

# Poverty and e-Waste Control in Nigeria

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## Introduction

Used Electrical Electronic Equipment (UEEE) from developed countries have become highly sought-after commodities in Nigeria in recent years in an attempt to meet up with global demand for information and telecommunication technology (ICT). This has however led to a massive flow of rather obsolete Waste Electrical and Electronic Equipment (WEEE) or e-waste to the country, although usually imported as UEEE.<sup>1</sup> Nigeria being the most populous country in Africa and accounting for one-sixth of Africa's people is a major recipient of UEEE. Unfortunately, most of what Nigerians buy as UEEE are more or less near end-of-life EEE (near EOL) which have very short life spans and contribute to high rate of e-waste growth. Many Nigerians are not aware that there is a distinction between UEEE, near EOL and E-waste. This has created immense opportunity and incentive for illegal imports of e-waste into Nigeria. This is traceable to a high rate of illiteracy.

In addition, the country is also among the world's poorest countries despite her vast oil

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1. Fagbohun, O., "An Overview of Nigeria's Regulatory Approach," Presentation made at the two-Day 1st Eko E-waste Summit on the Regulation and Management of E-waste in Nigeria, February 2011.

resource.<sup>2</sup> Thus, the near end-of-life EEE are sold cheap satisfying the demand for cheap goods by the poor. What is unknown to a lot of Nigerians is that most of the components in e-waste are hazardous and toxic, hence the careless handling of e-waste poses a safety risk for the environment and human health.

Presently, the country has developed a Regulation to control the importation and handling of UEEE in Nigeria. This is the National Environmental (Electrical/Electronic Sector) Regulations, 2011. Prior to this, Nesrea has been using the Harmful Waste (Special Criminal Provisions) Act, 2004 to address the e-waste problem but this had proved inadequate. Hence, the need to put together a more specific legislative framework to combat this environmental problem. However, the question is whether the provisions on e-waste control in the new Regulation is enough to actually control the e-waste problem in view of the issue of underdevelopment - manifested in poverty, ignorance and illiteracy - bedeviling the country. This paper seeks to examine whether this Regulation can function effectively vis-à-vis the evidently high poverty rate in Nigeria.

### **What is E-Waste?**

E-waste or waste electrical and electronic equipment (WEEE) refers to “any appliance using an electric power supply or batteries that has reached its end of life or end of its usefulness”.<sup>3</sup> It is believed that innovation is perhaps the only constant in the world of electronics; consequently, many electronic products become obsolete within a very short time due to ongoing technological advancement thereby creating a large surplus of unwanted electronic product or e-waste.<sup>4</sup> Mobile phones, tablets, laptops, desktop computers, television sets, photocopiers, printers and household appliances are typical examples of electronic equipment that 'run' quickly into such technological obsolescence.<sup>5</sup> This encourages consumers to discard their old gadgets which are then referred to as Used Electrical Electronics Equipment (UEEE) or E-waste depending on the period of usage. The UEEEs that have reached their end-of-life (EOL) or have become dysfunctional are referred

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2. The World Fact Book, a publication by the Central Intelligence Agency at <http://www.cia.gov/library/publications/the-world-factbook/geo/ni.html> accessed 4th April, 2011.

3. OECD 2011, Extended Producer Responsibility. A Guidance Manual for Governments, p. 164; S.69 of the National Environmental (Electrical/Electronic Sector) Regulations, 2011.

4. “Electronic Hazardous Waste”, a publication of the California Department of Toxic Substances Control.

5. Adediran, Y.A. and Abdulkarim, A., Electronic Waste A Review of its sources, inherent dangers and Management, proceedings of Annual Conference and Annual General Meeting of Nigerian Society of Engineers, Environment Division, held in Lagos from the 23rd 24th November, 2011.

to as e-waste.<sup>6</sup> Therefore, in the words of Achim Steiner,<sup>7</sup> managing e-waste has become not just important, it has become absolutely urgent.<sup>8</sup> Not just because of the sheer quantity, but based on the fact that e-waste is filled with a veritable cocktail of toxic materials. This enormous waste stream contains billions of pounds of hazardous materials, including lead, mercury, beryllium, cadmium, brominates (flame-retardants), and more than 1,000 different toxic substances.<sup>9</sup>

These substances adversely impact the environment and affect human health when burnt, disassembled or improperly disposed of. Generally, experts agree that exposure to toxic chemicals from e-waste - including chromium and polybrominated biphenyls - can damage the brain and nervous system, affect the kidneys and liver, and cause birth defects. Old electronics are often lumped into municipal waste and then burnt, releasing toxic and carcinogenic substances into the air. Chemicals such as beryllium, found in computer motherboards, and cadmium, used in chip resistors and semiconductors, are poisonous and could lead to cancer. Lead in batteries and computer monitors, and mercury in alkaline batteries pose severe health risks. An average 15-inch PC or TV monitor contains as much as five pounds of lead; many old laptop batteries have other harmful chemicals including cadmium, one of the most toxic chemicals known.<sup>10</sup>

When these substances are disposed of in landfills, they can leach toxin into the soil, air and ground water and eventually contaminate crops, animals and human body systems. According to Ituah,<sup>11</sup> studies by the Ministry of Environment in Nigeria suggest that basic components such as lead are being recovered and then smelted in people's back yards, which pose a huge risk of lead poisoning. These studies have also indicated excess heavy metals in the soil, as well as in plants which pose dangers to people who eat vegetables.

Although e-waste also contains precious materials, EEE imports into Nigeria and other developing countries have been found to be usually admixture of new EEE, UEEE with

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6. Schedule II, section 4.0 of the National Environmental (Electrical/Electronic Sector) Regulations, S.1 No. 23 of 2011 states that UEEE would normally be considered waste if: the product is not complete and some essential parts are missing; functionality or safety is impaired; the appearance is generally worn or damaged; packaging is insufficient; the item has among its constituent part(s) anything that is required to be discarded including refrigerators or air conditioners containing Ozone Depleting Substances (ODS); it is destined for disposal or recycling instead of re-use; and it is old, outdated or destined to be cannibalized to gain spare parts.

7. The UNEP executive director.

8. Ituah, E., 'E-waste Dumping in Nigeria: Risk to Health and the Environment', *The Nigerian Tribune*, Tuesday 5th February, 2013. Ituah is the Regional Chairman of the International Institute of Risk and Safety Management (IIRSM), Nigeria Region.

9. *Ibid.*

10. *Ibid.*

11. *Ibid.*

majority being e-waste.<sup>12</sup> For instance, Osibanjo states that only 25 percent of the half a million PCs imported into Nigeria every month works, the remaining 75 percent is e-waste.<sup>13</sup>

### **The Challenge of Poverty in E-Waste Management**

Nigeria is the largest poor population in Africa.<sup>14</sup> The World Fact Book stated that as at 2010, 70 percent of the Nigerian population lived below the poverty line.<sup>15</sup> The poor in Nigeria consists of the unemployed, the unskilled and the unschooled who are low income earners. Among the unskilled and the unschooled are majority of technicians, repairers, and scavengers who find in e-waste business a steady form of income.<sup>16</sup> All these people handle e-waste in one way or the other in the form of mobile phones, personal computers, television sets, VCRs, radio players, freezers, refrigerators and various electronically operated household appliances. For instance, it is a common sight to see both young and old scavengers rummaging through solid waste heaps at dumpsites without caring about the health implications of such dangerous means of livelihood. The psychological feeling, developed over the years, that anything imported is preferred to local products coupled with the issue of affordability, obliterates the dangers of exposures to e-waste. This latter situation has fuelled the developed nation's penchant for exporting e-waste to the country. Impliedly, legislating against e-waste in a country like Nigeria faces a lot of challenges deriving from the low socio-economic status of the general population.

### **Legislation to Manage E-Waste in Nigeria**

There have been initiatives geared towards managing e-waste at both international and domestic levels. The Basel Convention was the first such initiative made at the international level. It was meant to control the transboundary movements of hazardous wastes and their disposal. 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

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12. O. Osibanjo, "E-waste Management Within the Framework of the Basel Convention: Practical Challenges and Possible Solutions from an African Perspective", a paper presented at StEP E-Waste Summer School, 2010.
  13. 'E-waste: West Africa Continues to drown in the Rich World's Obsolete electronics', a report by Danwatch in conjunction with the Danish Consumer Council at <http://www.consumerinternational.org/media/105613/ewatereport> accessed on 4th April, 2011.
  14. "Major Problems Facing Nigeria Today Poverty" at <http://cozay.com/POVERTY-AND-HUNGER-IN-NIGERIA.php> accessed on 4th April, 2011.
  15. The World Fact Book, Op.cit.
  16. "European Electronic Waste in Ghana and Nigeria" at <http://www.danwatch-dk/index.php/id> accessed on 6th April, 2011.

toxic wastes imported from abroad.<sup>17</sup> Nigeria ratified the Basel Convention in March, 1991 and the Amendment to the Basel Convention in May, 2004. She is also a signatory to the regional convention the Bamako Convention on the Ban on the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa, 1991<sup>18</sup> which she signed in December, 2008.

Pursuant to ratifying the Basel Convention, Nigeria promulgated the Harmful Waste (Special Criminal Provisions, etc.) Act (hereinafter called the 'Act')<sup>19</sup> This Act prohibits the carrying, depositing and dumping of harmful waste on any land, territorial waters and matters related thereto in Nigeria. Though this Act does not mention e-waste specifically but since e-wastes are regarded as harmful wastes, it serves as an umbrella instrument under which NESREA could act to combat the e-waste problem. However, there is a bill before the National Assembly to amend the Harmful Waste (Special Criminal Provision, etc) Act (hereinafter called 'the Bill') to specifically provide for the control of electronic devices and prohibit dumping and burning of electronic waste. NESREA uses the Act alongside two other Regulations to curtail e-wastes. They are: The National Environmental Protection (Waste Management) Regulations S.I.15 of 1991 which regulates the collection, treatment and disposal of solid and hazardous wastes from municipal and industrial sources and the National Environmental (Sanitation and Wastes Control) Regulation S.I.28 of 2009 which applies to issues of environmental sanitation and all categories of wastes, including e-wastes. It regulates the adoption of sustainable and environmentally friendly practices in environmental sanitation and waste management, so as to minimize pollution.<sup>20</sup> Furthermore, it obliges all manufacturers and importers of various brands of products to comply with a product stewardship programme and an extended producer responsibility programme.<sup>21</sup> In particular, this Regulation provides for e-waste to be subject to extended

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17. Peiry, Katharina Kummer, 'Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal', United Audiovisual Library of International Law, p. 1. Nigeria's 1988 Koko case was one of those incidents that led to the creation of the Convention. This was a case where five shiploads of toxic wastes were transported from Italy to Koko town in the then Bendel State.

18. It is a treaty of African nations prohibiting the import of any hazardous waste.

19. Cap. H1 Laws of the Federation of Nigeria, 2004.

20. Where is WEEE in Africa?, a UNEP report on E-waste in West Africa based on the findings from a study carried out by the Basel Convention E-waste Africa program, 2011. P28

21. This is defined as an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle. An Extended Producers Responsibility policy is characterised by i) the shifting of responsibility (physically or economically) upstream towards the producer and away from municipalities and ii) the provision of incentives to producers to take into account environmental considerations when designing their products. See Environmental Policy Tools and Evaluation by OECD at <http://www.oecd.org/env/tools-evaluation/extendedproducerresponsibility.htm> accessed on 14/11/2013.

producer responsibility programmes from 2011.

Furthermore, a more specific Regulation to control e-waste has now been enacted by the National Environmental Standard and Regulations Enforcement Agency (NESREA) (hereinafter called 'the Agency'). It is the National Environmental (Electrical/Electronic Sector) Regulations (hereinafter called 'the Regulation') which came into being in 2011. The Regulation seeks to prevent and minimise pollution from all operations and ancillary activities of the Electrical and Electronic sector to the Nigerian environment. The Agency has also developed guidelines for importation of UEEE into the country.<sup>22</sup> It contains the guiding principles, requirements for import of UEEE and the description of items that are not allowed to be imported to Nigeria.<sup>23</sup> The guide also requires all importers of UEEE in Nigeria to register with NESREA.<sup>24</sup> It is obvious that considerable effort is being made in the management of e-waste in the country but how effective are these efforts?

### **Factors That May Militate Against the Effectiveness of the National Environmental (Electric/ Electronic Sector) Regulation 2011**

The essence of any legislation is to address an existing problem. Consequently, if such legislation is to achieve its intended objective, factors that may constitute a hindrance to that objective being realised must be addressed. From some of the provisions of the National Regulation, there are some of such factors that have been identified as being capable of militating against its successful implementation and enforcement. Of course, the underlying cause of these factors is poverty, it only presents in different forms.

#### **Lack of awareness of take-back programmes**

One of the areas that need to be addressed in combating the e-waste problem is the disposal behaviour of the people. If people purchase near end-of-life equipments and dispose of them properly for recycling, the effect of the e-waste generated on health and the environment would definitely be minimal. Unfortunately, disposal behaviour of consumers is

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22. NESREA's Guide for Importers of Used Electrical and Electronic Equipment into Nigeria, Schedule II of the National Environmental (Electric/Electronic Sector) Regulations, 2011.

23. Schedule II of the Regulation contains the requirements for importation of used EEE. Section 2.0.(i) of the Schedule specifically provides that all UEEE imported into Nigeria shall comply with the following provisions: the item(s) shall be of comparative models of equipment in use; it shall be fit for the purpose it was originally designed for; it shall be fully functional as originally intended; the outward/external appearance of the item shall not show any waste characteristics; It shall not be scrap; and the item(s) shall be properly packaged for protection during transport, loading and unloading.

24. See Schedule II, section 2.0 (e).

still very poor partly because of improper orientation that Nigerians have and majorly because most consumers are not aware of take-back programmes being organised by producers neither are they aware of e-waste collection centres.<sup>25</sup> Regulation 36 of the Regulation seeks to address this. The regulation states that 'a person or body corporate or organisation shall not discard and or throw and or drop any e-waste anywhere except in designated bin, collection centre and or point'. The first question that arises from this provision is: how many bins have been designated for e-waste disposal in Nigerian cities and towns? The bins that are designated for disposal of certain wastes in some cities, like Lagos, are so designed to segregate paper, glass and other domestic wastes. None seems to be designated specifically for e-waste in any city. A few waste collection and recycling centres exist in Lagos though. What exists elsewhere which resembles a collection point is the collection of e-waste almost exclusively carried out by non-registered individuals widely referred to as "scavengers". According to the UNEP report mentioned above,<sup>26</sup> these collectors use handcarts and go from household to household to collect metal containing wastes. Usually, collectors pay small amounts of money for each device. The collected materials are brought to scrap metal markets where they are dismantled to recover materials such as steel, aluminium and copper.

These materials are collected and sold either directly to local industries like steel plants or aluminium smelters, or to traders who organize bulk sales to domestic or international refineries. Materials of no market value are disposed of in uncontrolled conditions or burned to reduce volumes. The report, however, noted that most collectors and recyclers do not exclusively focus on e-waste, but on all kinds of metals containing wastes. Therefore, they do not consider themselves as "e-waste recyclers" but rather as "scrap metal workers". Therefore, in the real sense, there is no collection point for e-waste.

However, as earlier mentioned a formal e-waste collection exists in Lagos and is conducted by the Lagos Waste Management Authority (LAWMA) who also collects e-waste generated in Ikeja Computer Village.<sup>27</sup> In addition, there is an e-waste collection system being implemented by the Lagos State Environmental Protection Agency (LASEPA) targeting

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25. One of the authors got to know for the first time about Nokia's take-back programme in Nigeria from a presentation by Elizabeth Tanguy on the topic, "E-waste as an Opportunity The Nokia Perspective" at the 1st Eko E-waste Summit held in Lagos, Nigeria in February, 2011.

26. n.19, UNEP report. Op.cit. p.30.

27. Ibid. p.31; LAWMA initiated support for public/private partnership participation and employment opportunity in resource recovery through a waste to wealth programme such as buy back program from scavengers among others. See 'Recycling Banks to Reduce Scavenging at Dumps in Lagos, Nigeria' at [www.waste-management-world.com](http://www.waste-management-world.com) accessed on 8/4/2011.

e-waste from businesses. Most of the e-waste collected by LAWMA is transferred to municipal dumpsites where informal collectors sort out valuable fractions, including metal containing e-waste. The e-waste collected by LASEPA is stored awaiting future recycling solutions.<sup>28</sup> As it is, formal collection centres exist only in Lagos, not in other states of the Federation. Consequently, it becomes impossible for consumers to comply with the Regulation's provision that the former should return end-of-life EEE to collection points or centres.<sup>29</sup> It then follows that the absence of designated bins and collection centres for e-wastes means that regulation 36 (1) will be unrealisable.

### **Illiteracy/Ignorance**

Regulation 36 (2) mandates all operators of facilities, technicians, assemblers and scavengers of e-waste to undertake Environmentally Sound Management (ESM)<sup>30</sup> and shall not burn e-waste, dispose of e-waste along side municipal waste nor dispose e-waste at dump-site, landfill site, water body etc. The reason scavengers burn e-waste to retrieve the precious substances in them is because they are ignorant of the environmental or health effect of their method and the environmentally sound means of doing it. Consequently, prohibiting them from burning e-wastes require education beyond legislation. Additionally, if there are no collection centres, the business of scavenging at dumpsites or disposing of e-waste at dumpsites cannot be eliminated.

### **Requirement of registration by Collectors of e-Waste**

The Regulation requires that every importer and technician (involved in repair, dismantling and re-assembling) of used EEE shall ensure that e-waste is handled by a person and or body corporate registered to do so by the Agency.<sup>31</sup> It is not clear how the Agency intends to enforce this provision. This is in view of the fact that in Nigeria, it is those in the informal sector that majorly handle e-waste. We stated earlier that this group is made up of unskilled and unschooled poor individuals who see dealing with e-waste as an avenue for economic empowerment. Their status in the society and the fact that they are not an organised sector imply that getting them to register according to NESREA's requirement will

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28. Ibid.

29. Regulation 11(c).

30. ESM means best management practices for electronic recyclers that can be used in conjunction with recycling industry operating standards to ensure compliance with all applicable regulations and ensure environmental and worker protection. See s.69 of the Regulation.

31. Regulation 34(1)



prove difficult, if not impossible, for the importers or technicians to comply with.

Furthermore, Schedule XIV of the Regulation outlines guidelines for the establishment of a collection centre. The schedule goes further to provide that operators of e-waste collection centres shall include 'interested parties' but not limited to manufacturers, importers and dealers.<sup>32</sup> We can therefore categorise the individuals that collect these wastes as interested parties. However, it is a known fact that they are incapable of fulfilling the other requirements of acquiring large premises for storage of e-wastes that will contain shelves, fire extinguishers etc.<sup>33</sup> Many of them are barely surviving on what they earn from e-waste collection, requiring them to make such an investment is obviously asking for too much. Besides, many of these technicians are part of the informal sector and are not registered with the Agency. They also handle the e-waste themselves, thus it is unlikely that they will engage the services of another person or organisation to handle their e-waste. With this state of affairs, it is certain that regulation 34 (1) will pose a problem of enforcement for the Agency.

### **The Use of Personal Protective Equipment (PPE)**

Regulation 37 of the Regulation states that “every body corporate or organisation involved in the handling of e-waste shall ensure that the technicians, repairers or scavengers shall wear appropriate Personal Protective Equipment (PPE)”. With the knowledge that technicians, repairers and scavengers themselves are the major handlers of e-waste in Nigeria, one wonders who will ensure they wear PPE. Again, even though the intention of this provision is to protect this group from the adverse health impact of e-waste, it may meet with some resistance from them except the government makes alternative provision for them to have access to PPE. This is due to the cost of compliance. These are people who earn just enough to feed themselves; they cannot even afford decent clothing and other basic necessities of life. It is therefore obvious that they cannot be expected to use their little income to buy PPE. Moreover, poverty and illiteracy may cause them to care less about the environmental or health effect of their activities. Educating them on these effects and the need for PPEs may make little or no difference as long as there is no alternative to what they are doing. Besides, most of them operate solely on their own and do not belong to any association, especially the scavengers. Consequently, enforcing compliance with this regulation without such an organised platform will prove a difficult task.

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32. Section 1 of Schedule xiv.

33. Section 3 of Schedule xiv.

## Recommendations

From the above, it becomes clear that as wonderful as the provisions of the Regulation are, the government and the regulatory agencies must be pragmatic and holistic in their approach to enforcing them. Below are suggested areas the regulatory authorities and enforcement agencies need to pay attention to.

The co-operation of the developed nations is highly required in many respects for the instruments of law in general and the Regulation in particular to be effective in solving the e-waste problem in Nigeria. Developing nations need the commitment of developed nations to comply with the 2003 Directive on Waste Electrical and Electronic Equipment<sup>34</sup> and existing legislation on e-waste management in their different countries. In that light, the Extended Producer Responsibility (EPR) policy must be strictly enforced by the European Union by ensuring that Original Equipment Manufacturers (OEM) take responsibility for their UEEE products exported to Nigeria when they attain their end-of-life (EOL) status. Secondly, OEMs need to extend their corporate social responsibility to developing nations by providing free PPEs for scavengers and unskilled repairers.<sup>35</sup> It will serve as incentives for further compliance with the provisions of the law. Additionally, scavengers can be dissuaded from burning e-waste if they are encouraged to pick out e-waste and take to designated collection centres for a fee. This incentive also needs to be extended to consumers in order to encourage them to send their end-of-life equipment to collection centres (whenever there are properly designated collection centres) for recycling. This seems to be a possible strategy by which consumer co-operation can be engendered in recycling e-waste.

NESREA needs to encourage the different players in the informal sector to form Associations. This provides a platform upon which the government and the producer can effectively partner with the sector in e-waste management.

After all said and done, one cannot overemphasise the need for a rigorous education and enlightenment of the citizenry including importers, concerning their responsibility in e-waste management as contained in the provision of the legal instruments. Also needed are awareness campaigns on where take-back programmes are taking place. In addition, where collection centres do not exist, NESREA should work closely with importers, Distributors or Retailers to set up collection points/centres as required by the Regulation.<sup>36</sup> It may be

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34. The European Union Directive which holds manufacturers responsible for e-waste disposal at End-of-life.

35. Corporate Social Responsibility of the type being suggested was demonstrated by Nokia at the Eko E-Waste Summit where the company gave out two testing equipment to relevant stakeholders. For other forms of interventions by OEMs, see A. Finlay and D. Liechti, "E-Waste Assessment South Africa" at <http://www.sangonet.org.za/sites/default/files/e-waste> accessed on 2nd April, 2011, p. 22.

36. See regulation 11(4)(a)

necessary that such collection centres be situated in convenient locations for ease of access by consumers.

Ultimately, the government must exercise enough political will to solve the e-waste problem by improving the socio-economic status of its citizens. This is apparently a long term solution, but government could exercise its sense of responsibility by working towards achieving this goal of empowering its people by raising their standard of living.

## **Conclusion**

Truly, poverty has created immense opportunity and incentives for the unsafe handling and disposal method of e-waste. However, if Nigeria will not be drowned by the e-waste 'tsunami' currently threatening her and if the provisions in the Regulation will be effective, viable and enforceable, the measures outlined above will need to be in place. What comes out clear from the above discourse is that any effort at achieving a sustainable e-waste management practice will demand a more responsible behaviour by producers and consumers alike. Furthermore, lack of economic alternatives to activities carried out by the informal sector implies that poverty as a critical social factor may continue to define the implementation of legislation on e-waste in Nigeria and other developing countries.