REPUBLIC OF RWANDA

National E-Waste Management Policy for Rwanda

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ACRONYMS

EDPRS	Economic Development & Poverty Reduction Strategy
EEE	Electrical and Electronic Equipment
EIA	Environmental Impact Assessment
EOL	End of Life
E-waste	Electrical and Electronic Equipment Waste, also called WEEE
FONERWA	Fonds National pour l'Environnement du Rwanda
GoR	Government of Rwanda
ICT	Information and Communication Technology
ICT4D	ICT for Development
MINICOM	Ministry of Trade and Industry
MYICT	Ministry of Youth and ICT
NICI	National Information and Communication Infrastructure
NISR	National Institute of Statistics of Rwanda
PPP	Public Private Partnerships
REMA	Rwanda Environmental Management Authority
RURA	Rwanda Utility and Regulatory Authority
WEEE	Waste Electrical and Electronic Equipment, also called E-waste
WTO	World Trade Organization

FOREWORD

The demand for electrical and electronic equipment (EEE) has increasing significantly in Rwanda due to the general economic growth and modernization. In addition, the demand for a variety of information communication technologies (ICT) tools such as end-user devices, network equipment, telecommunication devices, cooling-system devices, etc., is bolstered by the Rwandan national strategies that position ICT as the key enabler of the knowledge based economy. As such, there has been an enormous increase in ICT usage, which results in high consumption of EEE.

With the continuing evolution of ICTs, people are eager to acquire newer technologies, which result in high demand for the latest electronic devices and a progressively decreasing usage period of these tools. Outdated EEE are becoming obsolete and being discarded as E-waste in large quantities and at increasing rates worldwide. Accordingly, the lack of clear framework for handling and treatment of E-waste has led to the accumulation of cast-off EEE in offices and warehouses. In most cases, E-waste is mixed with ordinary waste at homes and disposed of at regular landfills.

The E-waste policy was developed to provide comprehensive guidance for the efficient and effective management of discarded EEE through appropriate legal and regulatory instruments, which promote green development and ensure a sustainable economic growth for the country. Therefore, the National E-waste Management Policy for Rwanda will control the end-of-life of EEE, resulting in the protection of human health, the conservation of the environment, the development of a business niche in the E-waste management and recycling industry, and creation of employment for Rwandans.

1. INTRODUCTION

The digital revolution has led to an explosive production and an extensive use of EEE, which has launched the social and economic advancement for most countries in 21st century. However, this rapid economic advancement has resulted into a massive generation of EEE waste commonly known as E-waste. In 2014, there was an estimated of 41.8 Million tons of global E-waste, with this estimate expected to grow to 49.8 Million tons in 2018, with an annual growth rate of 4 to 5 per cent[1], and most of these go to developing countries for reuse.

Due to the current rapid economic growth and modernization, the distribution of EEE has also significantly increasing in Rwanda. Furthermore, the growing dependence on the use of ICT in all sectors of the economy has led to increased utilization of EEE in various domains including mobile communication, education, health, finance, service delivery, etc. On one hand, proper handling of E-waste is an emerging challenge as some EEE contains toxic and hazardous substances such as lead, mercury, arsenic, cadmium, and selenium, among others, which pose severe threats and risks to human health and to the environment if not properly handled and disposed of. On the other hand, there is also an opportunity in adequate E-waste management: recycling and refurbishment allow the recovery of precious metals such as gold, silver, platinum, palladium, copper and tin from disposed components, and creates income and tax generation through new businesses and employment opportunities in E-waste value chain management.

The E-waste policy provides comprehensive direction and framework to the efficacious management of E-waste through appropriate legal, regulatory and strategic instruments. The policy comes into place to complement the existing environment protection policy and legal framework. It addresses the unforeseen challenges and issues brought by economic development, modernization and the digital transformation.

1.1. Context

The National vision 2020 aims to transform Rwanda into a middle–income country with focus on promoting green economic development through implementation of the national green growth and climate resilient strategy programs of action and EDPRS priorities. Furthermore, ICT has been identified as an enabling factor for transforming Rwanda into an information society through initiatives such as e-government, e-education, e-health, e-commerce, etc.

[1] http://i.unu.edu/media/unu.edu/news/52624/UNU-1stGlobal-E-Waste-Monitor-2014-small.pdf

As Rwanda becomes an information-rich society with swollen ICT deployment and increasing access to electrical energy, alongside the ever-growing innovations that create new technological solutions for diverse demands, outdated EEE are being accumulating and are rapidly becoming obsolete and discarded in large quantities as E-waste.

In most countries, especially in developing countries, the generated E-waste levels are alarming. This is due to markets open to second hand EEE, and a rush to the promotion of technologies susceptible to acquisition of cheap and sub-standard EEE. The high volumes of E-waste generated and the lack of adequate facilities to manage this type of waste basically means that the E-waste generated mostly end up being discarded in the general waste stream, which endangers the environment.

Considering the above challenges, the environmental degradation and human health protection, we developed a National E-waste Management Policy to address E-waste challenges, to create awareness of E-waste management, to promote capacity building and knowledge in E-waste management, and to prevent an E-waste crisis.

1.2. E-waste Definition

E-waste encompasses all discarded and disposed electrical and electronic equipment (EEE), which is defined as equipment dependent on electric currents or electromagnetic fields in order to work properly, but also any for the generation, transfer and measurement of such currents and fields. Some of the major categories of electrical and electronic equipment are:

1. ICT Equipment e.g. desk top computers, laptops, mobile phones, printers, iPads etc
2. Large and small household equipment's e.g. fridges, electric kettles, microwaves, etc.
3. Lighting equipment e.g. compact fluorescent tubes etc.
4. Consumer equipment e.g. TVs, Radios etc.
5. Electrical and electronic tools (with the exception of large-scale stationary industrial tools) e.g. sewing machines, drills, saws etc.
6. Toys, leisure and sports equipment e.g. the electric toys, gym equipment etc.
7. Medical devices (with the exception of all implanted and infected products) e.g. dialysis machines etc.
8. Monitoring and control instruments e.g. CCTV cameras
9. Automatic dispensers e.g. water, money dispensers etc.

A more detailed scope of EEE and E-waste will be articulated in the rules and regulations under this policy and will be constantly updated by the regulatory authority in consultation with the agency in charge of environment standards.

1.3. Background

Rwanda's Vision 2020 recognizes environmental degradation and climate change as one of main barriers to the realization of medium and long-term development aspirations. Hence, environmental protection and its management is a priority to the country's economic growth.

However, Rwanda developed an ICT for Development (ICT4D) plan, which recognizes the importance of ICT as a key driver for socio-economic development. Accordingly, there is growing demand of ICT's by most government institutions, individuals and corporate as means to upgrade their technological advancements. The generation of E-waste is becoming worrying in most countries and specifically in developing countries such as Rwanda, where E-Waste is still discarded via general waste stream due to the lack of a holistic and appropriate approach to E-waste as well as lack of adequate facilities.

The National E-waste Policy for Rwanda recognizes the need to develop a green economy by defining and implementing an E-waste management framework to properly handle the increasing volume of E-waste, acquiring appropriate facilities and technologies used for E-waste managing, as well as developing the necessary human capacity in E-waste management disciplines.

1.4. Current status of E-waste in Rwanda

Though Rwanda has procedure that deal with waste in general, these do not include specific provisions for E-waste. However, E-waste is distinct in terms of its generation and processing. Currently, the municipality is responsible of the management of general waste and citizens are only required to pay for collection and disposal services. However, E-waste cannot be handled in the same way as general wastes because of its unique composition, which include non-biodegradable materials that can be harmful to the environment. This requires specialized disposal methods, skills and special facilities.

1.4.1 *Current operations and practices*

There is growing number of personal electrical and electronic devices in institutions, households, business facilities, etc. Moreover, with the growth of the telecommunication sector, the number of citizens subscribing to the mobile network has been firmly growing over the years.

Between November 2014 and January 2015, a survey was carried out to determine the status of E-Waste in Rwanda[2]. The survey revealed that for the period ranging from 2010 to 2014:

- Import of ICT equipment increased by 5 times.
- The annual growth in the importation of EEE to Rwanda was estimated to about 5.95%
- Rwanda had an E-Waste annual generation potential of 9,417 tons of which, 7,677 tons (81.52%) are contributed by individuals, 1,143 Tons (12.14%) by public institutions, and 597 tons (6.34%) by private institutions.

The solid waste contractors collect waste from different places and discard it to allocated landfills without any distinct segregation of E-waste. In some instances, valuable components of E-waste are recovered and non valuable components which are in most cases toxic for the environment are left mixed with other types of waste, causing health and environment hazards. The public sector, one of the key contributors of the E-Waste, has over years accumulated enormous amounts of E-waste while awaiting a method for its proper management and disposal.

In effort to the reduce the E-Waste generation in the country, Rwanda Standard Board (RSB) in collaboration with the Ministry in charge of ICT established Ministerial Order No: 1 of 25/10/2011 related to importation of used electronics/ICT equipment's, aimed to restrict and regulate importation of used computers and electronic parts, in order to minimize EEE's potential adverse effect on human health and the environment.

Due to the current lack of E-Waste management framework and capacity to handle E-waste in Rwanda, the practice of E-waste treatment is not done in a holistic manner. E-waste is stored and mixed with other waste at temporal storage space. In particular, institutions and individuals opt to store or in some cases dispose of E-waste with other types of waste.

It is also worthwhile to mention that by the time of the development of this policy, there is no treatment facility for E-waste available in the country. Therefore, it is urgent to establish a comprehensive, sound, and systematic national framework to dispose of E-waste.

1.4.2 Current Legal framework

The environment policy and legal framework recognized waste in general as hazard in its environment protection measures, but did not anticipate the unique challenges posed by E-waste.

[2] Rwanda E-Waste inventory, March 2015 by Toshikazu Mito

The Environment Organic Law N° 04/2005 of 08/04/2005 determining the modalities of protection, conservation and promotion of environment in Rwanda states that collection, transport, treatment and disposal of waste should be done in an environmentally friendly manner but does not adequately and specifically address E-Waste management.

The law N° 09/2013 of 01 March 2013 establishing RURA and the law N0 16/2013 determining the organization, functioning and responsibilities of REMA deals with waste management and regulation in general terms leaving out gaps in regards to E-waste.

In this way, existing policies, legal, and regulatory framework in Rwanda do not sufficiently address E-Waste management. Rather, it is currently considered as a sub-set under the hazardous waste control and management regulations.

It is worth noting that Rwanda is a signatory to many agreements and conventions on environmental management. These include support for the provisions of Agenda 21 amongst other declarations and statements of principles, such as the Rio Declaration in 1992 on Environment and Development. Rwanda is also a party to the Basel Convention on the control of trans-boundary movements of hazardous wastes and their disposal, which was developed with purpose to ensure that: the generation of hazardous wastes and other wastes is minimized; that adequate disposal facilities exist for sound environmental management of wastes; and that managers of waste minimize the risk to human health.

Therefore, since the available waste related legislations under Rwanda Legal framework are broad and do not specifically provide a comprehensive approach to E-Waste management, there is a need to review exisiting legal framework with a holistic plan for include E-waste management in order to protect the environment and health of Rwandans.

This policy is developed to comply with the national and international agreements and conventions and to address challenges posed by the changing environment in technology.

1.4.3 Current institutional framework

Although the Government of Rwanda (GoR) has dedicated agencies in charge of the protection of environment, there is no clear mandate and capacity to effectively manage E-Waste. Additional, there is no formal procedure/policy for E-waste management in the private sector.

Hence, there is an imperative need to develop a clear framework to address the emerging problem of E-Waste management in a sustainable manner as well as assign roles and responsibilities to different players in the E-waste ecosystem.

A notable contribution by the GoR is the establishment of a fund for Environment and Climate Change (FONERWA). This fund is supporting the establishment of basic infrastructure, the mobilizing and channeling of domestic and international funds to the public and private sectors as well as climate change projects. This green fund is already supporting projects that align with the country's commitment to a strong and prosperous green economy including the establishment of sustainable E-waste management system.

1.4.4 Awareness and Education

The Ministry of Youth and ICT in collaboration with Ministry of Trade and Industry (MINICOM) have carried out preliminary awareness of E-waste management initiatives among government institutions. Nevertheless, there is still a need to extend this awareness to the private sector and other civil communities. There is also a need to enhance collaboration and partnership with local and international agencies and manufacturers to ensure increase in knowledge capacity and skills for E-waste management and control to address the existing gap in skills for E-waste handling and disposal.

This policy also suggests to introduce E-waste management skills by starting with Technical Vocational schools (TVET), where centers refurbish and reuse electronic equipment's can be established. This can serve as hands-on technical practice for students in TVET, while also extending the life span and usability of discarded electronic devices.

2. THE NATIONAL E-WASTE MANAGEMENT POLICY

2.1 Vision

The vision of this policy is to ensure the effective and efficient management of E-waste for a safe environment and human health protection towards a sustainable green economic development.

2.2 Policy Objectives

The objectives of this Policy are as follows:

1) To minimize the adverse effects of E-waste on the environment and human health through appropriate legal and regulatory framework for E-waste management;
2) To promote the establishment of e-waste management facilities and investment in E-waste management to ensure sustainability of E-waste management in Rwanda;
3) To increase the knowledge capacity of stakeholders by promoting the investment, education and awareness in effective E-waste management.

2.3 Guiding principle

This policy is built on the following principles:

1) **Device life cycle**: Reduce, re-use and recycle: Reduce and reuse approach can help minimize E-waste through expanding the life span of electronic devices and reusing those EEE which are still in good condition. Example: electronic devices that have been discarded by government institutions can be refurbished and reused by academic institutions.
2) **Resource recovery:** E-waste recycling involves collection and dismantling to recover valuable metals from EEE such as gold, copper, etc. These can be used as raw materials for the manufacturing of other products.
3) **Protection of human health and environment:** all hazardous materials in E-waste should be treated properly to avoid harming or endangering human health and the environment.

4) **Job creation and private sector development:** this policy will foster investment and job creation in E-waste management and control, which will promote creativity and innovation especially for young entrepreneurs.
5) **Sustainability**: Through this policy, the prevention of environmental and health-related hazards as well as the creation of income generation opportunities will contribute to the sustainable development of Rwanda.

2.4 Priority Policy Areas

The policy areas below have been developed in consistency with the strategic interventions to cater for the uniqueness of E-waste and its management challenge, enforcement of standards for EEE imported into the country and their registration as well as issuance of licenses to regulate the activities of E-waste collectors, transporters and owners of recovery, dismantling and disposal facilities.

The lack of legislations on E-waste management, weak and/or no enforcement of any existing legal framework on E-waste and poor or no infrastructure for the disposal of E-waste have immensely contributed to the current inadequate E-waste management. In order to implement and achieve the policy objectives mentioned above, a number of priority policy areas have been identified, as described below:

2.4.1 Legal and Regulatory Framework

Recognizing that there exist gaps in the current environment protection legal framework to address the uniqueness of E-Waste as an emerging issue that cuts across different sectors, an adequate legal and regulatory framework governing E-Waste management needs to be established.

In addition to the legal and regulatory framework defining the licensing standards, the responsibilities of each stakeholder in the E-Waste management value chain, the inspection and compliance mechanisms as well as measures for sub-standard E-waste management practices need to be implemented. Furthermore, detailed technical guidelines and regulations on E-waste management will be developed.

They will provide guidelines for each of the different players in the E-waste value chain as well as procedures for the collection, treatment and disposal of E-waste.

To this end, the GoR shall:

1) Develop the relevant laws and regulations for E-waste management, with adequate considerations of the existing legal and regulatory instruments;

2) Develop and promote E-waste management standards, regulations and operational guidelines for the sorting, collection, transportation, treatment and disposal of E-waste in n addition to the current rules and regulations including putting in place regulations and procedures for disposal of state private assets;
3) Develop E-waste management strategic plan to support the above revisions of rules and regulations. The strategic plan will also focus on attracting private investments in the E-waste management business.

2.4.2 E-waste Management facilities and systems

Considering the exponential growth of E-waste in Rwanda, as well as the lack of facilities and defined mechanisms for collection, treatment and disposal of E-waste that comply with national and international standards, the GoR shall:

1) Promote the establishment of E-waste management facilities (dismantling facilities, provincial collection centers and E-waste drop off points) to ensure proper collection, transportation, dismantling, disposal and recycling of E-waste;
2) Develop sustainable models for E-waste management such as Public Private Partnerships (PPP);

Engage EEE producers/retailers in strategic partnerships including financing the E-waste collection, transportation and treatment through the extended producer responsibility and advanced recycling fee;

Strategically located e-waste collection centers, drop-off points and a dismantling facility will be established to provide a secure and environmentally conscious solution for the sorting and segregation of e-waste into reusable streams. E-waste collected from collection centers, drop-off points or individual institution will be propely transported to the dismantling facility. Technical specifications and other requirements for the establishment of the dismantling facility, collections centers and drop-off pointswill be provided for in the e-waste management regulations. In addition guidance for dismantling and recovery will be provided for in the E-waste management technical guidelines.

The approach to be used in e-waste management facilities is to collect, sort, decontaminate, manually dismantle and recover whatever can be reused or recycled locally. Whatever cannot be reused/recycled locally, but has market elsewhere is to be appropriately collected until when feasible volumes required are obtained and exported to industrialized countries where more optimal technical, environmental and economic outcome could be achieved through end-processing to recover trace elements like gold, mercury, sliver, palladium and platinum,etc.

The manual dismantling will create green jobs as workers involved will be trained in required knowledge and skills.

2.4.3 E-Waste Management Awareness and Education

The assessment of E-waste Management status and trends in Rwanda revealed that there is limited awareness of the risks associated with inadequate handling and disposal of E-waste within the public and private sector as well as the general Rwandan community. Increasing the national awareness and capacity of E-waste management has the potential to stimulate investment and create green jobs in the E-waste re-use and recycling industry.

In response to this need, the GoR shall:

1) Promote the education and awareness on how to safely handle and dispose E-waste;
2) Encourage the procurement of environmentally friendly EEE's across the Public and Private Sector as well as the community at large;
3) Support technology development and innovation in the field of E-waste management and control;
4) Include E-waste management in educational curriculum at various levels especially in TVETs schools;

2.4.4 Investments in E-waste Management

Currently, there are no funds assigned to the process of collection and treatment of EEE at the end of their use. Therefore, investments will be required to properly handle the increasing volume of E-Waste, to increase the capacity for managing and handling E-waste, and to establish E-waste management facilities that will facilitate the collection, treatment and disposal of E-waste. To attract investments in E-waste management, the GoR shall:

1) Adopt a comprehensive strategic plan that aims at attracting private investments in E-waste management;
2) Adopt innovative financial models and instruments to finance the sustainable management of E-waste.

3. INSTITUTIONAL FRAMEWORK

Recognizing that the E-waste is generated by activities at the public and private sector as well as the community level, the implementation of this policy requires adequate institutional framework and clear coordination mechanism among all stakeholders.

Therefore, to ensure an effective and sustainable management of E-waste, a steering committee will be established to fast track and facilitate the implementation of this policy. This committee will also coordinate all procedures that are geared towards enhancing proper management of E-waste in Rwanda. The Minister in charge of ICT in collaboration with the Minister in charge of Environment will establish and co-chair the steering committee

Therefore, the E-waste policy shall be implemented in collaboration with key stakeholders' institutions, with roles and responsibilities defined below:

3.1 Ministry in charge of Information and Communications Technology (ICT)

The Ministry in charge of ICT shall:

a) Lead the development of an E-waste policy and strategic plan for the management of E-waste.
b) Oversee the implementation of the E-waste strategic plan in collaboration with the Ministry in charge of Trade and Industry.

3.2 Ministry in charge of Trade and Industry

The Ministry in charge of Trade and Industry shall ensure the development of sustainable E-waste management implementation models such as Public Private Partnerships (PPP) and incentives to attract investments in E-waste control. The Ministry will also lead the process of establishing:

a) E-Waste management facilities, systems, and sustainable management framework.
b) E-waste management financing framework such as the collection of advanced recycling fees and E-waste levy along with operational and management procedures.

3.3 Ministry in charge of Health

The Ministry in charge of Health will develop policies that govern health and safety standards that relate to E-waste management.

3.4 Ministry in charge of Education

The Ministry in charge of Education will take lead in the development of E-waste management curricula. The Ministry will focus on growing the required skills at local and nation level of the workforce for proper E-waste treatment including its recycling.

3.5 Ministry in charge of State Assets

Considering the sensitivity of information stored in government electronic assets, the Ministry in charge of state assets will develop a procedure for information clean-up before decommissioning EEEs to E-Waste management facilities.

3.6 Authority in charge of the Protection of the Environment

The Authority in charge of environment protection will:

a) Spearhead the mainstreaming of E-waste into existing environmental policies, strategies, legal and regulatory instruments;
b) Participate in the informative studies on E-waste such as baseline surveys, etc;
c) Monitor the implementation of environmental programmes including E-Waste management.

3.7 ICT Regulatory Authority

The ICT Regulatory Authority will enforce this policy by:

a) Issuing regulations governing E-waste management in Rwanda;
b) Issuing E-Waste technical guidelines for handling and disposal of E-waste;
c) Enforce the licensing regime for entities dealing with collection, transportation, dismantling, refurbishment and recycling of EEE.

3.8 Authority in charge of Standards

The authority in charge of Standards will:

a) Notify World Trade Organization (WTO) member states on established EEE standards, policies and regulations that affect the quality of imports into the country;
b) Develop E-waste management standards;
c) Develop a mechanism to audit and monitor compliance to E-waste management standards.

3.9 Authority in charge of Imports Inspection

The authority in charge of imports inspection will enforce compliance of all imported electric and electronic equipment at the point of entry using set standards;

3.10 Authority in charge of Customs and Revenues

The authority in charge of customs and revenues will maintain statistical records of both EEE manufactured in Rwanda and imports.

3.11 Private sector

The private sector shall operationalize the E-waste management policy and strategic plan through planning and establishing E-waste collection, transportation, and treatment and recycling facilities.
The private sector shall also be responsible for the establishment, operations and financing of the whole E-waste chain.

3.12 EEE Users

The users can either be an individual or a corporate organisation that owns a device which falls into one of the e-waste categories and which is considered to have ceased to be of any value. Users need to:

i) Separate e-waste from other wastes to facilitate collection, treatment and recycling

ii) Dispose e-waste generated to the e-waste licenced collection centres or drop-off point

iii) Be responsible for following recommended disposal methods or procedures especially dates of expiry or end of usage period of the product