EMDC 11 (4827) P3

# DRAFT TANZANIA STANDARD

## Electrical and electronic waste management: Handling, collection, transportation, refurbishment, dismantling, recycling, storage and disposal

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## 0. Foreword

The fast growing use of electrical and electronic equipment's and rapid turn-over in technology is creating a growing e-waste stream not only in industrialized but also in developing countries like Tanzania. The challenge of e-waste is even of greater concern in developing countries because most of these countries lack the capacity for handling and recycling the hazardous materials contained in e-waste. This leads to disposal of both e-waste and municipal waste in dumpsites hence polluting the environment and creating health risks to the nearby community and the population at large.
The standard intends to maximize reuse and material recovery, reduce or eliminate the amount of waste from this equipment going to final disposal operations such as landfills so as safeguard workers health, and minimize harm to the environment.

In preparation of this Tanzania Standard, considerable assistance was derived from:

Environment (Protection) Act, 1986 (29 of 1986), in supersession of the e - waste (Management and Handling) Rules, 2011

AS/NZS 5377:2013 Collection, storage, transport and treatment of end-of-life electrical and electronic equipment

## 1. Scope

This Tanzania Standard sets up requirements and responsibilities for the safe and environmentally sound handling, collection, transport, refurbishment, dismantling, recycling, storage and disposal of electrical and electronic equipment.
This Standard covers electrical and electronic equipment with exclusion of radioactive waste, as outlined in Annex.

## 2. Normative References

No normative reference

## 3. Terminology

For the purpose of this Tanzania Standard, the following definitions shall be applied.

### 3.1 bulk consumer

Means bulk users of electrical and electronic equipment such as central government of state government departments, public sector undertakings, bank, education institutions, multinational organizations, international agencies and private companies.

### 3.2.1 collection

Refers to the group of objects or amount of material accumulated in one location especially for some purpose or as a result of some process.

### 3.3 collector

Individual or a registered association or cooperative, designated agency or a licensed company to undertake collection operations of e-waste.

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### 3.4 collection location or facility

A place temporarily or permanently designated for receiving end-of-life electrical and electronic equipment in order to sort, store, and transport that equipment to storage or processing facilities. The collection location or facility may be co-located with the storage or processing facilities.

### 3.5 consumer

Any person using electrical and electronic equipment excluding the bulk consumers.

### 3.6 dealer

Entity or individual who sells on behalf of a company or manufacturer.

### 3.7 dismantler

Any person or registred society or a designated agency or a company or an association engaged in dismantling of used electrical and electronic equipment into their components.

### 3.8 electrical and electronic waste (e-waste)

"e-waste" is a term used to cover all items of electrical and electronic equipment (EEE) and its parts that have been discarded by its owner as waste without the intent of reuse

### 3.9 electrical equipment

Includes any machine powered by electricity. They usually consist of an enclosure, a variety of electrical components, and often a power switch. Examples of these include: major appliance, microcontroller, power tool and small appliances. It also often refers only to the components part of the electrical distribution system such as: electric switchboards, distribution boards, circuit breakers and disconnects, electricity meter and transformers

### 3.10 electrical and electronic equipment

Equipment which is dependent on electric currents or electromagnetic fields in order to work properly and equipment for the generation transfer and measurement of such currents and of fields.

### 3.11 electronic equipment

Equipment that involves the controlled conduction of electrons (especially in a gas or vacuum or semiconductor) e.g. amplifier, audio and sound system, cassette player, CD player, Cathode Ray Oscilloscope, detector, equalizer, mixer, modem, telephone among others

### 3.12 end-of-life

Electrical and electronic equipment that is no longer suitable for use, and which is intended for disassembly and recovery of spare parts or destined for material recovery and recycling or final disposal

### 3.13 generator

Any person or institution that produces e-waste

### 3.14 manufacturer

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Entity involved in the making or production of electrical and electronic equipment either locally or internationally

### 3.15 producer

Any person or entity who introduces or causes to be introduced new and used electrical and/ or electronic equipment into the market by sale, donation, gifts, inheritance or by any such related methods and can either be a manufacturer, importer, distributor or assembler.

### 3.16 recovering

Separation or extraction of materials from used electrical and electronic equipment for further use or processing.

### 3.17 recycling

Any operation by which used electrical and electronic equipment materials are processed in some way to enable products, materials or substances to be used, whether or not for the original purpose.

Recycler means an occupier who procures and processes e-waste materials for recovery

Registered recycler or re-refiner or reuser means a recycler or re-refiner or reuser registered for reprocessing e-waste;

### 3.18 refurbisher

Any person who repairs, dismantles or re-assembles electrical and electronic equipment to extend the working life of the product;

### 3.19 reuse

e-waste that are used for the purpose for its original use or another use.

### 3.20 storage

Place where electric and electronic goods stored waiting to be reused, recycled or finally disposed.

## 4 REQUIREMENTS

### 4.1 General Requirements

Legal and other requirements, including regulatory and international requirements that are directly applicable to electrical and electronic equipment, need to be identified and adhered. This includes, but is not limited to the following:

(a) Environmental legislations.
(b) Laws relating to the collection, storage, transport, refurbishment, dismantling and recycling e-wastes and hazardous wastes.
(c) Occupational health and safety legislation.
(d) Export and import licensing laws and regulations.

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(e) International treaty obligations which bind Tanzania.

## 4.2 ORGANIZATIONAL REQUIREMENTS

### 4.2.1 Risk assessment and management

A documented risk assessment process to identify and control any potential environmental, health or safety hazards associated with the entity's operations shall be maintained. The risk assessment process shall include the following steps:

(a) Define the responsibilities and qualifications for individuals conducting the risk assessment.
(b) Record and monitor any potential risks associated with the materials handled and tasks undertaken, as well as the overall operations, during both normal operating conditions and potential emergency situations.
(c) Evaluate any potential environmental, health or safety risks identified through the assessment and develop a risk mitigation plan.
(d) Implement controls suitable to the identified risks to protect the environment and human health and safety.
(e) Monitor the effectiveness of any implemented controls and adjust as required based on the acceptable residual risks.
(f) Maintain a schedule to review risk assessments at least on an annual basis, or more frequently if required as a result of any significant operational, environmental or regulatory changes.
(g) Maintain a list of products and waste materials that the organization is capable of collecting, processing, storing or otherwise handling in a safe and environmentally sound manner.

## 5. RESPONSIBILITIES

### 5.1 Responsibility of manufacturer and or dealer

Any manufacturer of Electrical and Electronic Equipment shall ensure;

(a) Collection of e-waste generated during the manufacture of electrical and electronic equipment and channel it for dismantling, refurbishing, recycling or disposal.
(b) Collection of e-waste generated from the 'end of life' of their products in line with the principle of 'Extended Producer Responsibility' and to ensure that such e-waste are channelled to a licensed dismantler or recycler.
(c) Setting up collection location or facilities or take back systems either individually or collectively.
(d) Financing and organizing a system to meet the costs involved in the environmentally sound management of e-waste generated from the end of life of its own products and historical waste available. The financing arrangement of such a system shall be transparent. The Manufacturer may choose to establish such a system either individually or by joining a collective scheme;

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(e) Providing contact details such as address, telephone numbers or helpline number of authorized collection centres to consumers or bulk consumers so as to facilitate take back of used electrical and electronic equipment.
(f) Creating awareness through publications, advertisements, posters, brochures or by any other means of communication and information booklets accompanying the equipment, with regard to-
    i. information on hazardous constituents as specified in the guidelines;
    ii. information on hazards of improper handling, accidental breakage, damage and/or improper recycling of e-waste;
    iii. instructions for handling the electrical and electronic equipment after its use; and
    iv. affixing a visible, legible and indelible symbol on the electrical and electronic equipment's or information booklets as may be prescribed in the guidelines;

### 5.2 Responsibility of consumer/generator

5.2.1 Any Consumer of electrical and electronic equipment shall-

(a) ensure that e-waste generated by him is channeled to a dealer in e-waste or is returned through take back services to the manufacturer or authorized dealer;
(b) segregate safely e-waste from other wastes and deposit separately into receptacles; and
(c) identify e-waste which contains sensitive or confidential information and channel it to the appropriate dealer in e-waste; and

5.2.2 Every Bulk Consumer shall maintain records of e-waste generated by them and make such records available for scrutiny by the Environmental Inspectors.

### 5.3 Responsibility of collector

Any Collector of e-waste shall-

(d) Ensure that the e-waste collected is stored in a secured manner till it is sent to a licensed dismantler or recycler.
(e) Ensure that no damage is caused to the environment during storage and transportation of e-waste;
(f) Maintain records of the e-waste collected and make such records available for scrutiny by competent authorities;
(g) Label vehicles used for transportation of e-Waste;
(h) Avoid damage or breakage of components of e-Waste during collection;
(i) Store the e-waste after sorting it into various categories for easy access by downstream users; and
(j) Follow required public health and safety procedure and facilities for handling e-waste.

### 5.4 Responsibility of refurbisher

Any refurbisher of e waste shall-

(a) Clearly label products for easy identification of product constituents;
(b) Separate through manual dismantling and/or automatic processing, the materials in equipment and components that are not directed to reuse and direct them to recovery facilities when technically and economically feasible;

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(c) Clearly indicate Extended Producer Responsibility on electrical and electronic equipment;
(d) Clean up operations for all areas of the facility should be planned, regularly implemented, and monitored.

### 5.5 Responsibility of dismantler

Any Dismantler of e-waste shall-

(a) Ensure that no damage is caused to the environment during storage and transportation of e-waste.
(b) Ensure that the dismantling processes do not have any adverse effect on human health, life and the environment;
(c) Ensure that dismantled e-waste are separated and sent to the licensed recycling facilities for recovery of materials;
(d) Ensure that non-recyclable or non-recoverable components are sent to licensed treatment, storage or disposal facilities;
(e) Comply with all applicable environmental, health and safety, and data security legal requirements; and
(f) Ensure that employees involved in data destruction receive appropriate training and information on a regular basis and be evaluated for competency in data destruction processing.

### 5.6 Responsibility of recycler

Any Recycler of e waste shall-

(a) Ensure that residue generated thereof is disposed in e-waste treatment storage, or disposal facility;
(b) Have hazard and safety signs displayed at appropriate places indicating the treatment plant or disposal facility and nature of operations;
(c) Comply with all environmental standards of emissions, effluents, noise pollution treatment and disposal for the e-Waste recycling facility.
(d) Ensure reuse, recovery, recycling and final disposal of remains of e-waste;
(e) Conduct and document at all facilities regular re-evaluation of environment, health and safety objectives, and monitoring of progress toward achievement of these objectives.
(f) Take sufficient measures to safeguard occupational and environmental health and safety; and
(g) Ensure the personnel involved in handling e-Waste in recycling facilities at all operational levels are qualified and properly trained.

### 5.7 Responsibility of disposer

Any disposer of e-waste shall-

(a) Ensure disposal takes place in appropriate disposal facility as stipulated in 4.1.
(b) Take sufficient measures to safeguard occupational and environmental health and safety; and

(c) Ensure the personnel involved in handling e-Waste in disposal facilities at all operational levels are qualified and properly trained

## 6. RECEIVING, HANDLING AND STORAGE

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The electrical and electronic waste equipment shall be maintained with precaution during receiving, handling and storage on site, in order to avoid release of hazardous substances into air, water or soil, as a result of damage and/or leakage. Electrical and electronic waste shall be handled and stored in a manner that:

(a) Prevents theft or vandalism;
(b) Prevents exposure of people on site to unsafe storage and handling conditions or hazardous substances; and
(c) Not be powered unless it has been tested and tagged to indicate it is safe to power.

Methods of handling (i.e. loading, unloading and transport) and storage shall include the use of appropriate tools and means of securing to ensure safe and effective recovery or recycling.

## 7. RECORDS MANAGEMENT

All operational records shall be maintained to allow the traceability of electrical and electronic equipment, including but are not limited to manifests bills of loading, chain of custody documents, transport records and any other record keeping requirement outlined in this Standard and all other applicable legal frameworks shall be accessible, identified, legible and maintained.

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## ANNEX

## Normative

## ITEMS DESIGNATED AS ELECTRICAL AND ELECTRONIC EQUIPMENT

Electrical and electronic equipment covered by this Standard are.

**Large Household Appliances;**

(a) large cooling appliances;
(b) refrigerators;
(c) freezers;
(d) other large appliances used for refrigeration, conservation and storage of food
(e) Washing machines;
(f) clothes dryers;
(g) dish washing machines;
(h) electrical Cooking appliances;
(i) electric stoves;
(j) electric hot plates;
(k) microwaves;
(l) other large appliances used for cooking and other processing of food
(m) electric heating appliances;
(n) electric radiators;
(o) other large appliances for heating rooms, beds and seating furniture;
(p) electric fans;
(q) air conditioner appliances; and
(r) Other fanning, exhaust ventilation and conditioning equipment.

**Small Household Appliances:**

(a) vacuum cleaners;
(b) carpet sweepers;
(c) other electrical appliances for cleaning;
(d) appliances used for sewing, knitting, weaving and other processing for textiles;
(e) irons and other appliances for ironing, mangling and other clothing appliances;
(f) toaster ;
(g) fryers ;
(h) grinders, coffee machines and equipment for opening or sealing containers or packages;
(i) electric knives;
(j) appliances for hair-cutting, hair drying, tooth brushing, shaving, massage and other body care appliances;
(k) clocks, watches and equipment for the purpose of measuring, indicating or registering time; and
(l) scales.

***IT and telecommunications equipment***

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(a) centralized data processing-
    (i) minicomputers
    (ii) servers or units personal
    (ii) mainframes
(b) printer units;
(c) personal computing;
    (i)personal computers (CPU, mouse, screen and keyboard included)
    (ii)laptop computers (CPU, mouse, screen and keyboard included)
    (iii) notebook computers
    (iv) notepad computers
(d) copying equipment;
(e) electrical and electronic typewriters;
(f) pocket and desk calculators and other products and equipment for the collection, storage, processing, presentation or communication of information by electronic means;
(g) user terminals and systems;
(h) facsimile;
(i) telex;
(j) telephones;
(k) pay telephones;
(l) cordless telephones;
(m) cellular telephones;
(n) answering systems and other products;
(o) answering machines,
(p) beepers or pagers,
(q) doublers,
(r) multiplexers,
(s) trackballs,
(t) artificial pacemakers and monitors.
(u) electronic or digital watches
(v) e-readers
(w) global position system receivers
(x) broadcasting equipment for transmitting sound, images or other information by telecommunications; and
(y) and other products or equipment for the purpose of recording or reproducing sound or images, including signals or other technologies for the distribution of sound and image than by telecommunications.

**Consumer Equipment**

(a) radio sets;
(b) television sets;
(c) video cameras;
(d) video recorders;
(e) hi-fi recorders;
(f) video displays,
(g) dongles,
(h) calculators,
(i) electric shavers
(j) noise reduction headphones

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(k) pagers,
(l) tablets
(m) audio amplifiers; and
(n) musical instruments.

***Lighting equipment***

(a) luminaries for fluorescent lamps. Straight fluorescent lamps;
(b) compact fluorescent lamps;
(c) high intensity discharge lamps, including pressure sodium lamps and metal halide lamps;
(d) low pressure sodium lamps; and
(e) other lighting or equipment for the purpose of spreading or controlling light.

***Electrical and electronic tools***

(a) drills;
(b) saws;
(c) sewing machines;
(d) equipment for turning, milling, sanding, grinding, sawing, cutting, shearing, drilling, making holes, punching, folding, bending or similar processing of wood, metal and other materials;
(e) tools for riveting, nailing or screwing or removing rivets, nails, screws or similar uses;
(f) tools for welding, soldering or similar use;
(g) equipment for spraying, spreading, dispersing or other treatment of liquid or gaseous substances by other means; and
(h) tools for mowing or other gardening activities.

***Toys, leisure and sports equipment***

(a) electric trains or car racing sets;
(b) hand-held video game consoles;
(c) video games
(d) computers for biking, diving, running, rowing, and other similar gadgets;
(e) sports equipment with electric or electronic components; and
(f) coin slot machines.

***Monitoring and control instruments***

(a) smoke detector;
(b) heating regulators;
(c) thermostats;
(d) measuring, weighing or adjusting appliances for household or as laboratory equipment;
(e) other monitoring and control instruments used in industrial installations;

**Automatic dispensers**

(a) automatic dispensers for hot drinks;
(b) automatic dispensers for hot or cold bottles or cans;
(c) automatic dispensers for solid products; and
(d) automatic dispensers for money.
(e) batteries.
(f) security equipment.
(g) florescent tubes.

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**Electrical circuits composed of active electronic components including**

(a) vacuum tubes,
(b) transistors,
(c) integrated circuits

**Related passive electronic components and interconnection technologies including**

(a) resistors
(b) capacitors
(c) diodes
(d) inductors
(e) transformers

**Other electronic devices**

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