



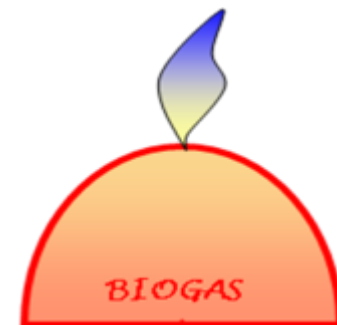
Fecal Sludge – De-sludgeing, Transportation, Biogas Producing Transfer Station

Working Group 2, **FSM3**

Hanoi Vietnam

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Concentrate on Sanitation

- The neglected sub-sector: Sanitation



- WASAZA Cooperation with BORDA
- WASAZA Cooperation with DTF and GIZ



Pilot Project Faecal Sludge Management Spontaneous Settlement, Kanyama, Lusaka

Cooperation with:

- Kanyama Community
- Lusaka Water and Sewerage
- WSUP (Water and Sanitation for Urban Poor)
- WASAZA



Problems

- No solid waste option
- All waste is disposed in the toilet
- Toilet content needs separation of solids and excreta
- This needs water
- Water transport has to be minimised.

Faecal Sludge Management Kanyama

- Community Participation
- Technology Testing



- Gulper
- Can not handle solid waste in pits
- Modified garden tools
 - Hook
 - Shovel
 - Dipper

Pit Emptying and

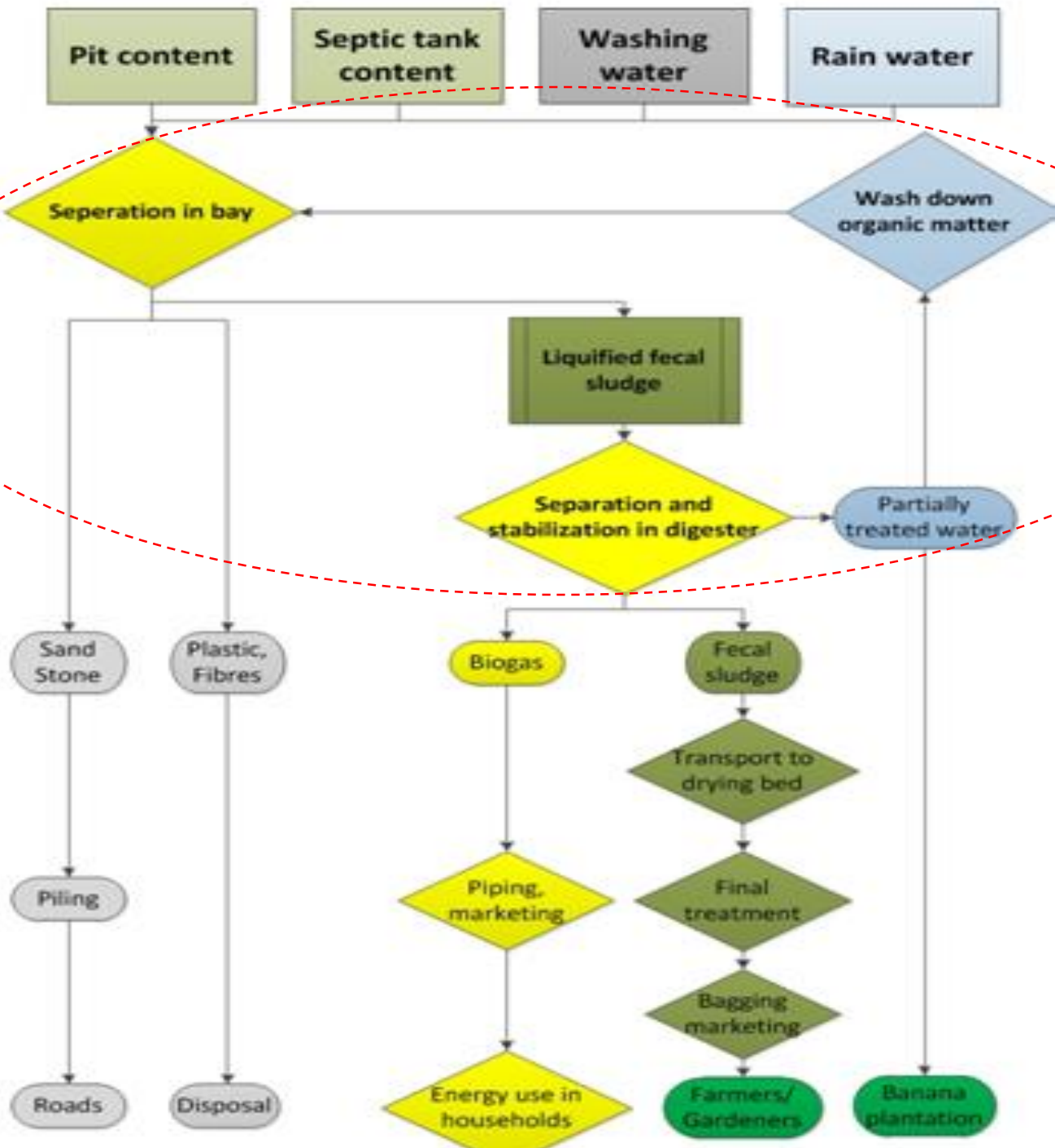
Fecal Sludge Management (FSM):

Kanyama Compound Pilot Project:

- Collaboration with Lusaka Water & Sewerage Company; funded by WSUP
- Pit latrines emptied manually (emptiers with protective gear & equipment = **the dream team**)







- Measures to assure good operation
- Make maintenance of DEWATS easier
- Improve use of effluent
- Biogas related questions and answers
- Legalization and standardization

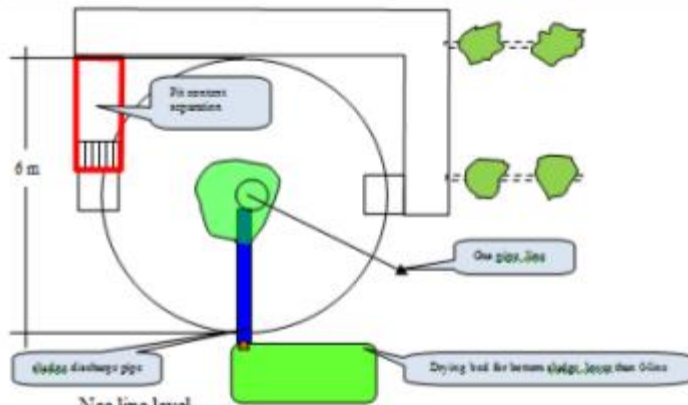






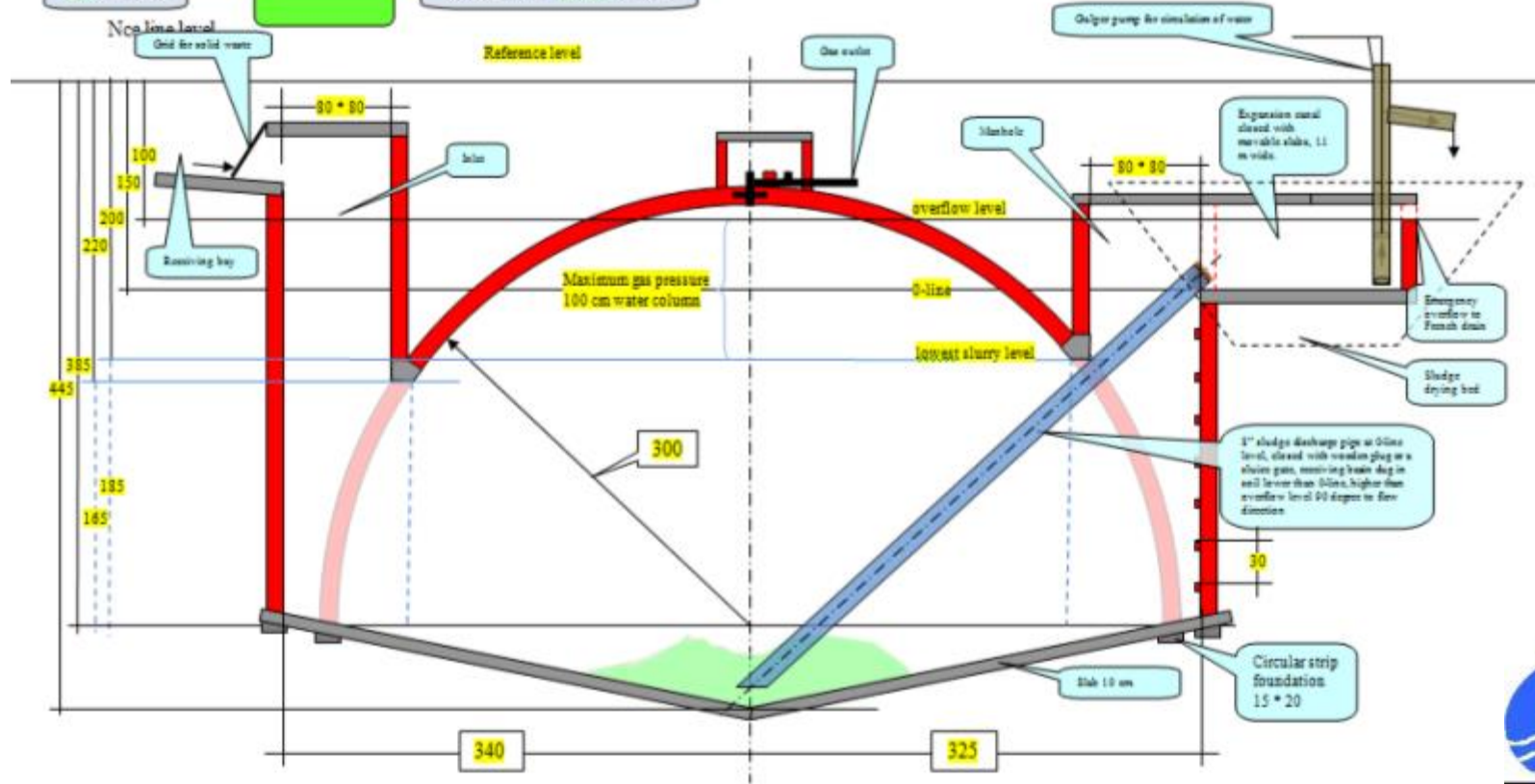
Technical Solution

- Finetuning pit emptying with **methods, tools** and **transport**
- **Transfer station** within the compound with solid waste separation and **biogas production and distribution**
- Drying beds outside town, dried sludge sold for agriculture



Fixed Dome Bio Digester,
Pilot Project, Fecal Sludge Management Project
Size: 50 m³
Gas storage capacity: 7m³
All measurements in cm

Note:
but it has to be at least 14 m². The chamber should guide the slurry to the best suited place for further handling or treatment
For digging: add to the radius 0,6 m for convenient working.



17 m³ biogas cooks
lunch for 170
people per day

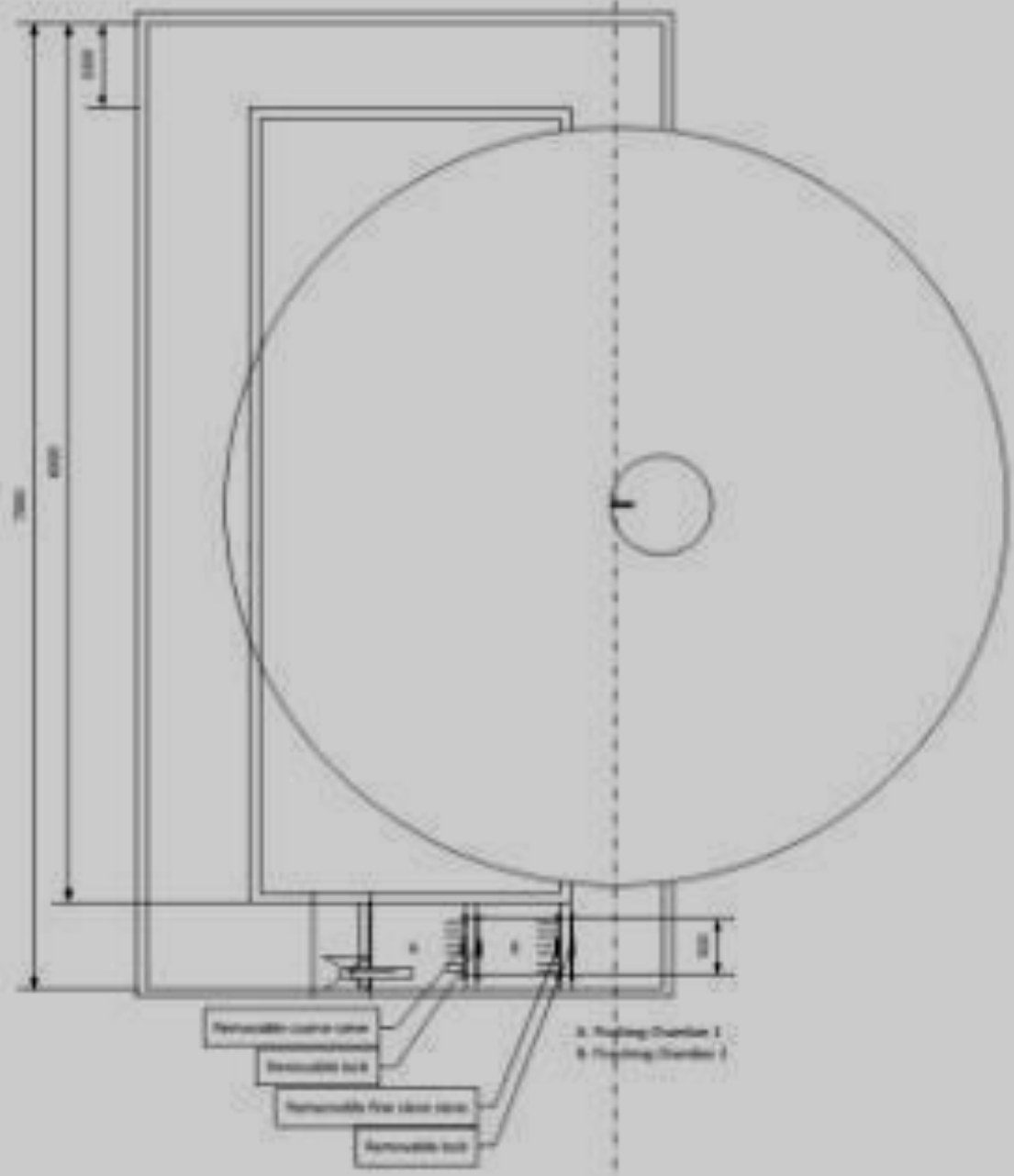


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Cost recovery

1. Fair and reasonable prices for pit emptying
2. Sale of gas, justifying investment cost for transfer station, either with flat rate or through prepaid gas meters
3. Sale of high quality dried sludge, composted



Dry Sanitation

- Vip Latrines
- Low cost lined pit latrines
- Ecological Sanitation
- Fertiliserproducing Toilets
- Pit latrines





Mangement of Feces



- After excretion throw compost soil to cover
- Pull out the older material at the front of the chamber door
- Load on wheelbarrow
- Take to a continual compost heap (one year)
- Cover it with other organic matter

Extension, dissemination

- Appropriate toilet design
- Minimize transport
- Training for construction teams
- Train servicing teams
- Prove economic viability

Institutional DEWATS





