Emerging Lessons on FSM from Maputo, Mozambique

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World Bank
1. Background

- **City**: 1.2M population
  - Project area: 150,000

- **Rapid Water supply expansion**
  - Shift from dry to wet sanitation systems

- **Unclear mandates and lack of service provision capacity**
  - 100% household responsibility
2. Existing Conditions...

- Replacement of pits
  - Poorly constructed structures
- Limited FSM services
  - Informal emptying
  - Limited access for vacuum tankers
  - Lack of appropriate equipment for unlined pits
- Illegal dumping into residential environment
  - Prevalence of unhygienic, informal, manual emptying
3. Project Design

• Partnership led by Maputo City Council
  – Supported by WB and WSUP, funded by JSDF

• Sanitation service improvements in Nhlamankulo District
  – Private sector engagement
  – Technology development
  – Design of service models
  – Capacity development

• Transfer stations to improve access and reduce transport costs
• 8 operators (5 primary and 3 secondary)
4. Challenges and Modifications

- Local resistance to construction of transfer stations → mobile tanks
- High dependence on the secondary operators
- Difficulties operating handcarts
- Higher volumes to be emptied compared to reference volumes at the design stage
## 5. Financial Data

<table>
<thead>
<tr>
<th>Operator</th>
<th>No. of emptyings</th>
<th>Revenue</th>
<th>Cost</th>
<th>Operating profit</th>
<th>Depreciation</th>
<th>Net profit (loss)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pits Septic tanks</strong></td>
<td></td>
<td>(USD)</td>
<td>(USD)</td>
<td>(USD)</td>
<td>(USD)</td>
<td>(USD)</td>
</tr>
<tr>
<td><strong>Primary Operators</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acadec</td>
<td>52</td>
<td>7,645</td>
<td>4,975</td>
<td>2,670</td>
<td>2,832</td>
<td>(162)</td>
</tr>
<tr>
<td>Bejoel</td>
<td>3</td>
<td>4,307</td>
<td>1,800</td>
<td>2,507</td>
<td>2,832</td>
<td>(325)</td>
</tr>
<tr>
<td>Magoanine</td>
<td>76</td>
<td>7,589</td>
<td>2,963</td>
<td>4,626</td>
<td>2,832</td>
<td>1,794</td>
</tr>
<tr>
<td>Modac</td>
<td>0</td>
<td>1,675</td>
<td>1,293</td>
<td>383</td>
<td>2,832</td>
<td>(2,449)</td>
</tr>
<tr>
<td>(Phatima)*</td>
<td>1</td>
<td>661</td>
<td>470</td>
<td>191</td>
<td>2,832</td>
<td>(2,641)</td>
</tr>
<tr>
<td><strong>Secondary Operators</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mbonga Mbilo</td>
<td>49</td>
<td>10,996</td>
<td>6,488</td>
<td>4,509</td>
<td>11,495</td>
<td>(6,896)</td>
</tr>
<tr>
<td>Sizema</td>
<td>77</td>
<td>8,635</td>
<td>4,107</td>
<td>4,528</td>
<td>11,495</td>
<td>(6,967)</td>
</tr>
<tr>
<td>Oliveira</td>
<td>0</td>
<td>4,976</td>
<td>1,119</td>
<td>3,857</td>
<td>11,495</td>
<td>(7,638)</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>258</td>
<td>46,485</td>
<td>23,213</td>
<td>23,271</td>
<td>48,645</td>
<td>(25,374)</td>
</tr>
</tbody>
</table>
5. Financial Data — cont.

- Prices not affordable for poor households
- 7 of 8 operators still operating and covering costs
- Additional investments made by operators
- Access to banking services to expand business
- Haulage to treatment is the largest cost component
6. Customer feedback

- Pamphlets were main source of information
- Service appreciated for its cleanliness
- 40% who contacted new service fell back on alternative options due to price
7. Drivers of Change

• Existing SWM microenterprises:
  – Familiarity with customer base
  – Similarities in operation of SWM and FSM
  – Existing association of microenterprises

• Political support from City Council
  – Development of sanitation byelaw covering FSM
  – Tipping fees waived

• Available data on key challenges for sanitation services
8. Lessons Learned

• Technical
  – Need for improved manual emptying tools
  – Dynamic nature of informal settlements requires flexibility to service wide range of sanitation facilities
  – Due to seasonality of FSM business, operators need complementary sources of income to survive

• Commercial
  – TV adverts had major impact on demand, but leaflets more effective in customer engagement
  – Selling points of the new services were cleanliness and positive environmental impact
  – Price is a major constraint to service uptake and pushes users back to traditional manual emptying
9. Outstanding Challenges

- **Affordability** of improved services → subsidies?
- **Mix of equipment types** and transport options to increase profitability
- **Improved technology** for dry sludge and accessing dense unplanned areas
- **Improved sludge treatment and re-use**
Kanimambo!