1st African E-waste Conference, 11-13 Aug 2021

SPONSORS: Close the Gap Kenya, Close the Gap Belgium, Worldloop

For three days in August 2021, WEEE Centre Kenya proudly hosted the first African E-waste Conference, addressing the increasing waste streams from electronics, raising awareness on existing and emerging recycling technologies and initiating networks on topic of regulatory frameworks, standards and practices, research and innovation, logistics, problematic fractions, awareness creation and circular resource management.

We were humbled by the engagement from all experts, **46 in total, with a 40/60 ratio of female/male** speakers. The interest was exceeding our expectations and we are very happy about the interest from public, resulting in **800 people registering** for the event.

In this summary report you will get some highlights. We encourage you to visit our Youtube-channel, where you will find clips covering all topics and views of the experts: https://www.youtube.com/c/WEEECentre

As there is so much to learn and share, we are looking forward to repeating this success next year. So kindly mark **9-11 November, 2022** already now in your calendar!

THANK YOU for participating!

Together we will create circular, sustainable solutions for e-waste management in Africa.

Foreword

SPEECH BY THE CHIEF ADMINISTRATIVE SECRETARY, MINISTRY OF ENVIRONMENT AND FORESTRY, HON. MOHAMED ELMI, EGH, MBE

Distinguished guests, ladies and gentlemen,

It's my great pleasure to preside over the launch of the 1st Africa Sustainable E-Waste Conference and Expo that will be run virtually from 11th -13th August 2021 guided by the theme "Unlocking the potential of sustainable E-waste management while achieving a circular economy".

Kenya is proud to host this conference through the WEEE Centre, one of our leading institutions in handling E-waste.

This Conference comes at a time when the use of electronic gadgets and equipment has skyrocketed. The COVID 19 pandemic has brought with it the need for most transactions to be virtual, raising the demand and use of electronic equipment at all levels including at the household level.

According to reports by the Communications Authority Kenya, Kenya had a total of 57.3 million mobile phone subscribers by June 2020. The number of Internet users has also increased tremendously to 41.5 million by June 2020. This means that there is at least 119.9% mobile penetration in the country. This number has definitely increased due to the new COVID 19 challenge.

The 2019 global e-waste monitor estimated that 53.6 Mt was generated globally and only 17.4 per cent was collected and recycled. In addition, it is estimated that at least 9.2Mt of e-waste was generated by 2019 in Africa, of which only 0.03Mt that is 0.9% was formally collected and recycled. Kenya generated 51.3Kt of e-waste and only less than 1% was formally collected and recycled.

The challenge of E-waste is compounded by the fact that the end of life of such products is becoming shorter because of the fast-growing changes in technology and many gadgets are quickly being declared obsolete. For example, Kenya recently migrated from the analog system of broadcasting to the digital system, some of the analog broadcasting machines were declared obsolete and needed to be disposed appropriately.

Unsustainable E-Waste management poses a significant challenge in achieving sustainable development goals. Some E-waste components contain hazardous elements such as Lead, Barium, Mercury, Nickel, Cadmium and Lithium among others which are listed as human carcinogens. Components such as Lead and Mercury contaminate the soil and water when disposed of in the dumpsites with other waste.

E-waste recycling provides opportunities to set up urban mining projects to extract precious metals. This will promote innovations, create jobs, and promote economic development and have positive environmental impacts. The recovery of raw materials from e-waste will prevent air and water pollution likely to result from the extraction of new minerals from the earth as well as reduction on greenhouse gas (GHG) emissions.

Ladies and gentlemen

E-waste management in Kenya is guided by a number of legal and regulatory frameworks both international and local. Some of the key frameworks include:

1. The Kenya Constitution 2010 gives the right to every Kenyan to a clean and healthy environment under Article 42. Article 69 obligates the government to eliminate any processes that degrade the environment.

2. Kenya Constitution 2010 legislates that any Convention that the Country has ratified becomes part of the national laws. Some of the international conventions regulating hazardous waste include the Basel Convention and the Bamako Convention and are therefore part of Kenyan legislation.

3. The main legislation guiding e-waste management in Kenya is the Environmental Management and Coordination Act 1999 (Revised 2015) and the Waste Management Regulations (2006). These laws prohibit handling, transportation and disposal of waste without valid licenses issued by the National Management Authority (NEMA). Import of E-waste to Kenya is prohibited

4. The Public Procurement and Disposal Act governs disposal of goods and services in public institutions. Public institutions have to bond and invite competitive tenders for disposal of computers and other EEE as scrap in line with procurement procedures. According to Section 165(2), electronic waste disposal restrictions apply and players are those licensed to handle the respective waste as prescribed under section 88 of the Environmental Management and Co-ordination Act, 1999.

    As of 2021, only 6 recyclers have licenses to handle e-waste in Kenya. These are few, considering the huge number of EEE users in Kenya. In most cases, these licensed handlers fail to bid to purchase e-waste since they can get it freely from diverse sources. The law fails to provide further guidance in case the recyclers fail to bid for purchase of e-waste. This bureaucratic process is slow and results in a huge stock of obsolete computers and other e-waste held in public institutions.

5. Kenya has just finalized an e-waste regulation under the EMCA 1999 and is now at the final stages of finalization and enactment. The E-waste Regulations stipulates that the EEE producers will be responsible for their waste through the Extended Producer Responsibility (EPR) schemes.

6. Kenya has finalized development of the Extended Producer Responsibility (EPR) Regulations 2021 which are undergoing final drafting at the Attorney General's office. The EPR regulations identify e-waste as one of the products subject to EPR. The producers of Electrical and Electronic Equipment (EEE) shall establish or join a Producer Responsibility Organization as shareholders and operationalize an EPR Scheme collectively. EPR regulations await enactment in the near future.

7. Vision 2030 recognized that Kenya cannot attain high economic and social development without prioritizing environmental management, especially the reduction of pollution by diverse wastes. Waste management including e-waste was a priority flagship project. The MTP3 2018-2022 document prioritized E-waste as an emerging waste category with an emphasis on support to SMEs to improve waste management.

8. National ICT policy 2006 - requires that electrical and electronic equipment (EEE) dealers demonstrate their readiness to minimize the effects of their infrastructure on the environment before they can have their licenses renewed by the Communications Authority. Institutions generating e-waste are expected to take full responsibility to conserve and protect the environment from the harmful effects of waste emanating from EEE.

9. On 25th February 2021, the Cabinet approved the Sustainable Waste Management Policy and Bill (2021). Both documents propose a transition from linear to circular economy with increased recovery of value from waste, employment of Kenyans, reduction in demand for virgin materials, saving energy, reducing greenhouse gas emissions and carbon footprint. The Sustainable Waste Management Bill has already been sent by the Attorney General's Office to Parliament and Senate and will be tabled for discussion and enactment soon.

10. NEMA in 2010 formulated the National E-Waste Guidelines to assist the government, private sector, learning institutions and other stakeholders to manage e-waste effectively to enhance environmental

conservation. The guidelines prescribe approaches to enhance environmental protection; environmental awareness; categories of e-waste and target groups; e-waste treatment technologies; and disposal procedures.

11. The East African Communications Organization (EACO) in 2017 developed the Regional E-Waste Management Strategy, to guide the region on E-Waste management. Each member country was required to develop a national E-waste Strategy by 2019. Kenya has complied with this requirement and has developed a National E-Waste Strategy 2019 to guide the country's interventions in management of E-waste which will be launched soon.

Ladies and gentlemen,

As I conclude, I note with appreciation that this conference will discuss several pertinent issues in e-waste management such as legal, policy and regulatory frameworks; E-waste management, standards and practices; Training and awareness creation; and circular economy and resource recovery among others. These are areas of key interest to the Ministry. My ministry looks forward to the outcomes of this conference, especially your policy recommendations, areas of partnerships and collaborations to enable the Ministry to proactively address emerging issues in E-waste management.

It is my pleasure to thank all the organizers, sponsors and participants in this conference for putting up such a wonderful event. As a Continent, let us all upscale our interventions to ensure all e-waste is disposed safely. Let us all play our part to ensure that this region does not get polluted by e-waste.

With these few remarks, it is my pleasure to declare this 1st Africa Sustainable E-Waste Conference and Expo officially open.

Thank you and God bless you.

Remarks By Mrs. Mercy Wanjau, MBS, Ag. Director General, Communications Authority of Kenya (represented by Christopher Kimei)

It is my great pleasure to join you at this inaugural Africa Sustainable E-waste Conference &Expo with an apt theme of unlocking the potential in sustainable e-waste management while achieving a circular economy. I wish to thank the Waste Electrical and Electronic Equipment (WEEE) Centre for organizing this continental event that provides all the stakeholders with a chance to evaluate the efforts to address the e-waste challenge, that ironically is a by-product of the strides made in enhancing access to ICT for our people.

Indeed, this explains our interest in this area since the industry we regulate is probably the greatest generator of e-waste. We are cognizant of the fact that we are having this conference at a time the region is still reeling from the effects of the COVID-19 pandemic, whose impact has been two-fold. On the one hand, the pandemic has battered our economies to a great scale and slowed down overall growth indicators. On the other hand, it has led to a surge in the uptake of ICTs, which have played a key role in coping with the COVID-19 burden.

In Kenya for instance, data from the Kenya National Bureau of Statistics (KNBS), indicates that the value of Kenya's telecommunications gadget imports, including computers, laptops and smartphones, surged by more than half to KES. 8.01 billion in four months of the COVID-19 lockdown as people worked from home, and educational institutions turned to e-learning.

But this positive trend dovetails into today's conversation on the risks posed by the e-waste not only in Kenya but also regionally and the creative ways that this emerging issue can be addressed.

Another area of concern has to do with the influx of counterfeit electronic devices with a shorter life cycle contributing to high levels of e-waste, thus threatening the entire value chain. It is for this reason that the Authority works hand in hand with the Kenya Bureau of Standards to ensure that what is imported into the country meets certain minimum thresholds as a way of addressing the first 'R'- of Reduce E-waste.

Huge amounts of e-waste in our homes, workplace and dumping, point to the need for concerted efforts all stakeholders, including manufacturers and producers of the devices, users and regulators for an effective disposal mechanism. Such engagements go a long way in raising the importance of e-waste and encourage consumers to correctly dispose of their e-waste, with emphasis on reuse and recycling.

It is our expectation that the ongoing efforts to have in place specific E-waste and Extended Producer Responsibility Regulations in Kenya and the East Africa region as a whole will strengthen the above collaborative initiatives.

Ladies and Gentlemen,

Let me recognize the efforts of WEEE Centre in ensuring that there is refurbishment and donation of ICT gadgets for re-use. I also underscore their efforts in collection and recycling of e-waste across Africa. E-waste is the fastest growing waste stream in the world with statistics painting a rather grim picture. As an emerging phenomenon, e-waste, if not well checked, can be a severe human health and environmental disaster. However, better management of e- waste, can also create business and economic benefits as I can see will be discussed in this conference.

At the regulatory level, there needs to be carefully regulated procedures to assist countries in managing end-of-life cycles of electronic and electrical products which is generally shorter than 3 years. But besides bringing the e-waste challenge into public consciousness, all of us gathered here still need to complement this discussion by ensuring we make the right procurement choices of electronic devices, and ensuring we make electronic products last longer through eco-friendly designs and repair.

Distinguished Stakeholders,

In Kenya, we are making strides to address the e-waste menace. In line with the National Environment Management Authority (NEMA) Guidelines on E-waste Management and the Ministry of Environment and Forestry's National E-waste Management Strategy, the ICT regulator has undertaken a number of interventions.

First, we have made it a requirement for licensees with Network Facilities Provider's license to ensure that their telecommunication installations do not become a health, environmental or a safety hazard. Secondly, that such facilities are not in contravention of any statute, rule, and code of practice, guideline or regulation, on public safety. Lastly, the licenses are required to ensure that the licensed systems comply with the relevant environmental laws. I wish to report that we are currently exploring how to encourage the ICT players to adopt the customer take-back-schemes to enhance e-waste management.

The Authority, as a member of the National E-waste Management Committee headed by the Ministry of Environment and Forestry participates in numerous initiatives aimed at better managing e-waste in the country.

The other initiatives include: aligning our assessment processes to ensure only Green ICT equipment are type-approved for use in the country. We have also developed infrastructure sharing guidelines, which will, among others, reduce the negative environmental impact by ICT installations. On a smaller scale, the Authority has also installed enough e-waste specific bins within its premises and have in place related disposal mechanisms which promotes use of licensed e-waste handlers.

Distinguished Participants,

At the regional level, we are active in the ongoing e-waste management initiatives where we chair the technical working group responsible for E-waste Management and Green ICTs within the East African Communications Organisation (EACO). The Authority also participates in e-waste management at the international level in the various initiatives rolled out by the International Telecommunication Union (ITU).

Kenya participates in the relevant ITU study groups and has incorporated some of the ITU Recommendations in the Guidelines on the Minimum Features and Technical Specifications for Mobile Cellular Devices Imported into and distributed in Kenya. This initiative assists the first "R" of e-waste management, which is to reduce e-waste.

I wish to reiterate that we remain committed to the ideals and ongoing efforts on e-waste management and will stay committed to the principles of the Circular Economy. With that, it is now my singular honour and duty to declare the 1st Africa Sustainable E-waste Conference & Expo officially open.

I wish you all fruitful discussions. Thank you for your kind attention.

Meet the speakers

DAY 1, Legal, policy and regulatory frameworks

Conference moderation:
Simone Andersson, CCO, WEEE Centre

Opening remarks:
Mercy Wanjau, Acting DG, Communication Authority of Kenya, represented by **Christopher Kimei,** Director, Universal Service Fund

Keynote address:
Transboundary movement
Dr. Virginia Onyara, Consultant, Africa Telecommunication Union

Implementation of the Brazilian E-waste Regulations
Melissa Owen, International Environment Lawyer, Latin America

An enhanced vision on Extended Producers Responsibility and all its actors
Dr Philip Morton, Global Ambassador, WEEE Forum
Ibukun Faluyi, Executive Secretary, EPRON Nigeria
Luca Campadello, Projects and Innovation Manager, ERION Italy
Antoine Garnier, Chief Marketing and Business Development Officer, Baobab+
Rebecca Rhodes, Project Manager - Consumer Protection & Technology, GOGLA
Piotr Barczak, Inclusive Circular Economy Expert, European Environmental Bureau (EEB)

Regional guidelines, policies and regulatory frameworks
Dr Ally Simba, Executive Secretary, EACO
Ibrahim Otieno, Head of Enviromnet and Natural Resources, Nairobi Metropolitan Services (NMS)

Good recycling and refurbishing practices - R2-certification
Mike Watson, Chief Compliance Officer, Global Resale and Sustainable Electronics Recycling International (SERI)

Informal sector practices
Thuo Muiruri, CEO, EWIK

E-waste management standards across Africa
Susanne Karcher, National Project Manager: SRI Phase II, South Africa
James Mullah, Green Cities, Liberia
Rasamimanana-Rakotoarison Faravololona, Vohitra, Madagascar

Household e-waste management standards
Michael Labacher, Sales Manager, A-Gas Limited

DAY 2, E-waste management practices (collection and recycling)

Official Opening of the conference

Opening remarks:
Dr Tom Musili, Founder and Chair, WEEE Centre

Keynote address:
National guidelines, policies and regulatory frameworks
Chief Guest: Hon. Mohammed Elmi, Chief Administrative Secretary, Ministry of Environment and Forestry Kenya

Plenary lecture:
GOLD SPONSOR Close the Gap & World Loop, Olivier Vanden Eynde

Innovations and new/modern technologies
Gemma Arthurson, Global WASH Support Team, IOM
Shaun Mumford, Managing Director, Enviroserve Kenya

Research and Development opportunities
Dr. Virginia Onyara, Lecturer, Multimedia University
Dr. Farida Were, Lecturer, University of Nairobi
Joseph Mungai, Country Director, Aceleron/AceleAfrica Kenya

Emerging problematic fractions
Federico Magalini, Managing Director, Sofies, UK
Charlottee Heffer, Director of Partnerships – Africa, D-light
Sophie Mbugua, Retail Projects & Dignostics Senior Lead, M-KOPA Solar

Logistics and storage of e-waste materials – permits, HSSE
Sebastian Frisch, Managing Director, Blackforest Solutions
Phil Holman, Renewables & Energy Solutions HSSE Technical Advisor, Shell

Capacity Building and Awareness Creation
Dr. Rose Ngugi, Executive Director, KIPPRA
Karin Boomsma, Project Director, Sustainable Inclusive Business (SIB), KEPSA
Emmanuel Muwowo, Project Manager, Zambia Electronic Waste Management Project (ZEMP)

DAY 3, Circular Economy and Resource Recovery

Startup pitches:
Rethabile Moraa, Sustainability Manager, Circular Innovation Hub

Keynote address:
Promoting Circular Economy and Green Jobs through partnerships, SDG 17
Tormod Nuland, Senior Adviser, Communication & Outreach, NORFUND

Circular economy and its role in promoting resource recovery
Malcom Whitehouse, Business Development & Compliance Manager, AST Recycling

Sustainable production and the role of producers in sustainable e-waste management
Carol Koech CEO, Schneider Electric
Karen Basiye, Head of Department, Safaricom
Phyllis Wakiaga, CEO, Kenya Association of Manufacturers
Sam Opar, Business Development Consultant, Delpro Power Solutions

Traceability throughout the value chain
Raul Carlsson, Senior Researcher, Research Institutes of Sweden
Jakob Lennartsson, CEO, Towards Zero Waste

Remanufacturing and the possibility of maintenance and refurbishment
Sebastian Holmström, Circular Strategy Lead, Inrego
Olivier van Eynde, CEO, Close the Gap

Industrial Symbiosis
Helen Nakiguli, Senior Officer Environment Management, Uganda Communications Commission

Summary and Closing remarks:
Boniface M. Mbithi, CEO, WEEE Centre

Day 1

Brazil's E-waste regulations

Melissa Owen

Covered products

Brazil covers electronic house equipment(s) that consumes a maximum of 240 Volts. House equipment includes but is not limited to microwaves, kettles and air conditioners just to name a few.

There is a provision of B2B take back that is offered by some companies as a business offering but not as a result of the decree 10240/2020. Following the decree 10240/2020, the following products are exempted from recycling:

1. Products meant for corporate use.

2. Products used in healthcare.

3. Batteries that are not integrated into a product.

4. Individualised electronic products.

5. Waste from large generators.

Two stage implementation

The two stage implementation is broken down into two phases:

Phase one

In phase one the following procedures and steps are covered so as to actualise the decree.

- Coming up with a structure.

- Setting up of plans by households and companies.

- Setting up financial mechanisms to cater for the system.

- Lobbying for the approval of simplified tax schemes for reverse logistics operations, tax exemptions and recognition of EOL products.

- Creation of a performance tracking group to report on the system.

Phase two

This was the implementation stage of the decree.

It was implemented on the 1st January, 2020. At this point service providers were established to carry out actual reverse logistics. Service providers were also meant to provide:

- Collection stations and installation centers

- Communication and non-formal environmental education plan.

Targets

The initial structure and operation of the reverse logistics period was spaced over a period of five years. By the end of the fifth year the target is estimated to be 17% by weight.

Covered companies are tasked with the responsibility of providing 100% treatment and disposal of recovered EOL products. The packaging of the covered products must be received at a collection station.

Reverse logistics system

The following steps shall be embraced to ensure the above named system succeeds:

Financing of the system

The consumer is meant to bear all the costs that are incurred when getting the waste products to the collection center.

Covered companies with individual systems are meant to foot their own bill while those who join collective management entities pay the cost of reverse logistics systems in proportion to the market share.

Responsibilities

Manufacturer

1. Ensure environmental adequate disposal.

2. Provide objective criteria for mass balance of the products with an estimate of the average unit weight for each.

3. Participate in the execution of environmental plans.

Importer

1. Participate in a reverse logistics system

2. Declare during the import process on import declaration as part of obtaining import licenses and clearly define the person responsible for structuring, implementation and operation of the reverse logistics system.

Distributor

1. Promote joining a management entity or an individual plan to retail establishments.

2. Inform retailers in their chain about the operational process of the reverse logistics system.

Merchants

1. Inform consumers of their responsibilities.

2. Accept and temporarily store discarded electronic equipment.

3. Disseminate information and educate the consumers on the importance of electronic waste recycling.

Understanding the Trans-boundary movement of electrical and electronic waste

Dr. Virginia Onyara

Introduction

Following a worldwide concern about the trans-boundary movement and disposal of hazardous waste from industrialised nations. There was a need to develop and implement international conventions that control this movement of hazardous waste which was known as the

Basel convention

Due to peculiar circumstances and their interests being taken care of by the Basel convention. African countries under the now defunct Organisation of African Unity(OAU) adopted the Bamako Convention.

Transboundary movement of hazardous waste.

Hazardous waste can be defined as waste or potential waste that poses a substantial threat to public health and environment.

In developing countries the collection, treatment, storage and disposal of hazardous waste is regulated by specific policies and laws to prevent and mitigate adverse effects.

Basel convention

It was first implemented in 1992 after being adopted in 1989.

This is the most comprehensive global environmental agreement on waste.

This convention aims to protect human health and environment against the effects of transboundary movement and management of hazardous waste.

Bamako convention

This is a treaty that prohibits importation of harmful waste products into Africa.

The treaty was adopted in 1991 and came into force in 1998 with the aim of protecting human and environmental wealth.

This treaty prohibits the trade of hazardous waste to less developed countries after realisation that there was mass importation of toxic wastes to African countries.

EPR, EoL management and the off-grid solar Industry

Rebecca Rhodes, GOGLA

Gogla and Off Grid Solar industry (OGS)

The OGS industry has provided affordable, clean and renewable energy to more than 420 million people worldwide.

Gogla promotes, safeguards and convenes the industry to support market growth and sustainable impact.

Challenges faced in the adoption of circularity

1. Lack of recycling infrastructure in OGS markets.

2. It is expensive for companies serving low income consumers.

3. Lack of consumer awareness about responsible disposal.

4. Difficulty in accessing quality spare parts.

5. Poorly implemented and drafted legislation.

Opportunities to enhance circularity in the OGS industry

1. Establishing the first pro-tailored to the off the grid industry and wider e-waste fractions.

2. Funding innovation waste challenges to catalyse and de-risk sector wide action.

3. Adoption of circularity standards and metrics in donor and investor due diligence.

4. Engagement with policymakers to support well designed and implemented regulation.

5. Identification and sharing of best practice.

Innovations for circularity in the OGS sector

1. Sunnymoney (Zambia): Developed an app to provide easy access and diagnostics for six common pico-solar lanterns.

2. D-light (Kenya): Implemented a take-back scheme and provided a discount on the price of a new lantern to a customer who returned a broken lantern.

3. Aceleron is developing a model for the recovery and re-use of Li-ion batteries from SHS.

4. Enviroserve (Rwanda) has established e-waste collection points in all the districts in Rwanda.

5. Beyond the grid fund for Africa have outlined the requirements for e-waste management in the application and due diligence process.

Philip Morton, WEEE Forum

The WEEE forum aims to be the world's foremost e-waste competence center excelling in the implementation of the circularity principle. This can be achieved by leveraging on sharing of data and knowledge among each other by doing projects together and general collection of data.

53.6 million tonnes of e-waste arises every year. This puts the annual growth rate at 3.3%, which means that there is a projected growth of 1.8 million tonnes of e-waste every single year with no tipping point in sight.

It is estimated that by 2030 the total tonnage worldwide will be 75 million tonnes and an average of 11 non-functional electronic material in a given household across Europe. There has been progress in collection of electronic waste in the recent past from 7.3 Kg in 2017 to 9.5 Kg in 2018 per capita.

55% of Waste Electronic and Electrical Equipment (WEEE) is reported to be officially collected, 20% is in other WEEE flows and lastly another 25% cannot be accounted for.

From these figures it is high time for an update of the current WEEEE policy and adopt an approach based on the enhanced definition of the EPR principle.

New policy approach fundamentals

1. There is a need to adopt an all-actors approach: This can be accomplished by having all actors that influence the WEEE collection rate be represented in a Coordination body.

2. Revise EPR principle using WAfC concept: The principle that PROs are only legally accountable for the WEEE to which they have access should be enshrined in WEEE legislation.

3. Promotion and implementation of measures supporting the **All Actors Approach**.

"The time is ripe for an update of the WEEE policy approach based on an enhanced definition of the EPR principle."

International E- waste Day

Commemorated annually 14th October.

Contributions can be done using:

1. Events (virtual and physical)

2. Social media campaigns

3. E-waste statistics and reports

4. E-waste collection

Piotr Barzcak – EEB, European Environmental Bureau

The amount of e-waste can be reduced by extending the lifespan of products by one year which saves a high number of devices.

Manufacturers should consider giving users the right to repair which will enable the development of:

1. Better manuals

2. Spareparts

3. The repair index

This will also help learning institutions to teach circularity.

When setting up EPR – focus on REUSE-targets and not collection tonnages or recycling-rate, lowering EPR fees to those who give way for reuse should be considered.

The European Environmental Bureau would like to collaborate with African partners and use Piotr Barczak as a point of contact to the bureau on LinkedIn and Twitter.

Regional guidelines, policies and regulatory framework in the East African Communications Organisation(EACO) region

Dr. Ally Simba

E-waste challenges and threats in the EACO region

Although awareness and readiness in improving the management of e-waste in the region are increasing rapidly. The following major obstacles still exist:

1. Lack of reliable data on the informal sector.

2. The reliance on the informal sector without appropriate infrastructure and regulations.

3. Increased dumping of second hand equipment

4. Lack of an e-waste management system and limited processing capacity.

5. Lack of awareness among consumers and collectors of potential hazards of e-waste.

Regional E-waste management strategy

In 2017, EACO developed the EACO regional E-waste management strategy. This is a five year plan from 2017-2022. The regional E-waste management strategy has been developed with the overarching goal of attaining a sustainable system.

The strategy spells out the priority e-waste management strategies together with specific actions to actualise them. This strategy have five pillars which include:

1. Policy, legal and regulatory frameworks.

2. Infrastructure for E-waste management.

3. Resource mobilisation

4. Coordination and institutional alignment.

5. Capacity building, research.

Regional guidelines, policies and regulatory frameworks

East African Countries(except Burundi and South Sudan) have laid down guidelines to manage and track E-waste and some of the legislations have been implemented and awaiting endorsement from the ministry.

Bottlenecks

Member states face challenges in formulating policies and guidelines on e-waste management. These challenges include:

1. Lack of financial resources in implementing infrastructure for e-waste management in the region

2. Slow pace in reviewing the existing laws and regulations.

3. Low awareness levels on e-waste management.

Way forward

The following options can be explored when coming up with a way forward:

1. Implementation of teh reduce waste project under the Prevent alliance.

2. Considering public, private partnership for sustainable e-waste management framework, policies and guidelines.

3. Lobbying governments to enact appropriate laws, regulations and guidelines.

Ibrahim Otieno – NMS, Nairobi Metropolitan Service

The Nairobi Metropolitan Service seeks to establish a new entity that focuses on providing a clean and healthy environment, focusing on the 15 sub counties.

It was pointed out that waste is a devolved function and private stakeholders are encouraged to take advantage of opportunities they see. This can be achieved by collaborating with health and ICT departments to achieve sustainable e-waste control.

DAY TWO

About Computer for Schools Kenya and WEEE center

Dr. Tom Musili

Computer for Schools Kenya was founded in the year 2002 with the objective of supplying schools in remote areas with computers. The WEEE center was spawned from Computer For Schools Kenya following a concern on the rising amount of dead and obsolete computers that were supplied to schools in the country. This happened in the year 2012 in partnership with technology companies such as Safaricom. A majority of the obsolete computers and e-waste are recycled locally and a small amount of what is left is exported to Europe for further recycling.

E-waste management can be sustainable if the following takes place:

1. Policies and regulations should set in place and enforce to ensure that there is accountability by key stakeholders

2. Coordination from other countries, this has been accomplished by coming up with an alliance of 15 countries where they come together to identify gaps, training and exchanging information.

3. Transboundary movement of goods and services in African countries: There is a need to move different fractions of waste that cannot be recycled by one country to enable optimal recycling

4. Extended Producer Responsibility: Coming up with a body to handle EPR issues, so as to ensure safety of the continent

5. Reaction to sustainable development to ensure that resources are properly used to ensure that there is a circular flow of economy.

Greening humanitarian response through recovery, repair and recycling of solar products in displacement settings.

Gemma Arthurson

The e-waste challenge

150 million pico-solar products and 30 million solar home systems have been sold worldwide since 2010. Disposal of solar waste has led to negative environmental and human health impacts.

The e-waste project

Main objective

To respond to the problem of ill-managed disposal of solar products in displacement settings by finding cost-effective solution(s) for the repair, reuse and recycling of these products or components through the circular economy.

Specific objectives

1. Gather evidence to influence manufacturers of solar products to make their products more repairable and/or recyclable

2. Extend the life cycle of existing technologies and improve the waste management in displacement camps settings

3. Create jobs, support livelihoods and provide business opportunities for refugees and host communities.

4. Provide evidence to replicate in other settings to scale up beyond solar products and their accessories to other types of electronic waste.

5. Inform humanitarian sustainable procurement policies.

This project is meant to be rolled out in three phases which include:

1. Field research and market dialogue and partners selection
2. Implementation
3. Advocacy

Phase one: Market dialogue

Market dialogue is a key tool to bring together stakeholders, understand current practises and explore new avenues for partnership. Some of the partners involved included:

1. Bright products.
2. WEEE center.
3. Enviroserve Kenya
4. Total access to energy solutions
5. Schneider Electric
6. OPES Solution

Key findings

1. The solar product does not meet the needs of users.
2. Batteries seen as the weakest part of solar
3. Much of what recyclers receive as waste can be used as spare parts
4. Repair activity is currently undertaken by repairmen with limited formal training, tools or adequate spare parts.
5. Recycling is not currently encouraged as it is not feasible when conducted on a low scale.
6. The key barrier facing the private sector is access to funding and camps.

Research opportunities in E-waste Management

Dr. Farida Were

Numbers

44.7 million tonnes of e-waste was generated globally in 2016, 435,000 tonnes of which were mobile phones alone.

20% of e-waste is documented to have been collected and recycled under appropriate conditions.

80% is thrown into the residual waste stream or dumped and traded in substandard conditions.

Challenges

1. Huge amounts of energy and hazardous substances are required for mining and manufacturing products.

2. Disposal and recycling of electronics can expose people and the environment to toxic chemicals when used products are not treated at informal recycling centers

3. Many African countries have no facilities suitable to handle e-waste

E-waste quantities

It is not known exactly how much e-waste is available in the African continent.

There is a need for research to be done so as to come up with reliable and valid data that the continent can use to make policies, guidelines, standards and strategies.

Tracking EEE

The current methods for tracking the origin, use and management of e-waste is extremely limited.

The United Nations University (UNU) has developed a WEEE calculation tool which is an integral part of the methodologies for the calculation of the weight of EEE placed on the market.

Research institutions in Africa can join efforts to research and provide reliable information that can be used in:

1. Policy formulation

2. Development of standards, regulations and strategies on imports and exports to the region.

3. Development of new sustainable business models.

4. Education curricula

5. Socio-Economic planning.

Over **70 %** of all imports were used by EEE, **30%** of which were non- functional.

13,000 tons of e-waste in Ghana were processed annually.

400,000 tons of e-waste was imported by Nigeria

64000 tons of South Africa's e-waste with about 11% formerly recycled.

10% of e-waste in Kenya is formally recycled and 90% cannot be accounted for.

 E-waste has had adverse effects on the following quotas:

1. Human health

2. Environment

3. Soil

Recycling of E-waste

Due to the dominance of unregulated and the inefficient informal sector recycling of e-waste often resorted to dismantling, burning and leaching of the soil with acid. A study conducted by Lohorn reported that recyclers in Cape Town opted to export e-waste to increase profitability. It was concluded that informal recycling is ineffective and polluting methods with harm to the environment and human health.

The informal e-waste workers earn more than other informal sector Value chain of e- waste management is necessary Reducing the amount of hazardous materials in e- products will have a positive effect on human health and the environment.

Saving the planet naturally

Shaun Mumford, Enviroserve

Four years ago, Enviroserve intended to set up a recycling plan but they were not able to achieve that because of proper business knowledge, E-waste knowledge, Access to technology and access to downstream players.

To solve this problem they had to rely on the recycling plant that was being built in Dubai at the time.

Emerging problematic fractions

Federico Magalini

The roadmap for sustainability

1. **Sustainability of supply**: Supplying companies with access to production facilities that have a low environmental impact, a low cost per Wh, access to stable battery producers and the ability to use recycled materials.

2. **Integrate End-of-Life management in all programmes**: Organisations need go further than simply asking partners to state whether they have an end-of-life policy but should ensure the end-of-life financing is planned from the start.

3. **Financing required**: Proper financing mechanisms are required to cover the costs of lithium-ion recycling (particularly for chemistries other than NMC and LCO). Safe handling and transportation is also essential for health and safety.

4. **Local Infrastructure needs to be established**: Local Infrastructure needs to be established to ensure proper collection and handling of batteries.

E- waste standards and challenges of off-grid solar

Charlotte Heffer, Dlight

Off-grid solar companies such as d.light offer high quality products covered by warranty with an expected lifespan of 5-8 years.

E-Waste facilities and costs

The cost of e-waste management is a genuine consideration as d.light seeks to provide affordable, high quality products for low income households.

Challenges faced in e-waste recycling

A. Customers

1. Perception of residual value of e-waste

2. Lack of awareness about the harm of burning waste or landfill

3. Lack of awareness on the take-back scheme.

4. Cost to travel to d.light centre for disposal

B. After-sales team

1. Requirement of basic training around what is e-waste

2. Development of SOPs

3. Inadequate collection points

4. Implementation and monitoring of adherence with SOPs

Emerging problematic fractions

A study conducted on a CDC project in Kenya brought the following with the aim of understanding the current fate of out-of-warranty products & how to incentivize hand-over by the consumers.

The results that were yielded from the study included:

1. Most of the waste collected was from OGS

2. Impact of Li-batteries is substantial

3. PV panels are also (when dismantled) contributing to the "glass" fraction of the Sankey

4. Depth of dismantling varies per type of product and also per recycling partner

5. Downstream markets critical for some fractions

To achieve sustainability the following steps should be carried out:

1. Sustainability of supply

2. Integrate EOL management for all programs

3. Adoption of proper financial mechanisms

4. Establishment of local infrastructure.
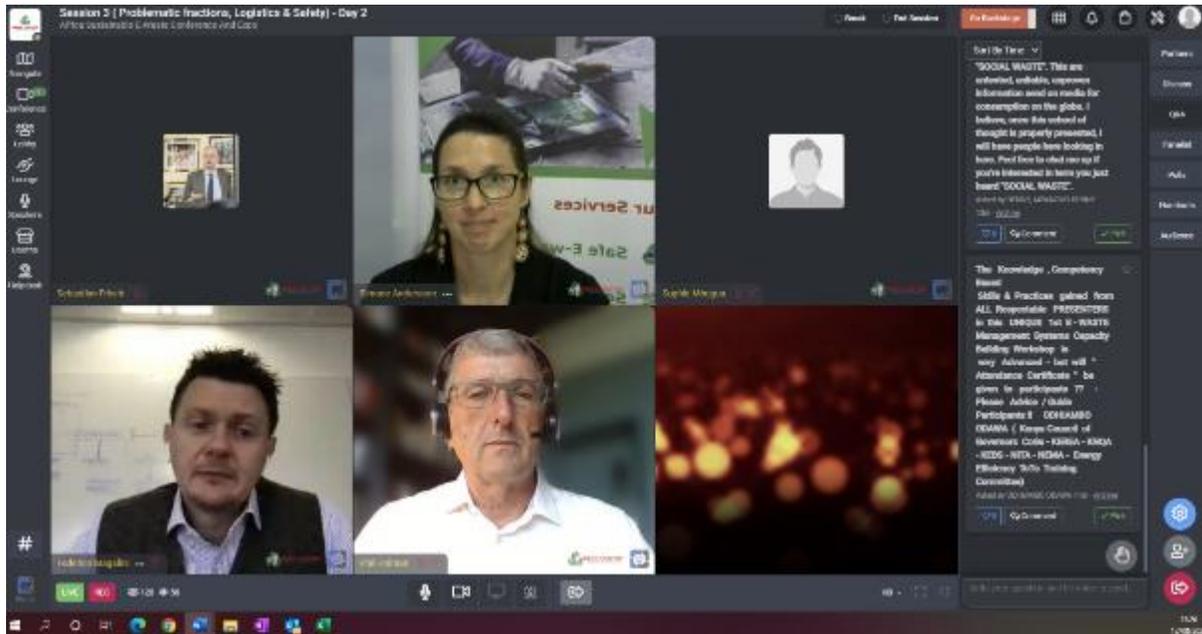
Logistics/Storage of E-Waste materials in a Handover Centre (HOC)

Sebastian Frisch, Blackforest Solutions

Handling e-waste in Ghana

Due to high amounts of secondhand imports,Ghana has a high availability of secondhand WEEE that can be purchased at comparatively low prices.

Objectives of handling e-waste in Ghana

1. Minimize negative environmental and human health impacts

2. Transition the most polluting e-waste recovery activities from the informal sector to the formal sector

3. Test a financial/pricing mechanism

4. Support the National System with lessons learned

Solar Waste Management Standards and Practices

Sophie Mbugua, M-Kopa

E-waste contracts in place

M-KOPA Kenya has been recycling E-Waste for over four years and has contracts with:

1. EnviroServe(KE)

2. WEEE Center (KE)

3. Swift Waste (UG)

4. Chilambo(TZ)

To date M-KOPA has recycled over 180 tons of electronic waste through its E-Waste partners

M-KOPA has refurbished approximately 300,000 units, allowing us to securely dispose of and recycle old batteries and sell refurbished control units.

In partnership with CDC and Sofies, M-Kopa launched an e-waste take back and collection pilot on February 8th, 2021.

Objectives of the pilot

1. Test various incentives for customers to return products that have reached end of life
2. Investigate why customers have not been bringing back their products.

Take Back and Collection Pilot

The pilot period was held for 16 weeks 47% of the customers targeted were reached

Only three customers returned items, all of them coming from the incentive regions.

Way forward

1. The pilot did not give M-kopa as many returns as they had hoped for.
2. However, we did get key learnings that would help us push this forward.
3. Coming up with a team will be fundamental in providing awareness on e-waste.

Capacity building and awareness creation-

Dr. Rose Ngugi

Objectives of capacity building

1. Efficient and effective e-waste management system.
2. Strengthen Institutional Capacity Of The E-waste value chain.
3. Build knowledge to have responsible players in the e-waste system.

The how?

1. Mapping out e-waste players in the system
2. Identify capacity for different
3. Putting together a capacity building program.

From the above presentation it is important to note that:

1. Creating knowledge helps us handle e-waste safely.
2. With knowledge it is possible to enable e-waste cleaning activities
3. It is possible to enhance employability in the informal sector that is the key driver of e-waste recycling.
4. The circular economy supports sustainable development.

Future economy

Karin Boomsma, SIB - KEPSA

The circular economy is more sustainable and inclusive as compared to the other economic models.

To achieve the circular economic model, we need to train and equip people with the right skills so as to create jobs.

To achieve this, redesigning and rethinking the use of materials will be a more inclusive model.

To fully achieve sustainable environment and circular economy the following can be done:

1. Centralising and streamlining the collection of waste
2. Specific legislation on e-waste should be adopted.
3. Provision of a take-back system to incentivize the stakeholders

DAY 3

Accelerating sustainability

Carol Koech, Schneider Electric

Schneider Electric is addressing Circular Economy through programs such as EcoDesign for Serviceability, End of Life commitment and Waste as Worth. This makes it possible for Schneider Electric to achieve the following:

1. Enabling green ambitions

2. Saving Carbon IV oxide emissions

3. Build their ECOFIT product

4. EcoDesign 100% of their products with circularity

5. Recycled packaging

6. Achieve 75% turnover with their green premium program

Key pillars of a holistic sustainability strategy

1. Create and deploy a global climate strategy

2. Maximise renewables and clean energy

3. Establish resource efficient designs

4. Adopt circularity and move to digitised modernisation

5. Leverage the power of data and analytics

6. Reduction of carbon within the supply chain

Solar PV- The New Frontier But At What Cost?

Sam Opar

How solar power works

1. When sunlight hits a solar panel photons are changed to electrons.

2. As electrons pass through the cells of a solar panel they are converted to Direct Current electricity

3. The electricity is sent to an inverter which converts it to Alternating Current power

4. This power is now used to charge and run your devices

Off- grid solar in Africa

Africa's off-grid solar market is growing at an exponential rate due to lack of grid connection, mobile money and the innovative pay-go model.

It is important to note that e-waste products from solar energy and solar panels will grow exponentially over the years.

The following can be done to deal with the expected surge in e-waste:

1. Customer education on E-waste.

2. Repurposing of equipment that can still be used.

3. Ramp up of recycling plants to deal with the expected growth in E-waste.

4. Government policy to get renewable companies incorporate E-waste in sale cycle

Traceability through the value chain

Raul Carlsson, RISE

From the presentation delivered by Raul Carlson, it is important to note the following:

1. Traceability is key to circular economy, globally, per material and product category

2. Most components are there to practically enable global traceability

3. There are far reaching initiatives in EU to drive standardization through the Green Deal and the Circular economy action plan

4. Final words are not said, but circular resource management must be met.

Unlocking Potential in Sustainable E-Waste Management

Karen Basiye, Safaricom
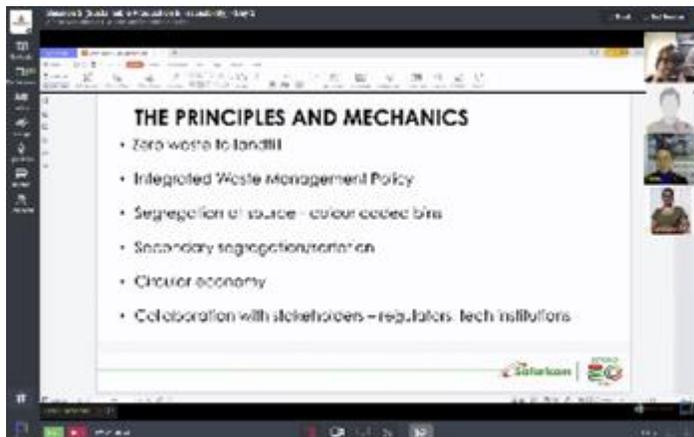
Safaricom is involved in the e-waste management field as it is a technology company as it recognises the humongous amount of e-waste that is generated.

Safaricom has come up with an economic policy and Zero-waste land-fill program

The safaricom e-waste collection program was conceived in 2012 and has so far managed to collect 1287 tonnes of e-waste by the year 2019.

To achieve the objectives of their program, safaricom employs the following:

1. Segregate the materials at source

2. They came up with an integrated waste management policy

3. There is secondary sorting of the waste materials

4. Collaboration with key players and stakeholders in the industry

The collected waste materials are then handed over to WEEE center for recycling

Challenges and opportunities faced

1. Design of the products

2. An influx in the demand for circular products and services

3. Cost -often require large upfront CAPEX investments, have long payback periods and uncertain cash flows

4. Take-back and collection

Closing the loop on e-waste in Africa

Helen Nakiguli

Closing the loop is basically coming up with ways to manage and dispose of EEE.

Closing the loop has many advantages which can be categorised into three main spheres:

1. Economic: There is better use of raw materials and save the manufacturing industry 8% of their turnover.

2. Environmental: This leads to reduction of GHG emissions by 2.4% and recovery of rare minerals which leads to generation of less waste

3. Social: It becomes possible for people to spawn businesses and startups from waste

Importance of closing the loop on e-waste in Africa

1. To reduce premature disposal

2. To conserve raw/virgin material

Actions required to close the loop

1. Sustainable manufacturing

2. Make use of the informal sector in collection and recycling

3. Standardisation

4. Adoption of e-waste management compliance schemes

Closing remarks

Bonnie Mbithi, CEO WEEE Centre

"This is not the end, but this is the beginning"

We have the same excitement as we move to the next conference next year. I am glad the issues being pushed by the WEEE Centre are the issues being discussed across the globe. Issues on legal framework should be done by consolidating our minds and efforts to come up with a viable solution.

1st African E-waste Conference, 11-13 Aug 2021

"Waste is not waste but a resource"

We look forward to having an Africa where trans-boundary movement of waste is possible. This can be achieved by taking baby steps as there is progress and hope in achieving this as we are heading towards the right direction. We have had people from different parts of the globe creating time to participate in this conference. We should not just have these discussions and not implement the action items. To reiterate on what has been said we shall publish a magazine on what has happened in the conference and recommendations, this will be a motivating factor for progress and impact.

Following the presence of our speakers during the conference we should lobby the producers to take responsibility for the electronic waste they generate. We should also lobby the government to set EPR regulations and the implementation of PRO. That way we will have a holistic approach to e-waste management and have a redefined look on e-waste management.

We should move together and foster collaborations on e-waste management since we cannot achieve this feat on our own as the production of electronic waste is increasing. As a continent we should look at going into innovations that will facilitate proper recovery of the precious metals.

We are very honored and express gratitude to all participants, speakers, sponsors and the technical support team. We congratulate everyone who has put in the effort. We shall keep all participants engaged through the regular circular and newsletters.

THANK YOU!