

# **MODEL FRAMEWORK FOR E-WASTE MANAGEMENT**

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## INTERPRETATIONS

**“Disposal”**- means any operation which does not lead to recycling, recovery or reuse and may include; treatment, incineration and deposition in a secured landfill

**“E-waste”** E-Waste (Electronic waste) may be defined as discarded office and house- hold Electronic and Electrical Equipment (EEE) such as computers, entertainment electronics devices, mobile phones, television sets refrigerators etc. This definition includes used electronics which are destined for reuse, resale, salvage, recycling, or disposal. All components, subassemblies and consumables which are part of the product at the time of discarding are also included.

**“E-waste Management”**- means taking all steps required to ensure that e-waste is managed in a manner which shall protect health and environment against any adverse effects, which may result from hazardous materials therein and improper disposal.

**“E-waste Policy”**- means a plan intended to determine sustainable decisions and actions towards adequate e-waste management.

**“Facility”**-means any location wherein the process incidental to the collection, reception, storage, refurbishing, dismantling, recycling, treatment and disposal of e-waste are carried out.

**“Green House Gases”**- gases in the atmosphere that absorb and emit radiation within the thermal infrared range

**“Information and Communication Technology (ICT)”**: is described as the convergence of telecommunications, broadcasting, computers, storage and audio-visual systems in order to enable users to create, access, store, transmit and manipulate information.

**“Private Sector”**: in this document are described as those entities independent of government that are stakeholders or contributors to E-waste or its management.

**“End of Life management”** – the processes involved in managing the electronic equipment that has ceased being of use to the owner and is subject to a disposal method (collection, storage, reuse, dismantling, recycling, incineration, refurbishment etc)

**“Recycler”** represents a person or entity engaged in treating or processing (of used or waste EEE) to make them suitable for use.

**“Refurbisher”**- represents a person or entity engaged in renovating or processing e-wastes for re-use.

**“Sustainable”** – means capable of being continued with minimal long-term effect on the environment.

## LIST OF ACRONYMS

CBO	-	Community Based Organisation
EACO		East African Communications Organisation
ICT		Information and Communications Technology
ITU		International Telecommunications Union
NGO		Non Governmental Organisation
StEP		Solve the E-waste problem
UN		United Nations
UNEP		United Nations Environmental Protection
UNFCCC		United Nations Framework Convention on Climate Change
UNIDO		United Nations Industrial Development Organisation

## **Executive Summary**

During its work, the EACO Working Group 10 on Environment and e-waste management noted the e-waste management challenges in the region, mainly due to the non existence of e-waste specific policies to guide strategic planning processes as well as the implementation of sustainable and adequate e-waste management. The Working Group therefore specified the need of harmonised strategies in e-waste management in the region. This recommendation was adopted at the 19<sup>th</sup> EACO congress in Bujumbura.

As such, the proposed model policy for e-waste management for the East African region has been developed to guide the member countries in developing their e-waste management policies. This model however does not negate the existing e-waste policy in any member country

The model proposes the vision, mission and policy objectives. The model also specifies the fundamental role of the various governments in ensuring that the policies are articulate and dynamic. Furthermore, the framework highlights the focus areas that are essential in effectively managing e-waste- the legal and regulatory framework, institutional framework, the necessary resources (human, financial and facilities), the private sector involvement/collaboration and the consumers buy-in.

The model emphasizes the monitoring and evaluation framework as a success factor for e-waste implementation, as this subsequently informs whether there is need for policy review in the case of rapid changes in technology, waste generation and e-waste volumes to enable effective planning of the resources therein.

The document recommends the need for a strong commitment required from the governments and relevant institutions at at levels as well as strong collaborations/partnerships in achieving e-waste management.

# 1. INTRODUCTION

## 1.1 Background

Information and Communications Technologies (ICT) advances since the beginning of the 21<sup>st</sup> Century have led to aspects in the social and economic scene such as, enhancing the quality of life (easy life/luxury), yet at the same time a critical tool in generating and adopting appropriate knowledge, communication and information(particular emphasis on the ICTs).

Like other developing countries, the East African region identified ICT as an enabling factor for transforming the region into an information society through initiatives such as e-government, e-education, e-medicine, e-commerce etc. As such, there has been an enormous increase in ICT usage. This has further led to high demand of used or second hand products due to the prohibitive prices for acquisition of the new products.

Whilst much mention has been on the increasing investments in the ICTs because of its enormous advantages, it is also important to adequately reflect end of life (EOL) of such equipment, hence mention of electronic waste (e-waste).

E-waste is considered as one of the fastest growing waste in the world, and yet also toxic and non-biodegradable. Electronic waste (e-waste) is growing at three (3) times the rate of municipal waste worldwide<sup>1</sup>. This is nearly the same amount as all plastic packaging, although it is much more hazardous. In East Africa, the estimated volume of e-waste is not known as there is very little statistics. Specifically, only waste from computers is stated from the study that has been carried by UNIDO and EMPA in the region.

The increased number of e-waste volumes results from the increasing market penetration of electronic use in developing countries, and the increase in replacement market due to technology advancement in the developed countries.

Electronic products are composed of various components, i.e. hazardous and non hazardous materials. The hazardous materials include; Lead, Barium, Mercury, Nickel, Cadmium, Lithium etc. Components such as Lead and Mercury contaminate the soil and water when disposed of in the landfills with other waste. These hazardous components are also listed as human carcinogens<sup>2</sup> as they damage the lungs and liver when eaten or inhaled.

The valuable materials in electronic products include the precious metals- (Gold, Tantalum, Silver etc), while the non hazardous components are; plastics, Copper etc. Recycling of the precious metals conserves these valuable materials as they are rare earth minerals. Recycling also prevents air and water pollution likely to result from the extraction of new mineral from the earth as well as reduction on green house gas (GHG) emissions. Recovery of these

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<sup>1</sup> Global Information Society Watch (GISW2010- Thematic Tackling E-waste Report

<sup>2</sup> Substances capable of causing cancer in living tissue.

precious metals may pose a positive impact to both the environment as well as socio-economic development issues.

Furthermore, in developed countries, recycling and disposal of e-waste may involve significant risk to workers and communities, and thus great care must be taken to avoid unsafe exposure in recycling operations and leaching of material such as heavy metals from landfills and incinerator ashes.

It is thus deemed necessary that measures are put in place for the sustainable management of e-waste in the region. Effective management of e-waste shall require a defined framework, i.e. ensuring policy and guidelines in place.

This document is intended to guide the development of an e-waste management policy for the member countries within the East African region. This is a result from the recommendations of the 18<sup>th</sup> EACO congress in Kigali. This guide does not negate the existing policies that may have been developed or under development by some of the countries, but gives guidance to those intending to develop the policies as well as guidance in line of review to the already existing policies.

## **1.2 Current status of e-waste management in the region**

### **1.2.1 Policy and legal framework**

The existing policies in the region are not e-waste specific and therefore e-waste management is considered as a sub-set under the hazardous waste control and management regulations.

### **1.2.2 E-waste initiatives**

Despite the absence of an appropriate policy and legal framework on e-waste management, various initiatives by relevant stakeholders have been carried out in the region by all countries. These initiatives among others include;

- a. Studies on the magnitude and generation of e-waste to determine appropriate EOL management of the waste,
- b. collection of obsolete electronic equipment,
- c. Establishment of recycling /refurbishment centres for e-waste in Kenya and Rwanda.

### 1.3 SWOT analysis on e-waste and its management in the East African region

The SWOT analysis on e-waste and its management has been developed to provide the full awareness of the situation in the region, in order to guide on policy and guideline development, sustainable decision making and problem solving regarding e-waste management in the region.

<p style="text-align: center;"><b><u>Strength</u></b></p> <p>Existing e-waste policy in Uganda, draft policy in Rwanda and guidelines in Kenya,</p> <p>Existence of some clauses on e-waste management in the Hazardous Waste Control and Management Regulations, 2009 in Tanzania,</p> <p>On-going efforts by Burundi to establish an e-waste collection centre,</p> <p>Recycling plants in Kenya and Rwanda,</p> <p>Appreciation of e-waste management issues by the different Governments in the region,</p> <p>E-waste task force in place by EACO,</p>	<p style="text-align: center;"><b><u>Weakness</u></b></p> <p>Lack of regional statistics on e-waste generation,</p> <p>Inadequate number of skilled personnel on e-waste management,</p> <p>Lack of comprehensive awareness programmes,</p> <p>No e-waste specific policies in place,</p> <p>Inadequate e-waste management infrastructure,</p> <p>Weak enforcement on the existing policies and regulation on e-waste management,</p> <p>Priority on immediate pressing issues like shelter, food, education, health etc as compared to e-waste management,</p>
<p style="text-align: center;"><b><u>Opportunities</u></b></p> <p>Working towards harmonized policies and guidelines,</p> <p>Global push on e-waste management issues and initiatives by the ITU, UN activities through UNFCCC, UNEP, Basel and BAMAKO conventions, StEP etc,</p> <p>Benchmark and information sharing,</p> <p>Business and Job creation,</p> <p>E-waste as a source of valuable resources,</p>	<p style="text-align: center;"><b><u>Threats</u></b></p> <p>E-waste management is not likely to attract private investors because of its economic non-viability,</p>

**Table 1: SWOT matrix on e-waste management in the region**

## 2. MODEL FRAMEWORK FOR E-WASTE MANAGEMENT FOR THE EAST AFRICA REGION

The proposed model framework for e-waste management is a deliverable as per the recommendation that was adopted at the 19<sup>th</sup> EACO congress in Bujumbura. The recommendation specifies the need to move towards harmonized strategies in e-waste management within the East African region.



## **2.1 Vision**

The E-Waste Policy is aligned to the following vision statement:

***“A safe and sustainable e-waste management within the East African region”***

## **2.2 Mission**

The overall mission of this Policy is:

***“To put in place measures that will ensure appropriate e-waste management through advocacy, partnerships, collaboration and encourage investments in the required facilities”***

## **2.3 Policy objectives**

### **2.3.1 Overall objective**

To provide a general framework that will enable each member country to achieve a safe and sustainable e-waste management system.

### **2.3.2 Specific objectives**

- a. To provide a framework and basis for development/alignments of appropriate Legislation(s), Regulations and Guidelines on e-waste management;
- b. To establish appropriate strategies for End of Life (EOL) management of electrical and electronic equipment.
- c. To put in place a mechanism of effective public awareness on issues related to e-waste and its management.
- d. To create an enabling environment for promotion of public and private investments in e-waste management.

## **3. GOVERNMENTS’ COMMITMENT ON THE POLICY FOCUS AREAS**

The model framework highlights the areas of focus that the region may adopt in order to effectively manage e-waste;

1. Legal and regulatory framework;
2. Institutional framework;
3. Resources- (human, financial and infrastructure);
4. Private sector (EEE manufacturers, traders, informal refurbishes/recyclers);
5. Consumers.

### **3.1 Legal and regulatory framework**

The Governments of member states have the fundamental role of ensuring that policies are articulate and dynamic, thus ensuring effective legislation, regulations and guidelines that will address the following;

- a. Gaps in the existing legal framework for e-waste management;
- b. Standards aimed at controlling the nature of ICT equipment (new and used) that are imported in the country;
- c. Establishment of the institutional framework on e-waste management;
- d. Establishment of gazetted areas for environmental protected areas where collection/storage/recycling of e-waste for effective management and monitoring;
- e. Law enforcement regulations;
- f. Creating an enabling environment for the NGO/CBO organizations as well as investors.

### **3.2 Institutional framework**

The e-waste model framework to be implemented through the collaboration of stakeholder institutions. These include but are not limited to;

- a. The Ministry in charge of ICT to spearhead the development of the e-waste policy and shall therefore be responsible for an all-encompassing strategic plan for implementing the E-waste policy, detailing the costs, time frames, targets, outputs and outcome and responsibilities of the relevant stakeholders.
- b. The Ministry in charge of environment and related natural resources – develop/review the environment act to incorporate e-waste specific legislation.
- c. Ministry in charge of health-develop/review health and safety standards, guidelines regarding e-waste.

- d. Ministry in charge of trade and investment – develop/review standards on importation of electronics.
- e. The regulatory bodies under the respective ministries to provide technical support and guidance to their respective ministries. This also need to be defined in the policy as agreed upon.
- f. The EAC to be responsible for putting in place harmonized e-waste management frameworks as well as ensuring strong working relations with in the East African member countries towards adequate e-waste management.

### **3.3 Resources- Human, financial and infrastructure (facilities)**

The Governments' commitment toward resources in adequate e-waste management to include;

#### **3.3.1 Human resources**

To put in place programmes that will ensure human capacity on e-waste management is built. Such programmes may include; on the job training and introduction of relevant curriculum for schools, colleges and universities.

#### **3.3.2 Financial resources**

Establishment of a resource mobilization mechanism that will ensure sustainability of the e-waste management system, i.e. integration in the national budgetary planning, development of an e-waste fund, proposal on request for funding, business translation for e-waste management strategies etc.

#### **3.3.3 Infrastructure (facilities)**

Government commitment would be to put in place appropriate e-waste infrastructure, such as; manual dismantling plants, e-waste recycling, storage/collection and treatment plants, etc.

### **3.4 Private sector (EEE Manufacturers, traders, informal refurbishes/recyclers/e-waste handlers)**

The commitment of the government to the private sector would include;

- a. To create an enabling environment of appropriate EOL management of e-waste by establishment of partnership and collaborations,

- b. Establishment of a Producer Responsibility Organization (PRO) for all manufacturers, importers and resellers of electronic equipment where they will be charged membership fees to cater for the cost of collection and recycling. Determine a harmonized formula of computing the fees.
- c. Development of a take-back system that requires producers/importers and distributors/sellers to take back old and end of life products.
- d. Encourage, support and sensitize the informal sector such as the electronic refurbish/repairers in collection and management of e-waste as this nature of waste is their core business raw material.

### **3.5 Consumers**

The governments' commitment to the consumers includes the establishment of an awareness framework on e-waste management issues, i.e. effects on health and environment, appropriate disposal, etc.

## **4. IMPLEMENTATION, MONITORING AND EVALUATION**

Measurement of progress on the path to achieve set goals, objectives, strategies and targets in the implementation of the E-waste management will require consistent monitoring and evaluation of the outcome indicators. The Government together with other relevant stakeholders may carry out monitoring and evaluation at different levels. A monitoring and evaluation framework may therefore be developed to assess the impact of the implementation hence determining whether there is need for periodic reviews to incorporate emerging issues like; rapid changes in technology, changes in statistical data on e-waste generation and volumes etc, to enable effective or improvement in the e-waste management systems.

## **5. CONCLUSION**

Because of the complex nature of E-waste issues and challenges in its management as listed in the back ground, the above policy model is developed to guide the region in effectively managing e-waste. It is recommended that the ministries in charge of ICT of all member countries bare the sole responsibility of policy development, implementation and consequent achievement of its goals and objectives.

Furthermore, a strong commitment is required for the entire government institutions at all levels and in all sectors as well as the private sector in building strong partnerships and collaborations that will ensure effective management of e-waste.

In light of the above, it is highly recommended that EACO urges the member countries through the EAC Secretariat to adopt this model framework and take appropriate policy implementation.