-authoritative-and-leading-edge-content-for-environmental-management> [2017, August 8].
- Paterson, M. 2005. Green Politics, in S. Burchill, A.Linklater, R. Devetak, J. Donnelly, M. Paterson, C. Reus-Smit & J. True (eds.). *Theories of International Relations* (3rd edition). New York: Palgrave Macmillan. 235-257.

- Pinzon, L.M. 1994. Criminalization of the transboundary movement of hazardous waste and the effect on corporations. *De Paul Business Law Journal*, 7(173): 173-221.
- Prakash, S., Manhart, A., Amoyaw-Osei, Y. and Agyekum, O.O.2010. Socio-economic assessment and feasibility study on sustainable e-waste management in Ghana. *Öko-Institut eV in cooperation with Ghana Environmental Protection Agency (EPA) & Green Advocacy Ghana, Ministry of Housing, Spatial Planning and the Environment, VROM-Inspectorate.*
- Puckett, J., Byster, L., Westervelt, S., Gutierrez, R., Davis, S., Hussain, A. & Dutta, M. 2002. *Exporting Harm: The High-Tech Trashing of Asia*. [Online]. Available: <http://www.ban.org/wiki/> [2017, March 24].
- Puckett, J., Westervelt, S., Gutierrez, R. & Takamiya, Y. 2005. The Digital Dump: Exporting Re-use and Abuse to Africa. [Online]. Available: <http://archive.ban.org/library/TheDigitalDump.pdf> [2017, January 26].
- Pwamang, J.A. 2013. Government Policy and Initiatives on E-waste in Ghana. 3rd Annual Global E-Waste Management (GEM) Network Meeting, California. [Online]. Available: https://www.epa.gov/sites/production/files/2014-05/documents/ghana_2.pdf [2017, June 27].
- Ray, A. 2008. Waste management in developing Asia: Can trade and cooperation help?. *The Journal of Environment & Development*, 17(1):1-23.
- Rebovich, D.J. 1992. *Dangerous Ground: The World of Hazardous Waste Crime*. New Brunswick: Transaction Publishers.
- Republic of Ghana. 1994. *Environmental Protection Agency Act of 1994*. [Online]. Available: <http://www.epa.gov.gh/epa/sites/default/files/downloads/environmental%20protection%20agency%20act%201994.pdf> [2017, June 26].
- Republic of Ghana. 2016. *Hazardous and Electronic Waste Control and Management Act of 2016*. [Online]. Available: <http://www.epa.gov.gh/epa/sites/default/files/downloads/publications/Hazardous%20and%20Electronic%20Waste%20Control%20and%20Mgt%20Act%20917.pdf> [2017, June 28].
- Roberts, J.T. & Parks, B.C. 2006. *A Climate of Injustice: Global Inequality, North-South Politics, and Climate Policy*. Cambridge: MIT Press.
- Robinson, B.H. 2009. E-waste: An assessment of global production and environmental impacts. *Science of the Total Environment*, 408: 183-191.

- Rowlands, I.H. 1992. Environmental issues in world politics, in J. Baylis & N.J. Rengger (eds.). *Dilemmas of World Politics: International issues in a Changing World*. New York: Oxford University Press. 287-309.
- Rucevska, I., Nellemann, C., Isarin, N., Yang, W., Liu, N., Yu, K., Sandaes, S., Olley, K., McCann, H., Devia, L., Bisschop, L., Soesilo, D., Schoolmeester, T., Henriksen, R. & Nilsen, R. 2015. *Waste Crime- Waste Risks: Gaps in Meeting the Global Waste Challenge*. [Online]. Available: <http://www.unep.org/ourplanet/september-2015/unep-publications/waste-crime-waste-risks-gaps-meeting-global-waste-challenge-rapid> [2017, February 13].
- Schmidt, C.W. 2004. Environmental crimes: Profiting at the earth's expense. *Environmental Health Perspectives*, 112(2): 97-103.
- Schmidt, C.W. 2006. Unfair Trade: e-waste in Africa. *Environmental Health Perspectives*, 114(4): 223-235.
- Schwarzer, S., De Bono, A., Giuliani, G., Kluser, S. & Peduzzi, P. 2005. E-waste, the hidden side of IT equipment's manufacturing and use. *UNEP Environment Alert Bulletin*, 5: 1-4. [Online]. Available: <https://archive-ouverte.unige.ch/unige:23132> [2017, March 24].
- Shelly, L.I. 1995. Transnational Organized Crime: An imminent threat to the nation-state?. *Journal of International Affairs*, 48(2): 463-489.
- Shover, N. & Routhe, A.S. 2005. Environmental Crime. *Crime & Justice*, 32: 321-370.
- Sierra Club. 2016. *Who we are*. [Online]. Available: <http://www.sierraclub.org/about> [2016, November 9].
- Simon, D.R. & Hagan, F.E. 1999. *White-Collar Deviance*. Boston: Allyn & Bacon.
- Solving the E-waste Problem (SteP). 2014. *One Global Definition of E-waste*. [Online]. Available: <http://www.step-initiative.org/publications.html> [2017, March 23].
- Speth, J.G. & Haas, P.M. 2006. *Global Environmental Governance*. Washington DC: Island Press.
- Sullivan, J. 2014. Trash or treasure: Global trade and the accumulation of e-waste in Lagos, Nigeria. *Africa Today*, 61(1): 89-112.
- Szasz, A. 1986. Corporations, organized crime, and the disposal of hazardous waste: An examination of the making of a criminogenic regulatory structure. *Criminology*, 24(1): 1-27.

- Taylor, A. 2016. *Is environmental destruction a crime against humanity? The ICC may be about to find out.* [Online]. Available: <https://www.washingtonpost.com/news/worldviews/wp/2016/09/16/is-environmental-destruction-a-crime-against-humanity-the-icc-may-be-about-to-find-out/> [2016, September 20].
- Terada, C. 2012. Recycling Electronic Wastes in Nigeria: Putting environmental and Human Rights at risk. *Northwestern Journal of International Human Rights*, 10(3): 154-172.
- Terekhova, T. 2012. Paper II: Transboundary movements of hazardous wastes and corruption: The special case of e-waste in West Africa, in United Nations Office on Drugs and Crime. *Corruption, Environment and the United Nations Convention against Corruption.* [Online]. Available: https://www.unodc.org/documents/corruption/Publications/2012/Corruption_Environment_and_the_UNCAC.pdf [2016, November 14].
- The Basel Convention at a Glance.* 2007. [Online]. Available: <http://www.basel.int/Implementation/Publications/BrochuresLeaflets/tabid/2365/lapg-15499/2/Default.aspx> [2017, March 2].
- Tladi, D. 2000. The quest to ban hazardous waste import into Africa: first Bamako & now Basel. *The Comparative and International Law Journal of Southern Africa*, 33(2): 210-226.
- Tompson, L. & Chainey, S. 2011. Profiling illegal waste activity: Using crime scripts as a data collection and analytical strategy. *Eur J Crim Policy Res*, 17: 179-201.
- Toxic Tech: Pulling the Plug on Dirty Electronics.* 2005. [Online]: Available: <http://www.greenpeace.org/international/Global/international/planet-2/report/2005/11/toxic-tech-puling-the-plug-o.pdf> [2016, September 20].
- Transparency International. 2016. *Corruption Perceptions Index 2016.* [Online]. Available: https://www.transparency.org/news/feature/corruption_perceptions_index_2016 [2017, May 29].
- Umesi, N.O. & Onyia, S. 2008. Disposal of e-wastes in Nigeria: an appraisal of regulations and current practices. *International Journal of Sustainable Development & World Ecology*, 15(6): 565-573.
- Van Daele, S., Vander Beken, T. & Dorn, N. 2007. Waste management and crime: Regulatory, business and product vulnerabilities. *Environmental Policy and Law*, 37(1): 34-38.

- Van Erp, J. & Huisman, W. 2010. Smart regulation and enforcement of illegal disposal of electronic waste. *Criminology & Public Policy*, 9(3): 579-590.
- Walters, R. 2012. Dirty collar crime and the environment, in *Proceedings of Crime, Justice and Social Democracy*. Brisbane: Queensland University of Technology: 103-112.
- White, R. & Heckenberg, D. 2011. *Key Vulnerabilities & Limitations in the Management of Hazardous Waste and its Disposal* (School of Sociology and Social Work No. 3). Australia: University of Tasmania.
- White, R. 2010. A green criminology perspective, in E. McLaughlin & T. Newburn (eds.). *The SAGE Handbook of Criminological Theory*. London: SAGE Publications. 410-427.
- Widmar, R., Oswald-Krapf, H., Sinha-Khetriwal, D., Schnellmann, M. & Böni, H. 2005. Global perspectives on e-waste. *Environmental Impact Assessment Review*, 25: 436-458.
- World Bank. 2017. *Country Overview: Nigeria*. [Online]. Available: <http://www.worldbank.org/en/country/nigeria/overview> [2017, June 6].
- World Trade Organization. 2016. *The Doha Mandate on environmental agreements (MEAs)*. [Online]. Available: https://www.wto.org/english/tratop_e/envir_e/envir_neg_meas_e.htm [2016, September 23].
- Wright, G. 2011. Conceptualising and combating transnational environmental crime. *Trends in Organized Crime*, 14:332-346.
- Wynne, B. 1989. The toxic waste trade: International regulatory issues and options. *Third World Quarterly*, 11(3):120-146.
- Zakri, A.H. 2004. Foreword, in N. Kanie & P.M. Haas (eds.). *Emerging Forces in Environmental Governance*. New York: United Nations University Press. X-xiii.
- Zhang, K., Schnoor, J.L. & Zeng, E.Y. 2012. E-waste recycling: Where does it go from here?. *Environmental Science & Technology*, 46: 10861-10867.