

# EXPLORATORY ASSESSMENT OF E-WASTE GOVERNANCE STRUCTURES IN AFRICA: A CASE STUDY OF GHANA

Kyere Vincent Nartey<sup>a</sup>, Atiemo Sampson<sup>b</sup>, Benefoh Daniel Tutu<sup>c</sup>, Dr Sven Nussbaum<sup>d</sup>, Prof James Ephraim<sup>e</sup>, Prof Klaus Greve<sup>f</sup>

<sup>a</sup> *University of Bonn, ZEF, Bonn, Germany*

<sup>b</sup> *Ghana Atomic Energy Commission, Accra, Ghana*

<sup>c</sup> *Environmental Protection Agency, Accra, Ghana*

<sup>d</sup> *University of Bonn, ZFL, Bonn, Germany*

<sup>e</sup> *Catholic University College, Sunyani, Ghana*

<sup>f</sup> *University of Bonn, Geography Institute, Bonn, Germany*

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## Abstract

In order to curb the rising amounts of e-waste and increasing impacts of its disposal which presents huge challenge to government and environmental managers in Ghana, there is the need to explore and identify the gaps in the governance structures of e-waste management system. This paper explores governance and management structures of e-waste activities by assessing legal & policy framework in Ghana, management and disposal, institutional arrangement, regulation & permitting, importation, compliance, enforcement structures and awareness creation in the governance of e-waste in Ghana using a desktop studies and expert interviews. The benefits of this exploration have profound incentive for the management and control of the ever increasing adverse impacts of e-waste on human health and the environment.

*Keywords:* E-waste, governance, structures.

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## 1. Introduction

As the rapid pace of globalization continues with the changing lifestyle of people in the use of electrical and electronic equipment more advancement in technology for these equipments continues to be made to cope with the ever changing trend and lifestyle of users of these products. As such, this has increased the rate at which users discard their EEE in favour of advanced technologies, as each passing day new devices are being introduced, resulting in increased amount of end of life EEE around the world. E-waste is used to describe the end of life or discarded electrical and electronic devices. The United Nations estimates 20-50 million tonnes of electrical electronic equipments are discarded globally each year. This growth rate is expected to be 200-400% by 2020. The United States, European Union

and Japan are the highest producers of discarded EEE, however, it is estimated that China, Eastern Europe and Latin America will become major E-waste producers in the next ten years [1]. Previously Asia was the largest recipient of e-waste from Europe, the US and Japan, however due to strengthen of legislation and institutions in these countries to manage and control the effects of e-waste, attention has shifted to Africa without following the procedures as contained in the Basel Convention. Although most African countries have ratified the convention on transboundary movement of hazardous wastes including e-waste, huge amounts of e-waste continue to be imported into Africa. According to Rotterdam Convention receiving countries of e-waste or associated hazardous should be given Prior Informed Consent (PIC) before these materials are

exported, this, however is not the situation as most of these hazardous waste are exported under the disguise of slightly used, secondhand or charity materials. Arguably Africa does not generate even up to a third of the total e-waste produce globally, yet it is home to most of the world discarded electronic materials.

Although there is the need to catch up with the growing age of technology, most African and other developing countries have limited capacity to design and manufacture them. As a result has resorted to importation of these devices and technologies as secondhand, slightly used or charity materials. According to [2], 75% of electronics shipped into Africa are irreparably junk. Although most African countries thrive on repair markets, but have little capacity to deal safely with the hazardous substances associated with the disposal of end of life of these electronic materials. Despite, the hazardous substances associated with electrical electronic materials, the trade and it associated transactions in e-waste continue to increase both legally and illegally. The boom and increase in activities of e-waste transactions in developing countries has been attributed to various factors; according to [3], it makes economic sense to export used and discarded EEE than to recycle them in originating countries since restriction and legislation of these countries makes recycling more expensive. This stream of EEE is much more affordable to most people in developing countries who cannot catch up the cost of purchasing new devices. Further, inability of developing countries to enforce legislations on trans-boundary movements of e-waste has contributed to growing trade of these streams of waste [4].

In spite of the perceived positive impacts of e-waste trade and associated profits to exporting countries, dealers and importers of these products to developing countries, the negative effects on humans and environment cannot be overlooked. Most end of life EEE exhibits hazardous characteristics and as such improper handling and disposal can have adverse impacts on human health and the environment. Recently, reports and researches [5], [6]; [7] & [8] in Ghana have highlights some of the negative health and environ-

mental impacts associated with improper disposal and handling of e-waste. Ghana receives over 500 containers of electrical electronic equipment and is home to the largest e-waste dump site of e-waste in Africa. Estimates show that, 15-20% of secondhand or charity EEE that are shipped to Ghana, arrive already as waste which cannot be refurbished [9]. These imported wastes are deposited off to various dumping sites across the country. Ghana like many other developing countries lacks the capacity to properly treat or recycle the electronic waste. The collection, disposal and treatment of electronic waste are mostly done by informal sector recyclers including women and children with little or no protection against the hazardous chemicals from these wastes stream. The activities of these recyclers also impacts greatly on the environmental quality (air, water and soil pollution) as most of them use open burning and other crude methods for extracting the some valuable parts of the waste.

The recent expanded usage of electronic materials like computers, television sets and refrigerators in Ghana has not generated an effective infrastructure of waste disposal. Since wastes associated with many electronic products exhibit hazardous characteristics, the absence of e-waste management law and appropriate infrastructure to handle its end-of-life by-products have compounded the challenges posed by their disposal. This paper explores governance and management structure of e-waste activities by assessing legal & policy framework in Ghana, Handling, management and disposal, institutional arrangement, Policy measures, regulation & permitting, licensing, importation, taxes, exercise duties & standard targets and compliance and enforcement structures awareness creation in the governance of e-waste in Ghana using a desktop studies and expert interviews.

### *1.1. Scope of Research*

Most studies on the activities of e-waste in Ghana have been focused on the identification of human health and environmental impacts associated with hazardous components of e-waste [10]; [11]. However, in order to curb the rising

or increasing impacts of e-waste disposal which presents huge challenge to government and environmental managers in Ghana, there is the need to explore and identify the gaps and loopholes in the governance structures of e-waste management system. The focus of this paper will be to explore and better understand the institutional structures, the roles, their inter-relationships, policy measures, legal and policy frameworks governing e-waste handling in Ghana.

### *1.2. Research Approach*

The aim is to collect secondary data using Desktop study and interview of experts in e-waste governance and management practice as two main approaches adopted for this study. Existing documentations on institutional governance for the coordination, management and implementation of e-waste in Ghana were reviewed. The following were consulted: existing legal frameworks, strategies, policies and reports on hazardous waste in general that have bearing on e-waste governance. The documents were obtained from Ministries, Departments and Agencies (MDAs). The literature review of international sources information contributed to framing the current-state-of knowledge of the e-waste and to understand the role of institutions in handling waste associated with electrical electronic products. The interviews included the collection of information from the various organizations associated with e-waste management in Ghana.

## **2. Research Findings**

The findings were presented according to the existing legal & policy framework, related environmental policy, Importation, disposal, Institutional Framework, regulation & permitting, licensing, exercise duties, standard targets, Compliance, enforcement structures and awareness.

### *2.1. Existing Legal & policy framework*

Besides the following multilateral and regional related hazardous waste policies and legislations;

the Basel Convention on Hazardous Wastes, Montreal Protocol on Control of Substances that Deplete the Ozone Layer, The Rotterdam Convention on the Prior Informed Consent (PIC) Procedure of certain Hazardous Chemicals and Pesticides in International Trade, The Stockholm Convention on Persistent Organic Pollutants, The Johannesburg Plan of Implementation on Environment and Development and The Bamako Treaty, there are other country specific policies and legislations aimed at protecting the environment and governing the activities associated with hazardous waste handling in Ghana. Some of these policies formulated for a broader protection of the environment in general include;

### *2.2. National Environmental Policy*

Although there are a number of laws and regulations that have some relevance to the control and management of hazardous wastes (including WEEE), they however do not address the dangers posed to humans and the environment from such wastes. Policies such as the National Environmental Policy demands the State to adopt appropriate measures to handle pollution, importation and use of hazardous substances (including end of life electrical electronic equipment) and among other things seeks to ensure sound management of natural resources and the environment against harmful impacts and destructive practices of human activities.

The Environmental Protection Agency act 1994 (Act 490) which have some related relevance to the control and management of hazardous waste (Including waste from WEEE) as stated below mandate the EPA to regulate, coordinate and manage the environment. The Act enjoins the EPA to;

Prescribe standards and guidelines relating to the pollution and the discharge of toxic wastes and control of toxic substances;

Coordinate activities and control the generation, treatment, storage, transportation and disposal of industrial wastes; and

Control the volumes, types, constituents and effects of waste discharges, emissions, deposits or other sources of pollutants and/or substances

which are hazardous or potentially dangerous to the quality of life, human health and the environment.

### *2.3. Related E-waste Governance Factors*

The governance arrangement of e-waste in Ghana has not been clearly delineated by law. The practice of regulating e-waste is still evolving out of the general environmental management structures of the country. Apart from the fact that the country is a signatory to a number of international treaties and agreements relating to directly or indirectly to e-waste management, the effort to translate them into national programmes has been the basis for creating momentum.

Different national actors are involved in different aspects of e-waste management. The provision of legislation and policy directions is the responsibility of the Ministry of Environment, Science, Technology and Innovation. So far, the discussions are far advanced towards initiating the development of national policy of e-waste. While the ministry engages the preparation of the national e-waste policy, the Environmental Protection Agency Act, Act 490 and the Environmental Assessment Regulation, LI 1652, underpins the processes for regulating from importation, handling and somewhat on terminal disposal. The Management of Ozone Depleting Substances and Products Regulations, LI 1812, 2005 is also complementing the effort of having effective regulatory mechanism.

Because the regulations also included importations of approved or allowable E-waste streams into the country, the Ghana Customs also plays a major role to the supply-chain. The local government act gives the mandate of the management of municipal solid waste to the District Assemblies.

When the electrical electronic equipments exhausts its usefulness in the supply chain it terminates into the waste streams which go to different disposal systems. Although Ghana does not have a standalone regulatory regime for e-waste management yet, the Act 490 and LI 1652 impose default mandate to the Environmental Protection Agency to regulate e-waste management throughout the supply-chain. The supply chain starts

from importation through to handling, wholesaling, retailing and disposal. The menu instruments for the regulation of e-waste span across the supply chain are backed by LI. 1652. These are as follows: clearance (permitting and licensing), banning and awareness creation.

The clearance system focuses on using regulatory regime to filter the amount, kinds and allowable types of e-waste through recognisable channels at the port of entry. The purpose is to screen through and issues permit to import clearance. In this respect the EPA of Ghana, CEPS, GPHA and the VROMInspectorate (VI) are collaborating to improve and facilitate enforcement and compliance to prevent harmful import and dumping of e-waste into Ghana in the near future. The next critical aspect of the supply chain of e-waste is the disposal. So far disposal of e-waste in Ghana is generally either through burning after salvaging or forms part of the municipal waste streams. The management of aspect pulls through from EPA to the local government authorities. Although the EPA stipulates general guidelines for siting and managing disposal sites, the real operational functions rest with the local authorities and their private service providers. The range of options for the terminal e-waste disposal is less sophisticated in respect levels of treatment. It ranges from crude dumping through non-existing recycling options.

Awareness creation and public education is an essential part of the regulation package. At least it seeks to provide clarity on the implications of e-waste on the environment and above all, the critical steps to follow in the regulatory cycle. The EPA also has enforcement powers backed by the EPA Act 490 particularly in respect to the importation and unacceptable methods of disposal. The compliance and enforcement process starts awareness and could potentially end with prosecution.

### **3. Challenges & Conclusion**

Having the right mix of institutional, legislation and implementation structures coupled with strict enforcement and education in the gover-

nance structures of e-waste management in Ghana are parts of the building blocks to facilitate and ensure effective management of these streams of waste. Ghana's ability to successfully manage e-waste significantly rest on the legislation, policy direction, institutional framework, enforcement of these structures and public education. To be able to improve upon the overall governance of e-waste in Ghana, effective institutional structure is vital which will depend largely on Ghana's ability to build on the existing public institutions and be able to orient their respective capabilities to focus on the ensuring effective management of e-waste without comprising on their core functions.

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