Strategy for Faecal Sludge Management Bijnor

Safely managed sanitation highlights the need to go beyond toilets, and look into the sanitation chain, i.e. into containment, emptying, transport, treatment and reuse or disposal of faecal waste. In rural India, where sewerage systems are practically non-existent, there is a need for focus on safe management of faecal waste generated from on-site containment systems. Some technologies, such as twin leach pits, provide on-site treatment, and if correctly constructed and operated, these can be safely emptied and reused at the household level. Other technologies, such as single pits, septic tanks (and other septic tank-like containment structures), require services for emptying and transportation of the faecal sludge to the treatment facilities for its subsequent reuse or disposal.

- **CAPTURE > CONTAINMENT > EMPTYING > TRANSPORT > TREATMENT > SAF E REUS E OR DISPOSAL**

The indicator for measuring progress against Sustainable Development Goal 6.2 (universal access to sanitation by 2030) is 'percentage of population using safely managed sanitation services'. This emphasizes on the need to look beyond toilets and to ensure that faecal pathogens are prevented from re-entering the environment and posing a health risk. One common pathway for re-entering of faecal pathogens in environment is the contamination of water bodies and groundwater, by means of overflow and seepage from poorly built sanitation systems. This has a strong negative impact on human health. It is in this context that a strong case for organised faecal sludge management (FSM) services in rural areas needs to be considered. Critical factors which should be taken into account while planning and implementing FSM services include sanitation technologies deployed.

Rural FSM strategy: Key objectives

1. Improving containment systems

• Sensitization of all actors on containment systems

• Ensuring retrofitting/ improvement/ upgradation of poorly built containment systems such as single pits, structures wrongly called septic tanks, etc.

• Ensuring compliance with technical standards of the containment systems in the construction of new toilets and operation of existing toilets

2. Setting up rural FSM services

• Creating a robust regulatory framework and necessary institutional architecture and basic systems to enable the systematic development and management of rural FSM services

• Ensuring adequate and incremental financing to adequately support safe FSM services without human contact, including FSM systems and processes in case of septic tanks and containment tanks and emptying services in case of twin pit pou r flush toilets

• Ensuring availability of adequately trained human resources

3. Preventing caste-based manual scavenging

• Systemic efforts to eliminate caste and descent based discrimination and manualscavenging in District.

Type of rural habitation	Characteristics	sanitation considerations	Containment	Emptying + Transportation	Treatment + Reuse/Disposal
1	2	3	4	5	6
Dense rural settlements	Villages with meadium population size, high population density and closely located habitations	Presence of septic tanks Twin pits possibly not fasible/adequate	Enforce septic tank regulations Twin pit improvements	Cluter areas and explore public-private partnerships to empty and transport faecal sludge	Bespoke faecal sludge treatment plants os stabilisation ponds (as above) Deep row entrechment
Compact rural settlements	Villages with low population size,and density and closely located habitations	Mix of containment technology options	Enforce septic tank regulations Improvements in existing Twin pit latrines	scheduled desluding by one honey sucker per lock(public) Safe emptying, without caste underpinnings	Deep row entrechment Identify safe ways to dispose waste in agricultural fields, in coordination with agriculture sector
Sparse rural settlements	Villages with very low population size,and density (forest villages or those with scattered habitations	Mix of containment technologies. Twin pits ideal	Promotion of twin pit latrines, improvements in existing twin pits	Safe emptying, without caste underpinnings	Identify safe ways to dispose waste in agricultural fields, in coordination with agriculture sector
Rural settlements in challenging geographies	High water table riverbanks, coastal, flood-prone, rocky, remote areas etc.	High cost of safe sanitation services	Improve technologies adequate for sepecific geography	Context dependent solutions with intensive external support	Context-dependent solutions with intensive external support

Different technologies for collection of sludge

Vacuum tanker

Brief about the technology

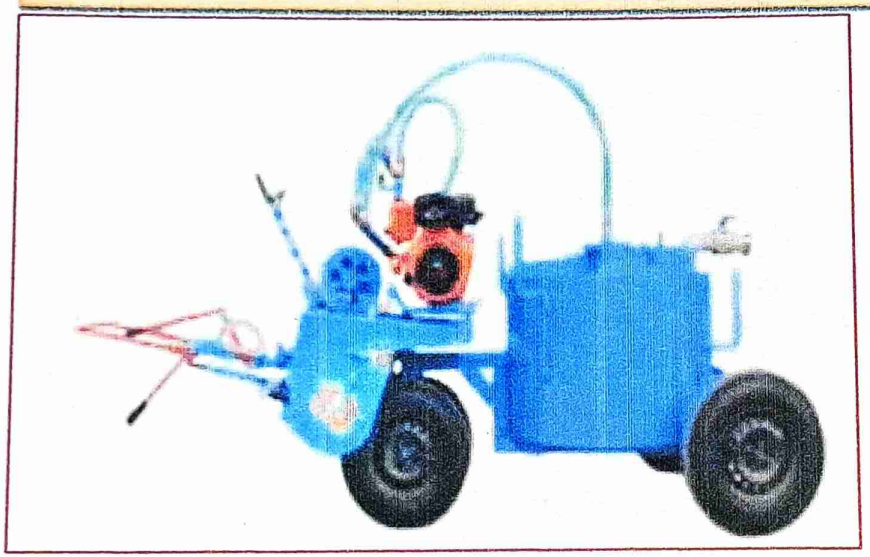
- Vacuum tankers comprise of a truck or any other vehicle combined with tank and a vacuum pump.
- They **use de-sludging** technology having a high tank volume, faster rate of emptying and high mobility.

Limitations

- **Cannot access all types of roads, especially the smaller ones**
- Difficulties associated with **choking of trash at the inlet**
- **Higher capital and operating expenditure**
- Requires repairs which can cause long delays

Different technologies for collection of sludge

Vacutug or Vacuum tugs



Brief about the technology

- **This is a simple portable machine** with small scale suction machines used for **de-sludging and transportation.**
- **Used for emptying pits and septic tanks.**
- It is **easy to reach** through narrow streets to reach extraction points.

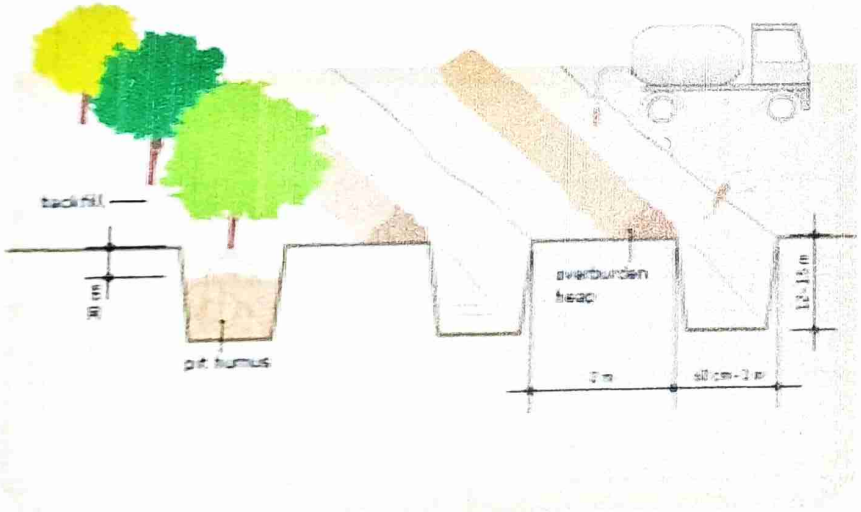
Limitations

- Difficult to extract sludge in solid form
  - especially when pit is deeper than 2m.
  - Pipe may get damaged while extracting sludge in dry condition.
- Service cost of deploying Vacutug is bit costlier
- Vacutug is effective when operated for distance of 1-5 km between the point of extraction and location of disposal
- Max speed of 5 km/h

Technologie apply for Treatment of FS in rural areas

Deep row entrenchment

Deep row entrenchment



About the technology

- **Deep row entrenchment consists of digging deep trenches, filling them with sludge and covering them with soil.**
- **Trees are then planted on top**, which benefit from the organic matter and nutrients that are slowly released from the FS.
- In areas **where there is adequate land available**, deep row entrenchment can present a solution that is **simple, low cost, has limited O&M issues** and produces no visible or factory nuisances.

Limitations

- **Large requirement of land**
- Need to ensure that groundwater table doesn't get affected
- There is a lack of legislation in countries regarding this option