



## **DRAFT TANZANIA STANDARD**

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**Solid waste: Environmental management of compost processing facilities**

**TANZANIA BUREAU OF STANDARDS.**

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## Introduction

Low-income countries are known to have the highest proportion of organic waste, which can range from 40-65% of the total waste stream. In Tanzania organic wastes constitutes 50-65% of all wastes collected. Composting can play an important role in the waste management system as an effective treatment of organic waste.

Furthermore, organic waste that is composted well does not end up on the landfill, thus preventing rapid filling up of costly space produced by the degradation of organic matter. Next to addressing climate mitigation, compost is a useful product as it can improve the condition of the soil and as such support local agriculture and horticulture.

The treatment and disposal of organic waste can produce various greenhouse gases (GHGs), of which the most important are CO<sub>2</sub> (carbon dioxide), CH<sub>4</sub> (methane) and N<sub>2</sub>O (nitrous oxide). If organic waste is composted or appropriately treated otherwise, its climate change impact becomes rather negligible. However, in Tanzania where capital markets and markets for compost, best practices and supportive policy models are still being developed, it proves to be difficult to sustain and scale up composting activities. Thus, it is important to provide a guideline, regulation for the environmental management of the composting process

## Foreword

The Tanzania Bureau of Standards is the statutory national standards body for Tanzania, established under the Act.No.3 of 1975, amended by Act.No.2 of 2009.

This draft Tanzania standard is being prepared by solid waste National Technical Committee, under the supervision of the Environmental Management Divisional Standards Committee (EMDC).

TBS has considered it necessary to implement its mandate to develop a compost facility standard so as to ensure protection of human health and the environment.

In the preparation of this Tanzania Standard, considerable information was drawn from the following:

*Compost Facility Requirements Guideline: How to Comply with Part 5 of the Organic Matter Recycling Regulation, David J.L.et al, March 2004.*

*Compost guideline, Environment Protection Authority South Australia, June 2019.*

*Compost quality standards & guidelines, William F. Brinton, Ph.D.,2000*

*BSI/PAS 100- compost specifications.*

## **1. Scope**

This Tanzanian standard provides environmental and safety requirements for siting, design, operation and closure of a compost facility.

This Tanzanian standard does not apply to composting activities that do not require registration with the regulator.

## **2. Normative references**

There are no normative references.

## **3. Terms and definitions**

For the purpose of this Tanzania Standard, unless the context specifically indicates otherwise, the following terms and phrases shall have the meanings respectively ascribed to them by this section.

### **3.1 anaerobic digestion**

process of controlled decomposition of biodegradable materials under managed conditions where free oxygen is absent, at temperatures suitable for naturally occurring mesophilic or thermophilic anaerobic and facultative bacteria species, that convert the inputs to a methane rich biogas and whole digestate

### **3.2 aerobic digestion**

composting taking place in the presence of ample oxygen

### **3.3 biodegradable**

capable of undergoing biologically-mediated decomposition

### **3.4 competent authority**

the Regulatory Authority or any local, or national agency, authority, department, inspectorate, minister, official, Court, tribunal or public or statutory person (whether autonomous or not) of the United Republic of Tanzania which has jurisdiction on the subject matter

### **3.5 compost**

product resulting from the controlled biological decomposition of organic materials from biodegradable sources such as crop residues, animal droppings/manure and market/kitchen waste, it is valued for its organic matter content, it is typically used as a soil amendment to enhance the chemical, physical and biological properties of soil as well as providing diverse nutrition for plants, and also as a growing medium

### **3.6 composter**

business enterprise, organization, community initiative or person(s) responsible for the production of compost

### **3.7 composting**

process of controlled biological decomposition of biodegradable materials under managed conditions that are predominantly aerobic and that allow the development of thermophilic temperatures as a result of biologically produced heat

### 3.8 feedstocks

any raw material that is supplied to a machine or processing plant

### 3.9 Storm water

rain or melted precipitation that runs off land or structures on land

### 3.10 Authority

National environment management council or any other authority responsible for the environment

## 4 Requirements for a compost facility

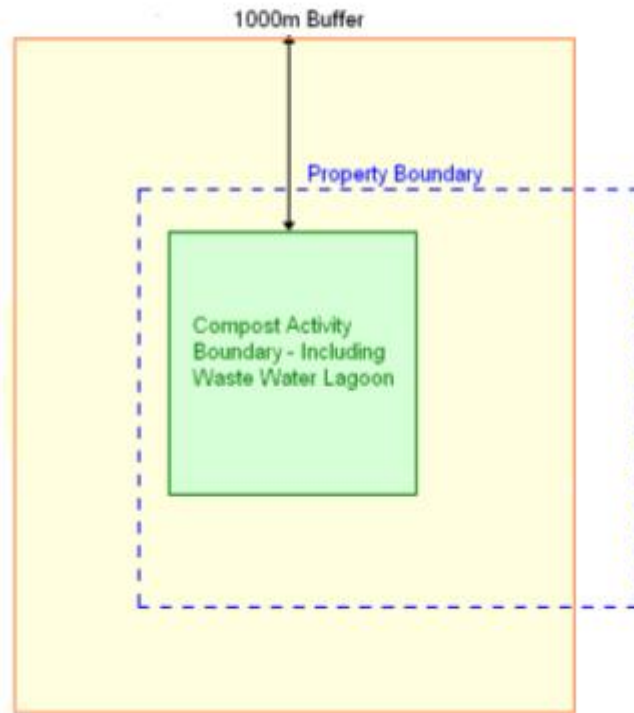
### 4.1 Site selection

- i. Composting facility shall not be located on wetlands and areas prone to flooding and where the seasonal high ground water table is less than 1 m from the soil surface. (Regional flood plain maps should be referred to prior to siting of the compost facility).
- ii. A composting facility shall be provided with a buffer zone (see figure 1) from the composting site to the nearby facilities or points of potential impacts to minimize odor, noise related problems, to protect surface and underground waters and any other environmental and health impacts. Minimum composting facility buffer zone distances are provided in table 1.
- iii.

**Table 1: minimum composting facility buffer zones distances**

Distances from the composting site to:	Minimum buffer zones distances (meters)*
Property line	15-30
Residential area	400
Hospitals	800
Tourist areas	400
Airport	20000
Commercial or industrial areas	100
Private wells or other potable water source	1000
Wetlands, ponds, lakes, streams	150
Subsurface drainage pipe or drainage ditch discharging to a natural water course	50
Water table (seasonal high)	1
Bedrock	0.6

**\*buffer zone is the distance from the perimeter of the composting site to points of potential impacts**



**Figure 1: figure showing buffer zone.**

## **4.2 Design of composting facilities.**

### **4.2.1 General design requirements.**

- i. Technical specifications including design drawings, a Construction Quality Assurance Plan and Construction Management Plan should be submitted for assessment and approval by the relevant authority prior to commencing construction works.
- ii. The receiving, storage, processing and curing area of incoming feedstocks shall have a roof, or cover, containment and also a prepared surface designed to prevent feed stocks and compost from storm water and surface collection of water around the base.
- iii. The receiving, storage, processing and curing area of incoming feedstocks shall be undertaken on a low permeability material (liner) such as compacted clay, asphalt or concrete or any other similar impermeable surface that is capable of withstanding wear and tear from normal operations that will prevent the release of leachate into the environment.
- iv. The receiving, storage, processing and curing area of incoming feedstock's shall have a leachate collection system designed, constructed, maintained and operated to reuse or to remove leachate from the receiving, storage processing and curing area.
- v. The receiving, storage, processing and curing area of incoming feedstocks shall have a minimum 2% drainage gradient to ensure the free drainage of leachate to a designated wastewater collection system.
- vi. The design of the compost facility should ensure access to all areas of the site irrespective of weather conditions.
- vii. Composting facilities should have a perimeter fence that is suitable for containing debris and dust on site.
- viii. Composting facilities shall have a separate storm water and wastewater (including leachate) management systems.
- ix. Composting facilities shall be designed to divert clean storm water from pooling or draining towards areas where feed stocks and finished compost product are received, sorted, stored or processed.

- x. All storm water which comes into contact with incoming feed stocks and compost windrows should be handled and treated as wastewater.
- xi. Design criteria for the storm water management system should consider:
  - a) the 1-in-25-year recurrence interval
  - b) 24-hour duration storm event for design of drainage feature

#### **4.3 Operation requirements**

- i. Stockpiles should not be located within 2 m of the site boundary fence. Where stockpiles are located within 5 m of the boundary fence they should be maintained below the top of the fence
- ii. The composter shall prevent and avoid any infestation, harborage or attraction of vectors within the facility
- iii. Composting facilities should prevent unsightly conditions onsite and the migration of litter beyond the premises boundaries
- iv. Residual waste and/or incoming feedstock that are unsuitable for use in the composting process should be categorized in accordance with the criteria for the classification of waste prior to being removed offsite and transported to a suitably licensed facility to receive and/or dispose of that waste
- v. The conduct of a composting facility should comply with the available environmental standards and best practice

#### **4.4 Requirements for decommissioning of compost facility**

Upon cessation of the composting activity and prior to surrender of a license, the site shall be appropriately decommissioned under supervision or guidance from relevant authority to prevent any hazard to the environment, local amenity and/or health and safety of the people.