

Domestic consumption main contributor to Africa's growing e-waste

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West Africa faces a rising tide of e-waste generated by domestic consumption of new and used electrical and electronic equipment, according to a new United Nations report. Domestic consumption makes up the majority (up to 85 percent) of waste electronic and electrical equipment produced in the region, according to the study. The E-waste problem in West Africa is further exacerbated by an ongoing stream of used equipment from industrialized countries, significant volumes of which prove unsuitable for reuse.

In the five countries studied in the report "Where are WEEE in Africa?" (Benin, Côte d'Ivoire, Ghana, Liberia, and Nigeria), between 650,000 and 1,000,000 tons of domestic E-waste are generated each year, which need to be managed to protect human health and the environment in the region. The report sheds light on current recycling practices and on socio-economic characteristics of the E-waste sector in West Africa. It also provides the quantitative data on the use, import and disposal of electronic and electrical equipment (EEE) in the region. The report draws on the findings of national E-waste assessments carried out in the five countries from 2009 to 2011.

"Effective management of the growing amount of E-waste generated in Africa and other parts of the world is an important part of the transition towards a low-carbon, resource-efficient Green Economy", said [United Nations](#) Environment Program (UNEP) Executive Director and UN Under-Secretary General Achim Steiner. "We can grow Africa's economies, generate decent employment and safeguard the environment

by supporting sustainable E-waste management and recovering the valuable metals and other resources locked inside products that end up as E-waste. In the run-up to Rio+20 in June, this report shows how measures such as improved collection strategies and establishing more formal recycling structures, can limit environmental damage and provide economic opportunities," added Mr. Steiner.

A team at Empa, the Swiss Federal Laboratories for Materials Science and Technology, together with local experts, was instrumental in the planning and execution of field investigations in the suburbs of the West African capitals as well as in the facilitation of the stakeholder process towards the formulation of national E-waste strategies. «This UN report is one of the most comprehensive studies, addressing the issue of domestic and imported E-waste in developing countries and its socio-economic impacts», says Empa project leader Mathias Schluep who for many years has been involved in numerous African E-waste initiatives and is one of the lead authors of the UN report.

The two sides of E-waste: risks ...

The use of EEE is still low in Africa compared to other regions of the world, but it is growing at a staggering pace. The penetration rate of personal computers in Africa, for example, has increased by a factor of 10 in the last decade, while the number of mobile phone subscribers has increased by a factor of 100. EEE can contain hazardous substances, e.g. heavy metals such as mercury and lead, and endocrine disrupting substances such as brominated flame retardants. Hazardous substances are released during various dismantling and disposal operations, particularly during the burning of cables to liberate copper and of plastics to reduce waste volumes. Open burning of cables is a major source of dioxin emissions, a persistent organic pollutant that travels over long-distances that bio-accumulates in organisms up through the global food chain.

The exposure to hazardous substances in and around dismantling sites causes manifold health and safety risks for collectors, recyclers and neighboring communities. Children's health in particular may be at risk. Child labor is common in West Africa's scrap metal business, the report's investigators found. Collection and dismantling activities are carried out by children from the age of 12, however younger children from the age of five are sometimes engaged in light work, including dismantling of small parts and sorting of materials.

... and opportunities – if done properly

EEE also contains materials of strategic value such as indium and palladium and precious metals such as gold, copper and silver. These can be recovered and recycled, thereby serving as a valuable source of secondary raw materials, reducing pressure on scarce natural resources, as well as minimizing the overall environmental footprint. In contrast to the informal recycling sector, where collection and recycling of E-waste is almost exclusively carried out by individuals largely consisting of migrant laborers who are often stigmatized in African societies as «scavengers», refurbishment is viewed as a relatively attractive economic opportunity for an increasingly well-educated, semi-professional labor force. In Accra (Ghana) and Lagos (Nigeria), the refurbishing sector provides income to more than 30,000 people.

The report, which was prepared by the Secretariat of the Basel Convention in cooperation with Empa, the Institute for Applied Ecology (Öko-Institut), the European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL) and the governments of Benin, Côte d'Ivoire, Egypt, Ghana, Liberia, Nigeria, and Tunisia, examined the flows of EEE and E-waste between Europe and [West Africa](#). It also documents the economic and environmental potential of building a sound resource recovery and E-waste management system, along with the risks of continuing on the present course. Major findings

are:

- In Ghana in 2009, investigators found that around 70% of all EEE imports were used EEE; 30% of second-hand imports were estimated to be non-functioning (therefore E-waste), producing about 40,000 tons of E-waste in 2010.
- Field investigations in Benin and Côte d'Ivoire have shown that about half of the imported used EEE is actually non-functional and non-repairable, thus defined as import of E-waste.
- An analysis of 176 containers of two categories of used EEE imported into Nigeria, conducted from March to July 2010, revealed that more than 75% of all containers came from Europe, approximately 15% from Asia, 5% from African ports (mainly Morocco) and 5% from North America. A similar distribution could be observed in Ghana, where 85% of used EEE imports originated in Europe, 4% in Asia, 8% in North America, and 3% from other destinations.
- The UK is the dominant exporting country to Africa for both new and used EEE, followed with large gaps by France and Germany. Nigeria is the most dominant African importing country for new and used EEE, followed by Ghana.
- Altogether it is estimated that during the past few years, at least 250,000 tons of E-waste per annum «illegally» entered the five selected West African countries.

"This number is comparable to the total amount of E-waste generated in small European countries such as Belgium or the Netherlands, and equates to approximately 5% of all [E-waste](#) generated in the European Union", says Schluep.

Provided by EMPA

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