Developing Business Models for Fecal Sludge Management in Maputo

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Introduction

• Fecal sludge Management (FSM) is still a major challenge in Maputo

• > 90% of the population use on-site solutions

• Nearly all on-site systems built and serviced by the informal sector

• Partnership to develop FSM business models:
  o Microenterprises Association (AMMEPS)
  o Maputo Municipal Council
  o WSUP
  o WSP/World Bank
Study Objective

Assess the technical and commercial viability of FSM business models
Sanitation in Maputo

Sanitation facility | Max  | Min  | Mean  | Median | Ave vol | N   |
-------------------|------|------|-------|--------|---------|-----|
Septic tank       | 12.0 | 0.25 | 3.26  | 2.0    | 12.20   | 65  |
Pour flush        | 15.0 | 0.50 | 4.99  | 2.5    | 8.50    | 16  |
Improved latrine  | 40.0 | 0.08 | 2.95  | 2.0    | 10.70   | 104 |
Traditional latrine| 5.0  | 0.08 | 1.32  | 1.0    | 3.70    | 65  |
Overall           | 40.0 | 0.08 | 2.91  | 2.0    | 8.89    | 249 |

Emptying interval (years, whole city)

- WC + sewer
- WC + septic tank
- Pour-flush latrine
- Improved latrine
- Traditional latrine
- No toilet

Study Area

- WC + sewer: 17%
- WC + septic tank: 11%
- Pour-flush latrine: 20%
- Improved latrine: 15%
- Traditional latrine: 37%
- No toilet: 9%
The Pilot Components

- Sanitation Monitoring by local authorities
- FSM services
- Infrastructure development

- One municipal district (out of 7)
- Unplanned
- ~140,000 population
The FSM Component

Objective

• Development of commercially viable business models for FSM in Maputo

Activities

• Competitive selection of existing SWM operators (to add FSM)
• Training (lectures and peer to peer)
• Equipment (complete initial set of equipment)
• Technical assistance on business development and marketing
The FSM Component: Key Stakeholders

- **WSP/WSUP**
  - Supervision and technical guidance

- **AMMEPS – Microenterprises Association**
  - Service providers
  - Supervision and technical guidance
  - Finance
  - Technical Assistance
  - Capacity building

- **Maputo Municipal Council**
  - Monitoring and promotion

- **Municipal Water & Sanitation Dept.**
  - Service provision

- **Consumers**
Service Models

**Initial Model**
- Latrine
- Septic tank
- Trash pump
- 500 l Gulper
- 2,000 l pickup
- Transfer Station
- 6,000 l trailer
- Treatment Works

**Current Model**
- Latrine
- Septic tank
- Trash pump
- 500 l handcart
- 2,000 l pickup
- Or
- 6,000 l trailer
- Treatment Works

**Containment**
- Latrine
- Septic tank

**Emptying**
- Bucket
- Gulper

**Transport**
- 500 l handcart
- 2,000 l pickup
- 6,000 l trailer
Equipment

trash pump

Gulper

500ℓ handcart

6,000ℓ trailer

2,000ℓ pickup
Results so Far (1)

• Average – 19 emptyings per month – total of 172 by December 31st

• 57% of latrines/septic tanks have been emptied before

• Most of the customers heard about the service through:
  ▪ leaflets (36%)
  ▪ local authorities (20%)
  ▪ neighbors (15%)
Results so Far (2)

- Most (84%) of the emptied facilities are septic tanks, not latrines as assumed at the design stage.
- Last emptying was on average 2.8 years previously.
- Difficult access reported in 23% of plots.
- Most commonly used equipment (90%) was the Trash Pump, followed by the Gulper. Buckets in very few cases of heavily consolidated sludge.
- Average number of operators was 3, paid per emptying.
- Average amount charged was 2,400Mt ~ US$ 75.
- Average volume per facility was 1.7m$^3$. 
Client Perceptions

What Clients Liked About the Service

- Clean & hygienic
- Good equipment
- Punctual
- Easy access
- Speed
- Good service
- Price
- Other

Reason for Choosing Service

- Trial
- Good service
- Publicity
- Ease of access
- Price

Reason for Not Using Service

- High price
- Other
- Lack money
- Bad smell
- Inaccessible
Conclusions/Lessons learned

• Apparent low uptake of the service still to be understood → Price? → Subsidy??

• Current fees allow only partial amortization of equipment – and price is already twice that of manual emptiers

• Initial model conceptualized for small volume latrines not very relevant – also price factor, as latrine users are poorest

• “First mile” manual transport difficult so preference for direct emptying to sludge vehicle (trailer, truck-mounted tank)

• Hygienic performance of available equipment not fully adequate

• Client aspirations for modern, hygienic services – memories of degrading and unhygienic bucket system
Thank You