

IETC

International Environmental Technology Centre

Policy Brief on E-waste What, Why and How

What is E-waste or Waste Electrical and Electronic Equipment (WEEE)?

Although there is no official, globally accepted definition for E-waste or Waste Electrical and Electronic Equipment (WEEE), it may be defined as discarded computers, office electronic equipment, entertainment device electronics, mobile phones, television sets and refrigerators. This definition includes used electronics which are destined for reuse, resale, salvage, recycling, or disposal.

What are the issues at stake?

E-waste's particularities single it out as a waste stream requiring urgent action:

- It is highly hazardous as it contains lead, mercury, arsenic, cadmium, selenium, hexavalent chromium and flame retardants beyond threshold quantities.
- It is currently the fastest growing waste stream globally. This trend is more important in developing countries, where it is expected to grow by up to 500% over the next decade in some countries.
- Developing countries and countries in transition remain, despite having preventive legislation in-place, a dumping ground for E-waste from developed countries.
 This, added to an internal rise in the consumption and discard of electronic devices, makes the issue even more acute for these countries.
- Its appropriate management can bring environmental as well as economic benefits as it has an important recycling potential and can be used as a resource.

IT and consumer electronics waste composition Others, 6% Glass, 0.30% **Ferrous** metals, 36% Lead glass, 19% Aluminium, 5% Plastics, Copper, 4% **Brominated** 12% plastics, 18% - Lead, 0.29% . Other metals.

Did you know?

- An estimated 50 million tons of E-waste are produced each year globally.
- It is estimated that only 15-20% of e-waste is recycled, the rest going directly into landfills and incinerators.

0.31%

 A large part of heavy metals in landfills comes from discarded electronics. As an example, the ratio is 70% in the USA.

More information about IETC, including

- Guidance Material
- Demonstration Pilot Project Reports
- Compendium of Technologies

on our website: http://www.unep.org/ietc



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What is the economic potential of recovering E-waste?

- A ton of used cell phones (6000 units) yields \$15,000 in precious metals.
- Recycling aluminum from E-waste saves 90% of the energy necessary for mining new aluminum.
- Computer reuse creates 296 more jobs than disposal for every 10,000 tons of material disposed each year.

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Why is E-waste not already recycled on a global scale?

A major hurdle for the proper handling of E-waste on a global scale is, among others, a lack of policy frameworks on national, regional and global levels. There are three major challenges to the definition and implementation of policies:

- a standard definition for E-waste is missing: consolidating a definition would enable the development of inventories (quantification and characterization), assessment of current management practices and, finally, definition of policies;
- · difficulties in implementing existing regulations; and
- lack of financing mechanisms (e.g. recycling fees, environmental taxes...) for the development of E-waste management chains.

What are the components of a financial mechanism?

The development of efficient financing mechanisms is essential to the establishment of a successful E-waste recycling chain. The "Extended Producer Responsibility" model is, for example, used across countries of the European Union. Producing organizations are responsible for E-waste take-back and treatment, and fees are consequently built into the price of electronic products, with several options:

- Actual costs of recycling are covered by the applied fee.
- Projected costs of recycling are taken in charge by the fee, and differences are settled after return on experience.
- Cross subsidization, where higher fees set on a particular category of E-waste compensate lower fees set on other categories.

How will IETC support policy development?

IETC assists developing countries and their cities in each of the four phases of the development of an effective E-waste handling system, through

- capacity building (training & policy dialogues) to undertake E-waste inventories and draw value chains;
- guidance in selecting appropriate technologies and forming partnerships;
- assistance in developing a package of policy instruments to support increased recycling; and
- pilot projects to demonstrate feasibility on the ground and disseminate practical lessons learned.

How to develop an effective E-waste handling system?

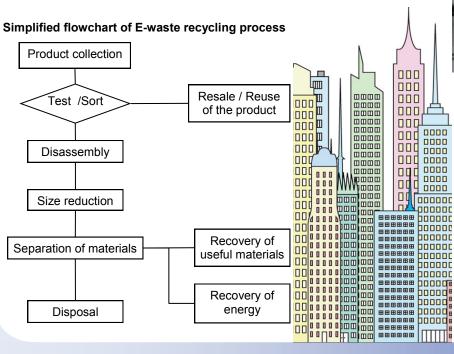
- Undertake an inventory and assessment of E-waste (quantification and characterization) as well as of current management practices.
- Draw a value trade chain on local and national levels for E-waste. It describes processes and activities carried out by the different stakeholders of the E-waste management chain in a geographical region.
- Design policies at the local and national levels. These policies should include regulations and financial mechanisms, in order to eliminate the environmental and public health impacts of E-waste, as well as to create economic activity around its management.
- Perform technology interventions to select appropriate and environmentally friendly technologies for collection, storage, recycling, treatment and final disposal of E-waste.



Processing of E-waste

The processing of E-waste takes place in two separate steps, for which IETC provides technological guidance and capacity building:

- E-Waste collection and storage:
 - collection processes;
 - tack-back systems and associated financial mechanisms;
 - design standards for storage facilities.
- E-waste recycling:
 - separation of the different components of the waste;
 - destruction and recovery of useful material and energy.



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