Faecal Sludge Management in the Informal settlement of Urban Tanzania with a case of UMAWA group of Dar es Salaam

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Centre for Community Initiatives (CCI), Tanzania
Nonprofit organization established in 2004 with an aim of helping poor communities to develop the quality of life through sustainable solutions.

Supports community to form savings and loaning schemes (14,600 federation members with total USD $ 110,370 and USD $ 34,300 for Urban Poor Fund(JENGA) for providing loans for big development projects)

Empower community to collect data through enumeration and mapping for negotiations with government.

Capacity building to communities on planning, implementing and manage projects.
FSM IN URBAN AREAS IN TANZANIA

- Tanzania is a fast growing country with annual growth of 2.8%. The rural urban migration has led to challenges which includes the growth of informal settlements with lack of infrastructure services.

- 92.6% of the households use pit latrines as the only sanitation option (Demographic Health Survey (DHS 2010))

- The coverage of improved toilet that are not shared by more than one households is 13%, urban being 22% and Rural 9%.

- Dar es salaam which is a major city with a population of 4.4 Million people about 70% are living in informal settlements and only 10 per cent of residents in the city connected to sewer networks. (WaterAid/SHARE, 2013).

- Communities have been using alternative means of emptying such as opening up their toilets during rain for waste to flow with rain water, direct the waste into water sources such as rivers, digging pits and bury the sludge and few with access to roads and afford to pay are using trucks which costs between USD $ 57 to USD $ 142.
An old man ready to empty the latrine and bury the faecal sludge in another pit dug just beside the existing latrine. This very unhygienic means of emptying which can result into outbreaks of diseases like cholera.
PIT EMPTING BY USING GULPER MACHINE

• Due to the challenge of managing sludge particular in informal settlement, Water Aid Tanzania supported a community group to initiate a project at Kigamboni area.

• The project started saving one settlement in (2010) which has scaled up to three more settlements

• The challenge of transporting waste to ponds resulted into linking the pit emptying with Dewats. The Dewat is able to produce the bio gas, manure and effluent water for soil conditioner.

• The cost of emptying a pit is 15 to 24 USD per 350 litres tank. This depends on depth of the toilet. But again it allows flexibility for those who cannot afford to empty the whole pit at once.
Pit emptying using Gulper pump at UMAWA

Deal with all the solid waste

The actual pumping
## Pit emptying as a business

### A typical high peak monthly report of gulper business

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income generated</td>
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<td></td>
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<tr>
<td><strong>Operations</strong></td>
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<td></td>
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<tr>
<td>Motorbike fuel</td>
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<tr>
<td><strong>Allowances</strong></td>
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</tr>
<tr>
<td>1. Operator</td>
<td>USD 160</td>
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</tr>
<tr>
<td>2. Assistance</td>
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<td>Communications</td>
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<tr>
<td>Disinfectants</td>
<td>USD 19</td>
<td></td>
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<tr>
<td>Gloves</td>
<td>USD 6</td>
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<tr>
<td><strong>Operations Sub total</strong></td>
<td>USD 577</td>
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<tr>
<td>Profit before tax</td>
<td>USD 485</td>
<td></td>
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</table>
How Dewats has improved gulper pit emptying business

• Increased market niche from 4 to 8 gulper trips per day more people are being reached now
• Increased annual revenue from 1212 USD to 3636 USD between 2013 and 2014.
• Improve service delivered by gulper operators and subsequent improved cost per trip from 9 USD up to 24 USD.
• Cut down of operation costs due reduced distance to the damping stations (USD$ 302 to 20 USD$ per month)
• Increased popularity of the gulper business (self advertisement)
MOVING TO SCALE

- Government involvement through expertise, education and promotion.
- Increased interests of sanitation stakeholders interested in scaling up gulper (GIZ, BORDA)
- Microfinance institutions are now interested in the pit emptying business and willing to put in money.
- CCI sourced more funding to scale up the project in other 2 settlements. This is still a little contribution compared to the challenges, hence the negations and advocacy meeting is still going on to see how the government can support such initiatives.
- The need for highly community mobilization to utilize the facility.
- Highly stakeholders involvement, this includes utility, government, community, financial institutions etc.
- The need to look on other affordable innovations of managing sludg. eg the construction of simplified sewerage particularly to settlements close to ponds has been started and already 20 houses has been connected. This is done in collaboration with utility providers and municipalities
CHALLENGES IN GULPER PIT EMPTYING OPERATIONS.

- Pit latrines are full of solid waste
- Long distance travelled to the damping sites eg. 30 to 40 Km
- High demand of the service esp. in Kigamboni where UMAWA is located.
- Lack of good financing mechanism to help the already existing and new pit emptying groups in Dar es salaam to scale up.
THE CHALLENGES OF GULPER-DEWAT MODEL

- Variation of effluent quality where less reduction in the treatment efficiency during the monitoring of Dewats operation.
WAY FORWARD

• Studies are being undertaken on how to improve gulper operations (manual to motorised)
• Improved quality of the dewats effluent is taken into consideration through construction of sand filters at UMAWA
• Increased number of business entrepreneurs interested in the pit emptying business.
• Achieving sustainable faecal sludge management by using gulper and Dewats is possible if the plant is designed and managed properly.
• Need to involve more community at large. Although UMAWA is a success story but UMAWA operates alone and lack more collaborate with utilities and Municipality
• Other options for upgrading onsite sanitation from ordinary pit latrines should be explored in order to have a wider understanding on how effective and responsive different approaches would be to conditions obtaining in unplanned areas.

• To reach a wider scale we need co-production initiatives which links up the community with utilities (vivid in one of our simplified sewer project).
THANK YOU FOR LISTENING