



# **KHANYISA PROJECTS CASE STUDY**

## **DEVELOPMENT OF A TROMMEL SCREEN FOR FAECAL SLUDGE SCREENING**

### **AT A GLANCE**

#### **FUNDERS**

WADER Programme  
An initiative of the Water Research Commission.

#### **TIMELINE**

The project was implemented during 2021.

#### **AREAS**

The project was implemented at the Newlands Mashu Research Centre.

### **MODIFICATIONS**

Modifications that were successfully made to improve operational efficiency included the addition of an unblocking brush and a spray bar.

### **CONCLUSION**

Through the use of the sludge trommel screen Khanyisa Projects can assist municipalities or private organisations who are involved in circular economy activities using faecal sludge.

### **OBJECTIVES**

**What:** Circular economy initiatives involving faecal sludge beneficiation such as Composting and Black Soldier Fly processing technologies are severely hampered by the high solid waste or detritus content of the faecal sludge recovered from various forms of pit latrine. Detritus can include plastics, nappies, stones, bottles and clothing.

**How:** Through this project Khanyisa Projects successfully developed and tested a rotating trommel screen to separate solid waste from the organic material emanating from pit toilets. The trommel screen can thus play a critical role in making beneficiation initiatives viable.

**Why:** The purpose of the initial testing phase was to determine screen aperture size, screen angle and rotation speed settings which would be best suited for screening faecal sludge.

### **KEY FINDINGS**

- A key finding of the initial testing phase was that the screen performance was dependent on the characteristics of the sludge, specifically moisture content and rheology.
- The trommel settings that are best able to process sludge vary depending on the type of sludge being screened.
- The most effective settings for the sludge processed during this project were:
  - Speed 8 rpm
  - Angle 5 degrees
  - Aperture Size 20 mm



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## COMPONENTS

1. Gearbox and motor
2. Tilting screen and motor frame including feed and discharge chutes
3. Rotating Mesh drum screen
4. Detritus (Oversize fraction) collection chute
5. Screened Sludge (Undersize fraction) collection tray
6. Unclogging brush
7. Spray bar

