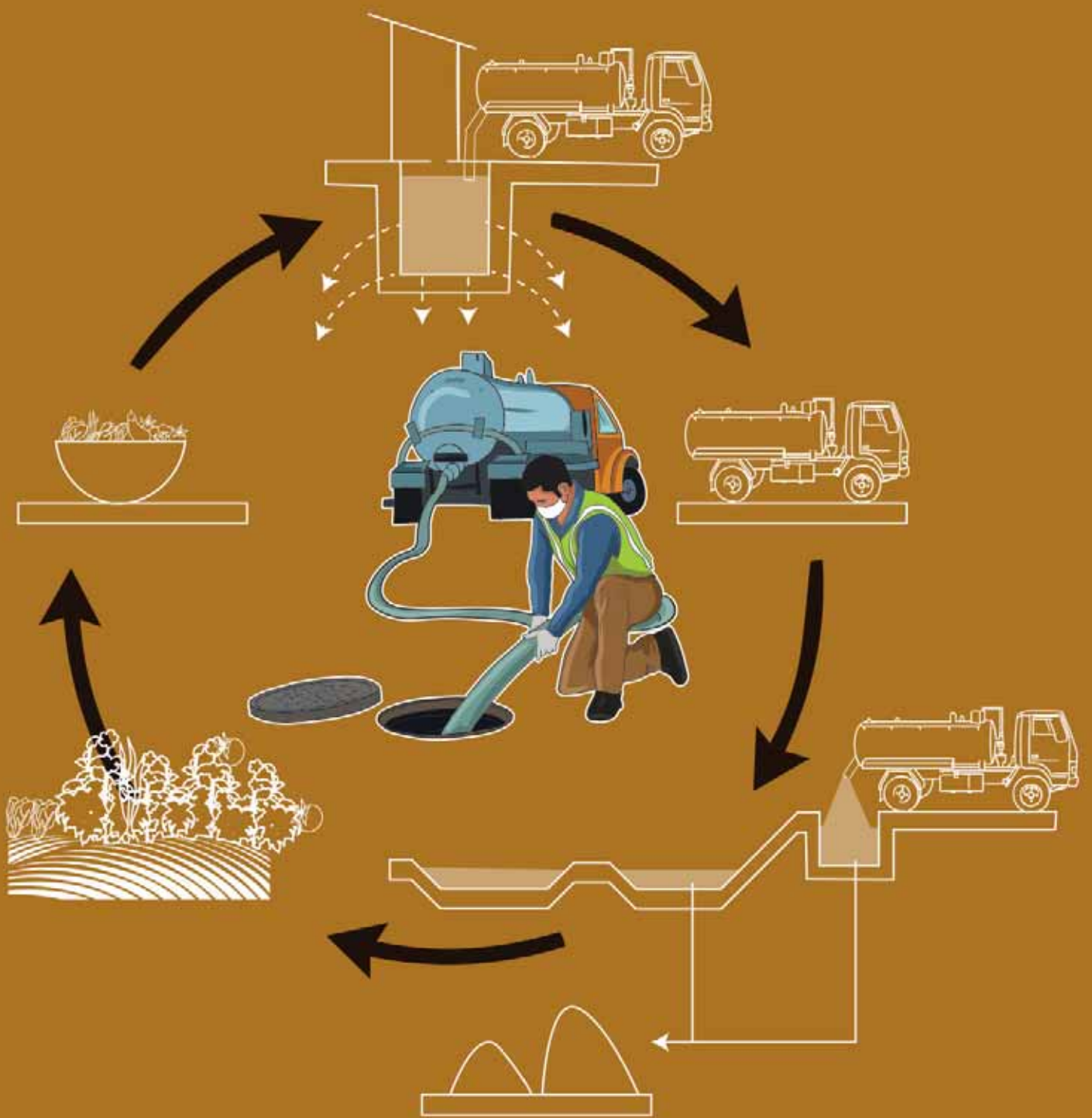




Toolkit for District Level Officials on Faecal Sludge Management

June 2021



**Toolkit for District Level
Officials on Faecal Sludge
Management**

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What is Faecal Sludge Management?

Q

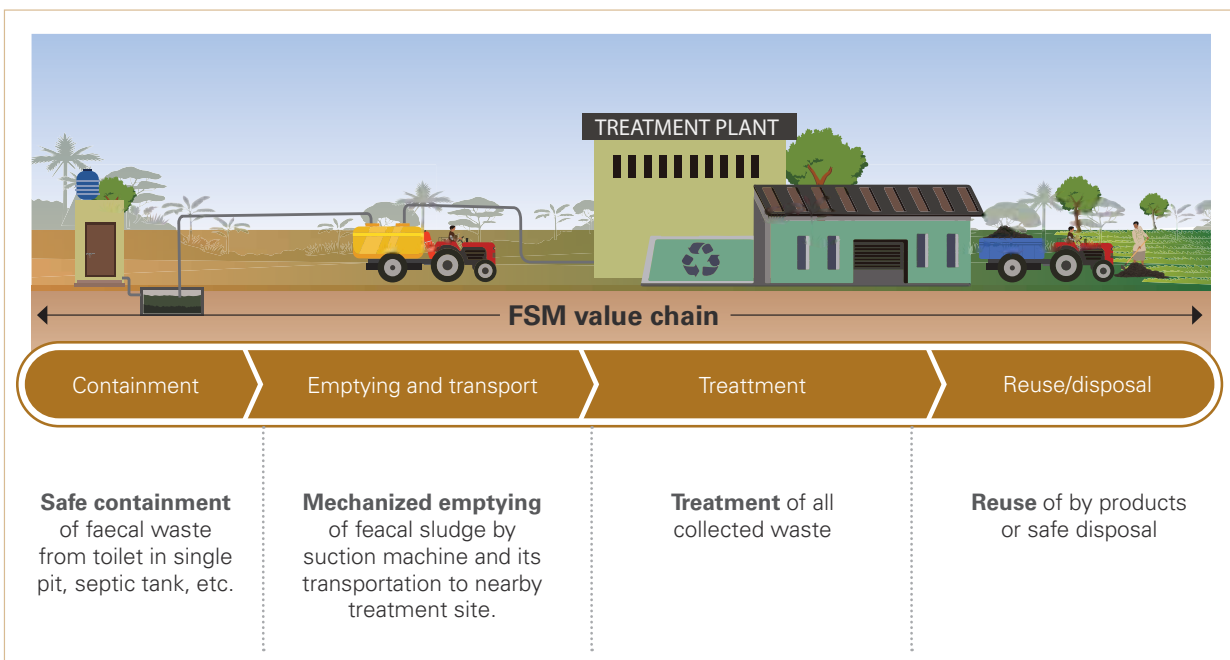
What is Faecal Sludge (FS)?

A

Faecal sludge is the raw or partially digested mixture of excreta and water, usually accumulated in the containment such as single pit, septic tank, etc.

Faecal Sludge Management (FSM) is the emptying, transportation and treatment of faecal sludge from septic tanks, pit latrines or other on-site sanitation systems (OSS). In general, FSM deals with safe containment of waste from toilets, mechanized collection of faecal sludge from containment, its transportation to the treatment facility, followed by treatment and its reuse. This sequence of activities is also known as the FSM value chain, as shown in Figure 1.

Figure 1: FSM value chain



FSM is applicable for on-site sanitation systems such as septic tanks and pit latrines which require periodic emptying of sludge. These on-site sanitation systems or containments get filled with faecal sludge/human excreta over time and require to be emptied by mechanized desludging equipment (using a suction machine, vacuum pump, cesspool vehicle or other similar arrangement). Figure 2 shows a septic tank and single pit that are filled with sludge and require emptying. It should be noted that septic tanks lose their optimum treatment capacity or proper functioning even before they are completely filled, implying that periodic emptying is key to proper functioning.

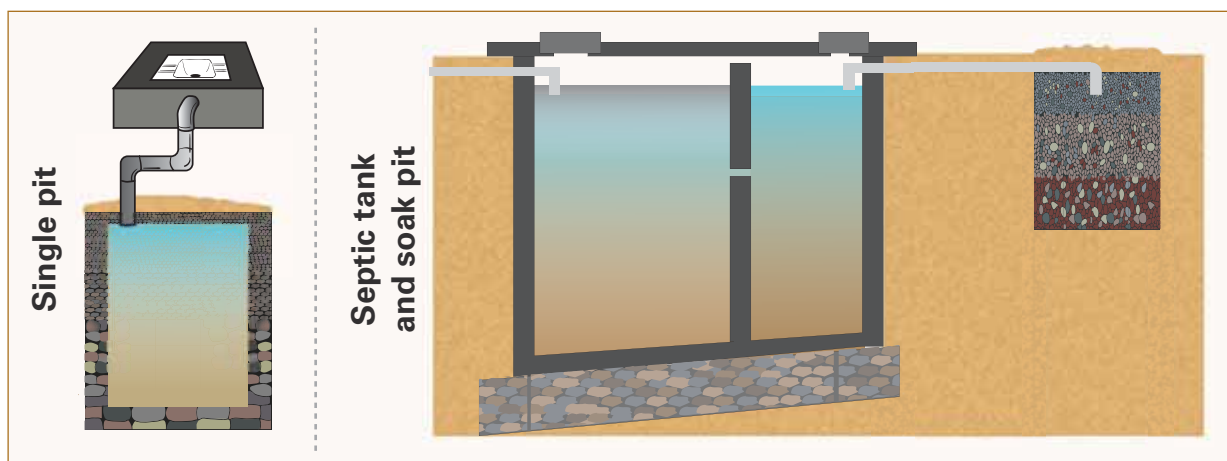


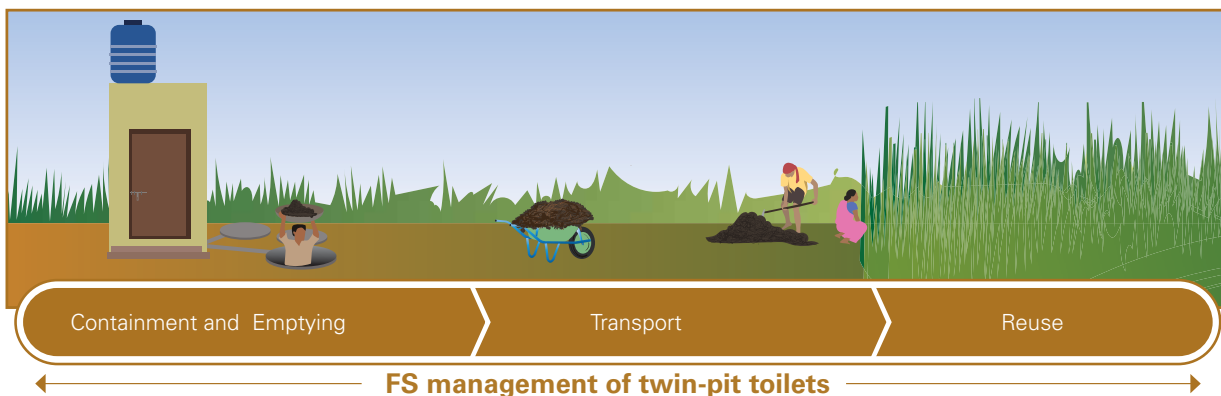
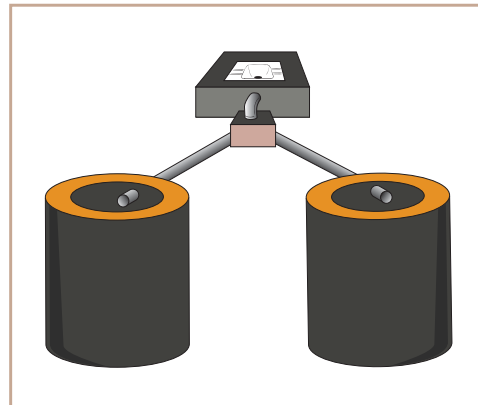
Figure 2: Single pit and septic tanks in full condition



Emptying of septic tanks and single pits is usually carried out by private desludging operators (also known as emptier, cesspool vehicle operator or sludge emptier) or desludging service operated by the local administration. Manual scavenging in any form must not be done while emptying septic tanks and pits; and use of personal protective equipment (PPE) must always be ensured and complied with.

Faecal sludge collected from the pit and septic tank should be safely transported to a treatment facility where the sludge is treated to the required standards prescribed for reuse or safe disposal in 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 for reuse as manure. Twin-pits do not require FSM services as households and institutions themselves can manage the safe emptying and reuse of waste. Figure 3 shows the mechanism for twin pits toilets.



Q

When do pits require mechanical emptying; and when can pits be emptied by users themselves?

A

Containment structures such as septic tanks and single pits store the sludge in slurry form, which has a high pathogen load. The FS accumulated in these containments requires to be emptied mechanically through use of a suction pump or other similar arrangement. However, sludge from twin pit toilets after complete drying (usually after a resting period of two years), can be emptied by the households themselves and can be directly reused in agricultural fields.

Q

What are the key issues and challenges to be aware of while planning for FSM?

A

The following issues and challenges may be considered across the value chain while planning for FSM



- | | | | |
|--|--|--|--|
| <ul style="list-style-type: none"> ▪ Overflow/blockage of toilets ▪ Septic tanks without soak pits discharging supernatant/effluent into drains ▪ Requirement of periodic emptying of septic tanks for proper functioning | <ul style="list-style-type: none"> ▪ 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 | <ul style="list-style-type: none"> ▪ Lack of treatment facility results in indiscriminate disposal of faecal sludge into drains, open land and water bodies ▪ Direct use of untreated faecal sludge in agriculture | <ul style="list-style-type: none"> ▪ Lack of awareness on reuse potential and benefits to the agriculture |
|--|--|--|--|

A few points are detailed in the table below:

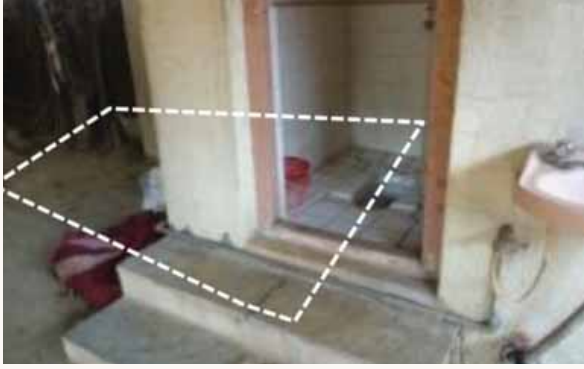


Poor awareness on FSM: Lack of awareness on safe management of faecal waste and FSM services may result into delay in emptying of pits resulting in overflowing and blockage of toilets, lack of personnel safety and very limited use of Personal Protective Equipment (PPE), reuse of untreated septage in agriculture resulting in environmental pollution.

Further, due to lack of awareness on FSM, there is lack of clarity in role and responsibilities amongst different stakeholder within FSM value chain.



Discharge of partially treated wastewater into drains: Septic tanks should be constructed with soak pits for safe disposal of partially treated wastewater (usually refer as effluent/supernatant). It has been observed that all septic tanks do not have soak pits discharging water directly to drains.



Construction of proper containment: The septic tanks and single pits constructed do not comply with the standard design and specification, which hampers its desired performance. This also effect the emptying period stretching to more than 8 years instead of 2–3 years.

Further access hole for cleaning the septic tanks or single pits become difficult to locate.



Emptying and transportation: Access of emptying and transportation is not uniform. The services are mainly provided by private sector on demand against payment of services charges.

The services include various health hazards against which standard operating procedure need to be followed with use of proper PPE.

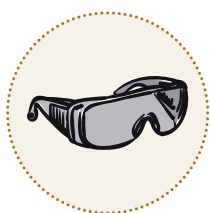


Lack of treatment facility: Treatment facilities for faecal sludge treatment are not present in rural areas.

How to safely empty a septic tank



Gumboots



Safety goggles



Helmet



Mask

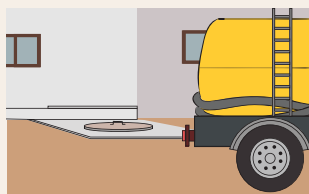


Gloves

- ❖ Inspect the site, break the mortar seal and connect the hose from the truck to the tank.



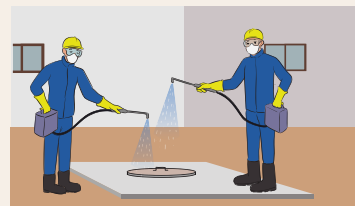
- ❖ Park the truck within 25 m from septic tanks. In case of more than 25 m of linear distance and 4 m in elevation gain, intermediate pumping is required.



- ❖ Break the mortar seal of the septic tank lid. Inspect the tank for cracks or damage before and after the emptying of tank.
- ❖ Lay out and connect the hoses from the truck to the tank or pit to be emptied.

- ❖ Increase the vacuum to the proper level to take out faecal sludge out of the tank.

- ❖ Break up faecal sludge and emptying the septic tanks between 90% and 95% of its contents.



- ❖ Operators shall leave behind sludge not less than 25 mm in depth in the bottom of the septic tank.
- ❖ Clean up any spillage using proper sorbent materials. Cover top and the area around is sprayed with 1% of chlorine solution.

- ❖ Prepare a written report indicating: How much waste was removed; the condition of the tank or pit; any recommendations for repairs.

- ❖ Replace & seal the cover with plaster.

Use of PPE while emptying septic tank is mandatory. However, based on requirement, appropriate safety equipments should be adopted while emptying septic tanks.

Swachh Bharat Mission Phase-II: Guidelines for Implementation of FSM



How to cluster villages based on available and proposed treatment facilities?



Q

What is STP?

A

STP stands for Sewerage Treatment Plant, usually constructed in urban area, for treatment of wastewater. The wastewater (combined greywater + blackwater) from households flows through sewer pipe to STP for treatment.

Q

What is FSTP?

A

FSTP stands for Faecal Sludge Treatment Plant for treatment of faecal sludge generated in septic tank, single pit, etc. The faecal sludge collected by suction machine will be transported to faecal sludge treatment plant for treatment followed by safe disposal or reuse.

Q

What is co-treatment of faecal sludge?

A

Co-treatment implies treatment of faecal sludge with sewerage wastewater at STP.

Q

What is Deep Row Entrenchment (DRE)?

A

Deep row entrenchment is a controlled disposal of collected faecal sludge by trenches (pits excavated in soil). The DRE should be done either for large village or cluster of villages where demand is very low. This may be implemented as an interim solution where STP/FSTP are not available or it is under construction.

Q**What is planted drying bed/sludge drying bed?****A**

Planted Drying Bed (PDB) and Unplanted Sludge Drying Bed (UPDB) are technology for FSTP primary for solid-waste separation. They are key technologies for faecal sludge treatment plant, however, the solids and leachate produced from these technologies require further treatment- leachate (PDB, UPDB) and solid treatment (UPDB) treatment.

Funding options for FSM implementation

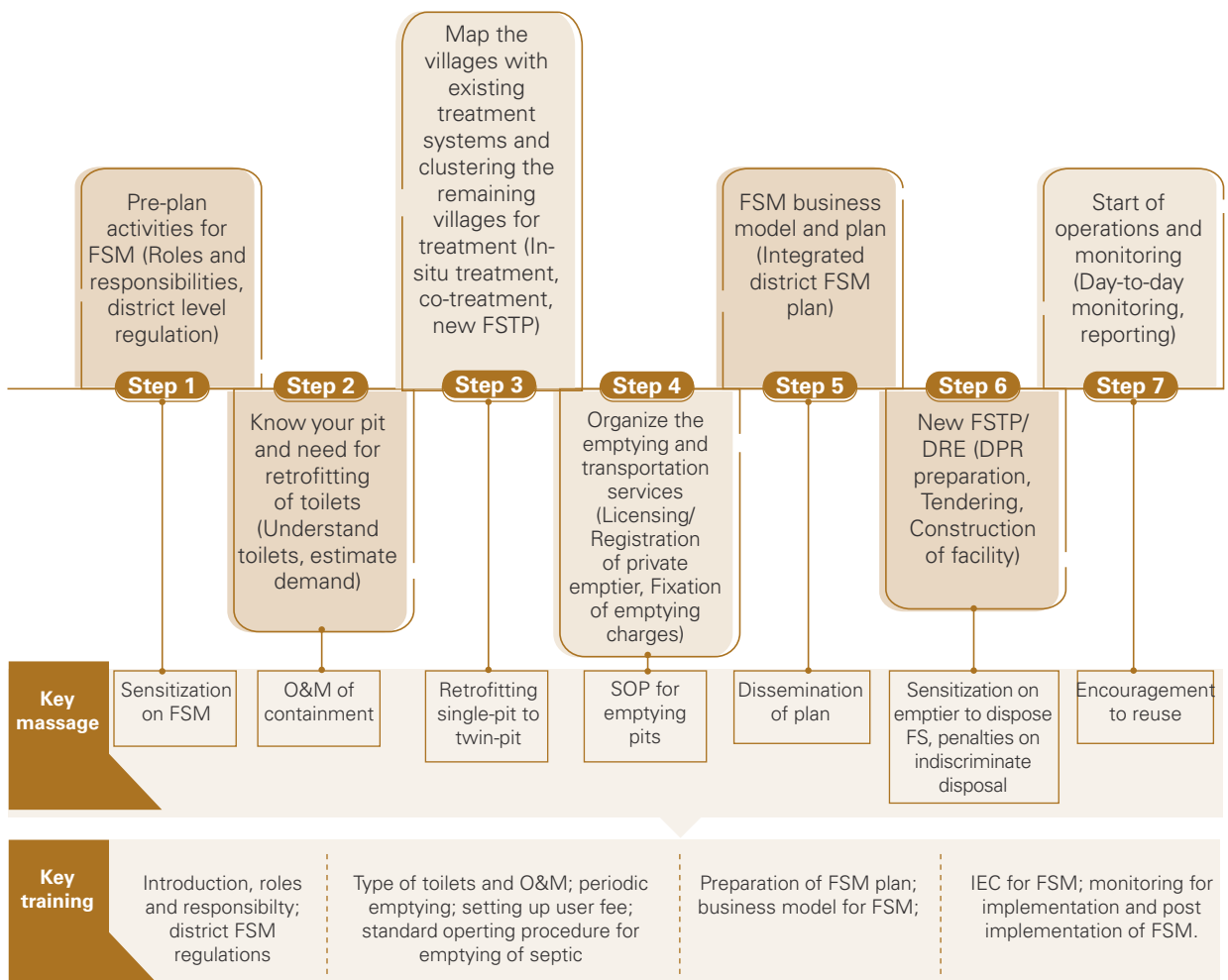
	Retrofitting	Mechanised emptying and transportation	Co-treatment	Deep row entrenching	FSTP	O&M of FSTP
SBM Phase-II			Covergence with nearby STP and FSTP			
15 th FC						
MGNREGS						
Private sector						



Planning and Implementation of FSM

Districts are responsible for the planning, implementation and monitoring of FSM. Every toilet that requires emptying should have access to mechanized emptying and transportation followed by treatment of all collected faecal sludge. A step-by-step approach has been developed to guide the districts and facilitate the execution process of FSM in a holistic manner. Figure 3.1 presents a snapshot of the step-by-step approach along with key IEC messages and training activities to be undertaken.

Figure 3: Steps for planning and implementation for FSM in a District



DPR: Detail Project Report; FS: Faecal Sludge; E&T: Emptying and Transportation; FSTP: Faecal Sludge Treatment Plant; IEC: Information, Education and Communication; O&M: Operation and Maintenance; SOP: Standard Operating Procedure

As the districts follow the step-by-step approach, one of the key deliverables will be an integrated district FSM plan which will be developed at the end of step 5. This is followed by the implementation of key infrastructure and monitoring of operations. The plan is prepared in a timebound manner to guide the overall roll out of FSM in the district.

The detailed seven-step process is available with accompanying activities and supporting materials in the form of templates and sample documents. These documents have been developed in an easy-to-use manner for use by field practitioners in data collection and analysis. Districts that have prepared an FSM plan should include the key aspects in reference to the above implementation approach. The FSM plan should be timebound, with completion of the first five steps in three months and the subsequent activities within 12 months.



Step	Activity	Outcome/key milestones
Step 1: Pre-plan activities for FSM	<ul style="list-style-type: none"> • Orientation by the district to all block officials to sensitize on FSM, the requirement of data, and information needed for FSM planning • Orientation by blocks to its all GPs and PRI functionaries on type of toilets, emptying requirement, mechanized desludging with appropriate use of PPE and process of data collection • Initiate assessment of existing infrastructure in district focusing on type of containment, private operator emptying septic tanks, existing STPs/FSTPs; in co-ordination with cities and towns • District to initiate preparation of integrated FSM plan (Template is provided in Annexure 4 of <i>“Manual for Faecal Sludge Management”</i>) 	<ul style="list-style-type: none"> • Orientation to DWSC and all VWSCs for FSM implementation • Regulations to be support FSM implementation for licensing, roles and responsibilities, user fee charges, etc. • Resolutions to be adopted at village level against indiscriminate disposal (Template is provided in Annexure 1)
Step 2: Know your pit and need for retrofitting of toilets	<ul style="list-style-type: none"> • Enumerate containment systems by type – twin pit, septic tank, single pit and others • Identify HHs with single pits and assess feasibility for retrofitting to convert them into twin pit toilets • Estimate HHs and institutions with toilets (single pits and septic tanks) that require FSM and calculate faecal sludge generated (Template is provided in Annexure 4 of <i>“Manual for Faecal Sludge Management”</i>) 	<ul style="list-style-type: none"> • List of villages requiring FSM services • The estimated quantity of faecal sludge generated from each village • Retrofitting of all single pit toilets to twin pit toilets

Institutions cover community sanitary complex, public toilet complex, schools, anganwadi centers, panchayat building, health care facilities, hotels, hostels, and religious institutions such as ashramshalas.

Q

How to quantify the faecal sludge to be emptied, transported and treated?

A

Faecal sludge quantification can be done in two ways i.e., Sludge accumulation and estimated number of septic tanks* to be serviced every day.

Sludge accumulation rate:

$$\text{FS capacity (KLD or m}^3\text{/day)} = \text{Number of people dependent on septic tanks} \times 0.00021$$

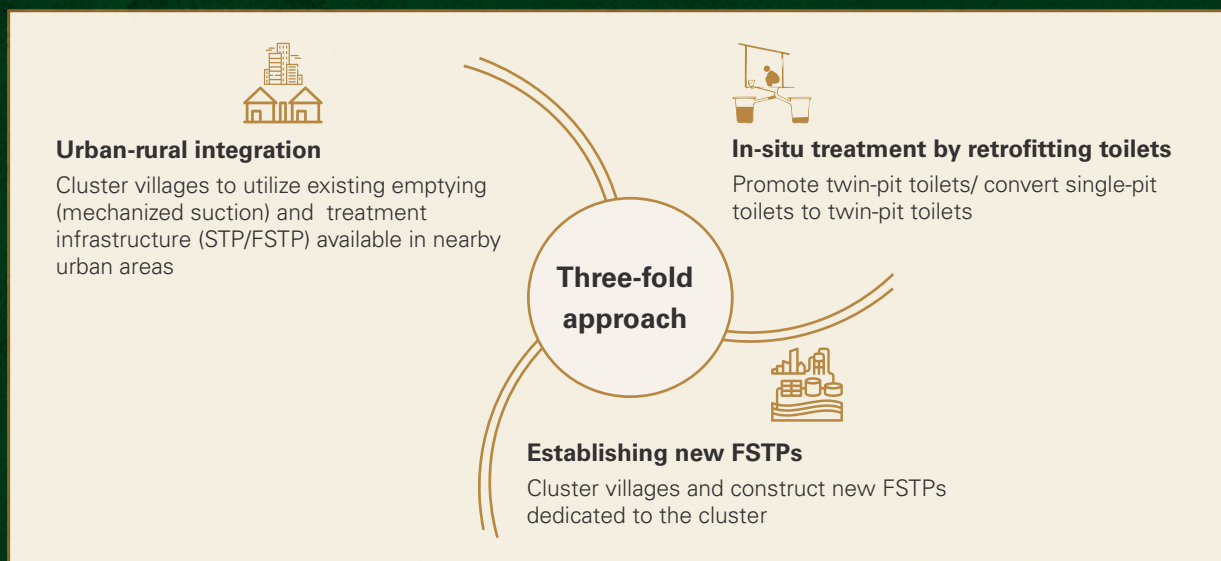
Estimated septic tanks to be serviced everyday:

$$\text{FS capacity (KLD or m}^3\text{/day)} = \frac{\text{Number of septic tanks} \times \text{Average capacity(m}^3\text{)}}{\text{(Emptying period (year) X Number of operational days in a Year)}}$$

* Septic tanks imply here as any containment require emptying on partially or raw untreated faecal sludge such as single pits, closed pit, containment chamber, etc.
** Sludge accumulation method is more suitable to rural areas with on-demand desludging.

Integrated FSM plan

District FSM plan will assess the need for retrofitting of toilets and in-situ treatment, coverage of emptying and transportation services, provision of treatment infrastructure to all villages, potential reuse or resource recovery from faecal sludge management.



Know Your Pit and FSM Implementation

		Context	Remedy	If remedy not feasible
Twin pit		<ul style="list-style-type: none"> Leakage in Y-Junction that connects pits to the toilet. Distance between pits less than 1m 	Retrofit	Long storage to ensure drying
		<ul style="list-style-type: none"> In high water table area 	Upgrade to in-situ treatment	Implement FSM
Single pit		<ul style="list-style-type: none"> All Single pit toilets require mechanized emptying 	Upgrade to in-situ treatment	Implement FSM
Septic tank		<ul style="list-style-type: none"> Water-tight tank, no outlet – is a holding tank 	Upgrade to in-situ treatment	Implement FSM
		<ul style="list-style-type: none"> Septic tank – water-tight with outlet in drain 	Soak pits to be constructed with septic tanks	

Step	Activity	Outcome/key milestones
Step 3: Map the villages with existing treatment systems and clustering the remaining villages for treatment.	<ul style="list-style-type: none"> • Locate existing STPs and FSTPs in urban and rural areas • Identify and link villages which can be served by each existing STP/FSTP preferably up to 10–15 km, or 15–20 km in extreme cases • Furnished MoU with the municipality/ department responsible for operation and maintenance of STP/FSTP • Cluster the remaining villages so that each cluster can be served by a new FSTP. Select technology and identify land to build a new FSTP in each cluster • Identify isolated villages that cannot be included in any cluster. Identify land in each such village to implement trenching <p>(Template is provided in Annexure 4 of <i>Manual for Faecal Sludge Management</i>)</p>	<ul style="list-style-type: none"> • Every village is mapped to an existing STP/FSTP or new FSTP or trenching • Land and technology are identified
Step 4: Organize the emptying and transportation services	<ul style="list-style-type: none"> • Identify private operators in the district emptying septic tanks and single pist; and provide appropriate recognition via registration/licensing*. (Template is provided in Annexure 2) • Estimate total desludging vehicles needed in the clusters 	<ul style="list-style-type: none"> • Additional desludging vehicles required in the district are estimated • Licensing/ registration of private desludging operators is completed
<p>* At the time of issuing of license to the desludging operators, if there is no existing STP/FSTP or if a significant time gap is expected to build the new FSTP, district authorities should identify and designate sites where desludging operators can safely dispose of faecal sludge. This can be done easily at the site identified for the FSTP by excavating temporary trenches for safe disposal. Such trenches should follow the necessary specifications as prescribed in the <i>Manual: Faecal Sludge Management</i>.</p>		



What is demand and schedule-based desludging?



Demand-based desludging: Demand-based desludging implies the emptying carried out on request of user (owner of septic tanks, single pit, etc.), usually, when it is fully filled. The service is provided on demand made by user to either directly contacting private operators or through call centre. User fee is paid directly to desludging operator by user, once service is carried out.

Schedule-based desludging: Schedule-based desludging implies regular servicing of septic tank and other similar containment on a predetermined period (usually 3–5 years). The cycle is fixed for every septic tank with predefined date of prospective cleaning. This type of system usually run by local administration (either directly or with help of private operators) and requires levying a cess on households to collect the user fee.

Provision of treatment infrastructure

Map village to existing septic tank/proposed infrastructure in urban-rural areas

All villages up to 15–20 km from urban centres should be linked with urban facilities



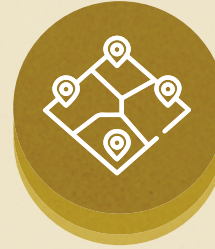
Prepare cluster of remaining villages

Cluster the villages within 15–20 Km. For FSTP minimum rural population considered for techno-financial feasibility is 15000–18000 souls dependent on septic tank and other such containments (1)



Select appropriate technology

For the plant up to 12 KLD serving 50,000-55,000 people should adopt planted drying beds with leachate treatment



Identify the land for FSTP

Identifying suitable land based on the capacity and technology

Treatment system	Area required (2)(sqm/KLD)
Planted drying bed	70–100
Unplanted drying bed	80–120

Checklist for site selection

- It is minimum 200 m away from any habitation
- It is not prone to annual flooding
- Easily accessible from main road

1. In case of lower population deep row entrenchment is preferred.

2. Total area required is obtained by multiplying area with planned capacity of FSTP or trench in kld. For example, a 10 kldplanted drying bed based FSTP will require 700–1000 sqm of land area. The land area mentioned above is indicative only and may change depending on site conditions.

Step	Activity	Outcome/key milestones
Step 5: Develop integrated FSM plan and business model	<ul style="list-style-type: none"> Determine O&M cost for FSTP or DRE Set the tariff for various FSM activities – desludging service fee, price of compost to be sold at FSTP to farmers Update the integrated FSM plan 	<ul style="list-style-type: none"> Operations plan and business model for FSM in district Finalization of district FSM plan
Step 6: Implement new FSTP or DRE	<ul style="list-style-type: none"> Prepare DPR for each new FSTP (<i>refer Manual: Faecal Sludge Management</i>) Prepare tenders, award work and start construction of new FSTP Implement Trenching under MGNREGA activities (<i>refer Manual: Faecal Sludge Management</i>) 	<ul style="list-style-type: none"> Retrofitting of septic tank toilets with soak pit Construction of FSTP/Trenches complete
Step 7: Start of operations and monitoring	<ul style="list-style-type: none"> Set up the reporting and monitoring system for the emptying, treatment and reuse Monitor and report key FSM indicators annually 	<ul style="list-style-type: none"> FSM monitoring undertaken by district, block, and village administrations and respective water and sanitation committees

Q How to prepare a detail project report for FSTP?

A Detail Project Report (DPR) can be prepared by help of “Manual for Faecal sludge management for FSTP”.

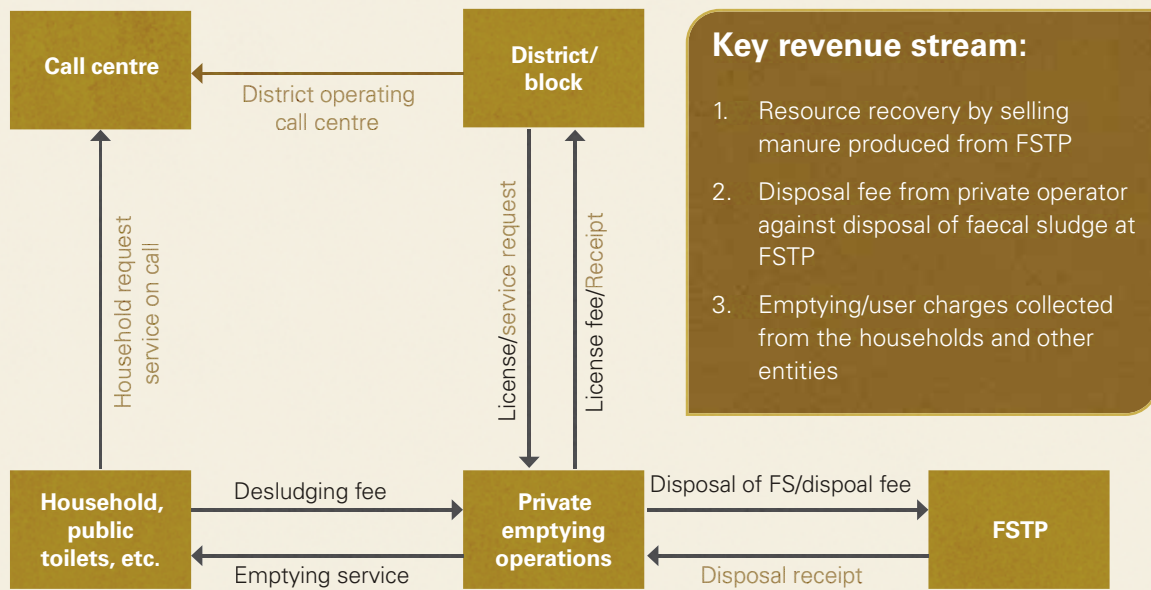
Q What activities related to FSTP or DRE should be taken from MGNREGS?

A Deep row entrenchment should be taken entirely from the MGNREGS, however, for FSTP the stormwater drains, protection work,

Figure 4: Milestone of FSM implementation



Business Plan for FSM Services



* Valid only if call centre is established

Parametes	Business models decision matrix			
Business model type	FSTP O&M	E&T: Existing/status-quo	FSTP O&M an E&T: Combined/ hybrid model	E&T: Schedule desludging (with or without FSTP O&M)
Applicability	Private operator is available for E&T	Private operator is available for E&T	Private operator is not available for E&T	Schedule emptying
Expenditure	O&M of FSTP by public agency	E&T-fuel, labour, O&M of equipment	O&M for FSTP and E&T	E&T-fuel, labour, O&M of equipment
Revenue	<ul style="list-style-type: none"> Selling of manure/ compost produced 	<ul style="list-style-type: none"> Emptying charges, user fee collected while emptying pit 	<ul style="list-style-type: none"> Selling of Manure/ compost produced Emptying charges, user fee collected while emptying pit 	<ul style="list-style-type: none"> Monthly/ quarterly/ yearly charges with water charges, SWM charges collected by GP and transfer to agency responsible for E&T (and FSTP)
Other source for gap	FFC grant and other funds		FFC grant may be used for part FSTP O&M However, business model should be encouraged	FFC grant may be used for part FSTP O&M However, business model should be encouraged

FSTP: Faecal Sludge Treatment Plant; E&T: Emptying and Transportation; O&M: Operation and Maintenance; FFC: Fifteenth Finance Commission

Information, Education and Communication for FSM

Information, Education and Communication (IEC) is one of the most critical aspects to deliver and sustain ODF Plus outcomes. Figure 4.1 provides the different IEC channels and messaging required for FSM. To implement the IEC messages, key IEC activities are to be undertaken corresponding to the seven steps of implementation. These are listed in Table 4.1. A calendar of IEC activities will be part of the integrated district FSM plan.

Figure 5: IEC Components for FSM

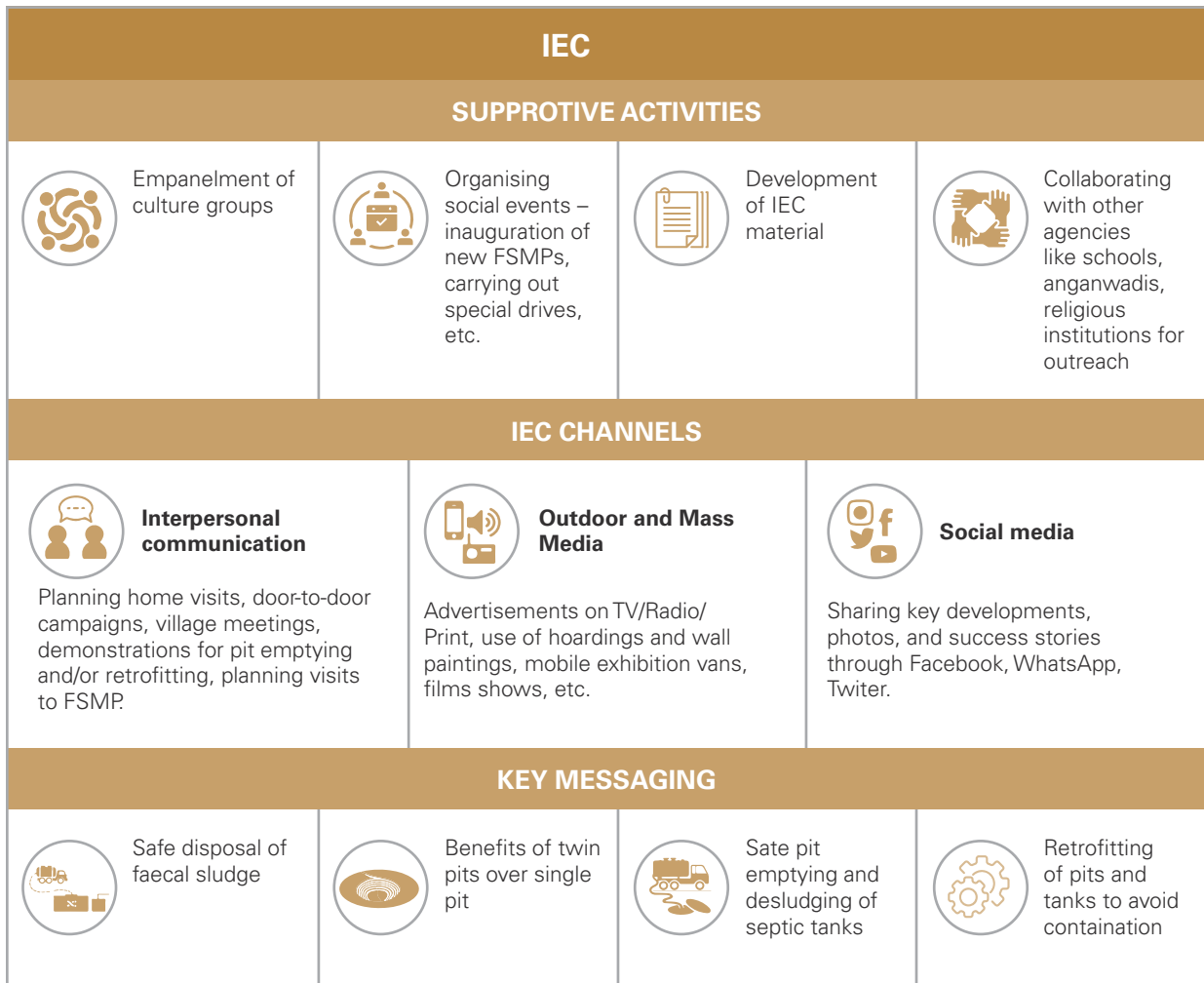
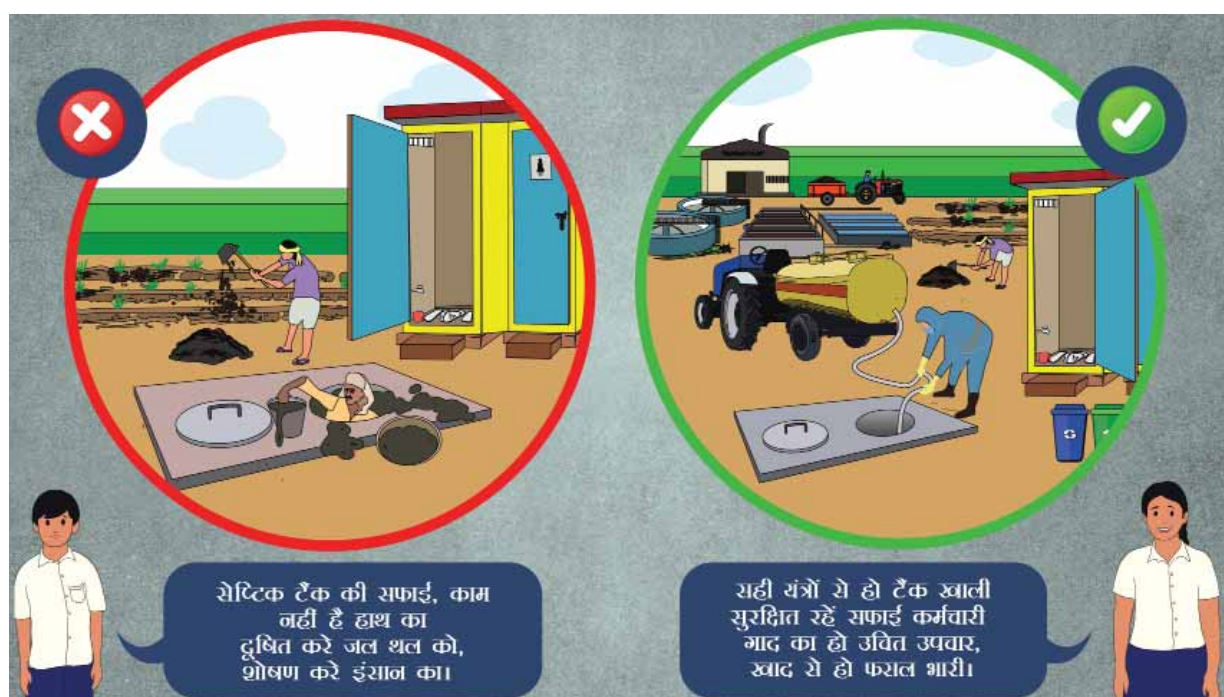


Table 1: IEC activities

Steps	Key IEC Activities
Step 1: Pre-plan activities for FSM	<ul style="list-style-type: none"> • Sensitization of District officials and committee members of DWSM/DWSC; BWSC, VWSC on roles and responsibilities, integrated district FSM plan and necessary FSM regulations for implementation • Awareness generation on type of containment, importance of periodic emptying and importance of twin-pit toilets over other systems
Step 2: Know your pit and need for retrofitting of toilets	
Step 3: Map the villages with existing treatment system and clustering the remaining villages for treatment	<ul style="list-style-type: none"> • Dissemination of importance of safe emptying and desludging of septic tank/single pit to households and private operators
Step 4: Organize the emptying and transportation services	<ul style="list-style-type: none"> • Awareness generation on hazardous impact of indiscriminate disposal of untreated faecal sludge to drains, water bodies, open land, etc.
Step 5: Develop integrated FSM plan and business model	<ul style="list-style-type: none"> • Sensitization of households staying close to the identified treatment site to avoid Not in my Backyard (NIMBY) impact • Dissemination of information on the user fee charge, applicable penalties and availability of cleaning services in each household
Step 6: Implement new FSTP or DRE	<ul style="list-style-type: none"> • Motivation of households and other entities for payment of applicable fees
Step 7: Start operations and monitoring	



Capacity Building for FSM

The capacity-building component strives to bridge capacity gaps to enhance and optimally utilize capacity of all available human resources at the district/block and PRI level to the fullest, so as to accomplish the Swachh Bharat Mission (Grameen) (SBM [G]) Phase-II goals. Building capacity of key stakeholders is necessary to plan, implement and monitor ODF Plus activities.

In FSM, the district will ensure that Training Of Trainers (ToT) of selected members is completed to help them conduct capacity strengthening programmes for PRIs, field functionaries, private desludging operators and other relevant stakeholder in FSM value chain. The district will prepare a calendar of training events and communicate this to all relevant stakeholder on a quarterly basis. Table 5.1 provides the training modules required as per the step-by-step approach outlined. All district and PRI functionaries should undergo FSM orientation along with all the training modules listed in the table except for the technology training done specifically for the engineers.

Table 2 : FSM training modules

Steps	Key training modules	Training audience
Step 1: Pre-plan activities for FSM	<ul style="list-style-type: none"> • FSM orientation, challenges and issues in FSM in the state • Integrated FSM plan, policy and legal framework and District FSM regulations 	<ul style="list-style-type: none"> • District and PRI functionaries
Step 2: Know your pit need for retrofitting of toilets	<ul style="list-style-type: none"> • Types of containment system and need for periodic desludging • Retrofitting of toilets 	<ul style="list-style-type: none"> • District and PRI functionaries
Step 3: Map the villages with existing treatment system and clustering the remaining villages for treatment	<ul style="list-style-type: none"> • Need for safe disposal of emptied sludge • Options for treatment: In situ, Co-treatment, FSTP and DRE • Resource mobilization – financing, identifying the land 	<ul style="list-style-type: none"> • District and PRI functionaries and village residents
Step 4: Organize emptying and transportation services	<ul style="list-style-type: none"> • How to license private operators and usage of PPE and monitoring of private operators 	<ul style="list-style-type: none"> • District and PRI functionaries and Desludging operators
Step 5: Develop integrated FSM plan and business model	<ul style="list-style-type: none"> • Implementation of plan and business models for FSM • DPR preparation for FSTP 	<ul style="list-style-type: none"> • District and PRI functionaries
Step 6: Implement new FSTP or DRE	<ul style="list-style-type: none"> • FSM technology and its operation and maintenance 	<ul style="list-style-type: none"> • Engineer and other official responsible for construction and O&M.
Step 7: Start operations and monitoring	<ul style="list-style-type: none"> • Reporting and monitoring structures • Improvement plan for service delivery 	<ul style="list-style-type: none"> • District and PRI functionaries

Village Level Activities for Faecal Sludge Management

Step 1	Step 2	Step 3	Step 4
Rapid appraisal of all toilets, its containment system, need for retrofitting of toilets	Retrofitting of all toilets with focus on <ul style="list-style-type: none"> • Single pit toilets to twin pit toilets • Septic tanks toilets to be connected with soak pit 	Create awareness on non-mechanized (hand and local tools) emptying of twin pits and mechanized emptying for Septic tank and single pit	Regulating/issuing notices for overflowing of containment, discharge of untreated or partially treated blackwater

Steps	Activity
Step 1: Rapid appraisal of toilets	<ul style="list-style-type: none"> • Enumerate all the toilets in the village with type of containment system. i.e., septic tank, twin pit, single pit • Estimate single pit toilets to be converted into twin pit toilets • Estimate septic tanks toilets to be connected with soak pits • Estimate the number of toilets requiring FSM services for mechanized emptying
Step 2: Retrofitting of all toilets	<ul style="list-style-type: none"> • Encourage households to adopt proper maintenance of toilets and retrofit as per requirement • Focus physical retrofitting of all toilets on <ul style="list-style-type: none"> ▪ Converting all single pit toilets into twin pit toilets unless technically unviable ▪ Connecting all septic tanks with soak pits or effluent/ supernatant (wastewater coming out from septic tank) managed using technologies for greywater management as per SBMG Phase II Guidelines
Step 3: Creating awareness on mechanized desludging	<ul style="list-style-type: none"> • Create awareness on the safe emptying of twin pit toilets by households themselves (to be done by GP in coordination with VWSC) • Create awareness on the ill effects and prohibition of manual scavenging and non-mechanized emptying of pits (to be done by GP in coordination with VWSC) • Create awareness on the harmful effects related to reuse of untreated emptied sludge into agriculture or disposal to drains, open land, etc. • Ensure display of contact information for registered/licensed service providers or call centre at prominent places
Step 4: Regulating/ issuing notices for overflow of containment, discharge of untreated blackwater	<ul style="list-style-type: none"> • Issue notices to households, institutions and other entities on overflowing of toilets into drain, open land, water bodies, etc. • Penalize unregistered/non-licensed services emptying pits and non-use of PPE such as safety helmet, hand gloves, safety gumboots, mask, safety goggles, etc. • Issue notices for any other non-compliance with respect to safe management of blackwater/ faecal sludge / functional toilet as per applicable regulations • Maintain records of grievances received, emptying services provided for septic tanks/ single pits cleaning, penalties charged

Draft District Regulations for FSM and Licensing

In exercise of powers conferred by sub-section _____ of Section _____ of the _____ Panchayat Act 19__, the Zila Parishad/ district council in its general meeting held on _____ hereby adopt the following Regulations, for emptying, transportation and disposal of faecal waste of septic tanks, single pits and other onsite-sanitation systems and for matters connected therewith and incidental or ancillary thereto.

I. District Faecal Sludge Management Regulations

a. The Regulation

- a. These Regulations shall be called ' _____ District Faecal Sludge Management Regulations 20__ '
- b. These Regulations shall come into force from the date of its issuance by the District and are subject to Section _____ of the _____ Panchayat Act 19_____.

b. Definitions

- i. 'Act' means the _____ Act 19__;
- ii. 'District' means the District Administration represented by the Office of the Collector.
- iii. "Licence" means a written permission granted for a purpose to any person, having mentioned the purpose, period, name and address, route, etc. under the signature of the authorized signatory of the District.
- iv. "Notified location" means the location of delivery and disposal of faecal sludge as defined and earmarked by the District.
- v. "Faecal sludge" means the partially digested solids accumulated in a septic tank or single pit.
- vi. "Faecal Ssludge treatment plant" means the place where faecal sludge is treated.
- vii. "Open drain" means a channel typically running next to paved roads that is used for the drainage of storm water away from houses.

Draft Regulations are only for reference; To be adopted as per requirement and suitability subject to scrutiny as per local rules and laws.

- viii. "Septic tank" means the underground tank that partially treats wastewater by a combination of solids settling and anaerobic digestion. The effluents may be discharged into soak pits or small-bore sewers and the solids have to be pumped out periodically.
- ix. "Sewage pumping station (SPS)" means the intermediate pump house in a sewage network from where sewage is pumped to a desired location.
- x. "Sewage Treatment plant (STP)" means the place where sewage is treated.
- xi. "Sludge" means the settled solid matter in semi-solid condition, it is usually a mixture of solids and water deposited on the bottom of septic tanks, pits, ponds, etc. The term faecal sludge is used to describe the residue from septic tanks and pits.
- xii. "Registered vehicle" means a vehicle duly registered by the Transport authority of the state to perform the designated purpose.
- xiii. "Treatment" means any method or process designed to alter the physical, chemical or biological character or composition of any waste or wastewater to reduced or prevent pollutions.

All other words and expressions used in these regulations and not defined in these regulations and not defined herein but defined in the Act shall have the meaning respectively assigned to them under the Act or in absence thereof, the meaning as commonly understood in the water supply, wastewater treatment-disposal industry and faecal sludge management.

I. Faecal Sludge Management Planning

- a. District Water and Sanitation Committee/ Mission (DWSC/DWSM) shall be primarily responsible for preparation of the integrated district FSM plan, its implementation and monitoring.
- b. Integrated district FSM plan shall provide information on existing and proposed FSM infrastructure and services within the district. The plan should be prepared to integrate the FSM infrastructure that are existing or proposed in urban, peri-urban and rural areas.
- c. The DWSC/DWSM should prepare the annual budget for FSM investment including the recurrent expenditure required for operation and maintenance.
- d. GPs and Village Water and Sanitation Committees (VWSCs) shall include relevant FSM activities in the Gram Panchayat Development Plan. The GP should adopt these resolutions by taking resolution as per Annexure 1.1.
- e. District, Block and GPs shall adhere to responsibilities as per Annexure 1.2 of these regulations. DWSC /DWSM can notify necessary changes as the requirement arises to increase the efficiency of implementation of FSM in the district.

II. Provision of Toilets, Retrofitting and Periodic Emptying of Containment

- a. GPs in coordination with respective VWSCs shall be responsible for ensuring the open defecation free status through coverage of individual, community, and public toilets.
- b. GPs in coordination with respective VWSCs shall ensure that every households, institutions, public toilets, and all other entities have a functional latrine with safe containment and disposal of faecal sludge.
- c. GPs in coordination with respective VWSCs shall ensure all single pit toilets are retrofitted into twin pit toilets, unless it is technically unviable.
- d. All households, institutions, and other entities having septic tanks and non-retrofitted single pit toilets, or similar systems shall be responsible for periodic and mechanized emptying of the containments.
- e. New toilets constructed shall receive approval on design to ensure it is not contaminating surface or ground water and the construction follows the SBM guidelines; and the design shall adhere to the Bureau of Indian Standards.
- f. In the event of toilet or containment system overflowing or causing any type of pollution, the VWSC shall issue a notice directing the owner to undertake adequate measures.

III. Provision of Emptying and Transportation of Faecal Sludge from Containment to Treatment Plant

- a. Households, institutions and other entities shall ensure their toilet, or its containment does not discharge raw or partially treated wastewater into storm water drains, water bodies, open land, agricultural lands or anywhere in an open environment.
- b. Households, institutions, and other entities shall not allow any manual cleaning of raw or partially treated faecal sludge from containment. The desludging of containment shall only be done in compliance with Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 at all times.
- c. Households, institutions, and other entities having twin pit toilets shall be responsible for the emptying pit once the sludge is converted into manure and safe to empty by the respective users. This can be reused in agriculture or a kitchen garden as per local suitability.
- d. The emptying and transportation of faecal sludge to a treatment facility shall be carried out only by a licensed agency or service offered by local administration. The cleaning should adhere to the "Standard Operating Procedure (SOP) for Cleaning of Sewers and Septic Tanks" released by Ministry of Housing and Urban Affairs, November 2018.
- e. The licence should be provided by designated officer(s) to all eligible private desludging operators for emptying and transportation of faecal sludge.
- f. Households, institutions, and other entities shall be liable to pay the emptying fee as prescribed in Annexure 1.3 of this regulation.

IV. Provision for Treatment, Reuse and Safe Disposal of Faecal Sludge

- a. All emptied sludge should be transported to notified and designated disposal/treatment locations. The licence provided to the private operator should have the designated disposal location allocated for disposal of faecal sludge.
- b. The emptying operation carried by local Administration should also be linked to the designated disposal or treatment location.
- c. The treatment facility should accept the faecal sludge from a licensed emptier only. The data should be recorded for disposal at every site.
- d. The operator of the FSTP shall not accept the sludge or other wastes containing industrial waste.
- e. The operator should be responsible for the mechanism of selling and disposing of treated biosolids and effluent.

Annexure 1.1: Resolution at GP Level

Swachh Bharat Mission (Grameen) Resolution For Faecal Sludge Management

The Gram Sabha hereby resolves to undertake Faecal Sludge Management by regularly maintaining the pits and septic tanks in the Gram Panchayat. To this end, the following decisions have been agreed upon.

1. The _____ Gram Panchayat, hereby declares that it will not allow faecal sludge to be disposed of indiscriminately in any locations within its jurisdiction and will allow only desludging operators who are registered/licensed by districts. In case of non-compliance, the Gram Panchayat will charge penalties as per District FSM regulations.
2. The _____ Gram Panchayat, hereby declares that the all of its toilets are twin-pit toilets or other in-situ containment systems which do not require emptying. Therefore, no FSM infrastructure or services are required by the village.

Or

2. The _____ Gram Panchayat will implement FSM in all its villages. In reference to District FSM regulations, the following regulations will be monitored by the GP with necessary compliances.
 - a. Adopt and abide by the District FSM regulations in their entirety.
 - b. All septic tanks and the single pits in our Panchayat will be emptied/desludged regularly at intervals of 3 to 5-years respectively.
 - c. The GP will not allow any form of manual cleaning of septic tanks and non-retrofitted single pit.
 - d. The GP will maintain records of the septic tanks and single pits that are emptied.
 - e. The cost of desludging will be borne by households.
 - f. Households, commercial institutions and establishments having septic tanks will be penalized if the tank is found to be overflowing.

This resolution was adopted during the Gram Sabha held on _____.

Signature of Sarpanch/

Signature of Panchayat

Pradhan/Mukhiya

Secretary

Name

Name

Official Seal

Official Seal

Annexure 1.2: Key Roles and Responsibilities

Level	Designation, department	Responsibilities
District	DWSM/DWSM	<ul style="list-style-type: none"> Preparation of district-level FSM plan Preparation and enactment of the FSM regulations
	District Collector/ Deputy Commissioner/ District Magistrate/ CEO Zila Panchayat	<ul style="list-style-type: none"> Licensing/registration of all mechanized private desludging operators Co-ordination with relevant agencies to ensure the co-treatment/ disposal at STP/FSTP in nearby urban centres. A Memorandum of Understanding (MoU)/MoAs may be furnished for the same Identification of site and allocation of land for FSTPs Preparation of DPRs for the treatment facilities planned Financial provision for O&M of FSTPs Capacity building of all relevant stakeholders Implement district-wide IEC activities on FSM Disbursement of necessary funds and provide support to villages for utilizing tied sanitation fund in 15th FC Construction of FSTPs and monitoring of overall FSM operations Managing a grievance redressal mechanism and maintaining necessary records
Block	Block Development Officer	<ul style="list-style-type: none"> Ensuring and supporting the retrofitting of single pit to twin pit in all villages of the block Ensuring and supporting retrofitting of septic tank toilets with soak pits Supervising construction of FSTPs in co-ordination with the district authority Operating and maintaining the FSTPs: record maintenance and grievance redressal Overseeing the processes for desludging and transport ensuring compliance as per the Standard Operating Procedure for Cleaning of Sewers and Septic Tanks” released by the Ministry of Housing and Urban Affairs, November 2018 Undertaking any other responsibility assigned by the district administration and DWSC, DWSM Managing the grievance redressal mechanism and maintaining necessary records
GP	GP functionaries, VWSC	<ul style="list-style-type: none"> Preparation of village action plan and inclusion of retrofitting and other FSM activities in the GP Development Plan Creating awareness on manual scavenging and mechanized services for emptying of pits Creating awareness on proper use of toilets and their O&M requirement Retrofitting of single pit latrines and septic tanks if needed

Responsibility of other stakeholders

Stakeholder	Responsibilities
Households, businesses or any institutions	<ul style="list-style-type: none"> • Construction of toilets, their regular maintenance and regular emptying of faecal sludge from licensed/ register operators • Timely payment of user fee for emptying and/or tariff, if any, towards FSM services • Reporting any illegal disposal in drains, waterbodies, open land, etc. to the respective GP/Block
Desludging truck owners	<ul style="list-style-type: none"> • Applying for registration/licensing and providing the emptying services to allocated areas • Ensuring use of personal protective equipment (PPE) at the time of emptying of containments • Ensuring only mechanical desludging in compliance to “Standard Operating Procedure for Cleaning of Sewers and Septic Tanks” released by Ministry of Housing and Urban Affairs, November 2018
Operator of treatment units	<ul style="list-style-type: none"> • Operation & Maintenance of the treatment units as per standard operating procedure provided in contract • Regular reporting to the district authorities on O&M
Masons	<ul style="list-style-type: none"> • Construction of the containment systems as per standard design and specifications • Retrofitting of single pits to twin pits and septic tanks with soak pits; as per standard design and specifications

Annexure 1.3: Licensing Fee, User Charges and Applicable Penalties

Sr N.	Description	Amount (INR)
1	Applicable licence fee for application of licence	
2	Maximum user fee charges applicable upto 10 Km from the treatment plant	
	Domestic	
	Non-Domestic	
	Charges to be liable beyond 10 KM	
3.	Applicable penalties	
	Penalty for disposing of the collected sludge to areas other than designated in licence	
	Penalty for non-functional toilets, overflowing of the toilets	

Procedure, Terms and Condition for licence

Procedure for Application and Issuance of Licence

- a. Invitation of applications by public notice:** Applications may be invited by public notice (Appendix A) given in a reputed newspaper. However, the window for licence should be open where the applicant can submit the form on first working day of every month on a rolling basis
- b. Application for license:** Applications can be submitted as per the Form (Appendix B) at the Details of office where license applications can be submitted. In case a single owner / operator owns and operates multiple trucks, the applicant can submit a single application requesting licence for all the vehicles / equipment owned by the operator and proposed to be used for providing desludging services
- c. Issuance of licence:** The authority to issue licences in the Name of the District will be vested with Name or Designation of the official. License will be issued as per the format prescribed (Appendix C) by the Name of Authority on the basis of information provided by the applicant and will be valid for a period of two year (s) from the date of issue, unless revoked earlier

Appendix A. Invitation of Application for Grant of License for Emptying and Transportation of Faecal Sludge

Public Notice

Invitation of Application for Grant of License for Emptying and Transportation of Faecal Sludge

- The Name of Authority has issued the Details of District Regulations on FSM for emptying, transportation and disposal of faecal sludge from septic tanks and single pits.
- As per the regulation, faecal sludge shall be emptied mechanically, without human contact and transported to designated treatment/ disposal location only by an agency having a valid license for this purpose issued by Name of authority.
- Applications are invited from individuals/agencies /firms /companies for grant of license for emptying, transportation and disposal of faecal sludge. The above said regulations, application proforma, terms and conditions of license is available at the Name of authority/site where the order is available or may be obtained from the office of Designated office.
- The application must reach in the office of Designated office on or before Date and Time.
- It may be noted that undertaking the task of emptying and transportation of faecal sludge without a valid license and /or dumping the faecal sludge at any non-designated location will attract applicable penalties.

Appendix B. Application Form for Licence for Emptying and Transportation of Faecal Sludge

Name of authority

Name of Location

PROFORMA FOR APPLICATION FOR THE LICENCE FOR COLLECTION, TRANSPORTATION AND DISPOSAL OF FAECAL SLUDGE

1. Name of the applicant: _____

2. Address:

Regd. Office: _____

3. Telephone No.: (O) _____ Mobile No. _____

Email ID _____

4. Number of vehicles / equipment to be included under the licence: _____

5. For each vehicle / equipment, provide the following details (use additional sheets if required):

Vehicle / Equipment 1:

a. Registration no. of vehicle: _____

b. Pollution certificate of the vehicle valid up to: _____

c. Insurance of the vehicle valid up to: _____

d. Fitness of the vehicle valid up to: _____

e. Vehicle, whether fitted with GPS: _____

f. Details of the vehicles indicating leak proof, odour and spill proof having proper vacuum/ suction and discharging arrangement (Document for proof of any may be enclosed).

6. Processing fee for licence for all vehicles owned by the applicant: Rs. _____/- (to be calculated @ fees amount per application plus fees amount per vehicle).

D.D. No. _____ Date _____ Bank _____

Bank transfer reference number _____

I/We certify that information given by me/us in column 1 to 7 are true to the best of my knowledge and belief. I agree that if any information given by me is found wrong the application for licence will be liable for cancellation at any time.

Signature(s) of applicant(s)

Date: _____

Place: _____



Term and Conditions of License

- 1. License for domestic faecal sludge:** The license is for emptying and transportation of domestic faecal sludge from domestic / institutional septic tanks and single pits only. The licensee may not transport and dispose any other type of sludge, including among others, industrial sludge, sludge from commercial operations, etc. The licensee will be responsible to ensure no contamination of the faecal sludge occurs with any other type of sludge (industrial sludge, sludge from commercial operations).
- 2. Standard Operating Procedure for desludging and transportation and safety of staff deployed:** The licensee will be responsible for following all relevant provisions of the Standard Operating Procedure as issued by the Authority.
- 3. Display of licence:** A copy of the licence shall be prominently displayed on the vehicle that the licence is issued for. The licence number shall also be painted on each vehicle along with the corresponding licence serial number for the vehicle / equipment.
- 4. Marking of licensed vehicle:** The vehicle/ container/tanker shall be painted with yellow colour duly marked with the precaution in Red Colour "FAECAL SLUDGE OR HUMAN WASTE" (in English) and "....."(in local language).
- 5. Vehicle operation:** The vehicle shall maintain a valid "Pollution Under Control" Certificate. Further, the licensee shall comply with all provisions of the Motor Vehicles Act, 1988 and Rules there under.
- 6. Preventive measures in case of accident resulting in spillage of faecal sludge:** The vehicle carrying faecal sludge shall be fitted with prescribed equipment to take care of threat of pollution due to any accident during the movement of the vehicle from the collection point to the designated disposal site. In the event of accidental spillage of faecal sludge, the operator shall immediately take action to contain the spillage, minimize environmental impact and begin clean up procedures and immediately inform the designated authority via a phone call.
- 7. Full liability of licensee in case of accident:** The licensee shall be fully and completely liable for any damage to any person, vehicles, property and environment in case of any accident or disaster.
- 8. Training:** The licensee shall have trained workers equipped with uniforms, safety gadgets, tools and vacuum equipped vehicles to operate the desludging vehicles. The licensee shall be responsible for periodic training of the staff.
- 9. No manual scavenging:** The licensee shall comply with all provisions of the Prohibition of Manual Scavengers and Their Rehabilitation Act, 2013.
- 10. Disposal of Septage:** The licensee shall dispose of faecal sludge only at the designated disposal sites notified by the Authority.
- 11. Data recording and reporting:** The licensee shall submit the faecal sludge collection and disposal form, duly filled up with factual details to the authority and at the designated faecal sludge disposal sites.
- 12. Regular health check-up of staff:** The licensee shall be responsible for ensuring that every person deployed undergoes health check-up at least once in every year
- 13. Insurance:** The staff deployed by the licensee shall be insured for accident during the process of cleaning, transportation and disposal of faecal sludge
- 14. Cancellation of licence:** In case of violation of any of the provisions of these regulations the licence shall be liable to be cancelled.

Signature(s) of applicant(s)

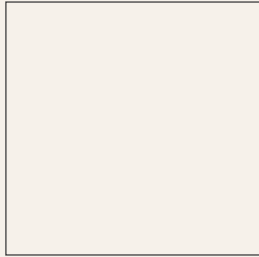
Date: _____

Place: _____

Appendix C. Issuance of Licence:

LICENSE FOR COLLECTION AND TRANSPORTATION OF FAECAL SLUDGE

_____ **District, Government of** _____



License number: _____

Vehicle number: _____

Name of the operator: _____

Address: _____

Phone number: _____

Is licensed for collection, transport and disposal of faecal sludge from septic tanks and single pit latrines of designated areas _____

Date of issue:

Valid up to:

Licenser

Licensee

The license is issued in accordance with the terms and conditions of the Faecal Sludge Management Regulations of _____ district.

The designated Service Areas _____

The license may be suspended or revoked for condition of non-compliance and is not transferable.

If found, kindly return to

Annexure 3

Checklist and Indicators for Monitoring

S No	Indicator	Status (Y/N)
1	Has rapid appraisal of toilets been carried out and households are identified in each village.	
2	District has developed an integrated plan	Mapping of all treatment plant (STP/FSTP) in district
		Private emptying operators are registered/licensed with districts
		Rate or tariff fixed for FSM service operators (based on distance/capacity)
		Call centre based desludging has been implemented and related information is propagated in all GPs.
3	District has identified land for new FSM plant/DRE	

Annual monitoring Indicators for Implementation

Indicator	Baseline	Plan (Year)	Achieved (Year)
All single pit toilets converted into twin pit toilets			
Provisions for septic tanks with soak pits or other system for managing the supernatant/ effluent discharging into open drains			
Percentage of villages with access to emptying services (Villages with access/ Total number of villages)			
Percentage of villages with FSM treatment (i)+(ii)+(iii)/ total number of villages			
(i) Number of villages covered with all twin pit or in situ treatment			
(ii) Number of villages linked to STP/FSTP			
(iii) Number of villages lined to new STP/FSTP			

Abbreviations and Acronyms

BDO	Block development officer	NRLM	National Rural Livelihood Mission
BPL	Below Poverty Line	OSS	On-site Sanitation System
BWSC	Block Water and Sanitation Committee	O&M	Operation and Maintenance
CB	Capacity-building	ODF	Open Defecation Free
CSR	Corporate Social Responsibility	PHED	Public Health Engineering Department
DM	District Magistrate	PRI	Panchayati Raj Institutions
DPR	Detailed Project Report	PUC	Pollution Under Control
DRE	Deep Row Entrenchment	RTO	Road Transport Organization
DSBM(G)	District Swachh Bharat Mission (Grameen)	RD	Rural Development
DTMU	District Training Management Unit	SBCC	Social Behaviour Change Communication
DWSM/C	District Water and Sanitation Mission/Committee	SBM (G)	Swachh Bharat Mission (Grameen)
FS	Faecal Sludge	SHG	Self-Help Group
FSM	Faecal Sludge Management	SLWM	Solid and Liquid Waste Management
FSTP	Faecal Sludge Treatment Plant	SOP	Standard Operating Procedure
GP	Gram Panchayat	STP	Sewage Treatment Plant
IEC	Information Education Communication	SWM	Solid Waste Management
KLD	Kilo Litre Per Day	UD	Urban Development
M&E	Monitoring and Evaluation	ULB	Urban Local Body
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme	VAP	Village Action Plan
IMIS	Integrated Management Information System	VO	Village Organizations
		VWSC	Village Water and Sanitation Committee

Glossary

- 1. Desludging:** Desludging refers to the operation of removing sludge from septic/digestion tanks, pit latrines or any other primary treatment units. Usually this is done by mechanical means (by vacuum suction pump).
- 2. Emptying:** Emptying or Desludging refers to the operation of removing sludge from septic/digestion tanks, pit latrines or any other primary treatment units. Usually this is done by mechanical means (by vacuum suction pump).
- 3. Faecal Sludge:** “Faecal sludge” is the solid or settled contents of pit latrines and septic tanks. It may be raw or partially digested, in a slurry or semi-solid form, and includes the collection, storage or treatment of combinations of excreta and black water, with or without grey water. It.
- 4. Faecal Sludge Management:** Faecal Sludge Management is the process of safe collection, conveyance, treatment and disposal/ reuse of faecal sludge and septage from on-site sanitation systems such as pit latrines, septic tanks, etc. It is the management of faecal waste that is not conveyed by a centralized sewerage system.
- 5. Faecal Sludge Treatment Plant (FSTP):** Faecal Sludge Treatment Plant is an independent faecal sludge and septage treatment facility for remediating the solid and liquid components to prescribed standards for safe disposal and reuse.
- 6. License:** License is a written permission granted for a purpose to any person, having mentioned the purpose, period, name and address, route, etc. under the signature of the authorized signatory of the District.
- 7. Septage:** Septage is the liquid and solid material that is pumped from a septic tank, cesspool, or such on-site treatment facility after it has accumulated over a period of time.
- 8. Septic tank:** Septic tank is an underground tank that treats sewage by a combination of solids settling and anaerobic digestion. The effluents may be discharged into soak pits or small-bore sewers, and the solids have to be pumped out periodically.
- 9. Sewage:** Sewage is the wastewater containing human body waste matter (faeces and urine etc.), either dissolved or undissolved, discharged from toilets and other receptacles intended to receive or retain such human body wastes.
- 10. Transportation:** Transportation means the safe transfer of septage through licensed vehicle from the place of work to the designated disposal location.
- 11. Treatment:** Treatment means any method or process designed to alter the physical, chemical or biological character or composition of any waste or wastewater to reduced or prevent pollutions.

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पेयजल एवं स्वच्छता विभाग
जल शक्ति मंत्रालय
भारत सरकार

DEPARTMENT OF DRINKING WATER AND SANITATION
MINISTRY OF JAL SHAKTI
GOVERNMENT OF INDIA

सत्यमेव जयते



एक कदम स्वच्छता की ओर