E-waste Programme at IETC
Capacity Building for Management of ULABs

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Overview

• E-waste Management Scenario
• E-waste Programme at IETC
• Pilot Project on E-waste Management Plan
• Designing a Pilot Project for ULABs Management Plan
Innovative Policies and Programmes

20th CENTURY

WASTE MANAGEMENT

“How do we get rid of our waste efficiently with minimum damage to public health and the environment?”

21st CENTURY

RESOURCE MANAGEMENT – CIRCULAR ECONOMY

“How do we handle our discarded resources in ways which do not deprive future generations of some, if not all, of their value?”

Source: Dr. Paul Connett, Zero Waste, Power Point
Figure 3.3: Conceptual Life Cycle of Electrical and Electronic Equipment

1. EEE production: import/ manufacturing of EEE
2. EEE sales
3. EEE consumption (stock)
4. E-waste generation
5. Re-use / down cycle
6. E-waste treatment/ Re-cycle
7. Secondary raw material / disposal
Metals Life Cycle – Recovery Stages

Figure 5.1: Application of two methodologies in the E-waste trade value chain
Scrap-chain in Developed Countries

Product → WEEE Management

Consume → Collection → Function (spare parts or equipment) → Recovery & Recycling Raw Materials → Exporting to refineries → End Disposal → Disposal

Producers & Importers

Corporate or private consumer

1) Municipal collection
2) OEM services
3) Non OEM services
4) BtoB eScrap collection programs

Refurbishers

1) Recovery of function from refurbishes or recyclers that “harvest” spare parts such as memories, IC chips, power supplies, batteries, etc.
2) Raw material recyclers: get ferrous scrap for iron/steel smelters; plastics for extruders; copper/aluminum and other base metals processors or smelters
3) Base and precious metal refineries

E-Scrap Refineries

Ash or slag disposal Hazardous Wastes

Adapted from EMPA
Urban Mining – Metals Recovery

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Metals Recovery Landscape
IETC Programme on WEEE / E-waste Management

Approach
- Normative: Trainings for local project teams
- Demonstration Projects at City / Municipality Level:
  - E-Waste Inventory
  - Situation Analysis of Present E-Waste Management System
  - Target Setting and Identification of Issues of Concern
  - Development of E-waste Management Plan
  - Awareness Raising, Training and Public Dissemination
  - Capacity building on development of specific activities / projects for E-waste management

Activities (2007~):
- Normative: Three manuals on E-waste (E-waste inventory, E-waste management system, and take-back system), regional training workshops and policy dialogues – Compendium of technologies (under consideration) and disposal of counterfeit goods (led by CAP/OzonAction UNEP, Bangkok)
- Demonstration Projects: Phnom Penh – Cambodia
IETC’ Support on E-waste Management

- Project team-building and training
- Awareness raising and political/community support
- Baseline reports on
  1. E-waste (quantification and characterization with future trends)
  2. Assessment of current E-waste management system (institutions, policies, financing, infrastructure and technology and stakeholder roles)
- Target setting for E-waste
- Stakeholders’ concerns (environmental, economic, social and technical) for meeting the targets
- E-waste management plan with detailed actions (policy, technical and voluntary)
- Training and demonstration activities from E-waste management plan
Step 1 - Training Materials

E-waste Volume I


Inventory Assessment Manual

E-waste Management Manual

Manual 3:
WEEE / E-waste “Take Back System”

Case studies:
experiences/lessons learned

Compendium of technologies


Disclaimer

1. This document is being prepared for the sole use to provide training (educational purposes).
2. UNEP does not claim any responsibility for the data and information presented in the document – However, comments and feedback are welcome for corrections in next draft.
3. This is a draft document.
Workshop on Take Back System

In order to support development of policy framework and capacity building on WEEE/E-waste at national and local level, a training workshop on WEEE/E-waste management was held in Osaka, Japan, on 13-15 July 2011. This workshop was attended by national governments, international organizations, the private sector and civil society. The outcome of the workshop identified a need to build the capacity and policy framework on WEEE/E-waste “take back” system and financial mechanism to sustain this system. In this context, a third manual on WEEE/E-waste take-back system has been developed in continuation to the series of manual 1 and 2.
Step 2 – Awareness Raising

1. Government (National & Local) – All relevant departments
2. Stakeholders (waste generators, service providers, informal and formal businesses)
3. Civil society and academia
4. Project Team
Step 3 – Training for Project Team

Project team consists of:
- National government (Environment, Industries, Customs, etc.)
- Local government (provincial and local government)
- Local experts from academia and non-profit organizations
Step 4 – Data & Information Collection

1. WEEE / E-waste Inventory
Step 5 – Tracer Tracking
Step 6 – Mapping the Markets
Step 7 – Tracing the Trade Value Chain
## Step 8 – Smart Scenarios

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Step 9 – Preparing the Plan with Policy

Technologies
1. Technical Feasibility
2.

Policies (Regulatory & Fiscal)
1. Technical Feasibility
2.

Voluntary Measures
1. Technical Feasibility
2. Economic Viability
3. Implement-ability

Detailed Schemes based on Strategic Action Plan (Measures)
- Institutional, Policy and Regulatory
- Technological/Infrastructure (Projects)
- Voluntary

Implementation Strategy
(Financing, Human Resources, Institutional Aspects, Timeline-Schedule, etc.)

Monitoring & Feedback Mechanism
Sustainability Assessment of Technologies (SAT)

Application of the Sustainability Assessment of Technologies (SAT) Methodology
Guidance Manual

- Policy and Government level: For strategic planning and policy making
- Financing Institution Level: For assessing projects for funding
- Operational Level: For assessment of alternative technologies
- Community and Cluster Level: For assessment and comparison of collective alternative technologies
- Village / Enterprise Level: For comparing technology options

Issues to be addressed / Problems to be solved

Carry out Situational Analysis

Define Targets

Strategic Level Assessment

Operational Level Assessment

Screening

Detailed Assessment

Anticipating Future Scenarios

Prefered Technology Options

Detailed engineering design & costing

Implementation

Monitoring / Performance Evaluation

Public Information / Consultation

## Step 10 – SWOT Analysis for EPR

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<td>1. Mandates availability of raw material either free or at subsidized rates</td>
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<td>2. Ensures constant revenue stream in terms of recycling fee and ownership of recovered material.</td>
<td>2. Can easily absorb historical and orphaned E-waste.</td>
<td>2. Revenue stream is subject to market fluctuation and dependent on only recovery of base and precious metals.</td>
<td>May not survive the market risks.</td>
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<td>3. Monitoring and compliances is stronger.</td>
<td>3. Complete control over transportation.</td>
<td>3. Integration with international regulatory regime.</td>
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<td>4. Producers are made responsible for addressing pollution</td>
<td>4. Can be monitored and made compliant to existing regulatory system.</td>
<td>4. Needs capacity building to implement in Cambodian context.</td>
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<td>5.</td>
<td>5. Easy of monitoring due to existing capacity of regulators.</td>
<td>5. Requires change in consumer behavior.</td>
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**1st conventional step**

1. Provides stepping milestone for developing E-waste management in the country. Promotion of recycling in waste management. Technology transfer and increase of knowledge base.
Step 11 – Public Private Partnerships

• Though Cambodia has not much experience of implementing PPP models in infrastructure sector, the proposed E-waste recycling project can be formulated and implemented along the PPP mechanism. Following are the salient features of this model:

1. The project should fall under the category of urban infrastructure. In case, it is not included in this category then efforts should be made to included it under urban infrastructure category

2. Any state statutory/ government agency can become partner in the project both in terms of provision of land on concession basis and/ or equity partnership

3. 20% to 40% of the project cost can be contributed by the government in order to make it viable

4. “User Fee” or “Service Fee” can be in the form of annuity transferred from the government to the recycling project operators every year. This annuity can be transferred by the authorized government agency in proportion to the recycled E-waste by recycler every year
Recommendations

• Multi-stakeholder support should be garnet through awareness raising campaigns and dialogue. Inter-agency support at international and national level is also vital for an effective and efficient project/programme

• Local project team should be trained for carrying out all the activities under “life cycle approach” and if some activities are beyond the borders then international partners should work closely with local partners and project team

• Training and information is the key so training materials and information should be updated and disseminate on regular basis either through face to face training or through follow-up virtual forums
Pilot Project Concept – ULABs Management Plan

• Awareness raising- stakeholder participation and political will
• Team building and training
• Baseline reports with gap analysis – current amount and practices for ULABs management
• Target setting and identification of stakeholder concerns
• Develop ULABs management plan to fill the gaps (achieve the targets)
• Capacity building for implementation of ULABs management plan
Let us work together for better future!

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