

2024-05-02

# Evaluating the performance of faecal sludge dewatering technologies in urban settings of developing African countries: a review

Mwamlima, Petro

Taylor & Francis online

---

<https://doi.org/10.1080/09603123.2024.2349707>

*Provided with love from The Nelson Mandela African Institution of Science and Technology*

# Evaluating the performance of faecal sludge dewatering technologies in urban settings of developing African countries: a review

Petro Mwamlima, Karoli N Njau, Mwemezi Rwiza, Nyangi Chacha

To download the complete text, click that link.

DOI: <https://doi.org/10.1080/09603123.2024.2349707>

## Abstract

Inadequate dewatering technologies are reported as the dominant challenge in handling faecal sludge (FS) within urban settings of most African countries. Studies have been carried out to evaluate the efficiencies of unplanted sand drying beds (USDBs), decentralized wastewater treatment systems (DEWATS), and geo-tubes. However, limited information is available on comparative capabilities in dewatering the FS. This work reviewed treatment efficiencies by assessing the reported actual waste removal capacities and ascertaining if they align with the design removal provisions. Peer-reviewed papers, books, and technical reports from trusted sources were examined. The results show that all the technologies perform best in dewatering the FS; however, USDBs are widely adopted for city-wide treatment, and the other two are suited for decentralized communities. The USDB is challenged by frequent clogging and poor quality of dewatered sludge when reused or recycled in the production of solid fuel and compost due to sticking sand after sludge harvesting. The DEWATS and geo-tubes increase operational costs when used to treat the FS at a large scale. More studies should be conducted to explore locally made, cost-effective filter media and technologies to enhance the dewatering quality and quantity of the FS and increase the quality of recycled by-products.

## Keywords

Faecal sludge treatment (FS); Unplanted sand drying beds; Decentralized wastewater treatment systems (DEWATS); Geo-tubes