DRAFT
Best Practices on End of Life Management of ICT Equipment

Laura Reyes

DATEC Technologies Ltd.

Document

Contributors & Collaborators

- Tatiana Terekhova (UNEP/Secretariat of the Basel Convention)
- Shannon West (Verizon)
- Federico Magalini (UNU)
- Cristina Bueti (ITU)
- Laura Reyes (DATEC) - Leader

THANKS:

- Elisabeth Dechenaux, Didier Marquet, and Ahmed Zeddam (France Telecom/Orange)
- Gilbert Buty and Thomas Okrasinsiki (Alcatel Lucent)

THANKS:

- Microsoft
- Verizon

Purpose:

- Guide the identification process of an environmentally sustainable solution for ICT equipment on its End of Life stage, by providing a checklist that allows full monitoring of the decisions.

- To present different initiatives for ICT equipment's End of Life management solutions.

- Identify social, economic and environmental aspects related to End of Life management of ICT equipment.

- Illustrate how the end-of-life management and its environmental aspect can be integrated into the design process as part of the life-cycle approach within the framework which is developed by the ITU-T Study Group 5 (SG5).

The Best Practices & Checklist:

- **End of Life Management**

- **General Material Recovery and Recycling Facility Guidelines**

- **Clean Supply Chain and Conflict Minerals**

- **Socio – Economical Issues**

- **Offsetting Opportunities and Mitigation**

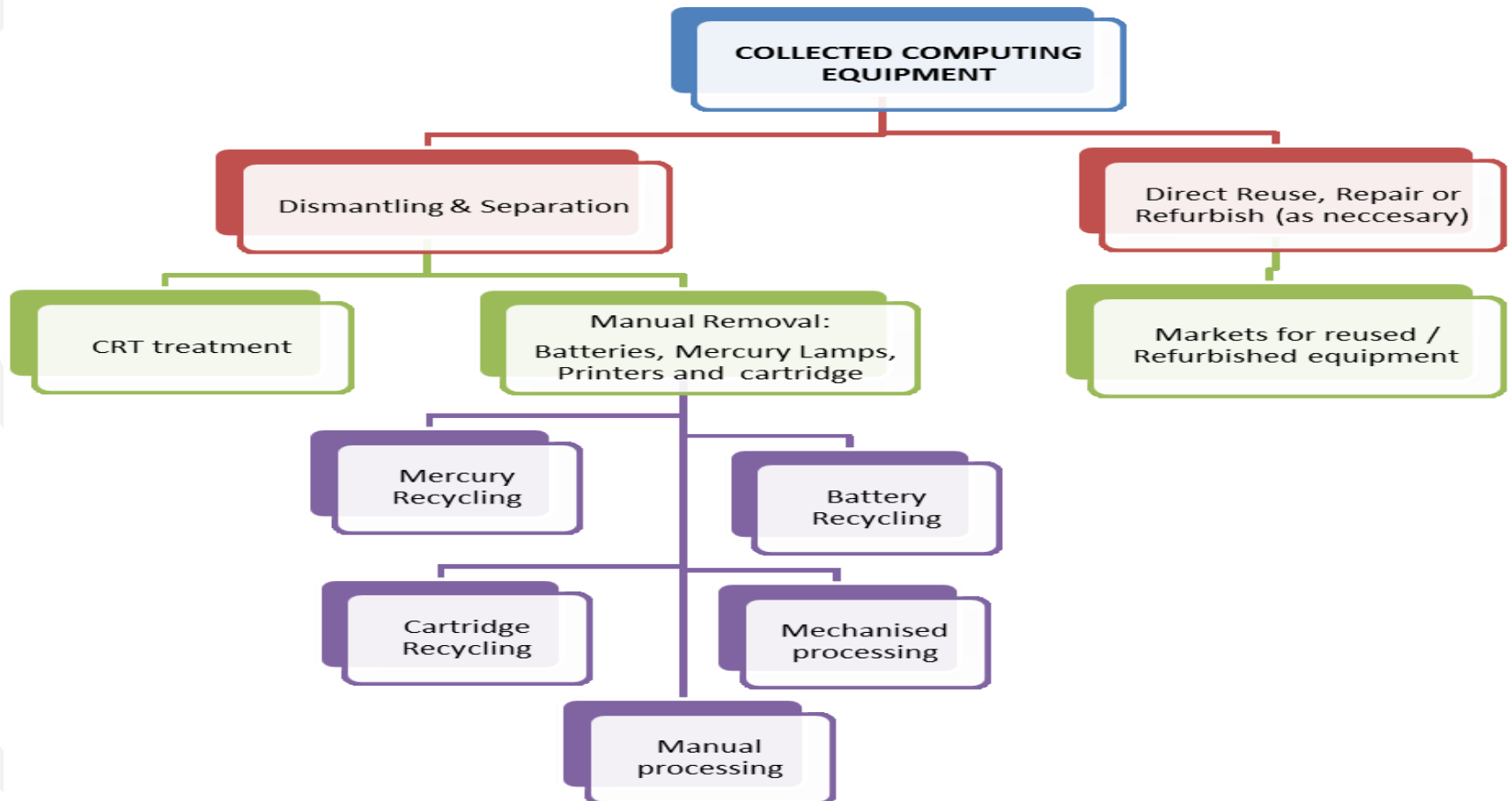- **Suggestions to ITU-T Study Group 5**

End of Life Management:

➢ Definition of End-of-Life for ICT Equipment: Advises on the need to conduct functionality tests.

➢ Definition of Environmentally Sound Management of E-Waste

E-WASTE: "Any device that for functional reasons is dependent on electric currents or electro-magnetic fields in order to work properly. It becomes e-waste when the holder discards, intends or requires to discard"

➢ General description of the end-of-life management chain for ICT equipment

➢ Transboundary Movements of Hazardous Wastes and Other Wastes

➢ End-of-Life Management: Stages and Waste Hierarchy

General Material Recovery and Recycling Facility Guidelines:

- ➢ Environmental Management System, Licences & Permits
- ➢ Monitoring and Record Keeping
- ➢ Emergency Planning
- ➢ Occupational Health and Safety: Best Practices to Ensure Workers' Safety
- ➢ Personal Protective Equipment
- ➢ Employee Training
- ➢ Financial Guarantees

COLLECTED COMPUTING EQUIPMENT

Dismantling & Separation

Direct Reuse, Repair or Refurbish (as neccesary)

CRT treatment

Manual Removal:
Batteries, Mercury Lamps, Printers and cartridge

Markets for reused / Refurbished equipment

Mercury Recycling

Battery Recycling

Cartridge Recycling

Mechanised processing

Manual processing

Checklist example :

Life cycle phase	Facet	Considerations	Comply Y/N	Aspect(s) impacted	Description of impact, unconformity or improvement actions to be taken
Reverse Logistics	Operations	Is the equipment well packaged in order to avoid damages in case it has tested and suitable for reuse or refurbishment?			
		Does the transport company comply with legal requests and has the necessary authorization to transport the equipment?			
		Is the company to which the equipment is being delivered to, legally to carry out EOL operations?			
		In case of transboundary movements, will the Basel Convention prior notice and prior consent procedures apply to a shipment?			
	Environmental performances	Has the equipment been classified according to national and international waste legislation?			
		Is the EOL service provider an authorized waste management facility?			
		Does the facility provide a complete environmentally sound solution for this type of equipment?			
		Would the equipment need to be redirected to a third location to finalize treatment (e.g., recycling, disposal)?			
		Does the transport mode that was used to transport equipment, support and encourage the reduction of CO_2 emissions and pollution control?			

Clean Supply Chain and Conflict Minerals:

➢ **Closing the loop** on e-waste by introducing or reinserting precious and rare metals recovered or recycled from the unwanted ICT equipment to the supply chain represents an **opportunity** for manufacturers to:

- Ensure a clean supply chain
- Reduce the demand on limited natural resources, which is auditable, measurable and tractable;
- Reduce production costs of brand new product
- Influence customer's purchasing power by offering a product that is verifiable conflict-free.

Clean Supply Chain and Conflict Minerals:

➢ **Manufacturers can support recyclers ` efforts to recover material by:**

- Designing products that through their different life -cycle stages reduce environmental impact and waste generation. (See Sustainable Products - Designing for End-of-Life Treatment)

- Designing, producing, labelling and commercialising equipment that have has a reasonable extensive life and can easily be repaired or dismantled for reuse or its value recovered without influencing economic growth.

➢ **Recycling rare metals in ICT equipment - ITU-T L.1100**

- Detailing the procedures to be employed when recycling these metals.
- The Recommendation outlines key considerations in all phases of the recycling process, and provides guidelines as to how organizations may fairly and transparently report on rare metal recycling.

Socio – Economical Issues:

➢ **Developing countries main challenges in relation to e-waste**:

   ▪ Imported non- functional / non - repairable equipment as second-hand with very short life spam, as well as domestically generation is rising.

➢ **Positive and Negatives effects** depending on whether the EOL management of ICT equipment is managed responsibly or not.

➢ **Efforts need to focus on:**

   ▪ Stopping unlawful competition of traders who calling themselves "recyclers" offering large economic benefits but no guarantees for the EOL management

   ▪ Development and adoption of policies, legislation and standards to support sustainable jobs creation and use of technology for environmentally sound management of EOL ICT equipment.

   ▪ The importance to regulated refurbishing and reuse practices in developing countries to support the protection of global community and limit the operations of unlawful players on the market

Offsetting Opportunities and Mitigation:

➢ Corporate Social Responsibility

➢ CO_2 Management:

- Allowing the e-waste recycling industry to actively participate in the to carbon markets.

- Enabling project-based offsets for different stakeholders

- Enabling project-based offsets for different stakeholders for setting up a take back scheme in a country without legislative obligations.
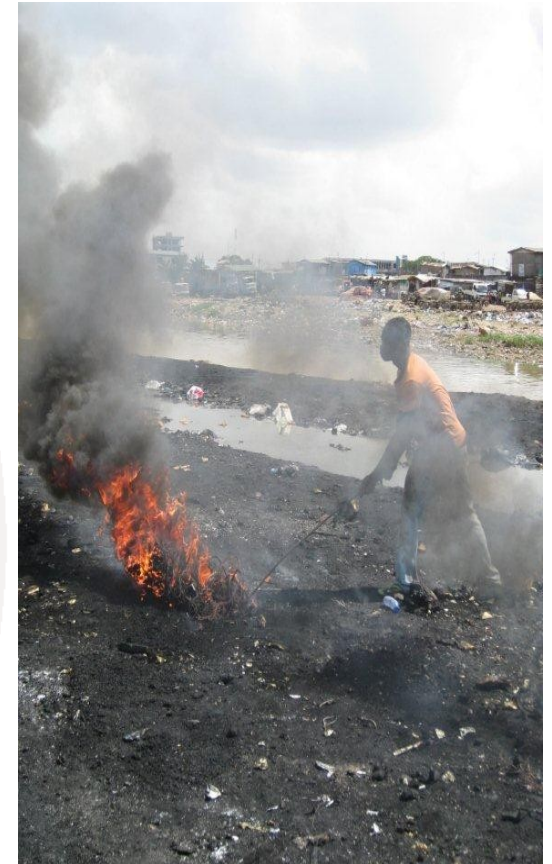
Suggestions to ITU-T Study Group 5:

1. ICT product design issues:
   - ➤ Clean supply chain: reduction of the demand on limited natural resources; products with reasonable extensive life.

2. Technical guidance applicable to refurbishment and repair facilities as well as marketing of used ICT equipment:
   - ➤ To include processing and management of equipment and components destined for reuse; record keeping and performance measurement (partly covered here), etc.

3. Environmental, socio-economic aspects:
   - ➤ Guide the industry in how to help governments and communities to end bad EOL practices , taking into account the micro-economics.

Suggestions to ITU-T Study Group 5:

4. <u>Principles for donors of ICT equipment</u>
  - ➢ Ensure that products are functional and that appropriate products are provided; availability of technical support in the country of destination; ensure full transparency, contract and notification and consent prior to delivery; etc.

5. <u>Development of national ICT policies where necessary.</u>
  - ➢ Ensure that the life-cycle approach is used for developing national ICT policies. E.g. inter alia, green design, collection, recycling, disposal should be considered in the policy.

6. <u>Map Guidance document on ICT applicable standards and legislation</u>
  - ➢ Develop a map or guidance document that helps the user to make an independent but informed decision over which standard to use according to the needs and objectives of the stakeholder on its specific role within the recycling chain.

Suggestions to ITU-T Study Group 5:

7. Development of a Global CO_2 - equivalent market.

   ➤ To directly control and incentivise reduction on pollution emissions

8. Recovery of Rare metals and Green Supply Chain

   ➤ Actively includes and facilitates access to the Recycling and Precious Metals industry in the discussions of possible developments that aim to return such a metals to the industry.

More information

- Contact:
  - Cristina Bueti (greenstandard@itu.int)
  - Laura Reyes (lreyes@datectech.co.uk)