Challenges and opportunities for the environmentally sound management (ESM) of e-waste in the African context

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20 October 2015

Regional workshop on enhancing capacities for the environmentally sound management of waste electrical and electronic equipment (e-waste) through the regional delivery in Africa
20-23 October 2015

BASEL
CONVENTION
Controlling transboundary movements of hazardous wastes and their disposal

ROTTERDAM
CONVENTION
Sharing responsibility in the trade of hazardous chemicals

STOCKHOLM
CONVENTION
Protecting human health and the environment from persistant organing pollutants (POP)

Picture: Kai Loeffelbein

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- Global MEAs and main outcomes of the Basel Convention COP12
- Trends in Africa
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A rapidly growing problem:

The volume of obsolete PCs generated in developing regions will exceed that of developed regions by 2016-2018.

By 2030, obsolete PCs from developing regions will reach 400-700 mln units, far more than from developed regions at 200-300 million units.

Yu et al., 2010

42 mln tonnes of e-wastes generated in 2014 globally

- The e-waste generated in 2014 contained an estimated 16,500 kilotons of iron, 1,900 kilotons of copper, 300 tonnes of gold, as well as silver, aluminum, palladium plastic and other resources with a combined estimated value of US$52 billion.

- Toxins include 2.2 mln tonnes of lead glass, 0.3 mln tonnes of batteries, as well as mercury, cadmium, chromium and 4,400 tonnes of ozone-depleting chlorofluorocarbon (CFCs).

- The US and China produce the most e-waste overall (32% of the world's total) and the top per capita producers are Norway, Switzerland, Iceland, Denmark, and the UK.

Global MEAs and main outcomes of the Basel Convention COP12

BASEL CONVENTION

Preamble

…

to protect, by strict control, *human health* and the environment against the adverse effects which may result from the generation and management of hazardous wastes and other wastes,

…

Basel Convention and e-waste:

- Basel Convention is the only global instrument dealing with hazardous wastes
- Ban Amendment
- Nairobi Declaration on ESM of e-waste (2006)
- E-waste as hazardous (A1180) or non-hazardous (B1110)
- Activities through the technical assistance programme and partnerships (PACE and MPPI)

STOCKHOM CONVENTION

Stockholm Convention Preamble:

The Parties to this Convention,

…

Aware of the *health concerns*, especially in developing countries, resulting from local exposure to persistent organic pollutants, in particular *impacts upon women and, through them, upon future generations*,

…

Stockholm Convention and e-waste:

- c-OctaBDE are used in the manufacture of components of electrical and electronic equipment, namely those made of plastic
- Articles containing such chemicals have to be identified and disposed of in an environmentally sound manner upon becoming waste
- uPOPs are generated unintentionally through the open burning of e-waste.

Outcomes from the Basel Convention COP12

Outcomes from the Basel Convention COP12 (1)

Follow-up to the country-led initiative

- **Developing guidelines for ESM:**
  - Adopted the work programme of the expert working group (EWG) on ESM;
  - Activities in work programme include: analyse certification schemes to support ESM, develop guide for self-assessment of national ESM capacity and consider approaches to promote ESM in the informal sector;
  - Welcomed a set of draft practical manuals and factsheets and invited parties and others to test and submit comments on them;
  - Requested the EWG to revise the set of draft practical manuals and factsheets and submit them to OEWG-10 and COP-13 for possible adoption;

Outcomes from the Basel Convention COP12 (2)

Follow-up to the country-led initiative (cont.)

- **Legal clarity**
  - Took note of the draft glossary of terms and related terms and decided that this shal l be the basis for further work;
  - Invited SIWG on legal clarity to continue its work, to prepare a revised version of the glossary and related t erms;
  - Invited OEWG-10 to finalize the glossary and related terms and prepare a draft decision on these matters for COP-13;
  - Decided to initiate a process for the review of Annexes I, III and IV and related aspects of Annex IX, towards the consistent interpretation of terminology.

Outcomes from the Basel Convention COP12 (3)

- **Technical guidelines on transboundary movements of electrical and electronic wastes and used electrical and electrice quipment:**
  - Adopted, on an interim basis, the technical guidelines;
  - Acknowledged the need to look further into the guidance on the distinction between waste and non-waste, and agreed to include the further elaboration of work on this issue in the work programme of the OEWG in order to prepare draft revised guidelines for consideration by COP-13;
  - Invited parties and others to provide comments on certain issues related to the above-mentioned work.

Outcomes from the Basel Convention COP12 (4)

- **Cartagena Declaration on the Prevention, Minimization and Recovery of Hazardous Wastes and Other Wastes:**
  - Adopted the road map for action on the implementation of the Cartagena Declaration;
  - Decided to mandate the expert working group on ESM to develop guidance to assist parties in developing efficient strategies for achieving prevention and minimization of generation of wastes.

Outcomes from the Basel Convention COP12 (5)

- **National legislation, notifications, enforcement of the Convention and efforts to combat illegal traffic:**
  - Encouraged parties to provide the Secretariat with texts of national legislation and other measures to implement and enforce the Convention;
  - Invited parties to share information on best practices in preventing and combating illegal traffic and to report confirmed cases of illegal traffic;
  - Requested Secretariat to prepare recommendations on possible synergies between BRS conventions in preventing illegal traffic and trade.

Trends in Africa

Trends of EEE imports, use, and e-waste generation in West Africa

- Use of EEE in Africa is low but growing at a **staggering pace**

- **West Africa** serves as the **major trading route** of used EEE into Africa

- In 2009, up to 70% of all imports were **used EEE**: 30% of which was **non-functional**

- In 2010, between **50-85% of e-waste was domestically generated** which needs to be managed

Quantitative data for EEE in Benin, Cote d'Ivoire, Ghana, Liberia and Nigeria related to imports, installed base and e-waste generated

Country	Imports of EEE		EEE in use		E-waste Generated
	tonnes/ year	thereof used EEE	tonnes	Kg/inhabitant	Tones/year
Benin	16,000	30%	55,000	6.32	9,700
Cote d'Ivoire	25,000	48%	100,000	4.8	15,000
Ghana	215,000	70%	984,000	41	179,000
Liberia	3,500	10%	17,000	4.6	N/A
Nigeria	1,200,000	35-70%	6,800,000	44	1,100,000

Socio-economic aspects of the e-waste sector in Ghana and Nigeria

- **Well-organized repair and refurbishing sectors** which operate partly under formal conditions

- **Collection and recycling** done mostly by informal sector

- **Daily revenues** in the informal collection and recycling: US$ 0.22-US$ 9.50 and in the refurbishment sector: US$ 2.20 and US$ 22

- Considerable **potential** for improvement in the field of ICT recycling

Flows of EEE and e-waste between Europe and West Africa and enforcement of BC

- **Pathways** of used EEE from the formal to the informal sector
- **Brokers and traders** are key players
- Ports of Amsterdam and Antwerp were used as examples of **gateways** for used EEE
- Several challenges related to the **enforcement** of Basel provisions (e.g. clear distinction between used EEE and e-waste)
- **Coordination** at the national level

Challenges and opportunities

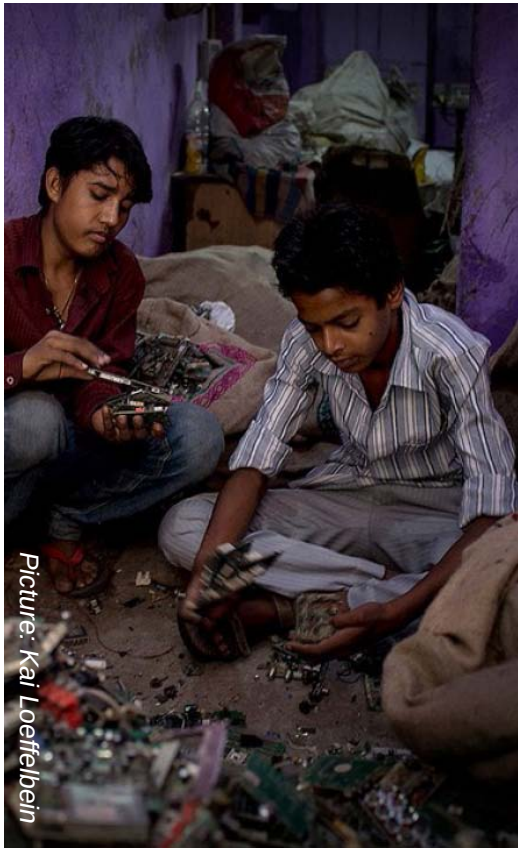
Challenges:

- Backyard recycling with high environmental and health impacts and low yields / efficiency
- Soil and water contamination from chemical disposal
- Toxic emissions from burning of materials,
  e.g. the body burden of dioxins in people from an e-waste processing site were ranked among the highest when compared on an international basis


Picture: Kai Loeffelbein

Challenges:

- Children involved in burning activities and manual dismantling
- Children living in or close to houses with recycling activity
- Children manually sorting and picking of recyclable, reusable materials from mixed wastes
- Mother's intake and body burden is transferred across the placenta and through breast milk


Picture: Kai Loeffelbein

Opportunities:

- E-waste has high recycling value
  - Plastics
  - Ferrous metal
  - Non-ferrous metals
  - Precious metals
  - Special metals

- E-waste recycling is economically viable and attractive


Picture: Kai Loeffelbein

Conclusions:

•The collection, segregation and primary dismantling of non-hazardous fractions of e-waste can be organized with relatively cheap, simple but safe processing methods.


M. Crozet (ILO)

• Collection, dismantling, refurbishment and recycling of used and end-of-life e-products provides jobs to thousands of people, both women and men.

• The more complex material recovery and recycling processes have to be concentrated in plants that provide for a high level of worker protection and emission control.

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Thank you!