

**My Waste My Responsibility:**

**ASSESSING USER AWARENESS ON ENVIRONMENTALLY SOUND DISPOSAL  
OF E-WASTE IN KENYA**

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**A Thesis Submitted to the University of Nairobi in Partial Fulfillment of the  
Requirements for the Award of the Degree of Master of Laws (LL.M)**

Word Count: 26,772

## **DECLARATION**

I Pauline Achieng Pesa hereby declare that this is my original work and has not been presented for the award of a degree or any other award in any other university. Where works by other people have been used, references have been provided.

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## **APPROVAL**

This thesis titled Assessing User Awareness on Environmentally Sound Disposal of E-Waste in Kenya has been done under my supervision and has been submitted to The University of Nairobi, School of Law for examination with my approval as the candidate's supervisor.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Supervisor: **PROF. EDWIN ABUYA**

## **DEDICATION**

This thesis is dedicated to my lovely daughters Ivanka and Nina. You are a source of great inspiration. May we endeavour to conserve the environment for you and the future generation!

## AKNOWLEDGEMENT

- I wish to acknowledge assistance and contribution of those without whom, this thesis would not have materialized. First, I thank the Almighty God for life, thus the ability to undertake this study. Secondly, I thank my parents, brothers, sisters and husband Jimmy, for the support and encouragement during the study. Thirdly I acknowledge the contribution of my supervisor, Prof. Edwin Abuya. You accorded me an opportunity of a life time. Any shortcomings in this thesis are entirely mine. I wish to thank Brenda Kodawa for assisting me in data collection. Your assistance in this study is commendable. Finally, I thank the interviewees who took part in this study, your input was highly appreciated.

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## LIST OF ABBREVIATIONS

DFID	Department for International Development
EAC	East African Community
EE	Electricals and Electronics
EMCA	Environmental Management and Coordination Act
NEMA	National Environmental and Management Authority
EU	European Union
HCCC	High Court Civil Case
ICT	Information Communication Technology
INECE	International Network for Environmental Compliance and Enforcement
MSW	Municipal solid Waste
NEMA	National Environmental Management Authority
NGO	Non-Governmental Organisation
MSW	Municipal Solid Waste
NACOSTI	National Commission for Science , Technology and Innovation
PoPs	Persistent Organic Pollutants
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UDHR	Universal Declaration of Human Rights
UNTS	United Nations Treaty Series
UNEP	United Nations Environmental Programme
WEEE	Waste Electrical and Electronic Equipment

## **DEFINITION OF TERMS \***

Awareness	:	Having knowledge or consciousness of the environment.
End of life cycle	:	End of electrical and electronic equipment usefulness to the user.
Environment	:	All living and non-living things occurring naturally on Earth or some region thereof
Electrical and electronic waste	:	Used electronics which are destined for reuse, resale, salvage, recycling or disposal
Transboundary movement	:	Any movement of hazardous wastes or other wastes from an area under the national jurisdiction of one State to or through an area under the national jurisdiction of another State or to or through an area not under the national jurisdiction of any State, provided at least two States are involved in the movement
Sound management	:	Taking all practical steps to ensure hazardous waste and/or other wastes are managed in a manner which will protect human health and environment against adverse effects which may result from such waste.
User	:	Anyone who has made use of an electronic device at one point.

## **LIST OF LAWS**

### **Municipal**

Constitution of Kenya, 2010.

Environment and Land Court Act, 2011.

Environmental Management and Coordination Act, 1999.

Environmental Management and Coordination (Waste Management) Regulations, 2006.

Media Council Act, 2013.

### **International**

Basel Convention on the Control of Trans-boundary Movement of Hazardous Wastes and their Disposal, 1989.

Rio Declaration on Environment and Development, 1992.

The Geneva Convention on Long-Range Transboundary Air Pollution, 1979.

UN Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention), 1998.

## LIST OF CASES

*County Government of Kiambu v Manager, Breeze Lands Agency, M. Kimotho*, CR 1566/5

*Wangari Maathai & 2 others v City Council of Nairobi & 2 others* HCCC No 72 of 1994

## CHAPTER ONE

### INTRODUCTION: A GENERAL OVERVIEW AND OUTLINE

#### 1.1 Introduction

The present level of development globally cannot be sustained without growth in information and communication technology (ICT).<sup>1</sup> The increased demand for user electronics and electric products together with the increased pace at which technology is evolving has resulted in an increased amount of obsolete products that must be either disposed of or recycled by the society.<sup>2</sup> These products, referred to as waste electrical and electronic equipment (WEEE) or electronic waste (E-Waste), are considered to be hazardous. They do not, in their functional state, serve any purpose to any intending user unless the equipment has been refurbished.<sup>3</sup> E-Waste generation, trans-boundary movement and disposal are issues of concern around the world.<sup>4</sup> User electronics are the fastest growing sector of municipal solid waste (MSW) in both developed and developing countries and arguably one of the most toxic.<sup>5</sup>

The current body of research provides extensive information about health and environmental consequences of E-Waste, and the extent of infrastructural support in Kenya.<sup>6</sup> However, there is limited information on the Kenyan public's awareness of the use of toxic chemicals in

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<sup>1</sup> Gatana Kariuki, 'Growth and Improvement of Information Communication Technology in Kenya' (2009) 5(2) *International Journal of Education and Development using Information and Communication Technology* 146, 153.

<sup>2</sup> Anthony Okoye and Chijioke Odoh, 'Assessment of the Level of Awareness of E-Waste Management and Concern for the Environment amongst the Populace in Onitsha, Southeastern Nigeria' (2014) 5(2) *Journal of Environmental Protection* 120, 120.

<sup>3</sup> Asiimwe Edgar Napoleon and Grönlund Ake, 'E-Waste Management in East African Community' in Kelvin Joseph Bwalya, Saul Zulu, *Handbook of Research on E-Government in Emerging Economies: Adoption, E-Participation, and Legal Frameworks* (IGI Global 2012) 309.

<sup>4</sup> Jirang Cui and Eric Forsberg, 'Mechanical Recycling of Waste Electric and Electronic Equipment: A Review' (2003) 99 (3) *Journal of Hazardous Materials* 243, 244.

<sup>5</sup> Oladele Osibanjo and Innocent Chidi Nnorom, 'The Challenge of Electronic Waste (E-Waste) Management in Developing Countries' (2007) 25(6) *Waste Management Research* 489.

<sup>6</sup> *ibid* 489.

these products, Government policies regarding E-Waste management, and proper practices of disposal. Some of these discarded electronic gadgets contain highly toxic materials.<sup>7</sup> Additionally, the general population's perception of unused electronics, whether or not they consider it to be a form of waste, is still unclear.<sup>8</sup>

An assessment of public awareness at the level of the individual is vital to understanding what is missing from management strategies, and to understanding the public's behaviour toward E-Waste.<sup>9</sup> Indeed, building public awareness will be key to active and effective participation in E-Waste systems. The rights of consumers to quality goods and services, information necessary for them to gain full benefit from goods and services, and protection of their health, safety, and economic interests, are guaranteed under the Constitution of Kenya.<sup>10</sup> This is further reinforced by the right of every citizen to access information held by the State and information held by another person and required for the exercise or protection of any right or fundamental freedom.<sup>11</sup> Awareness is therefore necessary if Kenya hopes to have active users who will demand more responsibility from electronics producers and more action from policymakers.<sup>12</sup> Additionally, producers can become responsible for the end-of-life costs of their products, if users are aware of the role of producers in E-Waste management, in particular, the producers' role to take back and dispose of gadgets that have reached their end life.<sup>13</sup>

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<sup>7</sup> Qiang Liu and others, 'The Global Challenge of Electronic Waste Management' (2009) 16(3) Environmental Science and Pollution Research 248, 248.

<sup>8</sup> *ibid* 254-256.

<sup>9</sup> Anuj Shah and others, 'An Assessment of Public Awareness Regarding E-Waste Hazards and Management Strategies' (SIT World Learning 2014) 6 <[http://digitalcollections.sit.edu/cgi/viewcontent.cgi?article=2832&context=isp\\_collection](http://digitalcollections.sit.edu/cgi/viewcontent.cgi?article=2832&context=isp_collection)> accessed 20 May 2015.

<sup>10</sup> Constitution of Kenya, art 46.

<sup>11</sup> Constitution of Kenya, art 35.

<sup>12</sup> Shah and others (n 8) 6.

<sup>13</sup> TakeBack Blues, 'An Assessment of E-Waste Takeback in India' (GreenPeace 2008) 7 <[http://ewasteguide.info/files/take-back-blues\\_2008\\_Greenpeace.pdf](http://ewasteguide.info/files/take-back-blues_2008_Greenpeace.pdf)> accessed 19 May 2015.

This study and its research instruments focus on the third, among the ten categories listed in the European Union Directive on WEEE, that is, information technology and telecommunications equipment (labelled as ICT).

<b>N</b>	<b>Category</b>	<b>Label</b>
1	Large household appliances	Large HH
2	Small household appliances	Small HH
3	IT and Telecommunications Equipment	ICT
4	Consumer equipment	CE
5	Lighting equipment	Lighting
6	Electrical and electronic tools (with the exception of large-scale stationary industrial tools)	E & E tools
7	Toys leisure and sports equipment	Toys
8	Medical devices (with the exception of all implanted and infected products).	Medical equipment
9	Monitoring and control equipment	M & C
10	Automatic dispensers	Dispensers

Table 1.1 EU E-Waste categories.<sup>14</sup>

## 1.2 Statement of the Problem

The problem sought to be addressed in this study is whether the lack of awareness on sound disposal of electrical and electronic waste influence how the waste is disposed of in Kenya. Is there a need to create awareness on the environmental impact caused to the environment as a result of poor disposal? Is the public aware of the sanction provided by law and are they the only viable options in dealing with poor disposal of e waste?

<sup>14</sup> Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on Waste Electrical and Electronic Equipment (WEEE), art 2(1)(a) and annex I.

Despite the fact that Kenya is increasingly dependent on electrical and electronic equipment, the level of awareness by users of safe and proper disposal of these equipment has not been adequately explored. Creation on awareness should be done by every person with knowledge of E-Waste disposal. These include the producers of EEE, law enforcers and user.

### **1.3 Justification**

The findings of this study will enable users, producers of EEE and enforcers make wise decisions regarding E-Waste management that will benefit local communities within the city of Nairobi. The study will highlight the role of different stakeholders and extent to which they can be active in addressing E-Waste management problems. Further, the study will inform the Government on the extent of awareness creation required. This thesis is also relevant to international agencies with strong financial and technical background, not leaving out national, small and medium enterprises interested in E-Waste management.

### **1.4 Objective of the Research**

The general objective of the research is to determine consumers' level of awareness in environmentally sound disposal of E-Wastes in Kenya. The study will focus on the following specific objectives-

- a) Analysis of sound disposal options available to consumers and whether consumers are aware of these options.
- b) To find out users' awareness of enforcement mechanisms in place with regard to disposal of E-Waste.



## 1.5 Literature Review

### 1.5.1 Introduction

The electronic industry is the fastest and the largest manufacturing industry during the last decade that it has assumed the role of offering a forceful leverage to technological and socio-economic growth of developing countries.<sup>15</sup> The result of its user oriented growth combined with technological advances and rapid product obsolescence are creating a new environmental challenge, the growing menace of electronic waste that consists of obsolete electronic device.<sup>16</sup> The discarded electronic products range from computers, home appliances, video and audio products, equipment used in information and telecommunication technology and all their peripheral often times known as E-Waste.<sup>17</sup>

Increase in E-Waste stream has attracted the attention of many Governments, individuals and researchers due to its impact on the environment and human health. E-Waste phenomenon continues to flourish due to rapid adoption and use of ICTs which has contributed to increase in E-Waste stream. E-Waste is said to be one of the fastest growing waste streams growing at a rate of 3–5% per annum, that is, approximately three times faster than ordinary municipal solid waste.<sup>18</sup>

Rapid economic growth, coupled with a growing demand for user goods and urbanization have increased the production and consumption of EEE.<sup>19</sup> The United Nations Environmental Programme (UNEP) estimates that over 17,000 tonnes of electric waste is generated in Kenya

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<sup>15</sup> Balakrishnan Ramesh Babu, Anand Kuber Parande and Chiya Ahmed Basha, 'Electrical and Electronic Waste: A Global Environmental Problem' (2007) 25(4) Waste Management & Research 307.

<sup>16</sup> Rolf Widmer and others, 'Global Perspectives on E-Waste' (2005) 25 Environmental Impact Assessment Review 436, 441.

<sup>17</sup> *ibid* 441.

<sup>18</sup> Carolyn Cairns, 'E-Waste and the Consumer: Improving Options to Reduce, Reuse and Recycle' (IEEE International Symposium on Electronics and the Environment, New Orleans, 16-19 May 2005) 237-242.

<sup>19</sup> Babu, Parande, and Basha (n 15).

annually; this is equivalent to 130 million mobile phones.<sup>20</sup> Kenya has ratified one convention on sound management of E-Waste. This is the Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal. The convention obligates the exporting country to ensure that the exported wastes are managed in an environmentally safe manner.<sup>21</sup>

The literature review section will look into the works authors with a view of what has been written in regard to user awareness on disposal and enforcement of E-Waste. It identifies the gaps in their work, upon which this thesis seeks to address. The section will cover the right to information. Then look at the concept of sound disposal of E-Waste. Finally it will look at enforcement with regard to E- waste.

### **1.5.2 E-Waste Risks and the Right to Information**

The United Nations Environmental Programme (UNEP) has endeavoured to identify solutions to Kenya's mounting E-Waste problem through specific discussions focusing on the potential economic and environmental benefits of responsible management of E-Waste.<sup>22</sup> Such discussions not only play a part in raising awareness about the threats posed by E-Waste but also highlight the huge economic opportunities it represents in terms of recycling.<sup>23</sup> This is particularly important in light of the fact that one of the biggest challenges that Kenya, like any other African country faces is the lack of awareness on E-Waste and appropriate disposal measures.<sup>24</sup> UNEP and the Kenyan Government held a national E-Waste conference and

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<sup>20</sup> UNEP News Centre, 'Conference to Spotlight New E-Waste Management Solutions for Kenya' held on 28<sup>th</sup> May 2014 <<http://www.unep.org/newscentre/Default.aspx?DocumentID=2788&ArticleID=10867>> accessed 17 May 2015.

<sup>21</sup> *Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal* (22 March 1989), 1673 U.N.T.S 57 (entered into force 05 May 1992), art 4(2).

<sup>22</sup> UNEP News Centre (n 20)

<sup>23</sup> Report of the Conference of the Parties to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal on Its Eighth Meeting (Nairobi, 27 November-1 December 2006) 13-14.

<sup>24</sup> East Africa Compliant Recycling, 'E-Waste Management in Kenya' <<http://www.eastafricancompliantrecycling.net/news-updates>> accessed 17 May 2015.

exhibition on 28 May 2014 to identify solutions to Kenya's mounting E-Waste problem. The conference to Spotlight New E-Waste Management Solutions for Kenya highlighted the following. First, various causes of E-Waste accumulation in Kenya. Secondly, the risks the E-Waste poses to human health and the environment. Finally ways through which this situation can be mitigated.<sup>25</sup> Even though the conference highlighted the need to raise awareness about E-Waste's risks and sound disposal mechanisms, it did not discuss how it is exactly that this should be done. This study will therefore build on the conference's discussions by going further to explore ways through which the right to information can be achieved in an attempt to raise awareness on E-Waste risks and sound disposal.

Kimani Njoroge reveals Kenya's dire E-Waste situation with Dandora dumping site. In Nairobi city alone tending to 2,000 tonnes of newly arrived waste per day, including heavy metals such as lead and mercury often found in electronic waste.<sup>26</sup> The study tracks the pollution cycle of hazardous chemicals from the waste to the environment and to human beings.<sup>27</sup> The study reveals that these heavy metals have resulted to respiratory problems and blood abnormalities in 50% and 30% respectively of the 300 school children examined.<sup>28</sup> Even though the study effectively links the E-Waste dumped in Dandora to health complications of people in the neighbourhood and the surrounding soil, it fails to propose mechanisms for mitigating this situation. This study will therefore rely on the findings of the above study to explore how enhancing awareness of E-Waste risks and sound disposal mechanisms. This can be achieved through promoting the right to information. With information, health and environmental risks of E-Waste can be minimised or eliminated.

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<sup>25</sup> UNEP News Centre, 'Conference to Spotlight New E-Waste Management Solutions for Kenya' held on 28<sup>th</sup> May 2014 <<http://www.unep.org/newscentre/Default.aspx?DocumentID=2788&ArticleID=10867>> accessed 17 May 2015.

<sup>26</sup> Njoroge Kimani, 'Environmental Pollution and Impacts on Public Health: Implications of the Dandora Municipal Dumping Site in Nairobi, Kenya' (UNEP and St. John Catholic Church Korogocho 2007) paras 3-5 <[http://www.unep.org/urban\\_environment/PDFs/DandoraWasteDump-ReportSummary.pdf](http://www.unep.org/urban_environment/PDFs/DandoraWasteDump-ReportSummary.pdf)> accessed 19 May 2015.

<sup>27</sup> *ibid.*

<sup>28</sup> *ibid.*, para 5.

Edwin Abuya examines the issue of access to information within the Kenyan context by evaluating challenges facing the right to receive information.<sup>29</sup> The study argues that access to the right information has an impact on the enjoyment of other fundamental entitlements. First, information enables persons to know of the existence of these entitlements. It also provides individuals with the data and knowledge that they require to participate effectively in the democratic process. Access to the right information enables individuals to make informed choices about their lives and livelihoods. Finally information enables the public to contribute to the society's economic development.<sup>30</sup> However, the study points out that despite the constitutional guarantees of right to access information, the fact that the Constitution allows limitation of this right is an impediment to its enjoyment.<sup>31</sup> The study points to various legislations that limit this right in a number of unreasonable ways and as such promote bureaucratic barriers.<sup>32</sup> The study recommends a comprehensive legislation governing access to information, which legislation should aim at maximum disclosure allowing for only narrowly construed exceptions. The study does not discuss the role of information in the proper management of E-Waste. The results of the above study will be particularly instrumental in interrogating the shortcomings of existing environmental legislations and policies with regard to access to information related to proper E-Waste management mechanisms.

Mol Arthur, He Guizhen and Lei Zhang explore China's policy of information disclosure as an environmental risk management strategy, also known as 'right-to-know', in light of China's environmental disasters and accidents. The study notes that China has recognised the important role of availability and disclosure of information in managing environmental risks

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<sup>29</sup> Abuya Edwin, 'Towards Promoting Access to Information in Kenya' (African Network of Constitutional Lawyers 2011) 4 <<http://www.right2info.org/resources/publications/publications/towards-promoting-access-to-information-in-kenya-2011>> accessed 30 June 2015.

<sup>30</sup> *ibid* 4.

<sup>31</sup> *ibid*.

<sup>32</sup> *ibid*.

in a variety legislations and policies.<sup>33</sup> The policy first aims at establishing a database of environmental risk of major economic sectors. Secondly, opening up access to Government information and ensuring greater official transparency. They also compel Government authorities and serious industrial polluters to disclose environmental information to the public. Finally they make the public a more active actor in managing environmental risks.<sup>34</sup> This is achieved by requiring the Government and companies to publish, in newspapers and websites of Government and NGOs, environmental quality data and risks.<sup>35</sup> The study argues that information disclosure by Government to the public is an effective enforcement mechanism that complements and supports enforcement by the state. This is because widely publicised environmental information ensures polluters attempt to prevent receiving negative publicity to ward off consequences for their reputation and markets.<sup>36</sup>

Arthur, He and Zhang explore China's situation. This study will borrow from the above model in encouraging Kenya to adopt legislative and policy measures making disclosure mandatory in order to enhance access by the public to environmental information.

Edgar Asiimwe and Grönlund Ake investigated the role of East African Community (EAC) Governments in E-Waste management focusing on, among others, awareness of the problem of E-Waste. Their research revealed that even though new products are encouraged, a considerable number of refurbished and old products find their way into Kenya due to people's preference for cheaper products.<sup>37</sup>

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<sup>33</sup> Arthur Mol, Guizhen He and Lei Zhang, 'Information Disclosure in Environmental Risk Management: Developments in China' (2011) 3 *Journal of Current Chinese Affairs* 163, 166.

<sup>34</sup> *ibid* 167.

<sup>35</sup> Mol, He and Zhang (n 27) 171.

<sup>36</sup> Mol, He and Zhang (n 27) 169.

<sup>37</sup> Asiimwe Edgar Napoleon and Grönlund Ake, 'E-Waste Management in East African Community' in Kelvin Joseph Bwalya, Saul Zulu, *Handbook of Research on E-Government in Emerging Economies: Adoption, E-Participation, and Legal Frameworks* (IGI Global 2012)314.

The research noted that Kenya's laws are quite advanced on controlling generation, handling, transportation, storage, or disposal of waste that threatens public health, the environment or natural resources.<sup>38</sup> There is also quite a high level of environment awareness. However, little is provided for in specific relation to E-Waste save for a vague ICT policy requirement that electronics dealers demonstrate readiness to minimise the effects of their infrastructure on the environment. The research concluded that Kenya's performance on sensitisation specific to E-Waste is dismal. Assimwe and Ake emphasise that the role of the Government should not only be formulating regulations and giving tax incentives, but also making citizens aware of how safely to dispose of E-Waste.<sup>39</sup>

Even though Asiimwe and Ake focused on East Africa, their research concentrated on Government initiatives, strategies and legislation. Little attention was given to the right of the consumers to be informed of E-Waste risks and sound disposal options. This research will seek to relate the very illuminating findings of Assimwe and Ake to the need for robust user sensitisation in assessing the E-Waste problem in Kenya.

### **1.5.3 Sound Disposal of E-Waste**

Gumbo Michael and Kalegele Khamisi sought to identify the current E-Waste practices in Tanzania. They focused on awareness of the electronic device users on E-Waste issues, existing strategies on E-Waste management, available facilities for E-Waste management, sources of E-Waste and the treatment of E-Waste. The authors found that over 55% were unaware of the problems caused by the obsolete ICT devices to human health and environment; over 97% were unaware of the Government initiatives on E-Waste and information; 98% were unaware of or unconcerned about the final treatment of the devices

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<sup>38</sup> *ibid* 314-315.

<sup>39</sup> Asiimwe Edgar Napoleon and Grönlund Ake, 'E-Waste Management in East African Community' in Kelvin Joseph Bwalya, Saul Zulu, *Handbook of Research on E-Government in Emerging Economies: Adoption, E-Participation, and Legal Frameworks* (IGI Global 2012) 323.

and information they discard.<sup>40</sup> Of similar concern is the finding of the research that ICT experts' involvement in solving the E-Waste problem and formulation of the legislation, regulations and the framework for the management of the E-Waste was lacking.<sup>41</sup>

Gumbo and Kalegele concluded that the level of public awareness in Tanzania on E-Waste is alarmingly low and this needs to be improved through training.<sup>42</sup> Their work did not talk of the level of awareness in Kenya. This research which focused on Tanzania provides useful insight and platform for studying the Kenyan context. This is not only because Tanzania borders Kenya and is also a member of the EAC, but also because of the fact that both countries share more or less similar economic and technological challenges as developing economies.

Okoye Anthony and Odoh Chijioke sought to ascertain the level of awareness of the regulation, mode of disposal of the E-Wastes and awareness of the dangers inherent in improper handling and disposal of wastes of the people of Onitsha, Nigeria.<sup>43</sup> The need for this research was determined by the fact that large quantities of E-Wastes are largely and illegally imported into and managed in Nigeria using various inappropriate routes that create the possibility for environmental pollution.<sup>44</sup> A large proportion of the imported used electronic are non-functional and are never reused but rather disposed of with municipal solid waste into open dumps.<sup>45</sup>

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<sup>40</sup> Gumbo Michael and Kalegele Khamisi, 'E-Waste Management: Awareness, Strategies, Facilities, Sources and Treatment in Tanzania' (2015) 5(4) *Information and Knowledge Management* 17, 22-23.

<sup>41</sup> *ibid* 25-26.

<sup>42</sup> Gumbo and Kalegele (n 40) 24-25.

<sup>43</sup> Okoye Anthony and Odoh Chijioke, 'Assessment of the Level of Awareness of E-Waste Management and Concern for the Environment amongst the Populace in Onitsha, Southeastern Nigeria' (2014) 5(2) *Journal of Environmental Protection* 120.

<sup>44</sup> *ibid* 120.

<sup>45</sup> *ibid*.

The research determined that awareness of Government regulation of E-Waste management is critically low for the importer and consumers.<sup>46</sup> This the researchers attributed to failure by that Government to make any meaningful effort in educating the major stakeholders on the relevant provision of the EEE regulations.<sup>47</sup> Further, very many importers and consumers, 82% and 78% respectively, were unaware of the harmful contents of E-Waste and their hazardous nature.<sup>48</sup> The research also reveals that while, most of E-Waste is being imported into Nigeria in addition to the ones on ground, people are yet to appreciate the difference between the regular municipal solid waste and E-Waste, the potential benefits of recycling E-Waste and the health implication of not handling them well.<sup>49</sup>

Okoye and Odoh concluded that public awareness is critical in achieving attitudes, skills and behaviour consistent with sustainable development and environmental protection.<sup>50</sup> Therefore, a serious environmental sensitisation campaign that will go a long way into awakening both the people and the Government on this environmental challenge is required.<sup>51</sup> They propose involving experts to train environmental NGOs and persons from line ministries and parastatals to acquire basic understanding of E-Waste management and a motivation to participate in activities for improving the quality of the environment and develop skills for proper waste management.

Aljaradin Mohammad, Persson Kenneth and Hossam Al-Itawi recognise that most Governments are currently prioritising effective environmental friendly waste disposal

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<sup>46</sup> Okoye Anthony and Chijioko Odoh, 'Assessment of the Level of Awareness of E-Waste Management and Concern for the Environment amongst the Populace in Onitsha, Southeastern Nigeria' (2014) 5(2) *Journal of Environmental Protection* 127.

<sup>47</sup> *ibid* 127.

<sup>48</sup> *ibid* 127-128.

<sup>49</sup> *ibid* 128.

<sup>50</sup> *ibid* 128.

<sup>51</sup> *ibid* 128.



mechanisms.<sup>52</sup> They assert that the integrated waste management system involving reduction, reuse and recycling that most developing countries are keen on adopting is largely driven by economic necessity associated with poverty.<sup>53</sup>

With specific focus to Jordan, Aljaradin, Persson and Hossam analyse the various stages of the waste management system. Their research reveals that much of the initiatives are undertaken by the informal sector, an indication of quite some considerable level of awareness.<sup>54</sup> The active participation of the informal sector in this process provides significant economic benefits. However, the authors decry the fact that these informal processes are not well-managed resulting in health and social risks.<sup>55</sup> Further, the informal recycling takes place without much regard to sorting and separation of various recyclable materials. To avoid these pitfalls, a test formal recycling initiative that sought to determine the technical and economic feasibility of full-scale recycling was initiated. This formal initiative saw the local authorities provide containers and material recovery facilities as well as seeking to engage the public in the sorting and recycling process.<sup>56</sup>

To gauge the success or otherwise of the initiatives, the authors examined the willingness and awareness of recycling of solid waste between households and college students. Over 70% of the respondents did not know which waste materials are recyclable, a fact that the authors attribute to failure by schools and responsible Government agencies to raise sufficient awareness on recycling.<sup>57</sup> Over 63% of the respondents showed unwillingness to contribute to separate recyclable and non-recyclable waste, a situation the authors attribute to the mistaken belief that that responsibility is solely that of the responsible Government agencies

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<sup>52</sup> Aljaraddin Mohammad , Persson Kenneth and Al-Itawi Hossam, 'Public Awareness and Willingness for Recycle in Jordan' (2011) 3(1) International Journal of Academic Research 507.

<sup>53</sup> *ibid* 507.

<sup>54</sup> *ibid* 508.

<sup>55</sup> *ibid* 508.

<sup>56</sup> *ibid* 508.

<sup>57</sup> Aljaraddin Mohammad , Persson Kenneth and Al-Itawi Hossam, 'Public Awareness and Willingness for Recycle in Jordan' (2011) 3(1) International Journal of Academic Research 507, 509.

and manufacturers. However, the research revealed that a very good majority would be willing to recycle if they were educated on the economic and environmental benefits of doing so. The researchers concluded that respondents are not sufficiently aware of recycling due to almost non-existent formal recycling programs and insufficient awareness programmes.

The above research by Aljaradin, Persson and Hossam concentrated on Jordan and its focus was general solid waste as opposed to E-Waste. However, its conclusions relating to awareness on waste disposal are largely reflective of the situation in developing economies. This study will seek to compare this Jordanian experience to the Kenyan experience but with specific focus on awareness relating to E-Waste disposal.

Korin Franklin sought to determine the E-Waste awareness levels and disposal practices of Wisconsin businesses and institutions. Franklin found that majority of consumers in Wisconsin were familiar with what is considered E-Waste and E-Waste issues, with only 16% unfamiliar with the term or the issues.<sup>58</sup> However, a significant 39% either did not understand E-Waste regulations or had no idea that such regulations exist.<sup>59</sup> The respondents attributed this state of affairs to, among others, lack of awareness whose contribution as an obstacle to proper E-Waste management stood at 39%.<sup>60</sup>

Franklin found that there was slightly more awareness of E-Waste issues than an understanding of E-Waste regulations.<sup>61</sup> This is an indictment of the State's failure to promote public awareness of its laws. There was, however, variation of the levels of awareness among different respondents,<sup>62</sup> perhaps an indication of lack of uniformity in information available to the different industries and companies. Small firms in a cross-section

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<sup>58</sup> Korin Franklin, 'E-Waste Awareness and Practices among Wisconsin Businesses and Institutions' (2012) VII Oshkosh Scholar 5.

<sup>59</sup> *ibid* 5.

<sup>60</sup> *ibid* 5.

<sup>61</sup> *ibid* 10.

<sup>62</sup> *ibid* 10.

of sectors lack awareness and understanding of E-Waste issues and regulations and this prevents them from properly disposing of their E-Waste.

Franklin then recommends more awareness of E-Waste issues and better understanding of regulations across the board. To achieve this, she suggests that businesses and institutions be divided into target sectors according to size, industry and location and sector-specific awareness initiatives designed.<sup>63</sup> Franklin's research focused on Wisconsin, which has developed economy and E-Waste regulations, unlike Kenya's developing economy, and almost non-existent E-Waste regulations. Despite the difference in scenarios, Franklin's research provides useful insight to this study because the challenge of awareness seems to be common to both Kenya and Wisconsin even though on different scales.

#### **1.5.4 Enforcement of Laws on E-Waste**

According to the United Nations Environmental Programme, enforcement is the range of procedures and actions employed by a state, its competent authorities and agencies to ensure that organizations or persons, potentially failing to comply with environmental laws or regulations implementing Multilateral Environmental Agreements, can be brought or returned compliance and/or punished through civil, administrative or criminal action.<sup>64</sup> Countries throughout the world use environmental law to help address problems such as the discharge of pollutants into the environment, the protection of flora and fauna, the handling, storage and disposal of solid and hazardous wastes, the application of pesticides, preventing air contamination, and protecting the quality and availability of clean water.<sup>65</sup>

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<sup>63</sup> *ibid* 10.

<sup>64</sup> UNEP, 'Enforcement of Environmental Law good Practices from Africa, Central Asia and ASEAN Countries' (May 2014), 1<<http://www.unep.org/environmentalgovernance/Portals/8/documents/enforcement-environmental-laws.pdf>> accessed 03 June 2015.

<sup>65</sup> International Network for Environmental Compliance and Enforcement, 'Principles of Environmental Compliance and Enforcement Handbook: Overview of Compliance and Enforcement Programs.' (Sep. 2009) 3<[http://inece.org/principles/02\\_overview\\_sept09.pdf](http://inece.org/principles/02_overview_sept09.pdf)> accessed 20 August 2015.

According to the International Network for Environmental Compliance and Enforcement (INECE), simply having environmental laws in place is not enough to address these problems.<sup>66</sup> Governments must find ways to ensure that the regulated community meets the requirements put forth in the environmental laws and their implementing regulations. Successful strategies will both encourage and compel behavioral changes within the regulated community that are needed to achieve compliance.

A compliance and enforcement program that is effective and part of a larger environmental management effort will bring a broad range of benefits to society.<sup>67</sup> A well-designed environmental compliance and enforcement program will create both public and private value.<sup>68</sup> Compliance creates ‘public value’ when it promotes the rule of law and good governance; ensures fairness and strengthens the credibility of environmental requirements; protects the goods and services provided to a society by a well-functioning ecosystem; and protects public health.<sup>69</sup> Compliance creates ‘private value’ when it increases investor confidence by reducing business risks; stimulates innovation and increased competitiveness; and creates new jobs and markets.<sup>70</sup>

INECE stipulates that environmental compliance and enforcement programs occur as part of a comprehensive environmental management cycle.<sup>71</sup> The environmental management cycle starts with creating awareness of the fact that there is an environmental problem and adequate support to address the problem. Once there is awareness and support for action, program

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<sup>66</sup> *ibid* 3.

<sup>67</sup> *ibid*.

<sup>68</sup> *ibid*.

<sup>69</sup> *ibid*.

<sup>70</sup> *ibid*.

<sup>71</sup> *ibid*.

proponents must begin strategic planning and goal setting. These goals may include reducing environmental risk, preventing pollution, or cleaning up past contamination.<sup>72</sup>

INECE further advises that setting up a management approach in achieving set goals is mandatory.<sup>73</sup> The approaches can either be market based voluntary or mandatory. Thereafter there should be laws and regulation that guide the management approach for example the laws can have requirements that clearly define specific practices and procedures to directly or indirectly reduce or prevent pollution.<sup>74</sup>

The text has a focus on criminal law enforcement. This study will adopt a broad approach and look at both criminal law and civil law enforcement with particular focus on Kenya.

Gunningham Neil in his article on enforcement of environmental laws<sup>75</sup> asserts that the environmental impact of industry, especially pollution, has been subject to regulation for at least three decades, under an approach which is somewhat unfairly called ‘command and control’ regulation. This approach typically specifies standards, and sometimes technologies, with which the regulated must comply (the ‘command’) or be penalized (the ‘control’). It commonly requires polluters to apply the best feasible techniques to minimize the environmental harm caused by their activities. Command and control has achieved some considerable successes, especially in terms of reducing air and water pollution.<sup>76</sup> However, it has been widely criticized by economists for inhibiting innovation, and for its high costs, inflexibility, and diminishing returns.<sup>77</sup>

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<sup>72</sup> *ibid* 3.

<sup>73</sup> *ibid*.

<sup>74</sup> *ibid*.

<sup>75</sup> Gunningham Neil, ‘Beyond Compliance: Next Generation Environmental Regulation’ in Richard Johnston and Nick Sarre (eds), 10 *Regulation: Enforcement and Compliance* (Australian Institute of Criminology 2004).

<sup>76</sup> *ibid* 10.

<sup>77</sup> *ibid*.

Gunningham goes ahead to discuss the process of designing regulation and alternatives to regulation in this economic and political context, in a manner that is both effective in protecting the environment and efficient in that it does so at least cost to regulators and regulated enterprises.<sup>78</sup> He outlines voluntary approaches as one of the regulation and enforcement mechanisms. Voluntary approaches are schemes whereby firms make commitments to improve their environmental performance beyond legal requirements', and include self-regulation, voluntary codes, environmental charters, co-regulation, covenants and negotiated agreements.<sup>79</sup>

The other mechanism outlined is use of negotiates agreements. Negotiated agreements involve specific commitments to environmental protection goals elaborated through bargaining between industry and a public authority. They have been developed as part of an explicit attempt to improve environmental policy outcomes without overburdening industry or putting it at a competitive disadvantage, and, in particular, to promote a quicker and smoother achievement of objectives than the cumbersome and often conflict-ridden route of legislation.

Neil's enforcement approaches are with regard to large enterprises exclusively. This study is keen on enforcing the laws on E-Waste with respect to the user of electronic gadgets.

Thilo Marauhn in his paper discusses the procedural aspects of compliance control in international environmental law based on an analysis of the reasons for compliance and non-compliance, showing that willful violation is the exception not the rule.<sup>80</sup> Thilo argues that active treaty management contributes more to the enforcement of international environmental

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<sup>78</sup> *ibid* 10.

<sup>79</sup> *Ibid*.

<sup>80</sup> Marauhn Thilo, 'Towards a Procedural Law of Compliance Control in International Environmental Relations' (1996) 56 Heidelberg Journal of International Law 696.

law than punitive measures.<sup>81</sup> Compliance control in this light is one of the possible approaches to active treaty management. Other than the classical (often adversarial) enforcement measures, it focuses on confidence building between the parties to a convention rather than an authoritative and confrontational means.<sup>82</sup> Compliance control is a device for generating confidence of states that the benefits of respecting and implementing the obligations of the treaty outweigh the costs.

Thilo bases his paper on environmental conventions and multilateral treaties. His paper mainly draws on the provisions of the specific international environmental agreements granting limited enforcement roles to international institutions. This study is concerned with the enforcement of the national laws with regards to E-Waste.

Juta Brunnée explains the history of enforcement by stating that enforcement of international law was bilateral in that only the aggrieved state was entitled to respond to a perceived breach of its rights. Enforcement was state-focused in two important respects.<sup>83</sup> On the one hand, international law was a self-judging system. Each state decided for itself whether its rights had been violated and what response action to take.<sup>84</sup> On the other hand, it was a self-help system without any central authorities or institutions through which rights could be vindicated or enforced.<sup>85</sup> Finally, until the beginning of the 20th century, military force was an acceptable means for states to settle differences, pursue their interests or enforce their rights.<sup>86</sup>

Brunnée is of the opinion that pollution and environmental decline typically do not result from state conduct per se, but from activities within states. This means that solutions for

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<sup>81</sup> *ibid* 56.

<sup>82</sup> *ibid*.

<sup>83</sup> Brunnée Juta, 'Enforcement Mechanisms in International law and International Environmental Law' (2005) *Environmental Law Network International Review* 3, 5.

<sup>84</sup> *ibid* 5.

<sup>85</sup> *ibid*.

<sup>86</sup> *ibid*.

many environmental problems require fundamental adjustments to social and economic patterns. It also means that the root causes both of environmental problems and of failures to combat them, are often not lack of respect for international standards, but gaps in economic, regulatory and technical capacity.<sup>87</sup>

With regard to International Law, Brunnée asserts that, states have access to a growing range of judicial dispute resolution options for enforcement purposes. Quite apart from judicial assessments, the conformity of state conduct with international norms is also scrutinized through an array of reporting, review and justificatory processes within international organizations or treaty-based institutions.<sup>88</sup> In addition, individuals and non-Governmental organizations can trigger a variety of formal and informal assessment processes, both internationally and through resort to domestic institutions, including courts.<sup>89</sup>

Brunnée further offers a theory to explain or rather justify compliance.<sup>90</sup> She argues that certain internal characteristics, notably that rules must be compatible with one another, that they must ask reasonable things, that they are transparent and relatively predictable, and that known rules actually guide official discretion, distinguish legal norms from broader social norms.<sup>91</sup> These traits infuse legal norms with a distinctively legal legitimacy and enhance their ability to shape arguments, to persuade and to promote adherence. The implications of theories focused on the legitimacy of international law for compliance and enforcement are significant.<sup>92</sup> They suggest that promotion of compliance does not begin with ‘mechanisms’ for the interpretation and application of pre-established rules. It is already in the processes

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<sup>87</sup> *ibid* 5.

<sup>88</sup> *ibid*.

<sup>89</sup> *ibid*.

<sup>90</sup> *ibid*.

<sup>91</sup> *ibid*.

<sup>92</sup> *ibid*.



through which norms are created that one must build the foundations for ultimate compliance.<sup>93</sup>

In this light, Brunnée has her focus on compliance and enforcement of international law. She fails to discuss enforcement at the domestic level. This study will have its focus on enforcement of the Kenyan laws. with regard to the disposal of E-Waste.

Mary Ellen O’Connell- in her paper on the enforcement and success of international environmental law-expounds on the arguments against using the few enforcement mechanisms available in international law to enforce international environmental law.<sup>94</sup> The first reason given for supporting avoidance of coercive enforcement is that for much environmental damage, there is no violation of a prohibitory rule which could lead to the taking of enforcement action.<sup>95</sup> Even for many activities that should be held wrongful, the international community has not agreed on a basic conceptual approach to environmental regulation.<sup>96</sup> An example would be the attempt to create general binding rules at the Conference on Environment and Development in Rio de Janeiro which failed. Instead, ‘soft law’ documents were produced which were not subject to enforcement.<sup>97</sup>

A second reason against enforcement is that oftentimes either a state responsible for environmental harm is not a party to a relevant treaty, or the treaty places no binding obligation on the state to prevent the damage.<sup>98</sup> For example, the United States is a party to the Long-Range Transboundary Air Pollution Treaty (LRTAP)<sup>99</sup> which itself has no important obligations; the obligations are contained in various protocols. The United States

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<sup>93</sup> *ibid* 5.

<sup>94</sup> O’Connell Mary Ellen, ‘Enforcement and the Success of International Environmental Law’ (1995) 3(1) *Indiana Journal of Global Legal Studies* 47.

<sup>95</sup> *ibid* 47.

<sup>96</sup> *ibid*.

<sup>97</sup> *ibid*.

<sup>98</sup> *ibid*.

<sup>99</sup> *Convention on Long-Range Transboundary Air Pollution*, 1302 UNTS 217, adopted Nov. 13, 1979(entered into force, Mar. 16, 1983).

is, however, not a party to the Protocol requiring the reduction of sulphur dioxide release into the atmosphere. Thus, regardless of how much soft coal the United States burns, it has violated no treaty obligation, and no other state may take action to enforce the treaty against the United States.

O'Connell stipulates a third argument against enforcement to be the tendency in the literature to conflate the fact that the environment is steadily worsening with the view that international environmental rules are not being observed.<sup>100</sup> She opines that it is not that states are intentionally violating important, substantive environmental protection rules, rather the rules are inadequate to protect the environment.<sup>101</sup>

This study will also look at why enforcement with regard to environmental laws –specifically e waste regulations- is lacking. It will also explore and analyze the idea of adequacy or inadequacy of the relevant regulatory framework. This study will however be focused on the national environmental laws of Kenya.

## **1.6 Research Questions**

The research questions are:

- 1) Is the public aware of E-Waste and how to dispose them in an environmentally sound manner?
- 2) Is there need to create awareness on sound disposal and the suctions in place?
- 3) Is the law alone sufficient in ensuring compliance on disposal of E-Waste?

## **1.7 Hypothesis**

The hypothesis of this research is that the users of electronic and electrical equipment are not aware of the various environmentally sound E-Waste disposal options. They are also not

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<sup>100</sup> O'Connell (n 94) 54.

<sup>101</sup> *ibid.*

aware of the enforcement mechanisms in place. Even though the laws are in place to ensure sound disposal of E-Waste, the users have made little effort to ensure that they are aware of sound disposal options and the sanctions that follow.

User awareness is important because it will influence how one disposes off E waste. It will also enhance enforcement and compliance of the law. The law alone is not sufficient in ensuring compliance. Effort from the generators of WEE, enforcers, the Government and users has not been made to educate the public on environmentally sound disposal of E waste.

## **1.8 Theoretical Framework**

The study will be premised on two theories. Namely, Natural Law Theory and the Theory of Planned Behaviour.

### **1.8.1 Natural Law Theory**

Natural law is that branch of law that is variously defined or described as the law of nature, higher law, eternal law, divine law, etc. While defining or explaining the scope of natural law, Roman orator, Cicero, said as follows:

True law is right reason in agreement with nature; it is of universal application, unchanging and everlasting; it summons to duty by its commands, and averts from wrongdoing by its prohibitions and it does not lay its commands or prohibitions upon good men in vain, though neither have any effect on the wicked. It is a sin to try to alter this law, nor is it allowable to attempt to repeal any part of it, and it is impossible to abolish it entirely.<sup>102</sup>

Burlamqui in his Principles of Natural Law<sup>103</sup> was of the opinion that Natural law comprises rules which so necessarily agree with the nature and state of man that, without observing their

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<sup>102</sup> Cicero, 'Republic III.Xxii.33 and Laws' in Clinton Keyes (tr) *De Re Publica; De Legibus 211* (Harvard University Press, 1928) 11-12.

<sup>103</sup> Burlamqui Jean-Jacques, *Principles of Natural Law and Politic Law* (Peter Korkman ed and Thomas Nugent tr, Liberty Fund 2006) 34.

maxims, the peace and happiness of society can never be preserved.<sup>104</sup> They are called natural laws because knowledge of them may be attained merely by the light of reason, from the act of their essential agreeableness with the constitution of human nature.<sup>105</sup> He further compared them to positive law stating that positive or revealed laws are not founded upon the general constitution of human nature but only upon the will of God: though in other respects such law is established upon very good reason and procures the advantage of those to whom it is silent.<sup>106</sup>

Natural law theories are basically theological or secular. Natural law has been propounded by many scholars and has undergone many significant stages throughout its evolution. Its origins can be traced back to Plato and Socrates who asserted that natural law was made up of principles of morality which were discoverable through the processes of reasoning.<sup>107</sup>

Pythagoras and Aristotle claimed the equivalence of justice and natural law. The scholastic period saw a new breed of proponents who were mostly theologians.<sup>108</sup> St. Aquinas and St. Augustine claimed that natural law originated from a supreme being.<sup>109</sup> The Renaissance period saw the secularization of the Natural Law theory where proponents like Hugo Grotius advocated for natural law being devoid of divinity.<sup>110</sup> There was a decline in the statement of natural law due to scientific revolutions, its rebirth and its restatement by proponents like Finnis John.

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<sup>104</sup> *ibid* 34.

<sup>105</sup> *ibid*.

<sup>106</sup> *ibid*.

<sup>107</sup> *ibid*.

<sup>108</sup> Robert George, 'Natural Law' 31 *Harvard Journal of Law and Public Policy* 171; *See also* Edward Zalta, *The Stanford Encyclopedia of Philosophy: Natural Law Theories* (Stanford University 2011).

<sup>109</sup> *ibid* 31.

<sup>110</sup> *ibid*.

Theological theories rely on allusion to God, the Holy Books and the prophets, in arguing for the existence or validity of natural law.<sup>111</sup> These theories regard the universe as being founded and ruled by some deity or God.<sup>112</sup> The creator has laid down rules and principles by which the universe (including the earth inhabited by human beings) is ordered and regulated. It is from these principles that the morals or conscience of humanity derive.<sup>113</sup>

Secular theories on the other hand depend on human reason (or will).<sup>114</sup> They canvass the view that natural law exists in rational human beings who are created by God. Because they are the creatures of God, they possess the rational idea, the reasoning capacity to know what is good and what is bad.<sup>115</sup> They have the intellect even without the assistance of another person to discover natural law or the law of nature.<sup>116</sup> Guided by the ensuing knowledge, he is able to order his life, according to his choice, in a moral way or in an immoral manner.<sup>117</sup> In other words, secular theories demystify natural law by detaching God there from, that is, by positing that natural law will or can be independent of God.<sup>118</sup>

## **1.8.2 Theory of Planned Behaviour**

The study will also be based on the theory of planned behaviour (TPB) as a framework in understanding, explaining and predicting behaviour. This theory, realized by Ajzen Icek in 1988, is based on the assumptions that individual behavioural intentions are directly associated with their attitudes. It also claimed that human behaviour is best examined when activities participated in are voluntary and under the individuals' control.<sup>119</sup> This theory was developed from the Theory of Reasoned Action (TRA), developed in 1980 by Azjen and

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<sup>111</sup> Igbinedion Simeon, *13 Jurisprudence and Legal Theory* (University of Lagos 2013).

<sup>112</sup> *ibid* 13.

<sup>113</sup> *ibid*.

<sup>114</sup> *ibid*.

<sup>115</sup> *ibid*.

<sup>116</sup> *ibid*.

<sup>117</sup> *ibid*.

<sup>118</sup> *ibid*.

<sup>119</sup> Icek Ajzen, 'From Intentions to Actions: A Theory of Planned Behaviour' in Julius. Kuhl and Jürgen Beckham (eds), *Action Control: From Cognition To Behaviour* (Springer-Verlag 1985) 10-40.

Fishbein. It was used to predict an individual's intention to engage in a behavior at a specific time and place. TPB views an individual's determination as influenced by attitude, social support and perceived behavioural control.<sup>120</sup>

The theory predicts behaviour and designs intervention to change behaviour related to an action.<sup>121</sup> This theory helps one understand ones situation, explain the predicament and come up with a solution that is useful for intervention to change the behaviour.<sup>122</sup>

This theory is therefore useful to predict the specific behaviour in relation to user awareness in sound disposal of electronic waste and help in coming up with solutions that may enhance awareness and help the enforcers ensure sound disposal of E-Waste.

## **1.9 Research Methodology**

The study was conducted through primary and secondary research. Primary data was gathered through face to face interviews with the people selected in the sample. The data collection method was most suitable because the study seeks to determine how user awareness on sound disposal of E-Waste can influence how they dispose of their waste. To arrive at a conclusion, a sample of the population was interviewed to determine whether the creation of awareness will lead to sound disposal of E-Waste.

To collect primary data a research assistant was used.<sup>123</sup> This was important to ensure, first, that adequate data was collected. Secondly using an assistant was important to ensure clarity of information gathered as the same will be quoted in the study. Finally, the flow of information was ensured. This is because we conducted most of the interviews together. One person asked the questions as the other took notes.

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<sup>120</sup> ibid 10-40.

<sup>121</sup> Icek Ajzen, 'Perceived Behavioral Control, Self-Efficacy, Locus of Control, and the Theory of Planned Behavior' (2002) 32(4) Journal of Applied Social Psychology 665, 667.

<sup>122</sup> ibid 667.

<sup>123</sup> Kodawa Brenda, a law student from The University of Nairobi, awaiting graduation. She is currently an intern at UNEP.

A sample size of 40 interviewees was selected through the stratified sampling method.<sup>124</sup> The population was divided into distinct categories from which individual participants were selected. The participants selected upon being interviewed referred the researcher to other interviewees who they knew had experience in the area of study (snow balling).<sup>125</sup> For example, Ella, a Magistrate at Kibera Law Courts referred the researcher to two other Magistrates at Kibera Law Courts who she knew would be of help in the area of study. Similarly, a legal officer at the Nairobi City County who the researcher had sought to interview referred the researcher to Dina, an officer at the City County office.

The individuals included judges, magistrates, law lectures, prosecutors, advocates, non-Governmental organisations officials, NEMA officials, Nairobi City County official, garbage collectors, official from recycling plants and users of electronic and electrical equipment.<sup>126</sup> The reason for this approach was to ensure that both the waste generators of WEE and enforcers of law are included from all levels.

The people to be interviewed were from both gender. In terms of gender, 56 % females and 44% males were interviewed. They were drawn from Nairobi and its environs.

We made road trips to Kiambu to interview a magistrate-Rose who had dealt with a case on disposal. It was fruitful as she referred to another magistrate-Simon and prosecutors in her court for more interviews.

Two structured questionnaires were used.<sup>127</sup> Each questionnaire contained questions that covered various issues that this study sought to investigate. The reason for using two questionnaires was to have one for people with expert opinion and one for the general

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<sup>124</sup> Mugenda and Mugenda, 'Research Methods, Quantitative and Qualitative Approaches' (Acts press 2003)47  
<sup>125</sup> *ibid* 51.

<sup>126</sup> The schedule of interviewees is attached as Appendix III to this thesis.

<sup>127</sup> Questionnaire A and Questionnaire A attached as Appendices I and II to this thesis; *See also* Kombo Donald, *Proposal and Thesis Writing* (Pauline Publications 2006), 94.

generators of WEE. Initially one questionnaire was to be used, but after conducting a mock interview, it failed to bring out the information required. Thus, the change to use two questionnaires.

The questionnaires were tested in a mock interview and amended to ensure that the questions captured the parameters meant to be tested. Appointments for the interviews were made through phone. Contacting judges and magistrate on my own proved futile. But with the assistance my supervisor, the interviews were scheduled. The questionnaires were given to the interviewees together with introductory letters. The interviewees signed the letter to acknowledge acceptance to be interviewed. The interviewees were assured anonymity. Pseudonyms were used instead of actual names in presentation and analysis of data. Follow-up phone calls and visits were made to the prospective offices.

Before conducting interviews, most interviewees wanted to be assured that the data collected was toward a school project- thesis-. A referral letter from the university had to be produced.<sup>128</sup> Unfortunately the permit to conduct research issued by National Commission for Science, technology and Innovation -NACOSTI -,though applied for was not out as the data was being collected.

The data was captured in writing. Voice recording was not used. This was to ensure the anonymity of the interviewees. The data collected was recorded strictly in two note books, one for the researcher and the other for the research assistant. The note was stored in the research file.

The time estimated for each interview was thirty minutes. This turned out not to be the case. Some interviewees had a lot to say and we ended up taking an hour with them. For example with Philip we took one hour, this was because of his verse knowledge of the same. On the

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<sup>128</sup> A copy of the letter is attached as appendix IV.



other side some interviews lasted as short as 10 minutes. This was because they had no idea of the issue being discussed.

The total numbers of individuals interviewed were 34 instead of 40 initially intended to be interviewed. Some of the people who were contacted for the interview either cancelled the appointments or were too busy to have the interview. A lot of the interviewees were professionals with busy schedules and as such our interview dates and appointments were rescheduled more than once. The Magistrates from Kibera Law Courts for instance had to reschedule twice because the court was in session the whole day.

One of the prosecutors interviewed requested us to have the interview in her car. She had unfortunately been called to an urgent matter at the time of our scheduled appointment and therefore could only spare some few minutes that would be spent in the traffic.

Some of the interviewees were not in the Nairobi area and thus had to be reached by phone. This was not the preferred method of conducting the interviews as we had intended to conduct as many face to face interviews as I could.

The interviews were conducted during the month of August, 2015 and part of September, 2015.

Secondary data was also collected from the internet and the library to supplement the primary data used in the study.

### **1.10 Limitations of the Study**

The study is limited to studying users of EEE within Nairobi and therefore may not reflect an accurate picture of the entire country. However, the results of the study in Nairobi will be a general representation of the country's awareness of E-Waste disposal.

This area of study has not been widely explored particularly in relation to the Kenyan experience. Therefore, most of the secondary data to be relied upon in the study are studies carried out in other countries. However, these experiences from other jurisdictions will be key in providing a comparative analysis with the Kenyan scenario.

Some of the intended interviewees could not be reached. The electrical waste recycling centre in Machakos, for instance was closed down due to financial issues and therefore we could not interview any of the staff that work at the plant.

### **1.11 Chapter Breakdown**

Chapter one gives an introduction of the area of study. It outlines the statement of the research problem; justification of the research; theoretical framework within which the research will be carried out; the literature review; the research objectives; the research hypotheses; research questions; research methodology to be adopted; anticipated limitations when conducting the research; the scope of the research; and chapter summary.

Chapter Two discusses user's awareness with regard to E-Waste disposal. It outlines disposal options available and their awareness among the user. In so doing, the chapter investigates how the right to access to information enhances the participation of users in ensuring sound E-Waste management policies. This chapter reports the results of the fieldwork.

Chapter discusses the enforcement mechanisms in place and their suitability. It further discusses the role of enforcement agencies in the enforcement. Finally it discusses the role awareness in ensuring compliance. An analysis will be conducted with a view of determining whether awareness among enforcers will lead compliance.

Chapter Four summarises the findings on user awareness on sound disposal and enforcement. Recommendations are made on the way forward to ensure waste are disposed of in an environmentally sound manner.

‘Information is key to solving a behavioural problem’<sup>129</sup>

## CHAPTER TWO

### USER AWARENESS AND SOUND DISPOSAL OF E-WASTE

#### 2.1 Introduction

Kenya’s legal framework has guarantees on rights relating to the environment and natural resources. The Constitution of Kenya, guarantees every person the right to a clean and healthy environment.<sup>130</sup> To ensure achievement of the above right, the state is obligated to ensure sustainable management and conservation of the environment and natural resources; encourage public participation in the management, protection and conservation of the environment; establish systems of monitoring of the environment; and eliminate processes and activities that are likely to endanger the environment.<sup>131</sup> Failure to fulfil the above obligations exposes the state to lawsuits by persons whose rights have been, are being or are likely to be denied, violated, infringed or threatened.<sup>132</sup> This right is reinforced by entrenching in the constitution the right of every citizen to access information held by the state and information held by another person and required for the exercise or protection of any right or fundamental freedom.<sup>133</sup> The ability of person to apply to a court for redress on environmental issues, whether affected directly or indirectly, is probably the most novel innovations of the Constitution on environmental rights.<sup>134</sup>

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<sup>129</sup> Interview with Sylvia, Nairobi, Kenya 14<sup>th</sup> July 2015.

<sup>130</sup> Constitution of Kenya, art 42.

<sup>131</sup> Constitution of Kenya, art 69.

<sup>132</sup> Constitution of Kenya, arts 22 and 70.

<sup>133</sup> Constitution of Kenya, art 35.

<sup>134</sup> Bosek Joel, ‘Implementing Environmental Rights in Kenya’s New Constitutional Order: Prospects and Potential Challenges’ (2014) 14 African Human Rights Journal 489, 497.

This provision under Article 22 of the Constitution effectively cures the contention over *locus standi* that has in the past seen environmental petitions dismissed by the courts, most notoriously in *Wangari Maathai & 2 others v City Council of Nairobi & 2 others*.<sup>135</sup> The Government is therefore under an obligation to establish environmentally sound systems for E-Waste management, monitor these systems, and most importantly engage the public through awareness and direct participation in the implementation of these management mechanisms.

This chapter seeks to find out if the public is aware of what e waste is and if their lack of knowledge does contribute to their attitude towards disposal. It will further elaborate what disposal mechanisms are in place or should be put in place with regard to the management of electronic waste

## **2.2 E-Waste User Awareness**

Consumer electronics are the fastest growing sector of municipal solid waste (MSW) in both developed and developing countries and arguably one of the most toxic.<sup>136</sup> Trans-boundary movement of E-Waste from developed countries and rapidly rising sales of electronic goods have led to astronomical increase of hazardous electronic wastes in developing countries.<sup>137</sup>

The effectiveness of many waste measures, particularly those aimed at waste reduction, recycling and litter prevention, depends to a significant extent on public and consumer

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<sup>135</sup> HCCC No. 72 of 1994: The Plaintiffs had sued the defendants seeking an injunction to restrain the defendants from selling or carrying out any construction work upon a parcel of land the Plaintiffs claimed had been illegally acquired public land. The court upheld the Defendants' objection that the Plaintiffs had no *locus standi* to seek the relief on behalf of the public on the grounds they had no sufficient interest to bring the matter as they had not and were unlikely to suffer damage.

<sup>136</sup> Okoye Anthony, Odoh Chijoke, 'Assessment of the Level of Awareness of E-Waste Management and Concern for the Environment amongst the Populace in Onitsha, Southeastern Nigeria.' [2014] 5 Journal of Environmental Protection 120, 120.

<sup>137</sup> *ibid*; see also Gumbo Michael and Kalegele Khamisi, 'E-Waste Management: Awareness, Strategies, Facilities, Sources and Treatment in Tanzania' (2015) 5(4) Information and Knowledge Management 17, 22-23.

awareness and changes in behaviour.<sup>138</sup> The development of a coherent communications and awareness strategy around waste issues is therefore an important step in achieving a practice of correct disposal methods. The natural law jurisprudential theory speaks to this. Natural law theory stipulates that as human beings we have the inherent will to decide what is wrong and what is right. It is based on this inherent sense of reasoning that the public is premised to act accordingly with regard to disposal of e waste. It is assumed that users of electronic devices know that an obsolete electronic device poses risk to them and the environment. If the users are to be sensitized on dangers of electronic waste so that their assumption of risk is validated, there will be a change of behaviour with regard to disposal of E-Waste.

Knowledge of electronic waste and its effects on the human environment is imperative to the adoption of safe disposal measures. When the users of electronics are informed of the components of their gadgets and the health hazards it poses to them and the environment, they are interested in knowing the correct disposal methods. This was evidenced by the 10 users that were interviewed.<sup>139</sup>

Tina, for example, does not know the exact implications of wrongful disposal of electronic waste but she says there must be implications, 'If I knew of existing recycling centres and centres that deal with electronic waste I would then dispose of the spoilt electronics by handing them over to such centres.'<sup>140</sup>

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<sup>138</sup> *Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters*, 2161 UNTS 447; 38 ILM 517 (1999), art 3.

<sup>139</sup> See interviewees' list, appendix III.

<sup>140</sup> Interview with Tina, Nairobi, Kenya, 14 July 2015.

A critical component in any waste management program is public awareness and participation, in addition to appropriate legislation, strong technical support, and adequate funding.<sup>141</sup>

### **2.2.1 Lack of Awareness with Regard to the public**

Of the ten users interviewed for this study, a big percentage did not know how correct disposal of electrical waste is done let alone the existence of correct methods of disposal. Most of them repaired, resold or hoard them in the house. Those of who lived in areas where there is an organized network of garbage collection would put them out for collection with the other household refuse.

The lack of awareness is with regard to what electrical waste is and what the consequences of wrongful disposal are. The main risks to human health and the environment arise from the presence in E-Waste of heavy metals, persistent organic pollutants (PoPs),<sup>142</sup> flame retardants<sup>143</sup> and other potentially hazardous substances.<sup>144</sup> There are three main groups of substances that may be released during recycling and material recovery, and which are of concern.<sup>145</sup> These are original constituents of equipment, such as lead and mercury; substances that may be added during some recovery processes, such as cyanide and substances that may be formed by recycling processes, such as dioxins.<sup>146</sup>

Beatrice had this to say about her disposal of bulbs:

I have been disposing of my bulbs by wrapping them first in plastic paper or newspaper and then discarding them in the garbage bags with the rest of the

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<sup>141</sup> Okoye and Odoh, (n 37). See also International Network for Environmental Compliance and Enforcement, 'Principles of Environmental Compliance and Enforcement Handbook: Overview of Compliance and Enforcement Programs.' (April 2009) 3<[http://inece.org/principles/02\\_overview\\_sept09.pdf](http://inece.org/principles/02_overview_sept09.pdf)> accessed 6th September 2015.

<sup>142</sup> (POPs) are chemical substances that persist in the environment, bioaccumulate through the food web, and pose a risk of causing adverse effects to human health and the environment

<sup>143</sup> They are components added to or treat potentially flammable materials, including textiles and plastics.

<sup>144</sup> Lundgren Karin, *The Global Impact of E-Waste: Addressing the Challenge* (1<sup>st</sup> edn, ILO 2012) 29.

<sup>145</sup> *ibid* 29.

<sup>146</sup> *ibid* 29.

household refuse. I started this practice after learning that mercury is one of the components on the light bulb glass.<sup>147</sup>

Patrick on the other hand stipulated that:

I did not know that bulbs contain mercury. I have for a long time been disposing broken or burnt light bulbs by throwing them in the bin the same way I would dispose of any other household refuse. Well now that I know what is in these bulbs, I would definitely be more careful in my disposal methods. I will see to it that I wrap them in newspaper before I throw them in the bin.<sup>148</sup>

These findings speak to Gumbo and Kalele's assertion on how their research found that over 55% were unaware of the problems caused by the obsolete ICT devices to human health and environment.<sup>149</sup>

The users of electronics don't view electronics as waste even if they are not in use.<sup>150</sup> This is why most users will keep such electronics in the house. This is the case with Sylvia who had this to say:

I have 4 microwaves and two phones which are not in use. They just lie somewhere in the house. To me even if they are not in use, they are somewhat still valuable. A microwave is not cheap you know. There is no way I will just walk to anyone be it a scrap metal dealer and give it away. What do I get in return? It feels like a loss to me. I did not know of any recycling centres that deal with electronic waste. Even so, I cannot give them my electronics without any gain to me.<sup>151</sup>

Sylvia's lack of motivation to hand over her obsolete electronics to the waste recycling centres is premised on the lack of an incentive. This then enriches the argument for incentives to users with regard to proper disposal of E-Waste.

Grace is of the opinion that awareness is imperative to any reform process. She affirms that:

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<sup>147</sup> Interview with Beatrice, Nairobi, Kenya, 14 July 2015.

<sup>148</sup> Interview with Patrick, Nairobi, Kenya, 14 July 2015.

<sup>149</sup> Gumbo Michael and Kalegele Khamisi, 'E-Waste Management: Awareness, Strategies, Facilities, Sources and Treatment in Tanzania' (2015) 5(4) Information and Knowledge Management 17, 22-23.

<sup>150</sup> GBS Kenya, 'E-Waste Management in Kenya.'

<sup>151</sup> Interview with Sylvia, Nairobi, Kenya, 14 July 2015.



The public is not at fault for how they dispose of electrical waste. Their behaviour is pegged on their ignorance and this can only be changed by educating the public on the importance of correct disposal methods. The public should be informed on what electrical waste is and how to dispose of it well. If the awareness initiative takes the approach of insinuating danger of handling electrical waste or wrongful disposal of the same, it would change the users practice.<sup>152</sup>

Grace's comments are in line with Arthur Mol's argument<sup>153</sup> on information disclosure as an environmental management strategy. Information disclosure does not necessarily mean making access to information a reality but can also be extended to mean sensitization of the users on matters concerning their electronic gadgets.

Justice Philip states that:

I am aware of the effects of poor E-Waste disposal but I am not aware of any organization that collects such waste. For that reason I keep my electronic equipment in the house. Now that I have learnt of a place that recycles, I will make an effort to locate such centres and give out the spoilt electronics. The one reason why one would stay with such obsolete electronics in the house is unwarranted sentimentality or laziness the main reason being lack of awareness on how to dispose them off.<sup>154</sup>

The question of awareness of the laws and/or the general issue of the E-Waste crisis does arise in this discussion. Frida- a legal officer at the Ministry of Environment- opines that,

It is not proven that users would change their disposal methods if a stringent law was in place and they were aware of the consequences of infringing such a law. Awareness of what E-Waste is and why it is a crisis, should take centre stage. It will not be effective to tell the public of the laws in place and wait patiently expecting them to follow them to the letter. Laws are there to guide but whoever is subject to the law should be told why the law is in place. Explaining to the people why a rule is

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<sup>152</sup> Interview with Grace, Nairobi, Kenya, 14 July 2015.

<sup>153</sup> Mol Arthur, Guizhen He and Lei Zhang, 'Information Disclosure in Environmental Risk Management: Developments in China' (2011) 3 Journal of Current Chinese Affairs 163, 166.

<sup>154</sup> Interview with Philip, Nairobi, Kenya, 31 July 2015.

there in the first place and further mentioning safety reasons is more likely to change people's attitude as compared to issuing orders and leaving it at that.<sup>155</sup>

Maurice, an environmental law lecturer, supports Frida's view above. He states that:

In environmental matters, it is not often a question of what the law says or not. What is important is to create awareness. Such awareness should start as an early stage, in particular, in kindergarten so that when children are growing up they are aware of the environment as they are aware of the nursery rhymes. Awareness should be done across the board. Every Kenyan should be educated on the environmental effects caused by poor disposal of E-Waste. Thereafter we can try and effectively enforce the law.<sup>156</sup>

Awareness then stops being pertinently a legal issue and is integrally a behavioural issue. This then means that the approach to curbing the E-Waste crisis with regard to proper disposal measures should be hinged on education of how to dispose and why to dispose in the suggested methods,

It is evident that awareness comes first before enforcement of the law. It will go a long way if users were aware of the subject matter that was being regulated. It would further be of benefit to the environment if they were educated on why E-Waste is an issue and the need for regulation. This will make enforcement an easier task.

### **2.2.2 Lack of Awareness with Regard to the Enforcers**

Specific laws on E-Waste in Kenya are not yet in place. The draft E-Waste regulations have not yet been gazetted and therefore do not confer any mandate on any agency to enforce them. It is not enough that the users of electrical appliances be educated on the issue of E-Waste. The enforcers of the laws should also have a clue as to what the issue is and why such laws are being enforced.

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<sup>155</sup> Interview with Frida, Nairobi Kenya, 22<sup>nd</sup> July 2015.

<sup>156</sup> Interview with Maurice, Nairobi, Kenya, 28 July 2015.

Cathy, a prosecutor at City Court confesses that:

I am not aware of the E-Waste draft regulations or any other laws on e- waste. If a person of my profession is not aware then can you imagine what the common user knows about any regulations? I doubt they would be aware of anything along lines of E-Waste regulations or anything to do with E-Waste generally.<sup>157</sup>

Cathy's opinion shows that awareness of the regulatory laws is also lacking. If the law enforcers aren't aware of the existence of the laws that they are meant to enforce then dealing with the E-Waste crisis becomes a bigger hurdle.

Cathy's opinion is reiterated in Okoye Anthony's and Odoh Chijoke's research.<sup>158</sup> The research found that awareness of Government regulation of E-Waste management is critically low for the importer and consumers. This was attributed to the lack of Government initiative in involving all the stakeholders in the coming up of the regulations and further education on the provisions of electrical waste regulations.<sup>159</sup>

David- a lawyer by profession says that:

Enforcement starts with making the enforcers understand why they are enforcing those laws. The endgame should not be to earn a salary rather to prevent E-Waste from becoming a bigger problem. Enforcers should be educated on the dangers of E-Waste. This will instil a sense of purpose in their work and avoid inefficiency in enforcement of the laws. If the transport authority was to place a traffic police officer at a spot where u-turns are prohibited, it will not make a difference. This is because the officer might be prone to taking bribes. If you were to make the officer understand why he is to oversee that area and see to it that illegal u-turns are not made, the deterrence agenda might take effect.<sup>160</sup>

Philip is of the same opinion as David and states that:

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<sup>157</sup> Interview with Cathy, Nairobi, Kenya, 16 July 2015.

<sup>158</sup> Okoye Anthony and Chijioke Odoh, 'Assessment of the Level of Awareness of E-Waste Management and Concern for the Environment amongst the Populace in Onitsha, Southeastern Nigeria' (2014) 5(2) *Journal of Environmental Protection* 12.

<sup>159</sup> *ibid* 12.

<sup>160</sup> Interview with David, Nairobi, Kenya, 15 July 2015.

Judicial officers need to be trained on issues concerning E-Waste. This will in turn change the way they deal with such issues, in particular change from the positivist approach in enforcing the law and adopt other options that will ensure compliance.<sup>161</sup>

This shows that awareness and sensitization on matters regarding e waste is not exclusively for the users. The education of the enforcers is an integral step if we are to realize the goal of awareness of e waste and adoption of the correct disposal methods.

Okoye and Odoh<sup>162</sup> propose that the personnel in environmental agencies be it Non-Governmental, Governmental or civil society based should be trained. The training should be done by environmental experts to acquire basic understanding of E-Waste management.<sup>163</sup>

The expected outcome is also acquisition of motivation to participate in activities for improving the quality of the environment and develop skills for proper waste management.<sup>164</sup>

### **2.3 E-Waste Management and Access to Information in Kenya**

The Environmental Management and Coordination Act (EMCA), 1999 is an Act of Parliament that provides for the establishment of an appropriate legal and institutional framework for the management of the environment.<sup>165</sup> Of note is that the Act does not expressly mention E-Waste, but is however intended to manage, conserve and protect the environment from all hazards. The EMCA, for example, prohibits the depositing of any substance in a lake, river or wetland or in, on or under its bed, if that substance would or is likely to have adverse environmental effects on the river, lake or wetland.<sup>166</sup> The use of the phrase ‘any substance likely to have adverse environmental effects’ means that in as much as the act does not specifically refer to E-Waste, the dumping of E-Waste in water bodies is

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<sup>161</sup>Interview with Phillip, Nairobi, Kenya, 31 July 2015.

<sup>162</sup>Okoye Anthony and Odoh Chijioke, ‘Assessment of the Level of Awareness of E-Waste Management and Concern for the Environment amongst the Populace in Onitsha, Southeastern Nigeria’ (2014) 5(2) Journal of Environmental Protection 12

<sup>163</sup> ibid 12.

<sup>164</sup> ibid 12.

<sup>165</sup> *Environmental Management and Co-ordination Act*, preamble.

<sup>166</sup> *Environmental Management and Co-ordination Act*, s 42(e).

prohibited. Notable as well is the fact that the Act prohibits the discharge or disposal of any wastes in such manner as to cause pollution to the environment or ill health to any person, and any person who does so is not only liable to criminal sanctions, but will also be compelled to mitigate through treatment, reclamation and recycling.<sup>167</sup>

The Environmental Management and Co-ordination (Waste Management) Regulations 2006 were formulated as a result of powers under the EMCA.<sup>168</sup> This is the Government's legal instrument that specifically deals with waste management in Kenya and it applies to electronic waste by virtue of the fact that the Regulations apply to all categories of waste<sup>169</sup>. Although there is no direct provision for E-Waste, the Regulations apply to E-Waste because of the composition of E-Waste includes several of the substances listed as hazardous waste under the Regulations.<sup>170</sup> The Regulations impose an obligation on persons operating waste disposal sites to ensure these sites operate in an environmentally sound manner<sup>171</sup> and to ensure that such waste does not present any imminent and substantial danger to the public health, the environment and natural resources.<sup>172</sup>

Further to the above laws, Kenya has ratified and acceded to several conventions on sound management of E-Waste as well as on awareness of these management strategies. These include the Basel Convention on the Control of Trans-boundary Movement of Hazardous Wastes and their Disposal 1989, the Rio Declaration on Environment and Development 1992 and the UN Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention) 1998. By virtue of

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<sup>167</sup> *Environmental Management and Co-ordination Act*, s 87.

<sup>168</sup> *Environmental Management and Co-ordination Act*, s 147; *Legal Notice Number 121 of 2006*.

<sup>169</sup> *Environmental Management and Co-ordination (Waste Management) Regulations 2006*, r 3.

<sup>170</sup> *Environmental Management and Co-ordination (Waste Management) Regulations 2006*, r 16 and schs 4 and 5.

<sup>171</sup> *Environmental Management and Co-ordination (Waste Management) Regulations 2006*, r 10.

<sup>172</sup> *Environmental Management and Co-ordination (Waste Management) Regulations 2006*, r 11.

Constitutional provisions which provide that any treaty or convention ratified by Kenya forms part of the law of Kenya,<sup>173</sup> these international instruments are part of Kenyan law.

### **2.3.1 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes**

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (hereinafter referred to as ‘the Basel Convention’) was adopted in 1989, in response to a public outcry following the discovery, in the 1980s, in Africa and other parts of the developing world of deposits of toxic wastes imported from abroad.<sup>174</sup> Awakening environmental awareness and corresponding tightening of environmental regulations in the industrialized world in the 1970s and 1980s had led to increasing public resistance to the disposal of hazardous wastes – in accordance with what became known as the NIMBY (Not In My Back Yard) syndrome – and to an escalation of disposal costs.<sup>175</sup> This in turn led some operators to seek cheap disposal options for hazardous wastes in Eastern Europe and the developing world, where environmental awareness was much less developed and regulations and enforcement mechanisms were lacking.

It was against this background that the Basel Convention was negotiated in the late 1980s, and its thrust at the time of its adoption was to combat the “toxic trade”, as it was termed. It was adopted in 1989 and entered into force in 1992.<sup>176</sup>

The Basel Convention negotiation process took place between 1987 and 1989. The UNEP governing council -after being prompted by Switzerland and Hungary- mandated the Executive Director to convene a working group with the task of elaborating a global

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<sup>173</sup> Constitution of Kenya, art 2(6).

<sup>174</sup> Basel Convention, ‘History of the negotiations of the Basel Convention’ available at <<http://www.basel.int/TheConvention/Overview/History/Overview/tabid/3405/Default.aspx>> accessed 20 October 2015; *See also* UNEP, ‘Training manual on International Environmental Law’ (2006) 126.

<sup>175</sup> *ibid* 126.

<sup>176</sup> *ibid*.

convention on the control of transboundary movements of hazardous wastes.<sup>177</sup> This task was to draw on previous work undertaken by UNEP and other national, regional and international bodies. The schedule determined by the governing council limited the negotiation time to two years.<sup>178</sup> The Ad Hoc Working Group of Legal and Technical Experts with a Mandate to Prepare a Global Convention on the Control of Transboundary Movements of Hazardous Wastes (hereinafter referred to as ‘the Working Group’) began its deliberations at an organizational meeting in October 1987 and held a total of five negotiation sessions between February 1988 and March 1989.<sup>179</sup>

The Basel Convention was adopted unanimously by the Conference of Plenipotentiaries on 22 March 1989. The Conference also adopted eight resolutions related to the further development and the implementation of the Basel Convention.<sup>180</sup>

The Basel convention has seen many milestones covered since its inception. The BAN amendment is one of these milestones. The Amendment to the Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (‘the Ban Amendment’) was adopted by the third meeting of the Conference of the Parties (COP) in 1995.<sup>181</sup> The Ban Amendment provides for the prohibition of exports of all hazardous wastes covered by the Convention that are intended for final disposal, reuse, recycling and recovery from countries listed in annex VII to the Convention (Parties and other States which are members of the OECD, EC, Liechtenstein) to all other countries.<sup>182</sup> As at January 2015, the Ban Amendment has not yet entered into force although it is nearing its entry into force.<sup>183</sup> The challenge of protecting vulnerable countries from unwanted hazardous waste imports, while not precluding the import of wastes considered valuable secondary

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<sup>177</sup> *ibid* 126.

<sup>178</sup> *ibid* 127.

<sup>179</sup> *ibid*.

<sup>180</sup> *ibid* .

<sup>181</sup> Basel Convention, ‘Milestones’ available at <<http://www.basel.int/TheConvention/Overview/Milestones/tabid/2270/Default.aspx>> accessed 20 October 2015.

<sup>182</sup> *ibid*.

<sup>183</sup> *ibid*.

raw materials to countries in a position to manage them in an environmentally sound manner has therefore gained importance.<sup>184</sup> Informal discussions were initiated at COP 9 in 2008 to identify a way to enable the entry into force of the Ban Amendment while addressing the concerns and needs of all countries in this context.<sup>185</sup>

COP 5 in 1999 saw the adoption of The Basel Protocol on Liability and Compensation for Damage resulting from Transboundary Movements of Hazardous Wastes and their Disposal.<sup>186</sup> The Basel Protocol regulates civil liability for damage resulting from the transboundary movement of hazardous wastes and other wastes, including incidents occurring as a result of illegal traffic.<sup>187</sup>

COP 6 in 2002 saw a number of developments within the Basel Convention framework. The Strategic Plan for the implementation of the Basel Convention for the period 2002 to 2010 was adopted.<sup>188</sup> This was to assist developing countries and countries with economies in transition in implementing the provisions of the Convention.<sup>189</sup> Numerous national and regional capacity building and training projects have since been implemented under the umbrella of the Strategic Plan, with the assistance of the Secretariat and the Basel Convention Regional Centres.<sup>190</sup>

COP 6 also established a partnership programme with business and industry. Under this programme, two public-private partnerships have thus far been successfully launched, both with the objective of developing specific technical guidelines – to be used by the relevant industry and authorities for the management of end-of-life electronic devices and electronic waste – and initiating relevant pilot projects at country level, including in companies.<sup>191</sup> Between 2003 and 2008, the Mobile Phone Partnership Initiative (MPPI) developed guidelines for every stage of the management of end-of-life mobile phones, which are being used in relevant facilities. 2008 saw the inception of the Partnership

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<sup>184</sup> *ibid.*

<sup>185</sup> *ibid.*

<sup>186</sup> *ibid.*

<sup>187</sup> *ibid.*

<sup>188</sup> *ibid.*

<sup>189</sup> *ibid.*

<sup>190</sup> *ibid.*

<sup>191</sup> *ibid.*



for Action on Computing Equipment (PACE) by COP 9.<sup>192</sup> Building on experience gained with the MPPI, PACE is working to increase the environmentally sound management of used and end-of-life computing equipment.<sup>193</sup>

COP 8 was held in Nairobi, Kenya from 27 November to 1 December 2006. It was convened shortly after the Probo Koala incident which involved the dumping of hazardous waste at the Abidjan port and resulting in 17 deaths and at least 30,000 injuries. The participants adopted the Nairobi Declaration on the Environmentally Sound Management of Electrical and Electronic Waste and decision IX/6 adopted by the ninth meeting of the Conference of the Parties gave a mandate to the Secretariat to implement a work plan for the environmentally sound management of E-Waste.<sup>194</sup> The work plan included activities in the following work areas: Programmes of activities for the environmentally sound management of E-Waste in Africa, in Asia Pacific and in South America; Partnership for Action on Computing Equipment (PACE); Mobile Phone Partnership Initiative activities on awareness-raising; Preparation of technical guidelines on transboundary movements of E-Waste, in particular regarding the distinction between waste and non-waste.<sup>195</sup>

The gist of the Basel Convention is that it obligates parties to minimise generation of hazardous waste<sup>196</sup> and also requires countries to strengthen their E-Waste management mechanisms. Under the Convention, parties are obligated to ensure the availability of adequate disposal facilities, for the environmentally sound management of hazardous wastes and also to ensure that persons involved in the management of hazardous wastes take such necessary steps to prevent pollution due to hazardous wastes.<sup>197</sup> The latter requirement

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<sup>192</sup> *ibid.*

<sup>193</sup> *ibid.*

<sup>194</sup> Basel Convention 'Electrical and Electronic Waste (E-Waste)' available at <<http://www.basel.int/Implementation/TechnicalAssistance/EWaste/tabid/2576/Default.aspx>> accessed 20 October 2015.

<sup>195</sup> *ibid.*

<sup>196</sup> *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal*, 1673 UNTS 126; 28 ILM 657 (1989), art 4.

<sup>197</sup> *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal*, 1673 UNTS 126; 28 ILM 657 (1989), art 4.

assumes the knowledge of these persons of sound disposal mechanisms they are to adopt in order that they prevent pollution.

### **2.3.2 The Rio Declaration.**

The Rio Declaration, on the other hand, recognises human beings as being at the centre of concerns for sustainable development and as such are entitled to a healthy and productive life in harmony with nature.<sup>198</sup> The most significant provision of the Rio Declaration, however, is that-

Environmental issues are best handled with the participation of all concerned citizens, on a relevant level. On a national basis, each individual should have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States should facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy should be provided.<sup>199</sup>

### **2.3.3 The Aarhus Convention.**

The Aarhus Convention is perhaps the most distinct international instrument in relation to public participation and awareness in environmental matters. The Convention requires members to not only guarantee the rights of access to information, public participation in decision-making, and access to justice in environmental matters in order to protect the right of every generation to live in a healthy environment, but also to take necessary measures to achieve these rights.<sup>200</sup> These measures include enabling public officials and authorities to assist and guide the public in seeking information, facilitating public participation in

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<sup>198</sup> *Rio Declaration on Environment and Development*, UN Doc. A/CONF.151/26 (vol. I) / 31 ILM 874 (1992), principle 1.

<sup>199</sup> *Rio Declaration on Environment and Development*, UN Doc. A/CONF.151/26 (vol. I) / 31 ILM 874 (1992), principle 10.

<sup>200</sup> *Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters*, 2161 UNTS 447; 38 ILM 517 (1999), arts 1 and 3.

decision-making, promoting environmental education and awareness and recognizing and working with non-Government entities.<sup>201</sup>

The environmental information that the public is entitled to access includes information on the state of the environment, policies and measures taken, potentially risky activities, or on the state of human health and safety, where this can be affected by the state of the environment.<sup>202</sup> Considered the first fundamental pillar of the Aarhus Convention,<sup>203</sup> it has been observed that this mandatory disclosure of information on environmental risks ensures polluters and environmental authorities are more motivated to reduce risks due to the public pressure.<sup>204</sup> The state is also under an obligation to collect and disseminate in a timely manner, information on activities that may significantly affect the health of humans and the environment; disseminate information on the quality of the environment and pressures on the environment; and encourage operators whose activities have a significant impact on the environment to inform the public regularly of the environmental impact of their activities and products.<sup>205</sup>

On public participation, the state is under an obligation to inform the public early in an environmental decision-making procedure, of the intention to approve activities, draw plans or legislate and to facilitate the participation of the public by considering its views.<sup>206</sup> Considered the second pillar of the Aarhus Convention, public participation relies on the right to access to information and access to justice for it to be effective. This is so because access

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<sup>201</sup> *Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters*, 2161 UNTS 447; 38 ILM 517 (1999), art 3.

<sup>202</sup> *ibid*, arts 4 and 5.

<sup>203</sup> Velkavrh Anita Pirc and others, *Strategy for Implementing the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters – The Aarhus Convention*, (Government of the Republic of Serbia 2011) 27.

<sup>204</sup> Mol Arthur, He Guizhen and Zhang Lei, 'Information Disclosure in Environmental Risk Management: Developments in China' (2011) 3 *Journal of Current Chinese Affairs* 163, 166; *See also* Akech Migai and Mwebaza Rose, *Enforcement of Environmental Crime Laws: A Framework Training Manual for Law Enforcement Agencies* (Institute for Security Studies ).

<sup>205</sup> *Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters*, 2161 UNTS 447; 38 ILM 517 (1999), art 5.

<sup>206</sup> *Ibid* arts 6, 7 and 8..

to information ensures that the public can participate in an informed fashion, while access to justice ensures that participation rights can happen in reality and not just in theory.<sup>207</sup>

These above international instruments echo the constitutional right to information which is particularly vital in ensuring sound environmental policies. The Constitution enshrines the right of every citizen to access information. This is by article 35 of the Constitution that states that:

Every Citizen has the right of access to-

- (a) Information held by the State; and
- (b) Information held by another person and required for the exercise or protection of any right or fundamental.<sup>208</sup>

Since the Government ‘holds information in trust for the public’<sup>209</sup> it is therefore the duty of the Government to publicise any important information affecting the nation by virtue of article 35(3) which states that, ‘The state shall publish and publicise any important information affecting the nation.’<sup>210</sup>

Further, the State is obligated to encourage public participation in the management, protection and conservation of the environment.<sup>211</sup> These guarantees enable a citizen to demand from the Government or any *person* any information relevant to the protection of his/her constitutional right to a clean and healthy environment.<sup>212</sup>

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<sup>207</sup> Velkavrh Anita Pirc and others, *Strategy for Implementing the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters – The Aarhus Convention*, (Government of the Republic of Serbia 2011) 37.

<sup>208</sup> Constitution of Kenya, art 35(1).

<sup>209</sup> Abuya Edwin, ‘Towards Promoting Access to Information in Kenya’ (African Network of Constitutional Lawyers, April 2011) 3 <<http://www.right2info.org/resources/publications/publications/towards-promoting-access-to-information-in-kenya-2011>> accessed 30 June 2015.

<sup>210</sup> Constitution of Kenya, art 35(3).

<sup>211</sup> Constitution of Kenya, art 69(1)(d).

<sup>212</sup> Constitution of Kenya, art 42.

## 2.4 Institutional Framework on E-Waste Management

Specifically, the EMCA establishes the National Environment Management Authority (NEMA)<sup>213</sup> through which the Government has made it its priority to find ways of improving E-Waste management. The NEMA is the principal instrument of Government in the implementation of all policies relating to the environment.<sup>214</sup> NEMA's Strategic Plan 2010-12 identifies its areas of opportunity to include collaboration with stakeholders; public-private partnerships on environmental issues; review of the EMCA; and increasing public awareness in environmental management.<sup>215</sup> In order to exploit these opportunities, NEMA has aligned its objectives appropriately to include co-coordinating stakeholders to create synergy in management of the environment, ensuring compliance with environmental legislation and policies in order to maintain a clean, healthy and sustainable environment; strengthening and developing its institutional capacity; and use of communication to achieve its objectives.<sup>216</sup> EMCA also works in collaboration with lead agencies pertinent to E-Waste management such as the Ministry of Information and Communication, Communication Commission of Kenya, Kenya Bureau of Standards, Kenya Revenue Authority, Ministry of Education and Nairobi City County. In the performance of its duties under the Act, NEMA has already developed draft E-Waste Management Regulations, which, when gazetted, will provide an appropriate legal and institutional framework and mechanisms for the handling, collection, transportation, recycling and safe disposal of E-Waste.<sup>217</sup>

Further, the EMCA creates the Public Complaints Committee<sup>218</sup> and the National Environment Tribunal<sup>219</sup> in to address environmental grievances. The Committee's function is to investigate any allegations or complaints against any person or against NEMA in

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<sup>213</sup> *Environmental Management and Co-ordination Act*, s 7(1).

<sup>214</sup> *Environmental Management and Co-ordination Act*, s 9.

<sup>215</sup> NEMA, 'Strategic Plan 2013-2018' 11.

<sup>216</sup> NEMA, 'Strategic Plan 2013-2018' 22.

<sup>217</sup> *Environmental Management and Co-ordination Act*, Draft E-Waste Regulations 2013.

<sup>218</sup> *Environmental Management and Co-ordination Act*, s 31.

<sup>219</sup> *Environmental Management and Co-ordination Act*, s 125.

relation to the condition of the environment in Kenya or any suspected case of environmental degradation.<sup>220</sup> The Tribunal, on the other hand, acts as the appellate body from decisions of NEMA and the Committee.<sup>221</sup> These two institutions provide the necessary link between environmental management and the judiciary.

## **2.5 Sound E-Waste Management Options and User Awareness**

Sound E-Waste management envisions options that have the potential of sustainably conserving energy and keeping the environment free of toxic material that would otherwise have been released.<sup>222</sup> Sound options would be those that aim at a reduction or complete elimination of the proliferation of hazardous materials into the environment through the E-Waste stream,<sup>223</sup> in this case by targeting the disposal of E-Waste. This process involves an assessment of current and future environmental scenario focusing on issues such as existing disposal practices and environmental impacts.<sup>224</sup> This assessment is then relied upon in developing policies and infrastructure including E-Waste collection, transportation, treatment, storage, recovery and disposal.<sup>225</sup> Fundamental in this process is the engagement of all stakeholders including producers, consumers and other non-Government bodies.<sup>226</sup>

### **2.5.1 Reduction**

Preventing waste in the first place is the most preferred management option. This can be achieved through re-using after repairing, maintenance and upgrading used electrical equipment, for example, adding memory to a computer or upgrading software. Reducing can also be achieved by filtering the entry points that allow infiltration of electronics to the

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<sup>220</sup> *Environmental Management and Co-ordination Act*, s 32.

<sup>221</sup> *Environmental Management and Co-ordination Act*, ss 108(5), 109(g) and 126 (2).

<sup>222</sup> Kurian Joseph, 'Electronic Waste Management in India-Issues and Strategies (Eleventh International Waste Management and Landfill Symposium, Cagliari, 2007) 6.

<sup>223</sup> Pak Phoenix, 'Haste Makes E-Waste: A Comparative Analysis of How the United States Should Approach the Growing E-Waste Threat' (2008) 16 *Cardozo Journal of International and Comparative Law* 241, 256.

<sup>224</sup> Kurian Joseph, 'Electronic Waste Management in India-Issues and Strategies (Eleventh International Waste Management and Landfill Symposium, Cagliari, 2007) 9.

<sup>225</sup> *Ibid* 9

<sup>226</sup> *Ibid* 9

country. This opinion is echoed by Florence- a legal officer at the Ministry of Environment.<sup>227</sup> She further states that if the entry points were regulated, then substandard electronics in the name of donations will not be allowed in. Such electronics that are termed donations are usually near their expiration date. Florence opines that the developing countries are used as a dumping ground for electronic waste by the developed countries. Regulation of entry points will save the Government and the environmental agencies the trouble of dealing with obsolete electronics that have only been used for a short time.

### **2.5.2 Re- use**

Re-use of E-Waste involves reutilizing products without changing the components and retaining the product in its original form in an attempt to extend the product's useful life.<sup>228</sup>

Re-use can either be done directly in which case the products are re-used without any or with minimal repair, or indirectly where the product is partially or completely disassembled in order to be refurbished or for the components to be put to use.

Re-use is a preferable option to recycling because re-use allows more material and energy savings.<sup>229</sup> This is for the reason that the energy savings potential of reselling or upgrading a computer is five to twenty times greater than that saved by recycling; presents low risks for workers;<sup>230</sup> as well as economising on resources and reducing pollution.<sup>231</sup> It is only when re-use is no longer possible because the equipment is too old or unwanted because of data-protection should it be recycled.<sup>232</sup>

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<sup>227</sup> Interview with Florence, Nairobi Kenya, 22 July 2015.

<sup>228</sup> Arora Rachna, 'Best Practices For E-Waste Management in Developing Nations' (2008) GTZ-ASEM 13.

<sup>229</sup> Bondolfi Anahide, 'The Green E-Waste Channel: Model for A Re-Use and Recycling System of Electronic Waste in South Africa' (Master of Science in Environment, University of Lausanne 2007) 54.

<sup>230</sup> *ibid.*

<sup>231</sup> BAN, 'The Digital Dump: Exporting Re-use and Abuse to Africa.' (2005) <<http://www.ban.org/>> accessed 19 June 2015.

<sup>232</sup> Bondolfi Anahide, 'The Green E-Waste Channel: Model for A Re-Use and Recycling System of Electronic Waste in South Africa' (Master of Science in Environment, University of Lausanne 2007) 57.

### 2.5.3 Recycling

Recycling has been lauded as reducing the magnitude of E-Waste and potentially conserving energy and keeping the environment free of toxic material that would otherwise have been released into the environment.<sup>233</sup> Recycling involves salvaging usable parts for use to create working units. However, recycling of E-Waste is particularly problematic due to the hazardous chemicals to which humans and the environment can be exposed to during the dismantling process.<sup>234</sup> This makes it expensive to recycle in a manner that is safe for humans and the environment. Also contributing to this hurdle in recycling is the high cost of recycling processors. The attendant risks stem from the numerous chemical substances found in E-Waste., most of which cause lung cancer and other lung diseases as well as damage to vital organs such as the brain and kidneys.<sup>235</sup> There is also the pollution risk E-Waste poses to the air, rivers and the soil, which eventually endangers the entire ecosystem.<sup>236</sup>

An environmentally-sound E-Waste recycling mechanism envisions the separation of the recyclable material without posing risk to humans and the environment.<sup>237</sup> Such mechanisms save resources and contribute to reduction of greenhouse gas emissions. This, however, requires sophisticated technology and processes, specific skills and training for the operation and appropriate air pollution control devices for emissions.<sup>238</sup> The downside however, is that such mechanisms are not cheap considering the above and the large amounts of E-Waste

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<sup>233</sup> Kurian Joseph, 'Electronic Waste Management in India-Issues and Strategies (Eleventh International Waste Management and Landfill Symposium, Cagliari, 2007) 6.

<sup>234</sup> Terada Christine , 'Recycling Electronic Wastes in Nigeria: Putting Environmental and Human Rights at Risk' (2012) 10(3) Northwestern Journal of Human Rights 154, 154-155.

<sup>235</sup> Jim Puckett and others, 'Exporting Harm: The High-Tech Trashing of Asia' (2002) BaselAction Network <<http://www.ban.org/E-Waste/technotrashfinalcomp.pdf>> accessed 20 June 2015.

<sup>236</sup> Terada Christine, 'Recycling Electronic Wastes in Nigeria: Putting Environmental and Human Rights at Risk' (2012) 10(3) Northwestern Journal of Human Rights 154, 157.

<sup>237</sup> 'The Dangers of Electronic Waste' <<http://www.cencalewaste.com/dangers-of-ewaste/>> accessed 29 June 2015.

<sup>238</sup> Kurian Joseph , 'Electronic Waste Management in India-Issues and Strategies (Eleventh International Waste Management and Landfill Symposium, Cagliari, 2007) 8.



required to make the process economical.<sup>239</sup> Recycling is also labour-intensive especially since it involves removing, inspecting, testing and reassembling components.<sup>240</sup>

Steve- a programme officer at an E-Waste recycling centre in Utawala Nairobi, attests to the above facts.<sup>241</sup> He explains the process of recycling where the old and obsolete electronics are brought to the centre and dismantled. Plastic and metal materials are then sold to plastic collectors and scrap metal dealers to be reused. The materials that cannot be handled at the centre -because of lack of capacity and equipment- are then sent to other countries with the capacity of recycling materials such as heavy metals. The process of mining the heavy metals and other hazardous materials form the remainder of the e- waste is done at a fee to be paid by the sender. This then makes disposal of such waste an expensive affair.

Because of these inhibitive costs, most recyclers opt for cheaper but hazardous ways of recycling. These often involve manually opening cathode ray tubes, exposing the toxic phosphor dust inside; cooking circuit boards over open fires to melt lead solder, producing toxic lead fumes; burning wires in open piles to melt away the plastics; burning plastic casings, creating dioxins and furans; throwing the unwanted, hazardous leaded glass into ditches or dumpsites; and dumping pure acids and dissolved heavy metals into rivers.<sup>242</sup>

Micah – a garbage collecting officer from Westlands Nairobi,- attests to the fact that recyclers use cheap methods of recycling with regard to electronic waste. He says that:

The work of the loaders is to collect what is presented to them by the household and to transport the waste to the dumping sites. Once at the dumping site, the waste becomes anyone's property. This prompts the street urchins to collect anything they

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<sup>239</sup>Schluep Mathias and others, *Sustainable Innovation and Technology Transfer Industrial Sector Studies: Recycling -From E- Waste To Resources* (UNEP 2009) 38.

<sup>240</sup> Kurian Joseph, 'Electronic Waste Management in India-Issues and Strategies (Eleventh International Waste Management and Landfill Symposium, Cagliari, 2007) 8.

<sup>241</sup> Interview with Steve, Nairobi, Kenya, 29 August 2015.

<sup>242</sup> Anon, Electronics TakeBack Coalition, 'Responsible Recycling vs Global Dumping' <<http://www.electronicstakeback.com/global-E-Waste-dumping/>> accessed 22 June 2015.

deem valuable and sell to recyclers or re-users. The street urchins know what to look for example the cathode ray tubes and will manually dismantle the electronics to get to the tubes. It is not safe at all. The glass that is used to make cathode ray tubes is lead glass.<sup>243</sup>

This is largely the situation in Kenya, a situation replicated in most of Africa with most of Nigeria's basic E-Waste components being recovered and smelted in people's backyards.<sup>244</sup> These practices, as already pointed out above, expose the persons involved in dismantling the E-Waste to dangerous chemicals, and also the entire ecosystem. This manual dismantling of E-Waste has also been attributed to lack of awareness as to the risk this process poses to human health and that of the environment.<sup>245</sup> This is due to the fact that no sophisticated machinery or personal protective equipment is used; instead all the work is done by bare hands.<sup>246</sup> Waste components which have no resale or reuse value are openly burnt or disposed of in open dumps.

It has been suggested that the high cost of recycling could be mitigated by recyclers extracting and refining gold and platinum in the E-Waste for resale, and also by enacting legislation to impose an E-Waste recycling fee or consumer disposal charge at the point of sale of select electronics.<sup>247</sup> This fee once collected as a form of tax, is then distributed as recovery and recycling payment to accredited entities that then have the responsibility of collecting and recycling E-Waste.<sup>248</sup> This ensures that consumers not only take responsibility for their E-Waste by paying for it, but also that recycling of E-Waste is done by qualified entities that ensure environmentally-sound recycling methods. The partnership between

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<sup>243</sup> Interview with Micah, Nairobi, Kenya, 23 July 2015.

<sup>244</sup> Liz Carney, 'Nigeria Fears E-Waste "Toxic Legacy"' *BBC News*(19 December 2006) <<http://news.bbc.co.uk/2/hi/africa/6193625.stm>> accessed 20 June 2015.

<sup>245</sup> Kurian Joseph, 'Electronic Waste Management in India-Issues and Strategies (Eleventh International Waste Management and Landfill Symposium, Cagliari, 2007) 4.

<sup>246</sup> *ibid.*

<sup>247</sup> Terada Christine, 'Recycling Electronic Wastes in Nigeria: Putting Environmental and Human Rights at Risk' (2012) 10(3) *Northwestern Journal of Human Rights* 154, 161-162.

<sup>248</sup> *ibid.*

Government and accredited private entities is necessary for the improvement of the effectiveness of collection and recycling system.

As such, there is need for increased Government involvement in partnering with the private sector to establish environmentally-sound E-Waste disposal services. As a starting point, the Kenyan legal mechanism already empowers the Government to give tax rebates to industries or other establishments that invest in plants, equipment and machinery for pollution control and re-cycling of wastes.<sup>249</sup>

Further, the Government needs to adopt aggressive public awareness policies to change the public attitude towards E-Waste and ensure the public's participation.<sup>250</sup> The lack of awareness that recycling is even possible and knowledge on existing recycling programs and locations are the main obstacles for consumers. Out of the ten users interviewed, none was aware of existing recycling plant. Users need to access information on E-Waste management because the information helps them acquire knowledge and participate effectively decision-making processes; helps them make informed choices; help them participate effectively in economic development; and help them saving resources and time.<sup>251</sup> This means that the first challenge in motivating people to recycle electronics is to get them to understand that it is possible and to show how it can be done.<sup>252</sup> Studies show that less than 10 % of Kenyans have recycled their old mobile phones; most of the unused phones are still at home, making

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<sup>249</sup> *Environmental Management and Co-ordination Act*, s 57(2)(b).

<sup>250</sup> Kurian Joseph, 'Electronic Waste Management in India-Issues and Strategies (Eleventh International Waste Management and Landfill Symposium, Cagliari, 2007) 9.

<sup>251</sup> Makoloo Maurice (ed), *Access to Information and Devolved Funds in Kenya* (International Commission of Jurists) 4.

<sup>252</sup> Tanskanen Pia, 'Electronics Waste: Recycling of Mobile Phones Nokia Corporation' 134 <<http://int.search.tb.ask.com/search/GGmain.jhtml?st=sb&ptb=C6804085-8C6C-44C2-BE65-6CF445119A52&n=781b433c&ind=2015052604&p2=^YN^xdm188^YYA^ke&si=CKysi5PD38UCFarpwgo dxRcATQ&searchfor=Electronics+Waste%3A+Recycling+of+Mobile+Phones+Pia+Tanskanen+Nokia+Corporation+Finland&ld=rw>> accessed 12 June 2015.

the recycling potential huge.<sup>253</sup> This confirms that indeed one of the biggest challenges that Kenya faces in relation to E-Waste management is the lack of awareness.<sup>254</sup>

First step efforts have been made towards enhancing public awareness on E-Waste. Kenya has since hosted the Basel Conference of Parties which provided an important forum for stakeholders from every stage of the electronic lifecycle to find solutions to Kenya's E-Waste challenge.<sup>255</sup> Such conferences not only play a part in raising awareness about the threats posed by E-Waste but also highlight the huge economic opportunities it represents in terms of recycling.<sup>256</sup>

#### **2.5.4 Conclusion**

Awareness on matters concerning E-Waste is lacking. It is clear that the public does not identify with what E-Waste is and the consequences of its poor management. This seems to be more of a behavioural issue such that the attitude towards proper disposal is careless. The non existence of a regulatory framework on E-Waste is a hurdle. It should however not be used as an excuse on the lack of motivation and active practice in dealing with the E-Waste crisis. The existing conventions that Kenya is a party to should at least show guidance on how to deal with hazardous waste- a category that e waste is part of. Kenya has an existing environmental management framework. This is the backbone to all things environmental be it the regulation and the management of environmental matters. Kenya is therefore not lost for guidance. The EMCA provisions implicitly apply to e waste. The Act also actively gives a mandate to environmental agencies notably NEMA being the mandated. These agencies

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<sup>253</sup> GBS Kenya, 'E-Waste: Kenya's Diamond in the Rough' <<http://www.eastafricancompliantrecycling.net/news-updates>> accessed 17 May 2015.

<sup>254</sup> GBS Kenya, 'E-Waste Management in Kenya' <<http://www.eastafricancompliantrecycling.net/news-updates>> accessed 17 May 2015.

<sup>255</sup> UNEP Conference on Parties to the Basel Convention on the Control of Trans-boundary Movements of Hazardous Waste and their Disposal (Nairobi, 27 November – 1 December 2006).

<sup>256</sup> UNEP Conference on Parties to the Basel Convention on the Control of Trans-boundary Movements of Hazardous Waste and their Disposal (Nairobi, 27 November – 1 December 2006).

should take an active role in sensitization and raising of awareness as they are the duty bearers of all matters concerning the environment.

On matters concerning access to information, Kenya is seen to be slacking, The right to information is a constitutional right as much as it is a right enshrined in other pertinent conventions such as the UDHR and the Aarhus Convention. It can be argued that access to information with regard to information on E-Waste and its management is lacking because there is nothing of substance the public will receive information on. The provision of routes and elimination of barriers to access information therefore becomes a prospective goal. Whether a long term measure or not, it should be an integral part of environmental management as it is one of the catalysts that will help in raising of awareness.

The solution to the e waste crisis remains to be sensitization of the public on the E-Waste crisis. The public should be educated on what e waste is and what are the dangers of improper disposal and management of the same.

The issue is not the law, the issue is enforcement.<sup>257</sup>

## CHAPTER THREE

### ENFORCEMENT IN DISPOSAL OF E-WASTE

#### 3.1 Introduction

Enforcement is the act of putting the law into effect and ensuring its obedience.<sup>258</sup> The judiciary and the executive enforce laws by imposing sanctions in disobedience to the law.<sup>259</sup>

Kenyan environmental law provides an elaborate framework for implementing environmental law and policy. This framework establishes various institutions and mechanisms for implementing environmental law. In order to effectively implement environmental initiatives inter-institutional co-operation is required including the local, regional, and international levels; Governments and non-Governmental organisations; and individual stakeholders.<sup>260</sup>

Co-operation is only possible if the stakeholders are aware of the enforcement mechanism in place and the law.<sup>261</sup> Available options for enforcement range from civil enforcement, criminal enforcement and other administrative enforcement mechanisms.<sup>262</sup>

No one legal process is better than another; the mechanism an enforcement officer uses depends on how appropriate it is.<sup>263</sup> Enforcement agencies have the option of deciding whether to criminally prosecute, institute civil actions, or institute parallel proceedings. The

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<sup>257</sup> Interview with Steve, a manager at WEE Centre Nairobi, 29 July 2015

<sup>258</sup> Black Henry Campbell, *Black's Law Dictionary* (Nolan Joseph and Nolan-Haley Jacqueline eds, 6<sup>th</sup> edn, West Publishing Company 1990) 528.

<sup>259</sup> O'Connell Mary Ellen, 'Enforcement and the Success of International Environmental Law' (1995) 3(1) *Indiana Journal of Global Legal Studies* 47, 47.

<sup>260</sup> Kaaria Bernard Iriaga and Muchiri Lawrence Ndica, 'Enforcement Challenges Across Borders: Detecting and Prosecuting Illegal Wildlife Trafficking' (Ninth International Conference on Environmental Compliance and Enforcement, Whistler, British Columbia, Canada, 20-24 June 2011) 204.

<sup>261</sup> *ibid* 24.

<sup>262</sup> UNEP, 'Enforcement of Environmental Law good Practices from Africa, Central Asia and ASEAN Countries'<sup>5</sup><<http://www.unep.org/environmental-governance/Portals/8/documents/enforcement-environmental-laws.pdf>> accessed 03 June 2015.

<sup>263</sup> Interview with Justice Lewis, Nairobi, Kenya, 14 August 2015.

courts are also bestowed with the discretionary power to give appropriate remedy depending on the circumstances of the case.<sup>264</sup>

This chapter explores different mechanisms that have been employed in enforcement of the law. These include criminal, civil and administrative enforcement. It then discusses the role of different stakeholder in enforcement. Unlike the conventional enforcers such as the police, the discussion will focus on courts, NEMA-as the main body with the mandate- and users of EEE. These mechanisms will be looked at with a view of determining the place of awareness in ensuring compliance.

## **3.2 Enforcement Mechanisms**

### **3.2.1 Criminal**

The use of criminal law to enforce environmental protection and control environmentally hazardous activities is one main option of enforcing environmental law. A crime is an act that is punishable by the law.<sup>265</sup> It must be an act against a community, state or a representative of the state. For an act to be criminal there must be an act or omission and intention.<sup>266</sup>

The uniqueness of environmental crime is that one does not need to prove intent all that has to be demonstrated is the actual act. This makes it problematic to prosecute and convict as a crime. Because intention is not a requirement it then becomes a strict liability offence.<sup>267</sup> Strict liability offences focuses only on the actual act or omission.

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<sup>264</sup> Constitution of Kenya, art 23(3).

<sup>265</sup> Allen Michael J, *Textbook on Criminal Law*, (6<sup>th</sup> edn Ashford Colour Press Limited 2001) 1.

<sup>266</sup> *ibid* 17.

<sup>267</sup> Mumma Albert, 'The Nature and Enforcement of Environmental Crime Law: A Jurisprudential and Empirical Perspective' (Institute for Security Studies Workshop, Entebbe, Uganda 30-31 July 2008) 9.

The main functions of criminal law are deterrence, remediation and public protection and retribution.<sup>268</sup> Deterrence support an important objective of prevention of irreversible harm to the natural environment. This is because of the uncertainty of the magnitude of harm. Deterrence is important to prevent harm rather than addressing the harm once it has occurred. Retribution in the criminal law comes in the form of punishment. It expresses the society's disgrace and disapproval as society considers such acts as undesirable.<sup>269</sup>

For this reason criminal sanction is best placed to remedy the harm. According to Rose, a magistrate in Kiambu:

The harm may be of a magnitude such as to make it irreversible and as such it is hard or impossible to correct the environmental damage by compensation. A case in point is lead poisoning that occurred in Owino Uhuru village in Mombasa County. According to the harm caused to the residents such as loss of life-murder- cannot be fairly compensated for by the fines prescribed by law or revoking of a licence. The best punishment is loss of liberty.<sup>270</sup>

E-Waste disposed in or near water sources, portends serious health risks to animal and human life, even leading to death. In order to discourage a culture of companies/individuals simply creating vote-heads as part of cost of doing business to cater for fines, or passing the cost to consumers, the threat of criminal sanctions for instance imprisonment acts as deterrence to committing such environmental offences.<sup>271</sup> Making individuals in a company liable in capacity as an individual to criminal prosecutions for environmental crimes deters companies from committing environmental crimes.<sup>272</sup>

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<sup>268</sup> Akech Migai and Mwebaza Rose, *Enforcement of Environmental Crime Laws: A Framework Training Manual for Law Enforcement Agencies* (Institute for Security Studies ) 29; *See also* Nelleman, C, Henriksen, R., Raxter, P., Ash N., Mrema, E (Eds). *The Environmental Crime Crisis-Threats to Sustainable Development from Illegal Exploitation and Trade Wildlife and Forest Resources. A UNEP Rapid Response Assessment* (2014)24-39.

<sup>269</sup> *ibid* 24-39.

<sup>270</sup> Interview with Honourable Rose, Kiambu, Kenya, 28 July 2015.

<sup>271</sup> Akech Migai and Mwebaza Rose (n 268) 28-29.

<sup>272</sup> *ibid* 29.



One of the short comings of criminal sanctions is the low fines provided by law. For instant, a person responsible for polluting the aquatic environment is liable to, besides two years imprisonment or fine of one million shillings or to both, pay the cost of the removal of the pollutant pollutants and the costs of restoration of the damaged environment, as well as pay third parties reparation upon application by such parties to court.<sup>273</sup> This is in keeping with the polluter pays principle which requires polluters of the environment to bear full environmental and social costs of their activities.<sup>274</sup>

The fines imposed by the law is low and in most cases cannot fully restore the environment to where it ought to be once polluted. The laws should be amended to take into consideration the magnitude of pollution caused. Rose, a magistrate at Kiambu further states that:

Fines prescribed by law are very low and are not commensurate to the damage caused. Poor disposal of hazardous waste cause environmental harm that cannot be restored or repaired. The fines should be increased depending on the environmental damage caused or, the prison term be mandatory to deter pollutants from causing harm to the environment. In the lower courts the sentences given to the pollutants of the environment are lenient and do not serve the function of deterrence. The sentence awarded for a fine of ten thousand shillings and or an imprisonment of three months is such an example of bad legislation and enforcement.<sup>275</sup>

In some jurisdictions, criminal law has been applauded in ensuring compliance. In China for instance, the approach is that criminal sanctions are preferred. According to them, civil and administrative do not deter violators.<sup>276</sup> On the contrary, Philip-a judge of the High Court

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<sup>273</sup> *Environmental Management and Co-ordination Act* s 72.

<sup>274</sup> Hunter David, Salzman James and Zaelke Durwood, *International Environmental Law and Policy* (2<sup>nd</sup> edn, Foundation Press 2002) 412.

<sup>275</sup> Rose (n 229); See also *County Government of Kiambu v Manager Breeze land Agency, M. Kimotho*, CR 1566/5: In this case the accused admitted discharging waste into the water source, causing pollution and ill health. Residence magistrate, S.K Arome sentenced him to pay a fine of ten thousand shillings or three months imprisonment.

<sup>276</sup> UNEP, 'Enforcement of Environmental Law good Practices from Africa, Central Asia and ASEAN Countries' <<http://www.unep.org/environmentalgovernance/Portals/8/documents/enforcement-environmental-laws.pdf>> accessed 03 June 2015.

thought that criminal enforcement was not the most suitable mechanism in ensuring compliance. Stated that:

Educating the public on E-Waste and their effect to them and the environment is the way to go. Instead of penal punishment, judicial officers should adopt other forms of sentences such as probation. Where during probation the person causing pollution is subjected to training on the effects of the activity to the environment and human health. This will prove more effective as opposed to penal enforcement.<sup>277</sup>

In response to the question as to enforcement using criminal prosecution, Philip, a Judge of the High Court had this to say:

The reason why environmental crimes prosecution do not succeed in Kenyan courts is because, they are about proof beyond reasonable doubt, basic incompetence of judicial officers, lethargic approach to cases by prosecutors and taking action by taking matters to court. Creating awareness on the effect of poor disposal of E-Waste will in the long run lead to sound disposal in Kenya.

Environmental inspectors, appointed by the Director-General, powers to institute and undertake criminal proceedings against any person before a court of competent jurisdiction in respect of any environmental offence. In this regard the officials are subject to the directions and control of the Director of Public Prosecutions.<sup>278</sup> To effectively perform this function, the inspectors are assisted in their work by police officers in investigations as well as trained prosecutors.<sup>279</sup> So that it is only the state that can institute such criminal cases.<sup>280</sup>

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<sup>277</sup> Interview with Philip, Nairobi, Kenya, 31 July 2015.

<sup>278</sup> *Environmental Management and Co-ordination Act* s 118.

<sup>279</sup> David Kamweti, Deborah Osiro and Donald Mwitutubani, 'Nature and Extent of Environmental Crime in Kenya' (Institute for Security Studies 2009) 44 <<http://dSPACE.africaportal.org/jspui/bitstream/123456789/30954/1/M166FULL.pdf?1>> accessed 19 August 2015.

<sup>280</sup> Republic of Kenya, The Judiciary, 'Opening Remarks by Chief Justice, Dr. Willy Mutunga on Occasion of the First National Judicial Dialogue on Wildlife and Environmental Crimes' 4-5 <<http://judiciary.go.ke/portal/assets/files/CJ%20speeches/CJ'S%20REMARKS%20ON%20WILDLIFE%20AND%20ENVIRONMENTAL%20CRIMES.pdf>> accessed 02 August 2015.

### 3.2.2 Civil

A civil action is an action that is brought to enforce, redress or protect a private or civil right. It is a non-criminal litigation.<sup>281</sup> If the action is brought by a private person it is termed as private action. If it brought by the Government it is termed as public action. They are against persons or entities who allegedly have not complied with statutory or regulatory requirements, or, in some cases, with an Administrative Orders.<sup>282</sup>

In a civil society the general public should be aware of measures available to them and they must feel sufficiently engaged with issues to be willing to use the measures in place.<sup>283</sup> Civil enforcement is usually a good option when one wants to stop pollution from taking place. For example one, can apply to the court for mandatory injunction .Here the court will give an order to the effect that such activity that may cause pollution should not take place. Ashley- a Judge in Nairobi states that civil action is preferable.<sup>284</sup> She states that criminal action will punish for harm that has already occurred, while civil action can be used to prevent harm that has not yet occurred.

On the contrary, Philip, a Judge of the High Court in Nairobi was of the view that litigation is not the most suitable option in environmental issue. In particular, he has a problem as to who will sue in civil cases. He had this to say:

Even though the Constitution guarantees anyone affected or likely to be affected the right to sue, the expertise is lacking as well as resources required. Such cases are likely to fail.<sup>285</sup>

As noted earlier, civil enforcement on its own cannot ensure compliance. Other mechanisms are needed to ensure compliance.<sup>286</sup> These include awareness, platform to access information

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<sup>281</sup> Akech Migai, 'Background Paper for the Environment and Land Law Reports' (DFID/KLR 2006).

<sup>282</sup> *ibid.*

<sup>283</sup> UNEP, 'Enforcement of Environmental Law good Practices from Africa, Central Asia and ASEAN Countries' <<http://www.unep.org/environmentalgovernance/Portals/8/documents/enforcement-environmental-laws.pdf>> accessed 03 June 2015.

<sup>284</sup> Interview with Ashley, Nairobi, Kenya, 28 July 2015.

<sup>285</sup> Interview with Philip, Nairobi, Kenya, 31 July 2015.

and the attitude of the people. If people's attitude is geared towards sound disposal of waste then, compliance will be ensured.

### 3.2.3 Administrative

Administrative enforcement are a set of action that regulatory institutions carry out to ensure compliance with environmental requirements.<sup>287</sup> These may include sanctions or judicial action. The institutions get such powers from the law or from the state (delegated). Administrative enforcement can be through issuance of permit, punishment for example suspension of licence and rewards or caring out Environmental Impact Assessment.<sup>288</sup>

Administration enforcement relies on intelligence and information sharing.<sup>289</sup> Information sharing is usually lacking because of lack of a platform to air the information and lack of awareness of interested or affected persons. There are countries that have ensured information sharing. For instance, in China there is a hotline managed by the Ministry of environmental protection, where people can report on pollution.<sup>290</sup> In 2013 two thousand complaints were received. Companies involved were investigated and fined with some companies being closed. As a result pollution rate is controlled. China also makes certain environmentally relevant information disclosure compulsory for example issuance of permit. Other information is available on application.<sup>291</sup>

In Kenya however information sharing is not ensued. Members of the public are not aware of how to report pollution cases and to who. Ashley a Judge stated that:

I live right across NEMA offices, our drainage was blocked with waste. The sewage was flowing into the Estate. It took one week to be repaired. The estate management

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<sup>286</sup> UNEP, 'Enforcement of Environmental Law good Practices from Africa, Central Asia and ASEAN Countries' 5 <<http://www.unep.org/environmentalgovernance/Portals/8/documents/enforcement-environmental-laws.pdf>> accessed 03 June 2015.

<sup>287</sup> *ibid* 5.

<sup>288</sup> *ibid*.

<sup>289</sup> *ibid* 12.

<sup>290</sup> *ibid*.

<sup>291</sup> *ibid*.

contacted NEMA and the City County. The response was too long. I still do not know who should be contacted in such situations and how to get to them.

In many countries there is insufficient sharing of information. Such information is not available to the administrators, interested parties and affected parties. Such information is important to ensure the success of administrative enforcement. In Kenya, the information has not been made available to the public. It must be noted that however that, civil and administrative action compliments criminal actions.<sup>292</sup> They cannot replace criminal action.

### **3.3 Institutional Framework for Enforcement**

#### **3.3.1 National Environment Council**

At the apex of ensuring sustainable environmental management in Kenya is the National Environment Council<sup>293</sup> which is the body responsible for policy formulation; setting national goals, objectives and priorities for environmental protection; and promoting co-operation among stakeholders in environmental protection.<sup>294</sup> This Council works closely with the National Environment Action Plan Committee which prepares a binding National Environment Action Plan once every five years and submits the same to the National Assembly for consideration and approval.<sup>295</sup> The purpose of reviewing and modifying the Plan every five years is to incorporate emerging knowledge and realities.

Among other things, the National Environment Action Plan should recommend appropriate legal and fiscal incentives to encourage the business community to incorporate environmental requirements into their planning and operational processes; recommend methods for building national awareness through environmental education; identify actual or likely problems that

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<sup>292</sup> Watson Michael, 'The Enforcement of Criminal: Civil or Criminal Penalties, (University of Huddersfield Repository 2005) 5.

<sup>293</sup> *Environmental Management and Co-ordination Act* s 4.

<sup>294</sup> *Environmental Management and Co-ordination Act* s 5.

<sup>295</sup> *Environmental Management and Co-ordination Act* s 37.

may affect the environment; and identify and recommend policy and legislative approaches for preventing, controlling or mitigating specific as well as general adverse impacts on the environment.<sup>296</sup> In order to capture the environmental realities of the different regions of the country, the National Environment Action Plan is drawn after considering input from the Provincial and District Environment Action Plan Committees through the various provincial and district environment action plans prepared every five years.<sup>297</sup>

### **3.3.2 National Environment Management Authority (NEMA)**

Once policies are formulated by the Council based on the National Environment Action Plan, the National Environment Management Authority implements these policies through general supervision and co-ordination of all matters relating to the environment.<sup>298</sup> In particular, NEMA monitors and assesses activities in order to ensure that the environment is not degraded by such activities and that environmental management objectives are adhered to; and undertakes programmes intended to enhance environmental education and public awareness about the need for sound environmental management as well as for enlisting public support.<sup>299</sup> In the performance of this duty, NEMA is assisted by environmental inspectors appointed by the Director-General of NEMA<sup>300</sup> and these inspectors are authorised by law to enter upon any land or premises to audit activities likely to have significant effect on the environment and monitor the effects upon the environment of these activities.<sup>301</sup>

### **3.3.3 Provincial and District Environment Committees (Devolved Institutions)**

In order to ensure country-wide reach, Provincial and District Environment Committees are established at provincial and district levels for the purpose of proper management of the

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<sup>296</sup> *Environmental Management and Co-ordination Act* s 38.

<sup>297</sup> *Environmental Management and Co-ordination Act* ss 39-40.

<sup>298</sup> *Environmental Management and Co-ordination Act* s 9(1).

<sup>299</sup> *Environmental Management and Co-ordination Act* s 9(2).

<sup>300</sup> *Environmental Management and Co-ordination Act* s 117.

<sup>301</sup> *Environmental Management and Co-ordination Act* ss 68(2) and 69(2).

environment within the province or district in respect of which they are appointed.<sup>302</sup> In view of the new constitutional dispensation, these committees would be constituted at county and sub-county levels. This is due to the distribution of functions between national and county Governments in the 4<sup>th</sup> Schedule of the Constitution which makes county Governments responsible for the implementation of specific national Government policies on natural resources and environmental conservation, including soil and water conservation.<sup>303</sup>

This new constitutional approach to environmental management potentially enhances public participation in the enforcement of environmental rights by making implementation of environmental policies not only a just a national Government function, but also a function of county Governments at the grassroots level.<sup>304</sup> This is a welcome move considering it has previously been pointed out that NEMA's presence on the ground is thin thereby hampering its crime-detection capabilities.<sup>305</sup>

### **3.3.4 Public Complaints Committee**

Due to the public and complex nature of environmental matters, the Public Complaints Committee is created as the environmental ombudsman to investigate allegations or complaints against any person or against NEMA in relation to the condition of the environment in Kenya.<sup>306</sup> The Committee can also launch such investigations on its own motion if it suspects a case of environmental degradation.<sup>307</sup> Whichever way the

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<sup>302</sup> *Environmental Management and Co-ordination Act* s 29-30.

<sup>303</sup> Constitution of Kenya , 4<sup>th</sup> Sch, cl 10.

<sup>304</sup> Bosek Joel Kimutai, 'Implementing Environmental Rights in Kenya's New Constitutional Order: Prospects and Potential Challenges' (2014) 14 African Human Rights Journal 489, 498.

<sup>305</sup> Kamweti David, Osiro Deborah and Mwitutubani Donald, 'Nature and Extent of Environmental Crime in Kenya' (Institute for Security Studies 2009) 44 <<http://dSPACE.africaportal.org/jspui/bitstream/123456789/30954/1/M166FULL.pdf?1>> accessed 19 August 2015.

<sup>306</sup> *Environmental Management and Co-ordination Act* ss 31-32.

<sup>307</sup> *Environmental Management and Co-ordination Act* s 32.

investigations are commenced, the Committee will prepare a report of its findings and submit the same together with recommendations to the Council.<sup>308</sup>

Under the current legal framework, the Public Complaints Committee has no powers to order cessation of offending acts or omission, or to issue injunctive orders, or indeed power to offer any remedies.<sup>309</sup> Instead, the Commission can only make recommendations to the Council, which recommendations it has no way of ensuring are acted upon.

### **3.3.5 National Environment Tribunal and the Environment and Land Court**

The National Environment Tribunal reviews decisions of the Director-General of NEMA, NEMA and any Committee of NEMA, or determines referrals made to it by NEMA on any matter relating to the Act.<sup>310</sup> The Tribunal may be assisted in its work by environment assessors who serve as advisors.<sup>311</sup> A further right of appeal exists to the Environment and Land Court on the decisions of the Tribunal which has jurisdiction to adjudicate disputes for redress of a denial, violation or infringement of, or threat to, rights or fundamental freedoms relating to a clean and healthy environment as provided for under the Constitution and also exercise appellate jurisdiction over the decisions of subordinate courts or local tribunals.<sup>312</sup>

The court's power to intervene when the environment is under threat is in keeping with the environment law principle of prevention which argues that protection of the environment is best achieved by preventing environmental harm in the first place rather than relying on remedies or compensation for such harm after it has occurred since this is less costly than allowing environmental damage to occur and then taking mitigation measures.<sup>313</sup>

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<sup>308</sup> *ibid.*

<sup>309</sup> *Media Council Act* (No. 46 of 2013), ss 28 and 32.

<sup>310</sup> *Environmental Management and Co-ordination Act* ss 125, 126 and 129.

<sup>311</sup> *Environmental Management and Co-ordination Act* s 131.

<sup>312</sup> *Environment and Land Court Act* s 13.

<sup>313</sup> David Hunter, James Salzman and Durwood Zaelke, *International Environmental Law and Policy* (2<sup>nd</sup> edn, Foundation Press 2002) 404.



### **3.4 Enforcement of Law on E-Waste by NEMA**

#### **3.4.1 Identifying and Investigating Pollution**

Apart from soil, water has been identified in the previous chapters as being most susceptible to pollution from electronic waste. Kenya's legal framework lays particular emphasis on the protection of water sources from pollutants. Particularly, the Standards and Enforcement Review Committee is established to, *inter alia*, advise NEMA on how to establish criteria and procedures for the measurement of water quality; recommend NEMA minimum water quality standards for all the waters of Kenya and for different uses; identify and recommend to NEMA areas of research on the effects of water pollution on the environment, human beings, flora and fauna; advise NEMA to carry out investigations of actual or suspected water pollution; advise NEMA to take steps or authorise any works to be carried out which appear to be necessary to prevent or abate water pollution from abandoned works or undertakings; and submit to the Director-General of NEMA necessary recommendations for the monitoring and control of water pollution.<sup>314</sup>

The Standards and Enforcement Review Committee has a further significant role to E-Waste management which is that of recommending to NEMA measures necessary to identify materials and processes that are dangerous to human health and the environment; issue guidelines and prescribe measures for the management of the identified materials and processes including standards for their disposal.<sup>315</sup> More specifically the Standards and Enforcement Review Committee is charged with recommending to NEMA standard criteria for classifying hazardous wastes in order to enable NEMA issue guidelines and regulations for the management of each category of hazardous waste.<sup>316</sup>

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<sup>314</sup> *Environmental Management and Co-ordination Act* s 70-71.

<sup>315</sup> *Environmental Management and Co-ordination Act* s 86.

<sup>316</sup> *Environmental Management and Co-ordination Act* s 91.

### **3.4.2 Environmental Restoration Orders**

NEMA has at its disposal the Environmental Restoration Order as an instrument through which it can compel any responsible person to restore the environment as near as it may be to its previous state; prevent the person on whom it is served from taking any action which would or is reasonably likely to harm the environment; award compensation to be paid by the person on whom it is served to other persons whose environment or livelihood has been harmed by the action the subject of the order; levy a charge on the person on whom it is served for costs of restoration.<sup>317</sup>

The above order may also be issued by a court of law.<sup>318</sup> However, since perpetrators may not always be easily identifiable, the National Environment Restoration Fund is established ideally as supplementary insurance for the mitigation of environmental degradation where the perpetrator is not identifiable or where exceptional circumstances require the Authority to intervene towards the control or mitigation of environmental degradation.<sup>319</sup>

### **3.5 Role of the Public in Enforcement**

In addition to the penal sanctions (criminal enforcement) discussed above, and as pointed out in previous chapters, members of the public have a right to petition the court where their right to a clean and healthy environment is being or is likely to be, denied, violated, infringed or threatened. Article 70 of the constitution states that:

(1) If a person alleges that a right to a clean and healthy environment recognised and protected under Article 42 has been, is being or is likely to be denied, violated, infringed or threatened, the person may apply to court for redress in addition to any other legal remedies that are available in respect to the same matter.

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<sup>317</sup> *Environmental Management and Co-ordination Act* s 108.

<sup>318</sup> *Environmental Management and Co-ordination Act* s 111.

<sup>319</sup> *Environmental Management and Co-ordination Act* s 25.

(2) In such event, the court can make or give any directions it considers appropriate including orders or directions to prevent, stop or discontinue such act or omission; compelling any public officer to take measures to prevent or discontinue such act or omission; or to awarding compensation for any victim of a violation of the right to a clean and healthy environment.<sup>320</sup>

These rights are further reinforced by the constitutional right to fair administrative action enshrined by Article 47(1) which states that, ‘Every Person has the right to administrative action that is expeditious, efficient, lawful, reasonable, and procedurally fair.’<sup>321</sup>

The right to access to information<sup>322</sup> also enforces the provision of environmental redress provided by Article 70. NEMA being a public administrative body, it has an obligation to act in the best interest of the public including fair discharge of its administrative actions and affording access to the public concerning environment-related matters. These rights are fundamental to upholding the principle of public participation which seeks to ensure environmental democracy and requires that the public, especially local communities should participate in the environment and development decisions that affect their lives.<sup>323</sup>

When asked the question as to who should be involved in enforcement, all interviewees (100%) were responding to the effect that the public has a role in enforcement of the law. To sample a few, Tina, a clerical officer in the Ministry of Lands said that, ‘It is our duty to ensure people do not break the law. We should report to relevant institutions those who break the law.’<sup>324</sup>

Lewis, a Judge had this to say on who should take part in enforcing the law, ‘It should be everyone’s duty. From parliament to grassroots. E-Waste is very destructive. It is a matter

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<sup>320</sup> Constitution of Kenya, art 70.

<sup>321</sup> Constitution of Kenya, art 47.

<sup>322</sup> Constitution of Kenya, art 35.

<sup>323</sup> Hunter David, James Salzman and Durwood Zaelke, *International Environmental Law and Policy* (2<sup>nd</sup> edn, Foundation Press 2002) 435.

<sup>324</sup> Interview with Tina, Nairobi, 14 July 2015.

that should involve everyone across the board. Everybody should ensure damage is not caused to the environment.<sup>325</sup>

Poor implementation of the principle of public participation has been blamed for the lack of information of environmentally sound disposal mechanisms of waste.<sup>326</sup> Breach therefore, would entitle the public to have access to judicial review of NEMA's environmental decision-making.<sup>327</sup> This right to access the courts is not only a preserve of the public. It is also available to NEMA who may apply to a competent court for orders compelling any person to immediately stop the generation, handling, transportation, storage or disposal of any wastes that presents an imminent and substantial danger to public health and the environment.<sup>328</sup>

In response to the question whether the judicial officers had handled any case on E-Waste, all the judges and magistrates interviewed had not handled E-Waste matters. They attributed this to lack of awareness on the dangers of poor disposal of waste. It is also due to lack of information on who to lodge a complaint with. Finally, it was attributed to lack of awareness on the right to institute a suit where one feels the breach is likely to cause harm to the environment.

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<sup>325</sup> Interview with Lewis, Nairobi, 14 August 2015.

<sup>326</sup> Kamweti David, Osiro Deborah and Mwitutubani Donald, 'Nature and Extent of Environmental Crime in Kenya' (Institute for Security Studies 2009) 15 <<http://dSPACE.africaportal.org/jspui/bitstream/123456789/30954/1/M166FULL.pdf?1>> accessed 19 August 2015.

<sup>327</sup> Akech Migai, 'Background Paper for the Environment and Land Law Reports' (DFID/KLR 2006) 14.

<sup>328</sup> *Environmental Management and Co-ordination Act* s 90.

### 3.6 Role of Courts in Enforcement

The judiciary breathes life into the law to ensure compliance.<sup>329</sup> According to Lord Denning, ‘In theory the judges do not make law, they merely expound it. But as no one knows that the law until the judges expound it, it follows that they make it.’<sup>330</sup>

The courts ensure compliance through sentencing. To be effective the courts have to be aware of the effects caused to the environment due to poor disposal of E waste. From the interviews conducted, officer were not aware of the disposal mechanisms in place to ensure sound disposal. Caroline-a prosecutor at Kiambu Law Courts – in response to the question on being aware of the laws in place, responded thus, ‘Law on Electronic waste? I do not know. I have never dealt with such a case. I have never thought of it. I just through my waste in the dust bin, all my waste in the dust bin. I am not aware of the laws in place.’<sup>331</sup>

Can one prosecute a case involving E-Waste when they are unaware of the mechanisms in place? According to David- an advocate:-

The enforcers should be made to understand why they are doing what they are doing. Without this factor, the cases will never see the light of the day. The end game should not be to earn a salary, rather to do your work because you believe in it.<sup>332</sup>

The environmental management cycle, as discussed earlier, starts with creating awareness. Officers of the court must appreciate that there is problem. They need to educate officers on E-Waste.<sup>333</sup> They can then be able handle cases on E- waste.

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<sup>329</sup>International Network for Environmental Compliance and Enforcement, ‘Principles of Environmental Compliance and Enforcement Handbook: Overview of Compliance and Enforcement Programs.’ (Sep 2009) 3<[http://inece.org/principles/02\\_overview\\_sept09.pdf](http://inece.org/principles/02_overview_sept09.pdf)> accessed 20 August 2015.

<sup>330</sup> Denning Alfred, *The Changing Law*, (Stevens & Sons Limited 1953) vii.

<sup>331</sup> Interview with Caroline, Kiambu, 28 July 2015

<sup>332</sup> Interview with David, Nairobi, 15 July 2015

<sup>333</sup> International Network for Environmental Compliance and Enforcement, ‘Principles of Environmental Compliance and Enforcement Handbook: Overview of Compliance and Enforcement Programs.’ (Sep 2009) 5<[http://inece.org/principles/02\\_overview\\_sept09.pdf](http://inece.org/principles/02_overview_sept09.pdf)> accessed 20 August 2015.

### 3.7 The Place of Awareness In Enforcement

The law alone is not enough to ensure compliance.<sup>334</sup> The Government must find other mechanisms to ensure compliance. One of the main mechanism in ensuring compliance is creation of awareness to the public and in particular to the users of electronic equipment. From the theory of Planned Behaviour, once behaviour is influenced by the attitude.<sup>335</sup> The theory was intended to explain all behaviors over which people have the ability to exert self-control. The key focus of the theory is behavioral intent. Once intentions is subjective of the attitude, then there is a likelihood that the behavior will have the expected outcome.<sup>336</sup> This then explains the importance of creation of awareness among the users, enforcers, law makers and producer of EEE; because awareness ensures compliance.

The laws once enacted should be obeyed. Law enforcers need to build knowledge base of the public. Therefore, law enforcers should work with different organizations to ensure compliance with the law.<sup>337</sup> One main organization that the enforcers should engage is the civil society organizations. Civil society organizations are better placed because they are reachable to the society; they operate without force and are well versed on how to approach the public.

The problem is that civil society organizations are usually reactive. They should be proactive in environmental issues to help in creation of awareness to ensure crimes are not committed and to help in the protection of the environment. As the saying goes, knowledge is power. Civil society organizations have a role to play in creation of awareness. If awareness is made on environmental issues it will in turn instill in them attitudes and values that will prevent

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<sup>334</sup> *ibid* 5; *See also* Ojienda Tom, 'Incorporation of Public Interest Litigation in Environmental Crimes in East Africa' (Institute for Security Studies Workshop, Entebbe, Uganda 30-31 July 2008) 13.

<sup>335</sup> Ajzen Icek, 'From Intentions to Actions: A Theory of Planned Behaviour' in Julius. Kuhl and Jürgen Beckham (eds), *Action Control: From Cognition To Behaviour* (Springer-Verlag 1985) 10-40.

<sup>336</sup> *ibid* 10-40.

<sup>337</sup> Angienda Gilbert, 'Role of Civil Society In Combating Environmental Crime, (Institute for Security Studies Workshop, Entebbe, Uganda 30-31 July 2008) 27.

them from breaking the law. It is better for one to understand the repercussions, thus, not commit a crime than the law catching up with them.

Awareness can also be created through schools.<sup>338</sup> For example in Indonesia, the Government promotes awareness of the environment by a national school initiative (green initiative).<sup>339</sup> Schools are recognized by the president on environment day. Maurice a lecturer in environmental law agrees with this approach:

Awareness is important in ensuring enforcement. Awareness should start from the grassroots all the way up. People's attitude will influence how they deal with environmental issues. Everybody has a responsibility to inform the other of the damage caused to the environment if E-Waste is not properly disposed.<sup>340</sup>

Similarly, Steve, a manager at WEE Centre had this to say:

The Government should involve the non-Government organizations in environmental issues. In particular, awareness. This is because we are involved with the people. We take their waste to recycle. The Government should pay us to discern information to the public.<sup>341</sup>

Vivian who works with an NGO applauded the Government for involving them in E-Waste management in Kenya:

Awareness is the way to go in ensuring sound disposal. I was in Kisii when the Cabinet secretary was opening another E-Waste collection center in Kisii. This is the first in Nyanza region. Our participation as an NGO was very important. The fact that we were invited to be part of it was positive initiative from the Government. This private- Government partnership is great. I hope to see more of this, if so then disposal of e waste in Kenya will be ensured. Enforcement in Kenya in the past has

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<sup>338</sup> UNEP, 'Enforcement of Environmental Law good Practices from Africa, Central Asia and ASEAN Countries' <<http://www.unep.org/environmentalgovernance/Portals/8/documents/enforcement-environmental-laws.pdf>> accessed 03 June 2015.

<sup>339</sup> *ibid*

<sup>340</sup> Interview with Maurice, On Phone, 28 July 2015.

<sup>341</sup> Interview with Steve, Nairobi, Kenya, 29 July 2015.

been about law enforcers. We need to involve everyone in E-Waste matters as the effects to human health are irreparable.<sup>342</sup>

The Government should involve everyone in enforcement. This can only be achieved if they are aware of environmental issues.

### **3.8 Conclusion**

National laws and international instruments lay down norms for preserving the environment. Liability is necessary to ensure those in violation by non-compliance pay for restoration of the affected environment or pay damages for the destruction caused.<sup>343</sup> Liability in both criminal and civil enforcement serve three main purposes, namely: as an economic instrument that provides incentive in ensuring compliance with environmental obligation, thus avoiding damage to the environment; as a means of penalizing wrongful acts and; deterrence of environmental harmful conduct.<sup>344</sup>

From the interviews carried out all respondents were of the view that the main challenge in sound disposal of E-Waste was awareness. That users are not aware of what E-Waste is, their effect to the environment, how to dispose of E-Waste in the correct manner and how, who and where to seek remedy in case one notices poor disposal of E-Waste. There is therefore a need to create awareness to ensure compliance to the law.

Awareness is important. Each person has E-Waste, if taught how to deal with it, they will dispose it soundly.<sup>345</sup>

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<sup>342</sup> Interview with Vivian, Nairobi, Kenya, 29 August 2015.

<sup>343</sup> UNEP, 'Training Manual on International Environmental Law' (2006) 51  
<[http://www.unep.org/environmentalgovernance/Portals/8/documents/training\\_Manual.pdf](http://www.unep.org/environmentalgovernance/Portals/8/documents/training_Manual.pdf)> accessed 20  
august 2015.

<sup>344</sup> *ibid.*

<sup>345</sup><sup>345</sup> Interview with Edwin, Nairobi, 27 July 2015.



## CHAPTER FOUR

### CONCLUSIONS AND RECOMMENDATIONS

#### 4.1 Conclusion

Electrical waste is the fastest growing element in today's waste stream. Thousands of tones are generated and imported per year into Kenya. The disposal of the same is not done in the appropriate manner leading to health hazards and environmental degradation. One of the reasons for such improper disposal is lack of awareness of the users on how to handle E-Waste. The other reason would be lack of a regulatory framework and hence lack of enforcement on the same.

The Government has the larger share of the duty to make the public aware of what E-Waste is and what its consequences are. It should however rope in all stakeholders and share the duty of awareness.

The draft regulations that are in place should be gazetted so that the environmental agencies and other offices with the duty of enforcement can realize their obligation with regard to enforcement of E-Waste regulations.

## 4.2 Recommendations

### 4.2.1 Introduction

With global developments and innovations in technology, electronic devices are a constant feature of day-to-day life. The Kenyan Government has rolled out an e-Government programme to promote use of information and communication technology (ICT) in all sectors.<sup>346</sup> The resultant waste from their usage has over the years accumulated, and now poses a threat to our environment.

A baseline study<sup>347</sup> conducted by the Kenyan Information Communications and Technology Action Network, showed that Kenya generates 3,000 tons of electronic waste per year. The mass flow study carried out in 2007 showed that 1,513 tonnes of electronics entered the market. The consumer in addition to receiving 1,489.4 tonnes also received 151.3 tonnes from the second hand market. The study confirmed that Kenya has reached a mobile penetration rate of more than 63%, and an internet penetration of more than 18.6%. The number of internet users was estimated at 10.2 million.

The number of ICT companies along the sector increased to more than 4000 companies. Moreover, many shops and kiosks also resell ICT related services; especially services and products relating to the mobile phone. ICT is being extensively used in the Education, Health, industrial, Trade and communication sectors. Private sector has been installing heavy computing equipment and data centres, mainly mobile operators, banks, and Manufacturing sector companies. From the statistics the consumers are likely to: dispose-off 1,210.4 tonnes

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<sup>346</sup> National Environmental Management Authority, 'E-Waste' available at <http://www.greenpeace.org/international/en/campaigns/detox/electronics/the-E-Waste-problem/where-does-E-Waste-end-up/> accessed 24 August 2015.

<sup>347</sup> Muriuki Mureithi and others, 'E-Waste in Kenya: Baseline Assessment' (19<sup>th</sup> Waste Management Conference of the IWMSA, Durban, 6-10 October 2008).

in the second-hand market; dispose-off 18.6 tonnes to collectors or as general waste which is sent to refurbishers; and dispose-off 18.6 tonnes directly to recyclers.<sup>348</sup>

This chapter will therefore seek to put forth various recommendations to the crisis that is lack of awareness of the public on electronic waste which leads to wrongful disposal of the same. The chapter will also focus on improvement of enforcement measures.

#### **4.2.2 Rigorous Awareness Campaign**

Lack of awareness among various stakeholders about the ill effects of the end-of-life products (E-Waste) is the major concern in our country. In order to reduce the adverse impact on environment and health due to the polluting technologies, used in the unorganized sector for recycling E-Waste there is a need to initiate sustained mechanism to create awareness.

The duty of awareness lies with everyone with knowledge on E-Waste and its impact on the human environment. The Government however should take the larger percentage when it comes to informing the public about E-Waste and its effects. The agencies that are mandated to oversee environmental issues are part of the Government and as such should be at the forefront of the awareness campaign. In Kenya, the agency that has the mandate on all environmental matters is NEMA. It should therefore find ways to educate the public on the dangers of E-Waste. NEMA claimed that it cannot do much as they do not have the mandate because the regulations have not been gazetted. However, they acknowledged that they have a duty to create awareness

The awareness campaign should not only be in the subject matter of what E-Waste is but the laws that regulate the use and disposal of the subject matter. NEMA can take an initiative of sensitizing children in schools before sensitizing everyone else. This is because it is believed that it is imperative to instil a culture of responsibility at a young age. When children are

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<sup>348</sup> *ibid.*

sensitized on the dangers of E-Waste at an early age, they will grow up practicing what they are taught even though they might not be in a position to dispose of the E-Waste at the time.

Sensitization of the public can take many forms. Road shows are a very effective way of advertising in the rural areas. The Government should partner with the relevant stakeholders such as manufacturers and distributors of such electronics that will eventually be waste in the campaign on awareness of E-Waste. Community education should also take root in all areas whether urban or rural. The Government should take advantage of the county Government to sensitize. The Government should take the initiative of inviting the public to such forums where electronic waste and its disposal will be discussed.

#### **4.2.3 Enactment of Relevant Laws**

There are no laws on the management of e-waste as it stands. There are however draft regulations that have not yet been gazetted. The draft e waste Regulations were proposed in 2013 and have not yet been gazetted into law. This is 3 years of having e-waste managed in a manner where the consumers and the garbage collectors feel is best. The informal ways of waste management only leads to dumping of e-waste in landfills that will eventually have an adverse effect on the neighbouring community.

The Draft Environmental Management and Co-ordination (e-waste management) Regulations of 2015 start off by giving NEMA the mandate of establishing an electrical and electronic equipment registry which will be operated through multi-sectoral stakeholder participation. The registry shall keep a record of certain facts such as total tonnage and types of electrical and electronic equipment, status of compliance based on percentage of obligation fulfilled and registration of producers. Part 3 of the regulations provide for guidelines on management of e-waste to generators, refurbishers, collection centres, recyclers and recycling facilities. These are followed by provisions on importation control and reporting that is to be done by

all the stakeholders to NEMA as the authority. Part 7 of the regulations provides for offense and penalties in lieu of any breach of the provisions in the regulations. The draft regulations then has schedules outlining categories of electrical and electronic equipment, the age limit of WEEE which is set at four years, principles of environmentally sound management and formats for various application procedures.

The environmental agencies that are expected to deal with e-waste have to derive that mandate from a legal instrument. Without such law in place, the agencies can easily escape responsibility.

The laws on e-waste should therefore be gazette and enforced

#### **4.2.4 Training of the Enforcers**

Enforcers in this regard would be taken to mean the officers in charge of implementing the laws and regulations on e waste. This would then entail that judicial officer, environmental officers, and garbage collectors are trained on the issue of E-Waste. Training such officers should entail sensitization of the officers in all matters E-Waste. They should be made to understand that E-Waste is becoming a crisis and that it has fatal consequences on the environment and the health of the public.

Training of the enforcers is expected to lead to efficient enforcement of the laws. This is because once the enforcers understand their role in the goal to remedy the E-Waste crisis, they will be diligent in their work of enforcement of the laws.

#### **4.2.5 Construction of Disposal Structures**

A lot of the users interviewed were of the opinion that if they knew where to take such waste then they would have easily done so. Disposal structures are important because they make it easier for the user to dispose of their waste. It also eases the work of the collector who does not have to go through a sorting process to get the waste that he wants. Awareness of the existence of such structures has to be done for them to work.

#### **4.2.6 Collection Points**

The County Government is the office in charge of waste collection and disposal. With these regard, the County Government should designate collection points specifically for collection of E-Waste. The location of these collection points should be given fair consideration. Collection points should be near residential areas. This because some of the E-Waste are bulky in nature and transportation to far off areas is costly. There should also be some collection points in the Central Business District and specifically in areas which are frequented by the public. Such areas would include bus stations and supermarkets.

#### **4.2.7 Garbage Separation**

The garbage collectors should inform the members of the households from which they collect the waste, on separation of waste. When households are informed, the expected outcome is that the E-Waste from the household would not be mixed with other waste such as organic waste. The garbage collectors can then collect the E-Waste and take it to the collection centres.

#### **4.2.8 Take-Back Schemes**

This is an initiative that is undertaken by retailers and distributors of electronic equipment. They can either be voluntary initiatives or sanctioned by law. This initiative entails the electronic distributor or retailer having a mechanism where a user can return the obsolete

material to the retailer or distributor who will then dispose of it appropriately. This then reduces the chances of such electronics ending up in landfills. In New York State, Electronic Equipment Recycling and Reuse Act took effect on 1<sup>st</sup> April, 2011. The Act requires manufacturers and retailers of electronic equipment to accept back items for collection, handling and recycling. This law also requires manufacturers to educate consumers on their electronic waste acceptance programs. Disposal of E-Waste -be it recycling or proper extraction of the valuables in the waste- is not cheap. The distributor can then include the cost of recycling the waste in the purchase price to offset the expenses.

#### **4.2.9 Industrialise Recycling Schemes**

The Government should support the existent recycling schemes be it financially or technically. The Government should invest in these recycling centres and in return make a profit. After electronics are disbanded, some of the parts are exported for further disposal measures. These measures usually entail mining of heavy metals present in the electrical. The reason why such parts are exported is due to the lack of capacity of the recycling centres to extract such heavy metals. If the Government could invest in the recycling initiatives and enable the centres to be able to extract heavy metals, it could also profit from the scheme. This is because the heavy metals that ere mined are valuable and can be resold.

#### **4.2.10 Regulate Influx of Electronics**

Kenya as a country receives hundreds of container loads of E-Waste each month from developing countries disguised as ‘donations’. These donations are the fastest growing component of the municipal solid waste stream partly because of deliberate designed obsolescence employed by manufacturers to stimulate demand by encouraging purchasers to buy sooner if they still want a functioning product. These entry points should be regulated. The Government should see to it that the electronics that are coming into the country are not obsolete or nearing their expiry date.

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## APPENDIX I: QUESTIONNAIRE A

**Study Title :** User Awareness on Environmentally Sound Disposal of Electronic Waste In Kenya.

**Researcher:** Pauline Pesa

Tel no: 0722314410

Email address: paulineapesa@gmail.com

**Supervisor:** Prof. Edwin Abuya

### **INTRODUCTION**

Dear Sir/Madam,

Thank you for accepting to participate in this interview. I am a postgraduate student at the University of Nairobi pursuing a Master degree in Law. In partial fulfilment of my master degree I am conducting a study on *User Awareness on Environmentally Sound Disposal of Electronic Waste in Kenya*.

This questionnaire is administered as part of my study in assessing users' awareness on sound disposal options; awareness on the laws in place; viable enforcement options on environmentally sound disposal of waste; and establish whether there is a need to enhance awareness among users.

Please note that any information you give will be treated with utmost confidentiality and at no instance will it be used for any other purpose other than for this project. Your identity will be concealed. Your response will be recorded in the questionnaire.

The interview is intended to take approximately 30 minutes. If you have any questions please feel free to contact me.

Do you agree to participate in the study? Yes ..... No.....

Kindly sign below:

(Accept/decline)

**SECTION A: BIO DATA**

1. Gender :                    Male                     Female
2. Occupation.....
3. What is your highest level of education?

**SECTION B: AWARENESS AND SOUND DISPOSAL OF ELECTRONIC WASTE**

1. Kindly explain in brief what you understand by electronic waste?
2. Have you ever had a used, spoilt phone?
3. How did you dispose of the above products?
4. Are you aware of other ways you can dispose of your phone?  
If yes, name them.  
Why?
5. Are you aware of the environmental consequences caused by poor disposal of electronic and electrical waste?
6. Do the environmental consequences affect how one disposes of E-Waste?
7. Do you think creation of awareness on electronic waste is necessary?  
If yes by who?
8. Do you have any thoughts about user awareness on E-Waste management?.

**SECTION C: ENFORCEMENT**

1. Do you know that if you dispose of your waste in a wrong manner, there is punishment?
2. Does being aware of the punishment influence how you dispose of your E-Waste?  
If yes, how?
3. In your opinion, other than the punishments prescribed by law, are there factors that influence how you dispose of your E-Waste?
4. Do you have any thoughts about user awareness on E-Waste management?

## APPENDIX II: QUESTIONNAIRE B

**Study Title :** User Awareness on Environmentally Sound Disposal of Electronic Waste In Kenya.

**Researcher:** Pauline Pesa

Tel no: 0722314410

Email address: paulineapesa@gmail.com

**Supervisor:** Prof. Edwin Abuya

### **INTRODUCTION**

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This questionnaire is administered as part of my study in assessing users' awareness on sound disposal options; awareness on the laws in place; viable enforcement options on environmentally sound disposal of waste; and establish whether there is a need to enhance awareness among users.

Please note that any information you give will be treated with utmost confidentiality and at no instance will it be used for any other purpose other than for this project. Your identity will be concealed. Your response will be recorded in the questionnaire.

The interview is intended to take approximately 30 minutes. If you have any questions please feel free to contact me.

Do you agree to participate in the study? Yes ..... No.....

Kindly sign below:

(Accept/decline)

**SECTION A: BIO DATA**

1. Gender :                      Male                       Female
2. Occupation.....
3. What is your highest level of education?

**SECTION B: AWARENESS AND SOUND DISPOSAL OF ELECTRONIC WASTE**

1. Kindly explain what you understand by electronic waste?
2. Have you ever had a used or spoilt phone, computers, printers and/or television set?
3. How did you dispose of the above product?

**SECTION C: ENFORCEMENT**

1. Do you think there is need to create awareness on the punishment in place for poor disposal of E-Waste?
2. Is the law in place sufficient in in dealing with electronic waste disposal?
3. What would you recommend to be done about enforcement of the law with regard to need for safe, use and sound disposal of electronic waste ?
4. Who should be involved in the enforcement of the law on the safe use and sound disposal of electronic waste?
5. Have you ever handled a case on E- waste?  
  
If yes,how did it go.  
  
If no, why?
6. Do you have any thoughts on awareness on electronic waste disposal?

## APPENDIX III: SCHEDULE OF INTERVIEWS

### UNIVERSITY OF NAIROBI

#### MASTER OF LAW PROGRAMME 2014/2015

RESEARCH PROJECT; USER AWARENESS ON ENVIRONMENTALLY SOUND  
DISPOSAL OF ELECTRONIC WASTE IN KENYA; BY PAULINE ACHIENG PESA,

G62/67412/2013.

#### SCHEDULE OF INTERVIEWS

Participants number	Pseudonyms	SEX	Place of Interview	Occupation of the Participant.	Date of the interview
1.	Beatrice	F	Nairobi	User	14/07/2015
2.	Patrick	M	Nairobi	User	14/07/2015
3.	Milka	F	Nairobi	Registrar- user	14/07/2015
4.	Sylvia	F	Nairobi	User	14/07/2015
5.	Tina	F	Nairobi	clerk-User	14/07/2015
6.	Ronald	M	Nairobi	Advocate	15/07/2015
7.	David	M	Nairobi	Advocate	15/07/2015
8.	Cathy	F	Nairobi	Prosecutor	16/07/2015
9.	Clark	M	Phone	Magistrate	17/07/2015
10.	Ronald	M	Nairobi	Land officer	20/07/2015
11.	Max	M	Nairobi	Physical Planner	20/07/2015

12.	Frida	F	Nairobi	Ministry of Environment	22/07/2015
13.	Kipsang	M	Nairobi	Ministry of Environment	22/07/2015
14.	Micah	F	Nairobi	Garbage Collector	23/07/2015
15.	Edwin	M	Nairobi	NEMA	27/07/2015
16.	Ashley	F	Nairobi	Judge	28/07/2015
17.	Rose	F	Kiambu County	Magistrate	28/07/2015
18.	Caroline	F	Kiambu County	Prosecutor	28/07/2015
19.	Benson	M	Kiambu County	Magistrate	28/07/2015
20.	Faith	F	Nairobi	Student-user	28/07/2015
21.	Maurice	M	Phone	Lecturers	28/07/2015
22.	Dina	F	Nairobi	City County Officer	28/07/2015
23.	Ella	F	Nairobi	Magistrate	29/07/2015
24.	Lucy	F	Nairobi	Magistrate	29/07/2015



25.	Steve	M	Nairobi	Manager At WEEE Centre	29/07/2015
26.	Richard	M	Nairobi	intern-User	30/07/2015
27.	Philip	M	Nairobi	Judge	31/07/2015
28.	Victor		Nairobi	Garbage collector	01/08/2015
29.	Lewis	F	Nairobi	Judge	14/08/2015
30.	Aggy	F	Nairobi	Vendor-user	15/08/2015
31.	Paul	M	Nairobi	Student-user	15/08/2015
32.	Sheilla	F	Nairobi	Vendor-User	15/08/2015
33.	Vivian	F	Nairobi	N.G.O	29/08/2015
34.	Leonard	F	Nairobi	Magistrate	29/08/2017

