

# Meeting the challenge of e-waste in Africa

## From e-waste to resource recovery in Africa

Used and end-of-life electric and electronic products and waste (also referred to as 'e-products' and 'e-waste'), either generated locally or imported from developed countries, are accumulating in open dumpsites in a number of African countries. E-waste is often disposed of by open burning, placing entire communities at risk of exposure to releases of dangerous substances into the environment. E-waste contains toxic substances such as lead, cadmium, mercury, and brominated flame retardants. However, e-waste also provides a source of valuable income in these countries as some of these substances, as well as the valuable components comprising e-waste, are recycled and reused providing economic opportunities through the development of community based collection, recovery and recycling businesses.



Photo credit: Swiss Federal Laboratories for Materials Science and Technology (EMPA)

## E-waste Africa project

The e-waste Africa project is a comprehensive programme aiming at enhancing the environmental governance of e-wastes and at creating favorable social and economic conditions for partnerships and small businesses in the recycling sector in Africa. It is being implemented in the framework of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. The timeframe of the project is from November 2008 to March 2012. The financial support for the project was kindly provided by the European Commission, Norway, the United Kingdom, and the Dutch Recyclers Association (NVMP).

The project is implemented by the Basel Convention Coordinating Centre based in Nigeria and the Basel Convention Regional Centre based in Senegal, in cooperation with partners including the Swiss Federal Laboratories for Materials Science and Technology (EMPA), the Institute for Applied Ecology (the Oko Institute), the European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL), the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the Partnership for Action on Computing Equipment (PACE). The Secretariat of the Basel Convention is responsible for the overall project coordination.

## Project objectives

Overall, the project goal is to enhance the capacity of West Africa and other African countries to tackle the growing problem of e-waste. Specifically, the project aims to:

- Improve the level of information on flows of e-products and e-waste imported to West African countries and other African countries to enhance decision-making;
- Increase the capacity of partner countries to manage end-of-life e-equipment and e-waste at the national level;
- Investigate the feasibility of establishing environmentally sound materials recovery operations; and
- Enhance the capacity to monitor and control transboundary movements of e-waste and to prevent illegal traffic.



Photo credit: OKO Institute

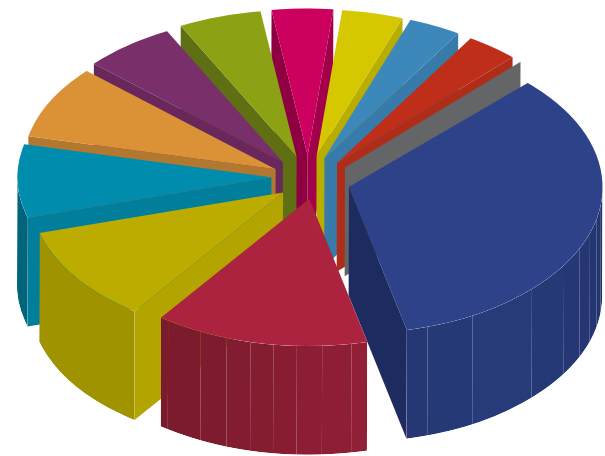
## Flows on used and end-of-life e-products and e-waste between Africa and Europe

Under the project's first component, a fact-finding study on flows of used and end-of-life e-products and e-waste imported into West African countries by land and by sea, in particular from European countries, has been carried out. Local personnel were trained by international experts to undertake field research and the collection of data. Several Western African countries participated in the study, as well as two export ports in Belgium and the Netherlands.

Preliminary results show that among selected European countries, Germany and the Netherlands are the major exporters of end-of-life electric and electronic equipment to West Africa (see figure 1). Another finding reveals the domination of seaborne import of data processing equipment to West Africa from the United Kingdom, the Netherlands and France. The fact-finding study is in its final phase and is expected to be completed by the end of 2010.

**Figure 1: Electric machine export by value 2008**

According to data by Zentralverband der Elektro-Industrie (ZVEI) 2010



- |                  |                   |                       |
|------------------|-------------------|-----------------------|
| ■ Germany        | ■ The Netherlands | ■ France              |
| ■ Italy          | ■ Great Britain   | ■ Belgium & Luxemburg |
| ■ Czech Republic | ■ Austria         | ■ Switzerland         |
| ■ Poland         | ■ Spain           | ■ Latvia              |



Photo credit: Swiss Federal Laboratories for Materials Science and Technology (EMPA)

## National assessments and e-waste management plans

On the basis of the results from the first component, i.e., the volume and type of imported end-of-life e-products and re-exportation in the sub-region, Benin, Côte d'Ivoire, Ghana, and Nigeria undertook national assessments of used and end-of-life e-equipment and e-waste and the preparation of national environmentally sound management plans. The country assessments encompass:

- (i) the description and review of e-waste management practices in the formal and informal sectors, including their economic and social impacts and potential impact on human health and the environment;
- (ii) an assessment of needs to ensure environmentally sound management; and
- (iii) a detailed description of the legal and regulatory systems in place. The results of the country assessments were shared with national multi-stakeholder groups composed of governmental officials, representatives from the recycling sector and civil society and were used for the preparation of national e-waste management plans.

The preliminary findings of the stakeholder assessment in Ghana suggest that informal e-waste recycling activities are characterized by the following features:

- Separation of metals such as iron, aluminum and copper;
- Hazardous fractions are not handled properly during the dismantling process and they are informally dumped or burned; and
- Open burning is used for the extraction of copper from cables, copper coils and cooling grills.

Some of these activities pose serious risks to public health and the environment. The study also reveals that formal e-waste recycling activities were launched in, at least, one recycling facility where e-waste is dismantled in an environmentally sound manner and fractions that cannot be disposed of in Ghana are exported to Europe.

## Social-economic impacts of the e-waste sector

An in-depth socio-economic study on the operation and sustainability impacts of the e-waste sector in Nigeria has been prepared. The focus of the study is on both the positive and negative impacts of the sector, including the identification of meaningful improvement options in environmental, social and economic terms. International co-operation between African small and medium enterprises (SMEs) and recycling companies operating in industrialized countries by combining their specific competitive advantages in e-waste disassembly and material recovery has been explored. The study includes recommendations to policy-makers and the recycling industry, as well as to other interested stakeholders, with a view to developing new market niches for the African e-waste recycling sector. The study is in the final phase of preparation and is currently being consulted upon.

The preliminary findings of the study on socio-economic impacts in Lagos, Nigeria, suggest that refurbishing, collection, and recycling of used and obsolete e-products provide extensive employment opportunities. Collection and recycling provide jobs for lesser qualified workers, while refurbishing activities which are technically demanding employs a more skilled section of the workforce.



## Monitoring and control of transboundary movements of end-of-life e-equipment and e-waste

The implementation of an enforcement programme for key importing states on the monitoring and control of transboundary movements of used and end-of-life e-equipment and e-waste and the prevention of illegal traffic commenced in 2010 and will continue to be carried out in 2011. A training curriculum aimed at port and customs authorities, government officials and accreditation authorities will be developed by specialized institutions. The curriculum will address tools for customs control, characterization and classification of used and end-of-life e-equipment, institutional coordination, regulatory framework development, and criteria for the environmentally sound management of used and end-of-life e-equipment. In the context of this collaborative effort, the project proposes measures for the prevention and control of exports from Europe to Africa of used and end-of-life e-products and e-waste, and will facilitate the training of enforcement officers from African countries and the development of a scheme for exchanging information on end-of-life e-equipment and e-waste between exporting and importing states.



Photo credit: OKO Institute



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