Emptying + Transport + Treatment = Business

Improving Sanitation through Faecal Sludge Management

a case of Kanyama, a Peri-Urban Area in Lusaka, Zambia

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Outline

• BACKGROUND
• RESEARCH
• CONCEPT
• IMPLEMENTATION
WSUP - LWSC Cooperation

- Partnership started 2008

- Support the adoption and replication of sustainable and scalable models of pro-poor urban water and sanitation

- Financial viability of services

- Integrated WASH programme including water supply, sanitation and hygiene components and institutional and governance capacity strengthening
LUSAKA FSM Cooperation

Implementation/long term coop.

Expertise:
Research+
Concept design

Training: Biogas Digester Construction + Feecal Sludge Management
LUSAKA FSM Cooperation

• The sanitation component of the programme focuses on the sanitation value chain and FSM including the:
  capture, storage, transport, treatment of faecal waste
That’s where we are coming from!
That’s where we are coming from!
Preparation

The sanitation component builds on the results of 3 studies:

1. Management of bio-solids in Lusaka
2. Ecosan and FSM options
3. Service Management Contract improvement: Anchor FSM into the management structures of LWSC & the Water Trusts in Lusaka
Towards change

- 4 month feasibility study on
  - Pit structure / Pit content
    - 30% solid waste
    - No standard construction
    - Groundwater pushing in pit structure
    - No roofing – rainwater in pit
      - Varying pit content: solid - liquid
Towards change

• 4 month feasibility study on
  – Pit emptying
    • Gulper pump (solid waste)
    • Manual tools
Towards change

• 4 month feasibility study on
  – Transport possibilities
    • 60l barrels
    • Hand carts
    • Bicycle Carts
    • Tricycle carts
Zero Waste

- Primary + Secondary Sludge Treatment + Transport in Kanyama

![Diagram showing the locations of Primary and Secondary Treatment Sites, Pit Emptying, and Secondary Transport](image-url)
Zero Waste

- Primary treatment within compound
  - Transfer station
  - Biogas digester/Holding Tank – recycling of water
  - Biogas sold as bi-product
Zero Waste

- 60L drums
- Flushing Chamber to separate solid waste
- Recycled water used for flushing
- Liquified sludge into digester
- Min. 15 days retention time
Zero Waste

• Secondary treatment outside compound
  – Drying beds (8x35m² - 20cm sludge layer)
  – 1km from transfer station
  – Trial on planted soil and brick wall boundaries
  – Bio solids sold as bi-product (farmers)
Business Model Content

• Core business: Sanitation – Pit emptying
• Three pit emptying fees US$ 50-100
  – S=12drums, 720l
  – M=24drums, 1440l
  – L=32drums, 1920l
• Sustainable business
  – cover all operations and maintenance costs
  – Biogas + Bio solids additional income
Meet the Personas

Enoc: pit emptier in Kanyama

Kanyama Water Trust: FSM Business

Mr. Chimbusu: Land Lord in Kanyama

Alice: Tenant renting from Mr. C
The Path for a Perfect Service

- Enoc is employed by the Water Trust (WT)
- Enoc & WT advertise on emptying
- Mr. Chimbusu calls WT to get his pit emptied
- Agreement on Amount (S/M/L)
- Payment by Mr. Chimbusu to WT – Job voucher

- Enoc breaks latrine side wall and empties pit
- Enoc brings sludge to transfer station
- Enoc cleans the latrine and delights the customer
- Separation of waste at the primary treatment site
- Return of Job voucher, Enoc cleans himself and goes home
58m³ Biogas Digester Transfer Station
Meet the Pit Latrine Dream Team

We save you from full latrine pits.

Empty your pit for as low as 250,000K with the Pit Latrine Dream Team.

Call the Water Trust at 555-5555.
Thank you for your attention.