Assessment of the Faecal Sludge Management Services Delivery in Mbarara Municipality, Uganda

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PRESENTATION AT THE SUSANA MEETING AT PROTEA HOTEL, KAMPALA, ON 22nd FEBRUARY 2020
What do we mean by FS?

- FS is NOT wastewater or wastewater sludge.
- FS comes from **onsite sanitation systems**, and **has not been transported through a sewer**. It is raw or partially digested, slurry or semi-solid.
- FS is highly variable in consistency, quantity, and concentration.
- OM, TS, ammonium, and helminth egg concentrations in FS are **typically higher by a factor of ten or more than in ww**.
What makes FS highly variable?

- Consider Pit A filled slowly; e.g. household toilet with few users. FS has densified at the bottom.

- Pit B filled fast e.g. public/communal latrines, little densification at bottom.

- To decrease filling rate, non FM e.g. old car batteries, kerosene, EMs, IMOs, salt, sugar, ash, fertilizer, or even a dead cat! are often applied

- Filling rate (fast or slow), type of system (lined or not) and nature of soil (infiltrating or not), additives etc all influence variability of FS.
Therefore, what is FSM and what does it entail?

- FSM is the management of the generation, storage, collection, transport, treatment and safe end use or disposal of FS.
Mbarara Municipality, just like other typical African cities:

- Experiences sanitation challenges, with NSS/FSM in low-income areas.

  - High percentage (>70%) of the population live in unplanned areas.
  
  - Majority of the population (>90%) use NSS.

  - Residents in affluent areas use WC/Septic tanks and can afford services of vacuum trucks.

  - Low-income residents rely on pit latrines for FSM:
    - Difficult to empty,
    - Poor access,
    - Cannot afford suction trucks.

- High level of onsite containment/treatment.
Mbarara is a town in Western Uganda; with 200,000 people. It has one of the highest population growth rates in Africa.
Objectives

- Assess the FSM services delivery in Mbarara Municipality in Uganda in order to understand missing links and develop solutions.

Specifically, to:

- determine the types of sanitation facilities, their state, access and functionality, including management upon filling; and thus determine the FS flows;

- assess the enabling environment, level of service delivery and commitment to improve FSM.
Methodology

- We applied two diagnostic tools

- SFD = visualize the flow of FS – where it originates and ends, resulting into SAFELY and UNSAFELY managed FS!

- CSDA = Consider the enabling environment, quality of service along the chain and identify areas for attention.
Methodology

- Used the Urban Sanitation Status Index (USSI)
- Visualize sanitation at neighbourhood level, using 6 indicators

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>Indicator</th>
<th>Information Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Containment</td>
<td>1. Toilet facility accessibility</td>
<td>Household</td>
</tr>
<tr>
<td></td>
<td>2. Structural integrity</td>
<td>Household</td>
</tr>
<tr>
<td></td>
<td>3. Hygienic improvement</td>
<td>Household</td>
</tr>
<tr>
<td>Emptying</td>
<td>4. Access to emptying services</td>
<td>Household</td>
</tr>
<tr>
<td>Transport</td>
<td>5. Transport and affordability</td>
<td>HH/service providers</td>
</tr>
<tr>
<td>Treatment &amp; Disposal</td>
<td>6. Level of treatment &amp; final disposal</td>
<td>NWSC/NEMA</td>
</tr>
</tbody>
</table>
**Methodology & Results**

- Administered a HH Questionnaire
- KII; and held a validation workshop; also to analyse the SWOT

<table>
<thead>
<tr>
<th>Type of the system</th>
<th>% Population Using</th>
<th>Sanitation Services Chain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Containment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>contained</td>
</tr>
<tr>
<td>Sewered (off site centralised or decentralized)</td>
<td>24.3%</td>
<td>100%</td>
</tr>
<tr>
<td>On-site storage - Septic Tanks</td>
<td>47.5%</td>
<td>100%</td>
</tr>
<tr>
<td>On-site storage - single-use/Traditional Pit latrine</td>
<td>25.5%</td>
<td>100%</td>
</tr>
<tr>
<td>On-site storage - VIP latrine</td>
<td>1.5%</td>
<td>0%</td>
</tr>
<tr>
<td>Open defecation</td>
<td>0.5%</td>
<td>0%</td>
</tr>
</tbody>
</table>

| Unsafe | Average Unsafe | 44% | 56% |

**Affected zones (you can adapt the terms to suit the context)**
- Local area and beyond via drains (amount direct to groundwater not indentified)
- Local area (via overflowing latrines or dumped FS)
- Neighbourhood (via leakage/overflow from sewers or drains)
- Receiving waters (via sewer outfall/discharge)
Methodology & Results

- Information was used to develop the SFD
- SFD gave a visualization of faecal flows
Methodology & Results

- CSDA tool with **three PILLARS** – Enabling, Delivering & Sustaining

- 1) ENABLING – Policy, legal & institutional framework – presented in traffic light form: \( G \) – Satisfactory, \( Y \) – Improving, \( R \) – Poor

![Traffic Light Diagram](image-url)
### Methodology & Results

- **CSDA tool with three PILLARS**
- **2) DELIVERING** – the resources and mechanisms available to improve sanitation – presented in traffic light form; 
  - **G** – Satisfactory,
  - **Y** – Improving,
  - **R** – Poor

#### Sewered sanitation

<table>
<thead>
<tr>
<th>Delivering</th>
<th>WC, House connection</th>
<th>Sewerage</th>
<th>Sewage Treatment &amp; reuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacity, outreach</td>
<td></td>
<td></td>
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<tr>
<td>Inclusion</td>
<td></td>
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</tbody>
</table>

#### Non-sewered sanitation

<table>
<thead>
<tr>
<th>Delivering</th>
<th>Toilet, pit, septic tank etc</th>
<th>Emptying &amp; Transport</th>
<th>Sludge Treatment &amp; Reuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding</td>
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</tr>
<tr>
<td>Inclusion</td>
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Methodology & Results

- CSDA tool with three PILLARS
- 3) SUSTAINING – the operating environment, funding and personnel needed to provide ongoing and sustainable sanitation services – presented in traffic light form; G – Satisfactory, Y – Improving, R – Poor

<table>
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<th>Sewered sanitation</th>
<th>Non-sewered sanitation</th>
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<td>WC, House connection</td>
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<td>Sludge Treatment &amp; Reuse</td>
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<thead>
<tr>
<th>Sustaining</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Regulation, cost recovery</td>
<td>Regulation, cost recovery</td>
</tr>
<tr>
<td>Institutions, service providers</td>
<td>Institutions, service providers</td>
</tr>
<tr>
<td>Inclusion</td>
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Generally

- Stakeholders participate in 1 or 2 components of FSM chain.
- Are not coordinated,
- Components of the FSM services chain are non-inclusive,
- HHs pay masons to build pits; HHs pay private emptiers to empty, collect and transport FS; NWSC does the treatment.
- Safely managed excreta is less than 50% (In fact it is 44%).
Conclusions

- Fully define roles of the various actors,
- Sanitation planning should be inclusive,
- An actor for each component of FSM chain including valorization,
- Enforcement of laws and bylaws – frequent and monitored,
- Mobilize and allocate resources to FSM services chain,
- Innovations in FS valorization are necessary.
Acknowledgements

- Stakeholders in Mbarara:
  - Mayor, Mbarara Municipality;
  - Political and Technical Staff of Mbarara Municipality;
  - NWSC, Mbarara Area;
  - Private Sector, Civil Society.

- APHRC,

- Funding agencies supporting APHRC.
Introducing the Serious Game for Sanitation Planning – RECLAIM Game
Concepts included in the game

- Potential benefits of safe reuse
  - Fertilizers
  - Link to food production
- Potential negative consequences:
  - Water pollution
  - Disease
- Different roles within sanitation chain
  - Housing Officer
  - Treatment Officer
  - Farming Officer
  - Private Contractor
- Unexpected event cards
  - Negative – e.g. floods, disease
  - Positive – e.g. innovations, development
RECLAIM Game

Board
- Urban areas
- Rural areas
- Water
- Unusable land
- (e.g. swamp)

Resource Dice
- Food
- Waste
- Sorted Waste
- Landfill
- Fertilizer
- Disease outbreak
Infrastructure

Housing blocks
- Unconnected
- Improved
- "Safe collection"

Transportation
- Roads
- Pipes

• Treatment
  - Existing system
  - Improved
  - Resource recovery

• Farms
  - Simple
  - Improved
Try it out!
SPANS TEAM

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