स्वच्छ भारत
एक कदम स्वच्छता की ओर

पेयजल एवं स्वच्छता विभाग
जल शक्ति मंत्रालय
भारत सरकार
DEPARTMENT OF DRINKING WATER AND SANITATION
MINISTRY OF JAL SHAKTI
GOVERNMENT OF INDIA
सत्यमेव जयते

unicef
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FAECAL SLUDGE MANAGEMENT

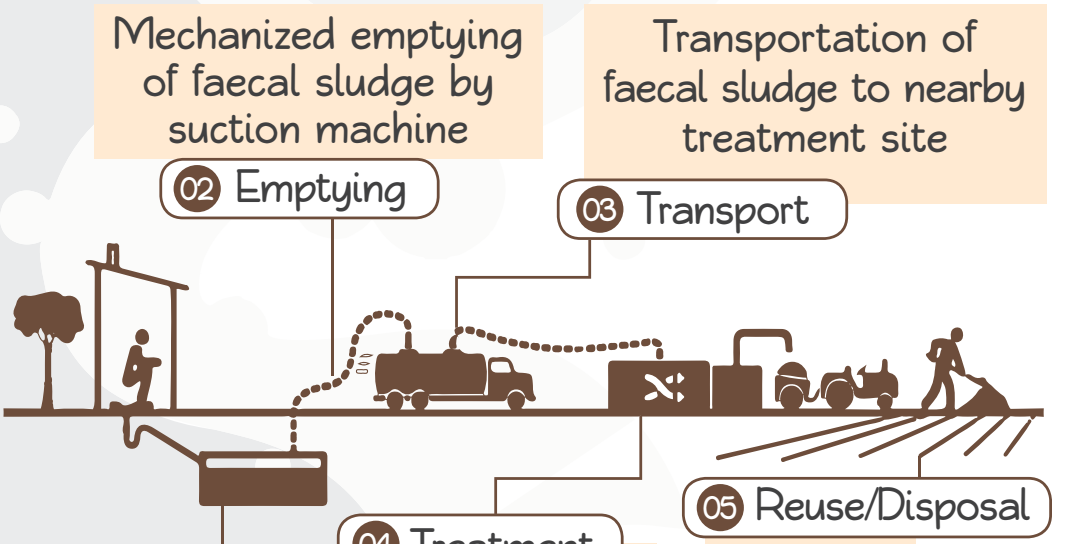
A **HANDBOOK** FOR SWACHHAGRAHIS

What is faecal sludge?

Faecal sludge is the raw or incompletely digested mixture of excreta and water, usually collected in containments such as single/twin pits, septic tanks, etc.

What is Faecal Sludge Management (FSM)?

FSM is the process of safe disposal of faecal sludge and septage. It includes collection, transport, treatment and disposal/reuse of faecal sludge.



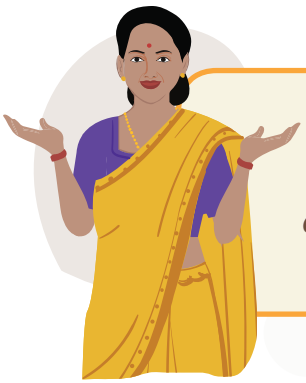
At village level, on-site FSM solutions are encouraged as these are cost effective, simpler and quicker to install than complicated sewerage systems.

SBM (G) Phase-2 advocates for the use/repair/retrofitting of existing infrastructure for FSM wherever possible, rather than the creation of new infrastructure.

Problems of poor FSM

Improper disposal of faecal sludge leads to:

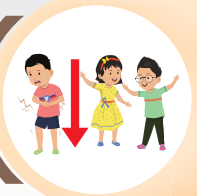
- Spread of diseases
- Contamination of water sources
- Pollution of the environment



A twin-pit system is the best form of toilet as it ensures degradation and drying of waste within the containment, making it safe to reuse as manure.

Advantages of proper FSM

Proper disposal and treatment of faecal sludge not only prevents faecal sludge from becoming a hazard but also converts it into a resource. It:



Reduces diseases caused due to faecal-oral transmission, such as diarrhoea, dysentery, malnutrition, etc.

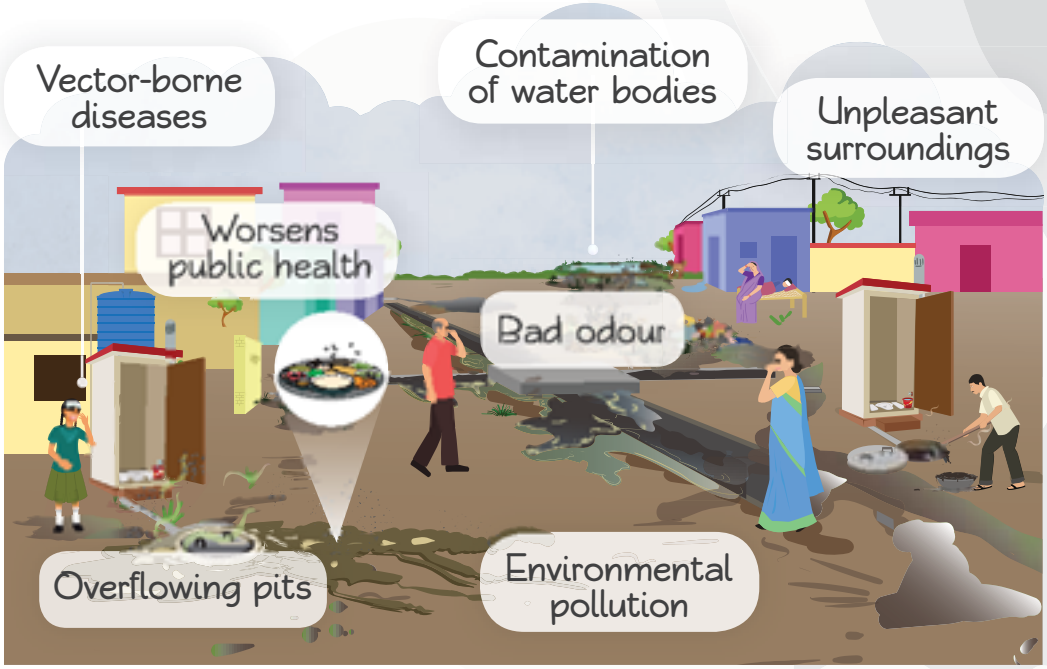
Protects the water bodies and environment from pollution

Treated sludge provides a good source of manure and compost

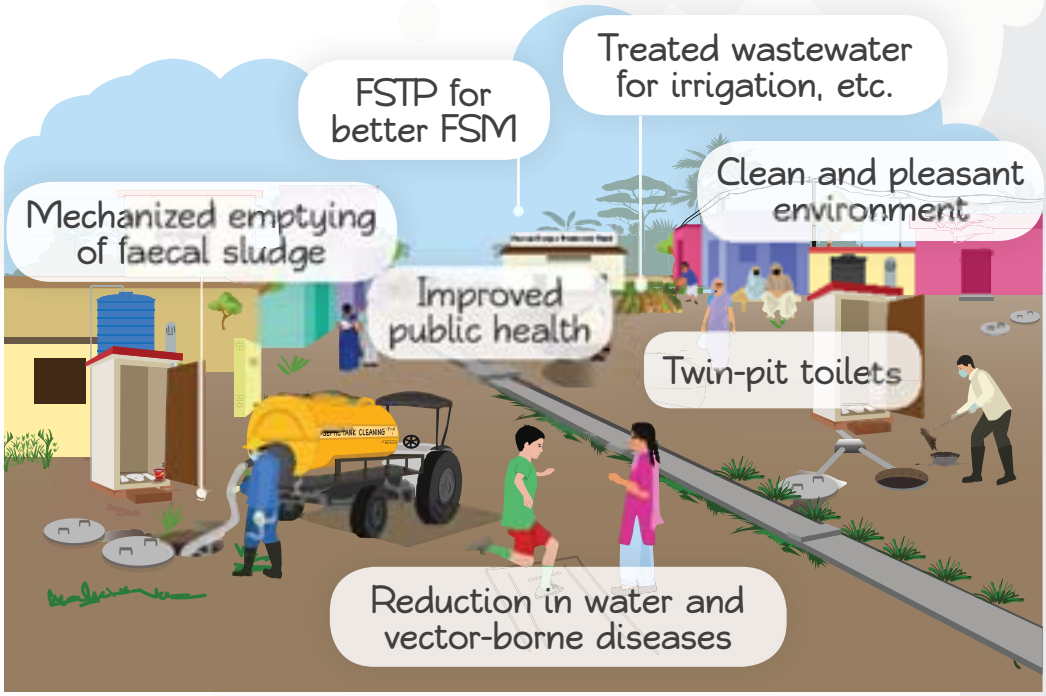
Use of personal protective equipment (PPE) must always be ensured and complied with while dealing with faecal sludge.

Benefits of FSM

Before FSM



After FSM



Need for FSM

Sampoorn Swacchata includes the overall cleanliness of the village. Since India had achieved 100% ODF status in 2019, FSM is necessary to ensure that faecal sludge from household and community/public toilets is properly managed.

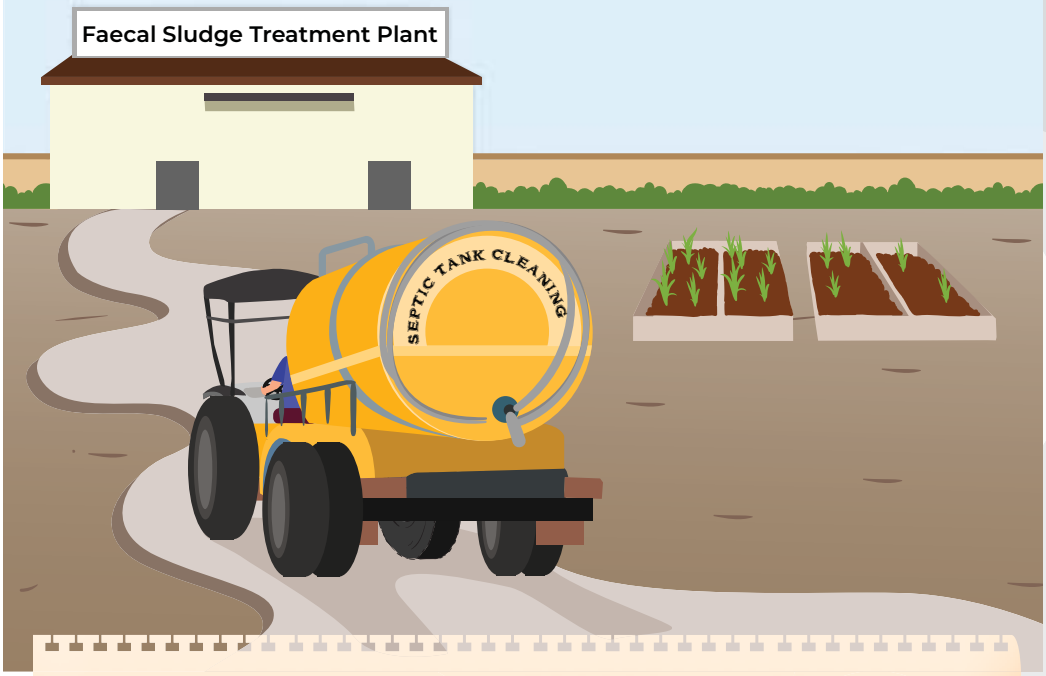
Faecal sludge treatment approaches

The four types of treatment approaches are:

1 In-situ treatment

SBM (G) promotes twin-pit toilets to ensure in-situ treatment requiring no mechanized emptying, transportation, or treatment. In a twin-pit, when one pit fills up, it can be closed and the second pit can be used while the slurry from the first pit dries in situ. After the prescribed time, it can be safely taken out by a household member and used as khad.

2 Treatment at existing Sludge Treatment Plants (STPs)/Faecal Sludge Treatment Plants (FSTPs)



Faecal sludge from rural areas can be disposed of in nearby urban STPs/FSTPs, wherever technically feasible and in coordination with the municipality concerned.

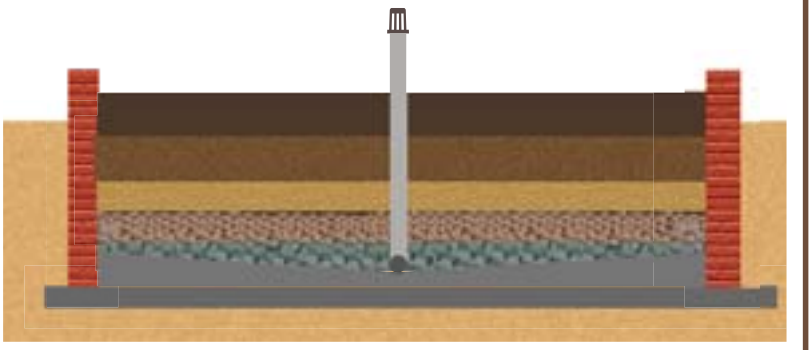
The possibility of treatment of faecal sludge at an existing STP/FSTP should be explored before deciding if there is a need for a new FSTP.

Such existing STPs/FSTPs in urban centres within a radius of 10 km or 30-minutes driving time, or up to 15–20 km or 45-minutes driving time (in extreme cases as an interim solution) should be identified.

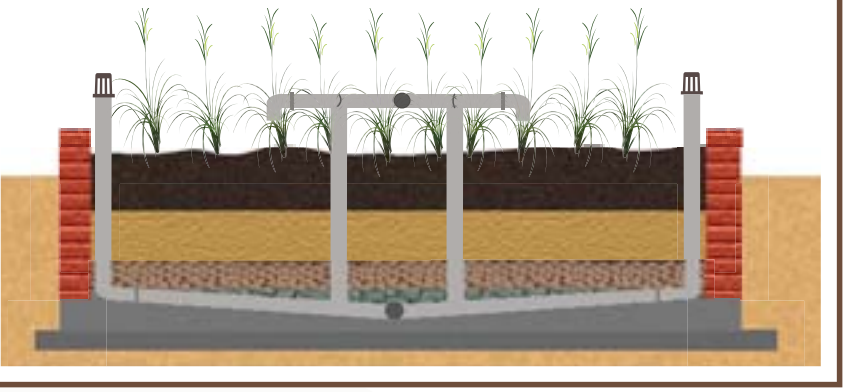
3 New FSTP

SBM (G) Phase-2 identifies two primary technologies.

Unplanted Sludge Drying Bed (UPDB)



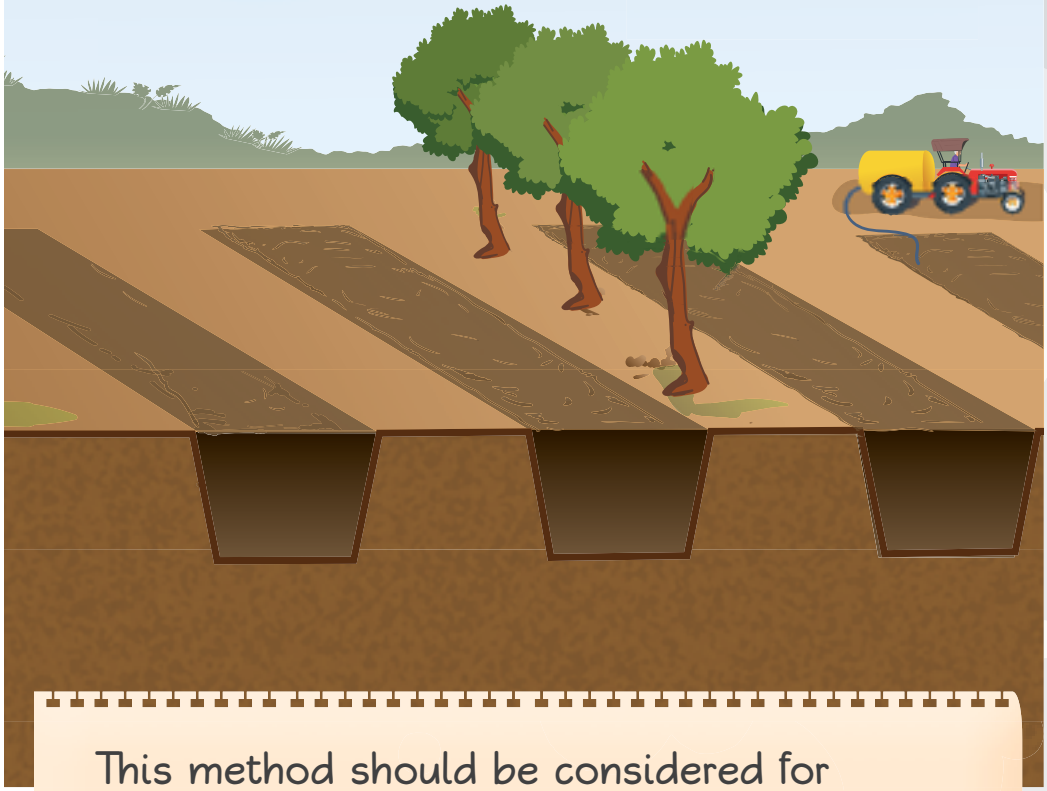
Planted Drying Bed (PBD)



These two technologies separate the solids from the sludge and treat the solids. The liquid part requires further treatment which can be done through GWM technologies.

FSTPs can also be planned to be located along with GWM systems such as WSPs, DEWATS, etc. This can reduce the operation and maintenance costs.

4 Deep Row Entrenchment (DRE)



This method should be considered for isolated villages that form very small clusters and require a treatment plant.

In this controlled disposal method, excavated deep trenches are filled with faecal sludge/septage and covered with soil.

Plantations can be carried out on the top or side of the entrenchment for the plants to take up the nutrients available in the faecal sludge.

Converting single-pit toilets into twin-pit toilets (retrofitting) must be must be given first preference.

Barriers to FSM

Some of the key barriers to FSM are the limited amount of knowledge on:

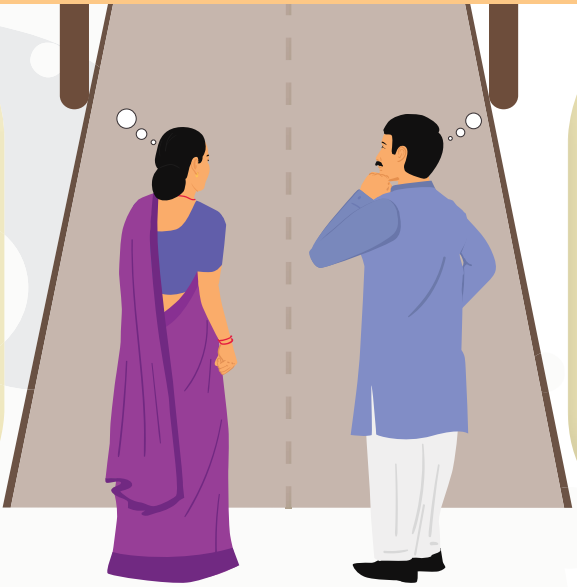
Services for desludging and emptying pits

Retrofitting of toilets

O&M requirement of different pits

Technical aspects such as construction, maintenance, regular cleaning of toilets and septic tanks, faulty construction and lack of access to toilets

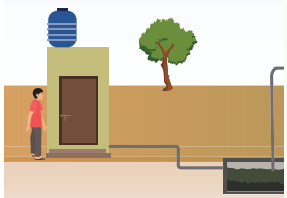
Taboos and fear around pit emptying and cleaning



Stigma around the reuse of dried sludge from twin pits

Key issues and challenges across the FSM value chain

Containment

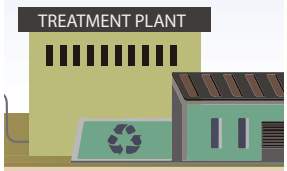


- Overflow/blockage of toilets
- Septic tanks without soak pits discharging effluents into drains
- Requirement of periodic emptying of septic tanks for proper functioning

Emptying & Transport

- Lack of adequate emptying services for cleaning of septic tanks
- Affordability of emptying charges for poor households
- Poor understanding of safety protocols for emptying septic tanks/single pits

Treatment



- Lack of a treatment facility results in indiscriminate disposal of feacal sludge into drains, open land and water bodies
- Direct use of untreated faecal sludge in agriculture

Reuse/ Disposal

- Lack of awareness on reuse potential and benefits to agriculture

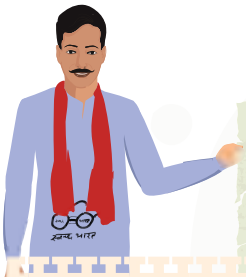
Reuse of treated by-products

FSM provides a great opportunity for reusing sludge, particularly as manure.

Adequate treatment of faecal sludge offers mainly two by-products, which are:

- Biosolids such as soil conditioner and compost when co-composted with organic Municipal Solid Waste (MSW)
- Treated wastewater that can be used for irrigation, agriculture, landscaping, etc.

Roles and responsibilities of the village-level stakeholders in FSM



Swachhagrahis

- Generate awareness on the hazardous impact of indiscriminate disposal of untreated faecal sludge into drains, water bodies, open land, etc.
- Facilitate toilet construction, use and maintenance
- Facilitate retrofitting
- Facilitate sustained behaviour change for key ODF Plus practices, including FSM
- Promote public health and hygiene in households and villages
- Support the rollout of SLWM activities at both the household and GP levels
- Facilitate timely cleaning of tanks (septic tanks if applicable)
- Disseminate information on the user fee charge, applicable penalties and the availability of cleaning services in each household
- Motivate households and other entities for the payment of applicable fees

- Use toilet every time (all members of the household)
- Stop open defecation
- Construct twin-pit toilets/correct toilet infrastructure
- Retrofit single-pit toilets to twin-pit toilets as required
- Keep toilets clean and functional
- Monitor septic tanks and single-pit latrines; empty tanks as required
- Desludge the septic tanks and single-pit latrines every 3–5 years (as required)
- Only use mechanical desludging by approved agencies
- Make timely user fee payments for emptying and other FSM services
- Report any illegal disposal in drains, water bodies, open land, etc. to the respective GP

DO

- Construct, use and maintain toilets regularly
- Encourage adoption of twin-pit toilets
- Retrofit single-pits and septic tanks
- Ensure timely emptying of faecal sludge from single-pits and septic tanks
- Create awareness on the importance of FSM in public health and hygiene
- Cooperate with different stakeholders to ensure a smooth functioning of FSM
- Engage approved operators to collect and transport faecal sludge and make timely payments for their services
- Explore the possibilities of connecting to the nearby STPs/FSTPs
- Actively participate in the ODF Plus initiative

DONT

- Engage in indiscriminate disposal of faecal waste
- Dump faecal waste in water bodies or open areas
- Engage in manual scavenging
- Reuse untreated faecal waste in agriculture
- Stigmatize the reuse of treated faecal waste from the twin-pits

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