Medical and Electronic waste
Management project

E-waste component

September 2020
Agenda

1. Introduction
2. Significance of E-waste
3. E-waste in Egypt
4. MEWM project
5. Achievements
**Introduction**

E-waste or ‘WEEE’ means electrical or electronic equipment which is the waste including all components, sub-assemblies and consumables which are part of the product at the time of discarding”.

Electronic equipment are one of the fastest growing waste stream in many countries. E-waste makes up around 5% of municipal waste world wide and counted as fastest growing stream of municipal solid.

United Nation University estimated that 41.8 million tones of electronic waste was generated in 2014 where only 6.5 million tones were collected by formal recyclers.

By 2018, it is estimated that E-waste will reach 80 million tones.
Introduction

Categories of E-waste

1. Large household appliances
2. Small household appliances
3. IT & Telecoms equipment
4. Consumer equipment
5. Lighting equipment
6. Electrical & electronic tools
7. Toys
8. Medical equipment systems
9. Monitoring & control equipment
10. Automatic dispensers

Source: WeeeForum
Composition of e-waste fractions

- 56.28% Metals
- 11.41% Plastic-metal mixture
- 13.10% Plastics
- 01.39% Cable
- 00.80% Toner cartridges
- 01.49% PCBs
- 00.34% LCDs
- 06.80% CRTs
- 01.17% Glass
- 06.27% Other substances
- 00.93% Harmful substances

Composition of e-waste fractions: focusing on the 1% harmful substances

- 0.51% Batteries
- 0.15% Capacitors
- 0.00% Components containing mercury
- 0.05% Luminescent material
- 0.00% Cathode ray units (including cathode ray tube)
- 0.00% Photoconductor drums with Se layer
- 0.03% Equipment parts containing asbestos
- 0.08% CFCs
- 0.09% Oil
- 0.00% Ammonia (NH₃)
- 0.02% Other residues containing harmful substances

### Composition of e-waste fractions: focusing on the 1% harmful substances

<table>
<thead>
<tr>
<th>Pollutants</th>
<th>Desktop computer</th>
<th>Cathode Ray tube monitor</th>
<th>LED monitor (flat screen)</th>
<th>Electric toothbrush</th>
<th>Fridge</th>
<th>Oven</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brominated flame retard plastic</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Capacitors containing PCB</td>
<td>X</td>
<td>X</td>
<td>(x)</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Leaded glass</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mercury lamps</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFC gases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Asbestos</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Battery</td>
<td>X</td>
<td>X</td>
<td>(x)</td>
<td></td>
<td>(x)</td>
<td>(x)</td>
</tr>
</tbody>
</table>
The problematic informal sector

Informal recyclers exist in many countries; they focus on valuable fractions in e-waste and dump non-valuable fractions.

Some formal and approved recyclers may already exist but volumes are often low.

Source: Alliance for e-waste solutions in Africa 2014
The problematic informal sector: Worldwide

- Waste Resources
- Polluting soil, water and air
- Human Health Consequences
- Lacking technologies
- Lacking Legislative Framework
- Preventing fair local business
- Survival Imperative

Don’t consider it “just a developing countries’ problem”!!
Why is e-waste a concern?

E-Waste contains many substances

– **Hazardous**: heavy metals, flame retardants, PCBs (polychlorobiphenyls)...

– **Valuable**: Au, Ag, Pd, Cu, Fe, Al, glass, plastics...
E-waste Recycling Chain
E-waste in Egypt

- Egypt is among top three African countries with highest E-waste generation.

- Between 2015 and 2019, the stock of Equipment (ICT) in Egypt would increase by around 5.9%, rising from 755K tons to 780K tons.

- The flow of WEEE would increase by around 15.7%, rising from 73K tons/year in 2015 to 84k tons/year in 2019, indicating an annual WEEE mass flow increase of 3.14%.
E-waste in Egypt

- The largest amount of mass flow is generated by the enterprises, followed by households then governmental sector.

- Currently only around 1,584.0 tons/year of electronic waste is been collected from the total generated electronic waste mass flow, which only represents 2.2%.

- The waste mass/year/inhabitant is around 0.80 kg (WEEE1)
Stakeholder Assessment

Formal Sector
Stakeholder Assessment

Informal Sector

E-waste recycler
E-waste Flow in Egypt

1. Distributors / retails
2. Private Enterprises
3. Households
4. Informal collectors/scrap dealers
5. Dismantling and sorting
6. Final Treatment
   - Export
   - Uncontrolled dumpsites
   - Controlled landfills
   - Landfill for H.W

Medical and Electronic Waste Management Project
Laws & Regulations: Develop short and succinct law on the disposal of obsolete electrical equipment as a type of waste, and recognize it with a term such as WEEE/WEEE.

Collection: Enforce licensing and EHS regulation requirement on collectors/recyclers participating in auctions for WEEE from governmental sector and enterprises.

Recycling & Treatment: Empower the formal sector through trainings, technical and financial scheme. Design a business models for informal sector and incentives through better prices. Encourage civil society and development NGOs to prioritize WEEE recycling sector. Awareness and Education: Conduct mass awareness campaigns supported by booklets and manuals on WEEE.

IMS: Require governmental institutions affiliated with WEEE industry to adopt digital format of information management and digital based documentation.

EEE Producers/Retailers: Integrate end producer/end distributor responsibility in legal framework with respect to WEEE.
Medical and Electronic waste management project
Introduction

The Government of Egypt, represented by the Ministry of Environment (MOE) in coordination with the Ministry of Foreign Affairs (MoFA) and the technical support of the United Nations Development Program (UNDP) has succeeded in obtaining a new package of grants from the Global Environment Facility (GEF) to implement a five years project (started in May 2016) entitled.

*Protect human health and the environment from unintentional releases of POPs originating from incineration and open burning of health care- and electronic waste*
Protect human- and environmental health by reducing releases of POPs and other hazardous releases (e.g. mercury, lead, etc.) resulting from the unsound management of healthcare and electronic wastes by provision of an integrated institutional and regulatory framework and demonstrating and promoting BAT & BEP to soundly manage and dispose of such wastes through:

1. Improving the regulatory system and enhancing its enforcement
2. Raising awareness on POPs
3. Establishing the capacity for safe handling and transport
4. Improving disposal of POPs containing waste
Electronic waste Management Component
Strategy

In green are the activities that the project will implement.
Work Pillars

Replication of project results at international, regional, National level

- Capacity Building/
  Awareness raising
- Introduction of BAT/BEP
- National policy/
  Regulatory framework

National mapping
Achievements
National mapping

- Assessment of E-waste in Egypt
- Baseline on POPs, UPOPs, and associated hazardous releases (mercury, lead, cadmium) from E-waste processing
Guidelines on ESM of E-waste in Egypt

Guidelines for Handling, processing, and Disposal of E-waste Components Containing Heavy Metals and POPs
Assessment (cost/effectiveness analysis) of BAT/BEP technology options and facilities available for E-waste containing pops/toxic metals recycling and disposal including segregation cost.
BAT/BEP

- Formalization of 8 informal companies
  - 8 ESIA studies issued
  - 1 operational licenses
About 7,091 tons of E-waste was re-directed to formal recyclers active in the country. This corresponds to a reduction of about 670.2 kg of c-PBDE & 5.96 g-TEQ.
About 800 tons of CRT existing in Egyptian ports waste will be exported to Greece for Safe disposal.
Capacity Building/
Awareness Raising

➢ Training on the issue of POPs/toxic metals in E-waste (558 trainees)

➢ awareness raising workshop on ESM of E-waste (2489 participants)
Capacity Building/
Awareness Raising

- campaign aimed at creating awareness on E-waste
Capacity Building/
Awareness Raising

- campaign aimed at creating awareness on E-waste
Capacity Building/
Awareness Raising

- Launching E-Tadweer campaign for collecting E-waste from household
A ministerial decree was issued in April 2019 to establish a national committee to oversee E-waste management issues on the national level and recommend any regulatory or institutional reforms.

A policy framework on ESM of E-waste.
Thank you