

GLOBAL INFORMATION SOCIETY WATCH 2010

Focus on ICTs and environmental sustainability



ASSOCIATION FOR PROGRESSIVE COMMUNICATIONS (APC)
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Introduction

Uganda has been mentioned as one of the countries that have relatively low volumes of electronic waste (e-waste) – but it is likely to have a surge in e-waste volumes in the future. An assessment undertaken by the United Nations Industrial Development Organization (UNIDO) and Microsoft in 2008 indicates that in 2007 around 300,000 PCs were installed in Uganda; 75% of them in governmental, educational and non-governmental organisations. It was estimated that around 15% of computer imports enter the country as second-hand computers and in 2007 up to 50,000 personal computer units might have reached their end of life, though only a small portion seemed to appear in the waste stream.¹ E-waste flows from personal computers alone are expected to increase four- to eight-fold by 2020.²

E-waste management is a new area in Uganda and there is limited public awareness on the potential hazards posed by e-waste to human health and the environment. Like in most developing countries, infrastructure for e-waste recycling is limited and there is no appropriate solution for recycling, treatment and disposal of hazardous fractions. Unproblematic fractions from computer waste, such as plastic and metal, can be recovered in existing recycling facilities, but hazardous fractions such as leaded cathode ray tubes (CRTs) and capacitors containing polychlorinated biphenyls (PCBs) and other toxic substances need new solutions. The entire country has only one incinerator at Nakasongola.

However, there have been a number of advances towards the management of e-waste, with some companies establishing refurbishing facilities. In 2008 Uganda Green Computers Company Ltd. (UGCCL), a computer refurbishment and e-waste recycling initiative, was piloted in Uganda with the ultimate goal of providing small and medium enterprises with access to affordable quality hardware in Africa, and to build a “green” recycling industry.³ UGCCL is a joint venture between the government of Uganda, UNIDO and Microsoft.

Policy and legislative context

Uganda’s constitution commits the state to protecting its natural resources through national objectives XII, XXI and XXVII.

Objective XII commits the state to protecting important natural resources including land, water, wetlands, minerals, oil, fauna and flora on behalf of the people of Uganda. Objective XXI commits the state to taking practical measures to promote a good water management system at all levels. Objective XXVII, dealing with the environment (i-iv), commits the state to:

- Promoting sustainable development and public awareness on the need to preserve the environment for present and future generations.
- Effective utilisation of natural resources and preventing or minimising damage and destruction to land, air and water resources resulting from pollution or other causes.
- Promoting and implementing energy policies that ensure that people’s basic needs and those of environmental preservation are met.
- Protecting important natural resources, including land, water, wetlands, minerals, oil, fauna and flora on behalf of the people of Uganda.

Uganda has no specific e-waste legislation. However, there are national laws and international conventions and guidelines to which it is signatory that have a bearing on e-waste. They include, among others:

- The National Environment Act 4/1995 which provides for sustainable management of the environment, including establishing an authority as a coordinating, monitoring and supervisory body for that purpose.
- The National Environment (Standards for Discharge of Effluent into Water or on Land) Regulations S. I. No. 5/1999 which regulate the management of waste.
- The National Environment (Solid Waste Management) Regulations S. I. No. 52/1999 which regulate the management of solid wastes.
- The Water Statute 9/1995 which provides for the use, protection and management of water resources and supply.
- The National Environment (Delegation of Waste Discharge Functions) Regulations S. I. No. 56/1999 which provide for monitoring and implementation of standards.
- The National Environment (Management of Ozone Depleting Substances and Products) Regulations S. I. No. 63/2001 which regulate management of ozone-depleting substances.

¹ Wasswa, J. et al. (2008) *E- Waste Assessment in Uganda: A Situational Analysis of e-Waste Management and Generation with Special Emphasis on Personal Computers*, UNIDO, Microsoft and Empa.

² StEP (2010) Urgent Need to Prepare Developing Countries for Surge in E-Wastes. www.step-initiative.org/news.php?id=000000131

³ UNIDO (n.d.) Electronic Waste (e-Waste): Threat and opportunity. www.unido.org/index.php?id=268

- The Waste and Hazardous Waste Management Regulations (2000) which regulate the management of wastes and hazardous wastes including: sorting, disposing, transportation, packaging, labelling, internal movement, transboundary movement, notification procedures, and environmental impact assessments.
- The Environmental Impact Assessment Regulations S. I. No. 13/1998, whose objective is to collect, organise, analyse, interpret and communicate information that is relevant to the consideration of the initiation of a new project.
- The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.
- The Vienna Convention for the Protection of the Ozone Layer.
- The Stockholm Convention on Persistent Organic Pollutants (POPs).

Banning second-hand imports in Uganda: A policy failure

E-waste drivers in Uganda include the continued growth of the telecom industry following liberalisation; growth in internet usage as a result of private and government initiatives in the deployment of wireless access infrastructure; lack of e-waste-specific regulations in the National Environment Act; and high taxes on brand-new electronic goods, with the exception of computers, where there is a zero taxation policy.⁴

The government's introduction of a zero tax policy on the importation of computers in 2007 has had a bearing on the large portion of imported second-hand computers that have increased the waste stock, given that their life span is short compared to new computers. In 2009 Uganda was reported as the first East African country to ban the importation of second-hand electronics: a positive step in safeguarding the environment. The ban was welcomed as a measure that would stop the dumping of old scrap into the country, given that there are no defined standards to monitor e-waste disposal and few private investors in e-waste management.

However, the ban has met a lot of criticism from stakeholders in the ICT industry who think it is likely to lock out the majority of people from accessing ICT services, since brand-new computers are expensive. The policy is also said to be unrealistic since it does specify the technology but not the age of the items to be banned.

Some of the views expressed by members of the I-Network Dgroup⁵ on the ban include a suggestion to combine proper accredited disposal facilities with incentives that encourage delivering discarded hardware to these centres,

rather than merely banning second-hand ICT equipment. Others saw e-waste as an opportunity, given that it contains valuable materials, and that there are e-waste companies being established that will enable safe disposal with proper techniques and equipment. It was also suggested that the cost of recycling computers should be built into the price, and that it becomes a vendor's responsibility to take care of e-waste, as is done elsewhere in the world.

The ban has had a negative impact on the activities of refurbishing companies and organisations that depend on importing used computers. Non-governmental organisations that provide used computers for the education sector were hit hard.⁶ An example of such an organisation is Camara,⁷ an Ireland-based NGO that sources used computers from Irish and British companies and individuals. It cleans data off the hard drives, and refurbishes and loads them with educational software, before setting them up as learning centres in schools in Africa and Ireland. After the ban, Camara stopped importing used computers and offering training temporarily.

In March 2010 a review of the ban on importation of second-hand electronics was proposed. A more targeted approach to banning technology that is harmful to the environment, instead of uniform application to all second-hand electronics will be considered. There is a need to establish more infrastructure and mechanisms to handle waste streams if the aim is to reduce the unmanaged growth of e-waste.

E-waste practice in Uganda

E-waste management practices in Uganda are largely crude and can be categorised as collection, refurbishment, recycling and disposal.

According to the National Environment Management Authority (NEMA) there is no formal collection of e-waste in Uganda. Informal collection of obsolete computers exists where individuals survive on selling scrap from computers for cash to plastic plants, or metallic components to informal vendors.

Informal computer refurbishing⁸ appears to be well developed and some of the major informal refurbishing centres include Computer Facilities, Global Tech Computer Distributors Uganda Ltd. and SMB General Suppliers.

Few formal e-waste refurbishers⁹ exist in Uganda. Examples are:

- Second Life Uganda and Interconnection Uganda, both major commercial refurbishment centres.

4 Mugisha, E. (2009) E-Waste Management in Uganda: Current Perspectives, paper presented at the e-Waste Management Forum: Circulating Success, Cairo, Egypt, 9-10 February.

5 www.i-network.or.ug/newsletter/newsletter-q2-2009/minister-announces-the-ban-on-old-computers.html

6 Nakkazi, E. and Musoke, R. (2010) NGOs importing used computers may close as ban bites, *I-Network Newsletter*, January-March. www.i-network.or.ug/newsletter/q1-newsletter-2010/ngos-importing-used-computers-may-close-as-ban-bites.html

7 www.camara.ie

8 Informal refurbishers are small companies and individuals who do upgrading of operating systems, exchange peripheral hardware like keyboards and mouses, and provide local tech support, repair and customer service as well as distribution of computers.

9 Formal refurbishers are commercial refurbishment centres where used computers are imported and refurbished for resale.

- Midcom Service Centre, a Nokia-authorized customer-care centre established in 2006, has set up mobile phone “take-back” collection points at all its centres and does refurbishment in-house.
- UGCCL offers a full life-cycle model, which includes the return of the refurbished PCs to the centre at the end of their useful life, disassembling the hardware and reuse of the working hardware components. High-value material like copper and circuit boards is sold. The centre locally recycles simple materials such as steel and plastics, and works with regional or global recyclers for the proper disposal of substances such as lead glass. Its best practices will be replicated across the region. UGCCL's target for local refurbishment is 10,000 PCs per annum. Each refurbished computer is loaded with Microsoft software and costs about USD 175.¹⁰

There are recycling options for different waste streams generated by a PC (the plastics, ferrous metals, aluminium and copper). Plastic plants are extending their operations to include plastics from e-waste. They buy computer casings from informal collectors and from Kampala City Council landfills. Examples of such plastic plants include Plastic Recycling Industries Uganda and Sunshine Plastics.

A few metal recycling plants exist, such as Steel Rolling Mill and Shumuk Aluminium Industries. There are no recycling options for hazardous e-waste fraction such as cathode ray tubes and lead glass. As mentioned, UGCCL works with regional or global recyclers for the proper disposal of these substances. There are no informal leaching activities that extract precious metals from e-waste (e.g. gold recovery).

Downstream vending is a common practice and vendors engage in resale of whole units, refurbishing for reuse, dismantling into parts, and selling copper components to local welding practitioners.

Kampala City Council and municipal councils in other urban towns are responsible for collection and disposal of solid non-hazardous waste at designated landfills. Even with such systems in place control measures to ensure separation of plastic waste are not sufficient. Outdated waste disposal methods lead to polluted groundwater, contaminated soil, air pollution from the burning of plastics, and risks of getting cancer among people who work and live around the recycling and dump sites. Even though no communities or individuals are reported to have been affected by the e-waste problem, there is a need to come up with appropriate measures of handling e-waste.

On the other hand, a wide range of valuable materials contained in e-waste including silver, gold, palladium, copper and indium can turn the recycling of e-waste into a lucrative business opportunity. Boosting e-waste recycling

rates can also have the potential to generate employment opportunities, as is the case with metal and plastic waste.

Summary of challenges

Existing practices (both formal and informal) are, however, faced with a number of challenges: sourcing of e-waste remains a problem locally; publicity of the functions carried out by the refurbishment centres is still weak; e-waste is not accorded the same importance as conventional waste; high investment costs and costs related to environmental compliance are a disincentive to e-waste recycling; and recycling centres could be overwhelmed by a sudden surge in e-waste supply given their current size.

Solving the problem of e-waste requires a comprehensive framework that looks at issues around policy and legislation; technology and skills; and business and financing,¹¹ around which a number of challenges exist in Uganda:

- The lack of a specific legal framework, low national/government priority, and uncoordinated enforcement of e-waste-related laws.
- Lack of environmental health and safety standards, the strong influence of the informal sector, lack of collection infrastructure, cherry-picking activities, and low skills and awareness.
- In relation to business and financing, limited industry responsibility, high costs of logistics, possible exploitation of workers from disadvantaged communities, and false consumer expectations.

New trends

In a very recent development, an e-waste management policy for Uganda¹² is being developed and first round consultations regarding the draft policy have been finalised. Currently the Ministry of ICT has called for comments and inputs from stakeholders to improve the draft policy. The e-waste management policy will provide specific legislation for proper management and disposal to safeguard human health and the environment against potential hazards.

The national e-waste policy will have the following objectives:

- To provide for establishment of e-waste facilities in the country.
- To mobilise and sensitise the government, private sector and communities on the proper management and handling of e-waste on a sustainable basis.
- To provide specific e-waste laws and regulations from the acquisition and handling to the final disposal processes.

10 EMEA Press Centre (2008) Computer Refurbishment Centre Opens for Business in Kampala. www.microsoft.com/emea/presscentre/pressreleases/UGandarRefurbPR_12062008.msp

11 Schlupe, M. et al. (2009) *Recycling – From E-waste to Resources*. www.unep.org/pdf/Recycling_From_e-waste_to_resources.pdf

12 Ministry of ICT (2010) Draft Electronic Waste Management Policy for Uganda, Draft V6.4.

- To develop a critical human resource base knowledgeable in handling e-waste.
- To provide for resource mobilisation for efficient management and disposal of e-waste.
- To provide guidance on the standards of ICT equipment that is imported into the country.
- To establish incentives for encouraging both local and foreign investors to establish e-waste facilities in Uganda.

This policy aims at enforcing several strategies for e-waste management that include the establishment of e-waste management infrastructure, awareness and education, human resource development, and resource mobilisation.

Private initiatives/pilot projects on e-waste management¹³ are being established. A case to note is a programme run by Computers for Schools Uganda (CFSU), an NGO that collects obsolete computer equipment from individuals, educational institutions and other organisations. This has been achieved through creating awareness about the dangers of e-waste among communities and requesting them to surrender obsolete computers, as well as by creating incentives such as exchanging one free computer for every seven to ten obsolete computers. CFSU collects, sorts, dismantles and refurbishes computer units or components that are in good condition. Plastic and metallic components are resold to local metal/plastic recyclers, refurbished parts are reused to fix computers at schools, while more complex components like motherboards and hazardous parts are forwarded to their partner Computers for Schools Kenya (CFSK) for further processing and disposal respectively. Over 970 obsolete computers have been collected in this pilot project supported by the International Institute for Communication and Development (IICD) and Close the Gap.

Although CFSU has received good responses from some regions, individuals and institutions, they are faced with the challenge of a lack of willingness by the Ugandan population to dispose of e-waste (high value is attached to computers even when obsolete). This is attributed to a lack of awareness and further explains why much of the e-waste in Uganda is reported as still in stock. CFSU is also faced with the challenge of rigid public procurement and disposal procedures. "Delays in decisions to dispose are so frustrating," notes Joel Kamba, the operations officer of CSFU.¹⁴ Other challenges include lack of government support for local initiatives, a hectic process of approval and certification to handle e-waste by NEMA, and high transport costs.

Another notable trend is the growing interest in the issue of e-waste. For instance, face-to-face and online discussions are increasingly featuring e-waste. An

example of such discussion platforms is the I-Network Dgroup that gives an opportunity to members to discuss current issues related to ICTs. E-waste and related policy issues are some of the topics that have featured on the discussion list this year. Some of the views expressed about the ban on importation of second-hand computers, for example, included:

Let us advocate for new and affordable computers. Why can't we think of assembling them in Uganda instead of importing "junk"? (Aramanzan Madanda, Assistant Lecturer, Makerere University)

...[W]e are tired of Africa being a dumping ground for American and European crap! But not many Ugandans can afford brand-new computers. I agree on regulation of trade in used computers but I am not sure we will be able to get PCs to 10% of Uganda if we go brand new. I would suggest we walk before running. (Mutaremwa Frank)

Action steps

Given the volume of e-waste in storage and likely to be generated, the government needs to urgently address the e-waste problem to avoid the risks of an unmanageable e-waste informal sector and more informal dumping, with all its social and environmental drawbacks. Some of the action steps that need to be taken include:

- Publicity and awareness about the potential hazards of e-waste to human health and the environment.
- Putting specific e-waste policies and laws in place.
- Establishing more infrastructure for formal collection, recycling and disposal of e-waste.
- Using incentives to promote e-waste "take-back" schemes.
- Capacity building in pre-processing, such as manual dismantling of e-waste.
- Providing financial incentives to allow the informal sector to still participate in "safe" recycling processes, with hazardous operations transferred to formal recyclers.
- Pre-inspection and verification of e-waste consignments prior to shipment.
- Establishing e-waste management centres of excellence and building on existing organisations working in the area of recycling and waste management (e.g. Uganda Cleaner Production Centre).
- Cleaner production training as a preventive strategy for solving the e-waste problem for stakeholders (e.g. electronic goods dealers, collectors and refurbishers, vocational institutions, local authorities, lead agencies, statutory bodies, etc.).
- Encouraging partnerships with civil society and the private sector. ■

¹³ www.cfsu.org.ug/services.html#ewaste

¹⁴ Kamba, J. (2010) Surrender Obsolete Computers for E-Waste Management, *I-Network Newsletter*, January-March. www.i-network.or.ug/newsletter/q1-newsletter-2010/surrender-obsolete-computers-for-e-waste-management.html

GLOBAL INFORMATION SOCIETY WATCH 2010 investigates the impact that information and communications technologies (ICTs) have on the environment – both good and bad.

Written from a civil society perspective, **GISWatch 2010** covers some 50 countries and six regions, with the key issues of ICTs and environmental sustainability, including climate change response and electronic waste (e-waste), explored in seven expert thematic reports. It also contains an institutional overview and a consideration of green indicators, as well as a mapping section offering a comparative analysis of “green” media spheres on the web.

While supporting the positive role that technology can play in sustaining the environment, many of these reports challenge the perception that ICTs will automatically be a panacea for critical issues such as climate change – and argue that for technology to really benefit everyone, consumption and production patterns have to change. In order to build a sustainable future, it cannot be “business as usual”.

GISWatch 2010 is a rallying cry to electronics producers and consumers, policy makers and development organisations to pay urgent attention to the sustainability of the environment. It spells out the impact that the production, consumption and disposal of computers, mobile phones and other technology are having on the earth’s natural resources, on political conflict and social rights, and the massive global carbon footprint produced.

GISWatch 2010 is the fourth in a series of yearly reports critically covering the state of the information society from the perspectives of civil society organisations across the world.

GISWatch is a joint initiative of the Association for Progressive Communications (APC) and the Humanist Institute for Cooperation with Developing Countries (Hivos).

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