



## e-Waste Toolkit

# INTRODUCTION TO E-WASTE

E-waste refers to all items of electrical and electronic equipment (EEE) and its parts that have been discarded as waste without the intent of re-use.

[STeP Initiative 2014]

EEE plays an important role in improving living standards and creating income opportunities. However, growing amounts of EEE, mainly due to higher consumption and short life cycles, are generating hazardous waste streams.

In 2019, just 17.4% of e-waste generated globally was collected and recycled. Africa had the lowest rate, with just 0.9% of its 2.9 Mt of e-waste recycled. Just 13 countries in Africa have a national e-waste legislation/policy or regulation in place. [Global E-waste Monitor 2020]

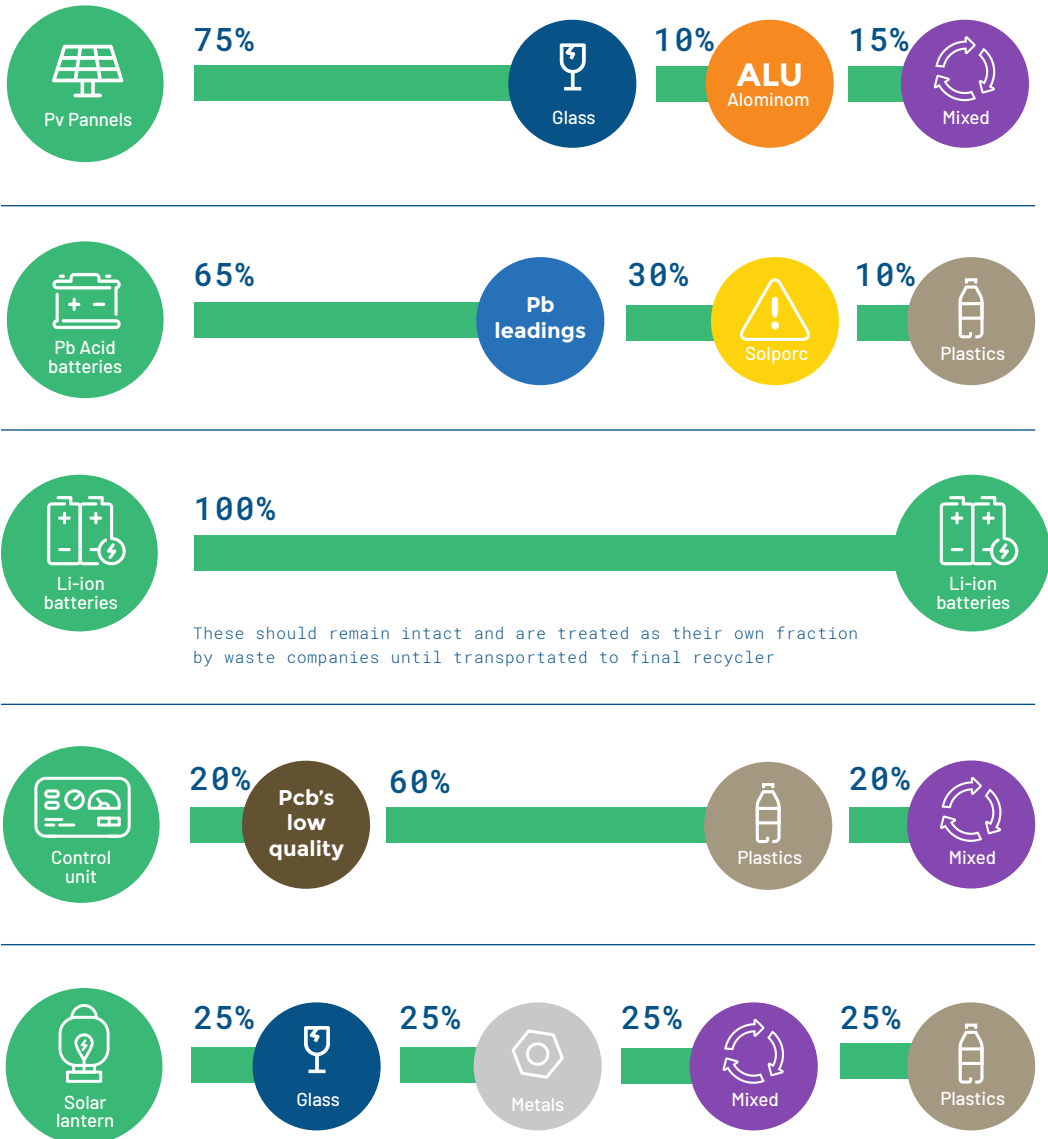
## Types of e-waste

The UN divides EEE into 54 different product-centric categories. These can be grouped into six general categories based on their waste management needs:

- **Temperature exchange equipment** – refrigerators, ACs, heat pumps
- **Screens and monitors** – televisions, computers, tablets
- **Lamps** – fluorescent, high intensity discharge, LED
- **Large equipment** – copiers, washing machines, PV panels
- **Small equipment** – household and business appliances
- **Small IT & telecom equipment** – mobile phones, routers, home printers

# Forms of solar e-waste

The main components of an off-grid solar (OGS) system are solar panels, batteries, lamps, control units, cables, metal frames, and electrical appliances. Each component should be handled and recycled or disposed of in an appropriate manner.



Source: Based on [GOGLA E-Waste Toolkit](#)

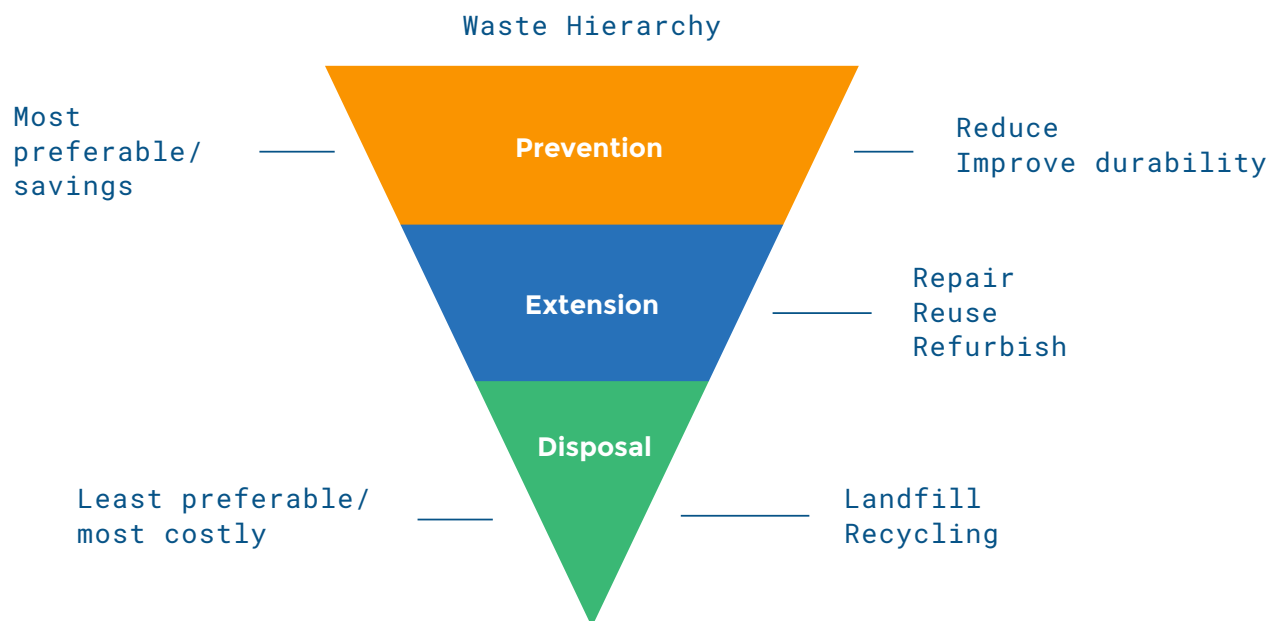
## Waste-handling hierarchy

Effective management prevents the premature appearance of solar and electronic components and products in waste streams.

**Prevention / avoidance** includes actions to reduce the amount of waste generated by households, industry and all levels of government, beginning with improvements in design and manufacturing to create more durable products with longer life cycles.

**Extension / resource recovery** includes reuse, recycling, reprocessing and energy recovery, consistent with the most efficient use of the recovered resources.

**Disposal** includes management of all disposal options in the most environmentally responsible manner.



Source: Based on [G0GLA E-Waste Toolkit](#)

## Impact of e-waste management

E-waste management has a critical role to play in the global shift to a circular economy and efforts to achieve the Sustainable Development Goals.

### Shift to a circular economy

Moving from a linear to a circular economic is a global priority that offers new economic opportunities while also addressing climate change and the depletion of natural resources.

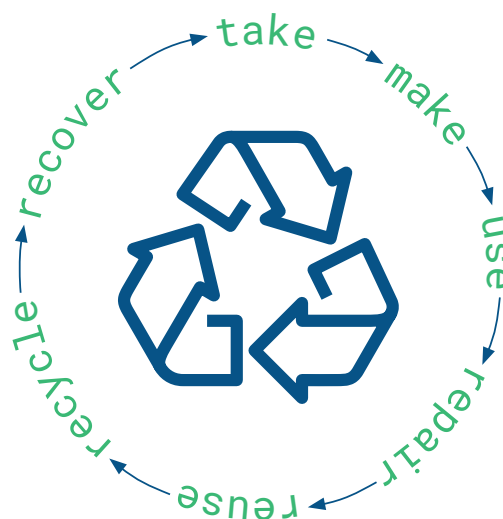
#### Linear Economy: **Take-make-use-dispose**

A traditional model of production and consumption in which raw materials are collected, transformed into products, used and then discarded as waste. The energy, resources and value put into a product are lost when a product stops functioning.

#### Circular Economy: **Take-make-use-repair-reuse-recycle-recover**

A circular economy is a closed loop system in which raw materials and products are kept in use for longer and recycled. Products retain their value through repair and reuse, thus preserving limited resources and reducing or eliminating waste.

take – make – use – dispose



## Achieving the SDGs

E-waste management directly contributes to a number of the Sustainable Development Goals, including SDG 3 (good health and well-being), SDG 6 (clean water and sanitation), SDG 8 (decent work and economic growth), and SDG 11 (sustainable cities and communities). The most important one, however, is SDG 12 on responsible consumption and production.



### Goal 12: Ensure sustainable consumption and production patterns

Target 12.5: By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.

Indicator 12.5.1: National recycling rate, tons of material recycled

$$\text{Sub-indicator on e-waste} = \frac{\text{Total e-waste recycled}}{\text{Total e-waste generated}}$$



The materials in this e-waste toolkit have been developed for EEP's Africa portfolio in collaboration with CLASP, an international organization improving the energy and environmental performance of the appliances and equipment we use every day.