



Standard Operating Procedures for Desludging of Septic Tanks

September 2020

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Center for Water and Sanitation

CRDF, CEPT University

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Note

This document narrates a step by step procedure for desludging of septage from septic tanks and its disposal to the Faecal Sludge Treatment Plant. It is prepared for the desludging service provider. The document is prepared using the experience of on-ground scheduled desludging operations in Wai & Sinnar in Maharashtra. It also draws on “Standard Operating Procedures for Vacuum Truck Operators for Desludging and Disposal of Septage” by WSUP¹ and “Standard Operating Procedure for cleaning of Sewers and septic tanks” by Ministry of Housing and Urban Affairs².

¹ WSUP (2016) “Standard Operating Procedure for Vacuum Truck Operators for Emptying and Disposal of Septage” USAID. GoI. SBM

² CPHEEO (2018) “Standard operating procedure for cleaning sewerage and septic tanks” MoHUA. GoI

Table of Contents

1. Introduction	5
2. Pre-desludging Operations	7
2.1. <i>Preparing the route plan</i>	7
3. During Desludging Operations	10
3.1. <i>On arrival at desludging site</i>	10
3.2. <i>On onset of desludging operations.....</i>	11
3.3. <i>At the end of desludging operations</i>	12
Some actions for improved desludging operations:	13
4. Post-Desludging Operations: Disposal of Septage to Faecal Sludge Treatment Plant (FSTP) ..	14
4.1. <i>On arrival at treatment plant</i>	14
4.2. <i>Discharge termination and decoupling at FSTP.....</i>	15
5. Record Keeping and monitoring	16
5.1. <i>Record keeping of desludging services</i>	16
5.2. <i>Actions for service improvement:.....</i>	17
5.3. <i>Monitoring of desludging service</i>	18
6. Precautions and Emergency Preparedness.....	19
6.1. <i>In event of spillage of septage.....</i>	19
6.2. <i>Medical emergency</i>	19
6.3. <i>Precautions against infections.....</i>	19
Annexure I: Roles and responsibilities of individual carrying out the desludging services	21
Annexure II: Sample Questionnaire for Survey.....	22
Annexure III: Forms filled and submitted at various stages of desludging	25
Annexure IV: Flyers for households for awareness	27
Annexure V: Daily report of desludging operations	29
Annexure VI: SaniTab	30
Annexure VII: Geo-reference In-Out Report.....	31
Annexure IX: First-aid kit checklist.....	32
Annexure X: Protective gears and safety devices	33

Annexure XI: Basic qualifications and requirements for desludging operators 34

Annexure XII: Procedure for medical emergencies 35

List of Figures

Figure 1: Initial steps for conducting scheduled desludging..... 7

Figure 2 Supervisor informs households two days prior to scheduled desludging via SMS..... 8

Figure 3: Centralised call centre where households can request desludging services..... 8

Figure 4 PPE must be worn during desludging operations 10

Figure 5 Truck operator and helper lays down pumping vacuum pipe lines from the truck to the septic tank in Wai..... 10

Figure 6 If the distance from the vacuum truck to the septic tank is long, two or three pipes are connected using metal couplings. 10

Figure 7 Pump operator mixes sludge while performing desludging operations in Wai 11

Figure 8 Desludger checking 25mm sludge depth is left in the septic tank after desludging 11

Figure 9 After desludging, the cover of the septic tank must be replaced and sealed with cement plaster. 12

Figure 10 Form signed by household once the septic tank is desludged 12

Figure 11 Unloading and screening of Faecal Sludge at FSTP 14

Figure 12 Checking Inlet Quality of Septage 14

Figure 13 Record maintained at FSTP and with desludging operator. 15

Figure 14: Data from the recorded copies on a computer. 16

Figure 15: SaniTab application can be used for survey..... 17

Figure 16 GPS tracking system installed on trucks 18

Figure 17 A dashboard helps monitor the desludging operations. 18

1. Introduction

It is known that eradicating open defecation is only half the battle. For improving sanitation, faecal sludge and wastewater also needs to be safely managed. It is in this context that Government of India, Ministry of Housing and Urban Affairs (MoHUA) issued a National Faecal Sludge and Septage Management (FSSM) Policy³. It recommends regular desludging of septic tanks through a systematic extraction and collection procedure which will be essential to check environmental pollution. CPHEEO suggests septic tanks should be cleaned at least once in two - three years⁴.

In India, the common practice of desludging septic tank is that of on-call demand based service, i.e. septic tanks are emptied when they are full. While desludging frequencies can vary, it is typically considered a good practice to desludge septic tanks once every two to three years, or when the tank becomes two-thirds full.

Based on national and international experience, desludging practices can be grouped into two categories:

Demand based desludging- It takes place when there is a demand from the property owners or users to desludge their septic tanks, typically when their septic tanks are full.

Scheduled desludging- The scheduled desludging approach is essentially based on the need for regular desludging. Under this, all septic tanks in a city are deslugged once during a fixed cycle. The schedule (usually three years or five years) is decided by the ULB and the service is provided by them to the households.

Scope of this document:

The scope of this document is to convey knowledge to the stakeholders about the standard operating procedures (SoPs) that need to be practiced during the desludging operation. It is to help the desludging service providers to understand and perform all activities in safe manner. Separate instructions are provided for demand based desludging and scheduled based desludging wherever required/applicable. To simplify the process, desludging operations are divided into three parts:

- Pre-Desludging Operations
- During Desludging Operations

³ MoUD (2017) "National Policy on Faecal Sludge and Septage Management (FSSM)" GoI

⁴ CPHEEO (2013) "Manual on Sewerage and Sewage Treatment Systems" Chapter. 9. MoUD

- Post-Desludging Operations

This document can be helpful to Urban Local Bodies (ULBs), Public Health Engineering Departments and other agencies engaged in the process of desludging septic tanks across the country. Further, the procedures mentioned in SOP are applicable to all service providers – public or private- who employ person(s) for desludging septic tanks and the individuals who hire such person(s) for desludging septic tanks in their premises. For ULBs, it will also act as a guide to monitor desludging activities.

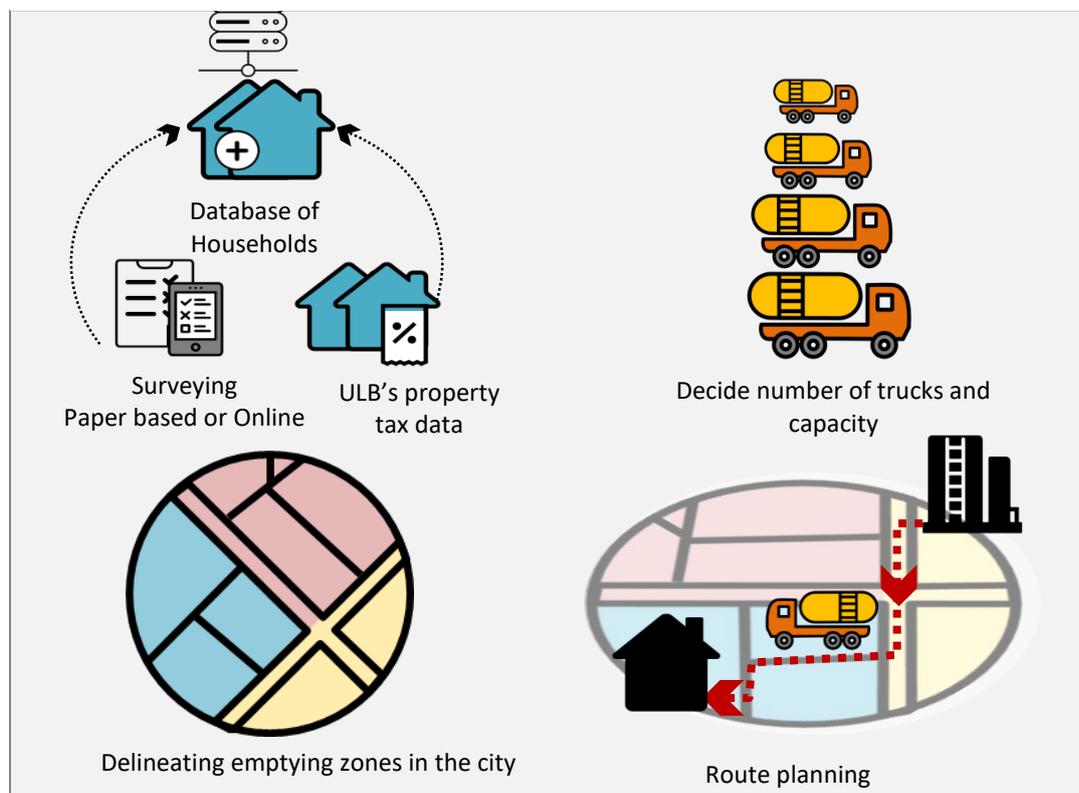
2. Pre-desludging Operations

2.1. Preparing the route plan

For Scheduled Desludging:

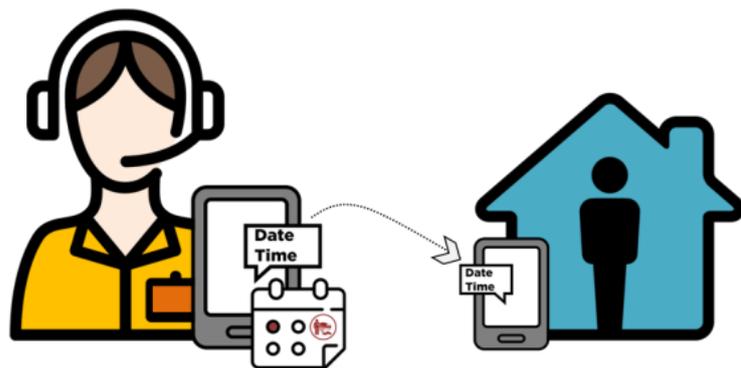
- For scheduling emptying operations, database of households is required. This database will help to ascertain distance of the nearest and farthest household from the FSTP. This database can be available from property tax database. A dedicated survey is not necessary if required data is available with the ULBs.
- If needed, the survey can be conducted through mobile based tool like Sanitab. Sample questionnaire is attached in Annexure-I
- Based on the information on total number of septic tanks to be emptied, requirement of emptying trucks of various capacity (if needed) must be decided.
- The total cost of operations, both capital cost and operating cost, can be worked out for desludging operations.
- Route planning should be prepared in consultation with the sanitary department officials. Once the route plan is finalized, the IEC activities and outreach to communities can begin before desludging operation is initiated.

Figure 1 Initial steps for conducting scheduled desludging



- A supervisor should be appointed by the service provider for field management. He/she will be in-charge to manage the entire scheduled desludging services. The roles and responsibility of each individual involved in this practice is available in Annexure-1
- The supervisor should send bulk SMSs, two days prior to the start of the desludging process as per the route plan, to household whose desludging is scheduled. The SMS informs households about the

Figure 2 Supervisor informs households two days prior to scheduled desludging via SMS



day and time of arrival of the vehicle at their property. For all scheduled households, the supervisor should send their team member one day prior on site. This is especially important for households who have not read the SMS on their mobile phones. The site visit will help in identifying exact location of

septic tanks. The house occupant must be asked to keep the covers of the septic tank open before the team arrives for desludging. The service provider can support this by providing a mason for opening the cover of septic tanks prior to desludging activity.

- The owner/mason must open the lid of the manhole and allow release of the gases present inside the septic tank for at least 10 to 15 minutes and make sure no one is close to the septic tank during this time. The helper must not lean over or crouch down at the tank opening during this operation
- In case the house occupant is not available on the scheduled day, their emptying should be rescheduled for the next day or the day on which he/she is available and the route plan should be altered accordingly.

For Demand Desludging:

- The city can set-up centralised call centre or toll-free number where citizens/households can call directly and request for a desludging service. These can be recorded digitally.
- From the emptying requests received for a particular day, an efficient route plan can be developed if there are many requests.

Figure 3: Centralised call centre where households can request desludging services



- The ULBs can either provide the emptying service through their own truck or pass on the request to registered /licensed private operator.
- If demand based desludging is carried out by private operators in a city, they must either have a contract with the ULB for desludging activity or have a license issued by the ULB.

3. During Desludging Operations

3.1. On arrival at desludging site

- On the day of desludging, the team (helpers) needs to visit the scheduled households and confirm their availability and readiness. They must also ensure that the septic tank cover is open.
- At the outset of the desludging process, the truck operator and helper must put on the Personal Protective Equipment (PPE) like protective clothing, goggles, helmet, gloves etc. and make themselves protected from possible anticipated hazard. (Refer Annexure-II). All equipment's must be according to the specifications mentioned in the Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013. It must be ensured that all the safety equipment's are functional and good for use before proceeding to a septic tank.
- The truck operator must do a quick reconnaissance survey to identify the position of septic tank manhole cover and make him/herself familiar with the access route for laying of suction hose. The tank must be inspected before and after desludging.
- On identifying the access, the truck operator and helpers should lay down the suction hose from the truck to the septic tank. If the distance from vacuum truck to septic tank is long, longer pipes should be used. In absence of long pipes, two or three pipes should

Figure 4 PPE must be worn during desludging operations

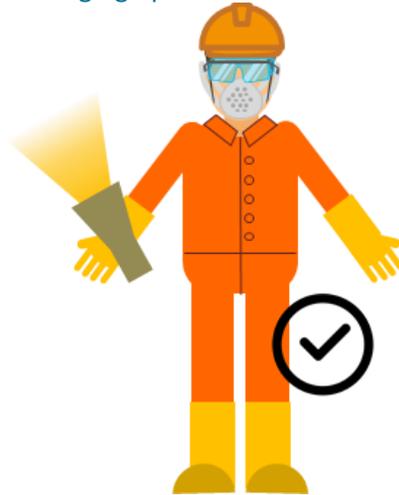


Figure 5 Truck operator and helper lays down pumping vacuum pipe lines from the truck to the septic tank in Wai.



Figure 6 If the distance from the vacuum truck to the septic tank is long, two or three pipes are



be connected using metal couplings.

- Before starting the sludge sucking operation, the truck operator/helper must measure the thickness of the scum layer and depth of sludge layer below the outlet tee pipe of the tank. This will help to estimate the amount of septage to be sucked out of the septic tank. The height of sludge layer must be recorded by the truck operator/helper with the last length of the hose pipe. Another method to record the height is by using a hard pole with markings and immersing it into the sludge to understand its level.
- It is essential to ensure that the suction hose is in good condition and the truck wheels are locked during desludging operation.

3.2. On onset of desludging operations

- Engage the vacuum equipment by using a power take-off (PTO Shaft) from the truck's transmission;
- Increase the vacuum (suction pressure) to appropriate level with the valve closed by watching the vacuum gauge, then lowering the end of the hose into the septic tank, and open the inlet/outlet valve sufficiently such that the faecal sludge is drawn out of the tank or pit and sucked into the tanker;
- The truck operator must listen to the truck's vacuum pump (for any difference in sound from regular) to assure that the vacuum pump is operating correctly. If the pump is blocked or jammed it will need to be cleared or repaired.
- During pump operation, the truck operator/helper must use the end of the hose to continuously break the scum layer and keep mixing the sludge with the top water layer. If necessary, long hand shovel must be used for mixing and water must be added to make slurry of the sludge.
- After the sludge sucking is complete, the septic tank must be checked for remaining

Figure 7 Pump operator mixes sludge while performing desludging operations in Wai



Figure 8 Desludger checking 25mm sludge depth is left in the septic tank after desludging



sludge. If the remaining sludge is more than 25mm, excess sludge must be sucked out. 25mm thickness of sludge is retained in the septic tank for allowing micro-organism to be present inside the tank to act on the new incoming faecal waste.

- Identify any abnormal conditions, such as high concentration of non-biodegradable materials, oils and grease before taking to the treatment plant for final disposal.

3.3. At the end of desludging operations

- On completion of the desludging, the truck operator should decouple the hose by removing the clamp fitting along the length of the hose and place the hose at correct position in hose rack of the truck. Simultaneously, he/she must also put all the equipment in position in the hose rack.
- Check for spills, if any. Add disinfectants solutions such as hydrated lime to the affected areas. Clean up any spillage using proper absorbent materials. The top of the cover and the area around the septic tank should be sprayed with 1% chlorine solution.
- If the cover of the tank has been removed, it should be replaced with an easily openable cover whenever required. If desludging has been carried out through a desludging hatch, the cover of the hatch should be replaced and sealed.
- For daily reporting and documentation, the truck operator/helper will fill up the daily desludging report (Annexure V) and obtain the signature of the property owner after the desludging. One copy of this form should be handed over to household owner. (Refer annexure IIIa)

Figure 10 After desludging, the cover of the septic tank being replaced by an easily openable cover



Figure 9 Form signed by household once the septic tank is desludged



- On handing over the duplicate septic tank cleaning form to the owner, the truck operator must remove the wheel chocks and leave the premises, drive their vehicle and follow the route plan to the designated disposal site following traffic rules. After the disposal, the operator must visit another household as per the route plan.
- The vehicle helper should clean the vehicle at the end of the day to ensure that next

day's operations start on time.

Some actions for improved desludging operations:

- A petro card should be issued and handed over to the supervisor to ensure that the daily desludging activity is not hampered for want of fuel.
- A provision of some petty cash can be made available with the supervisor to take care of minor repairs / punctures / breakdown of vehicle so that the same do not cause delay.
- It is observed that a lot of time is lost during desludging of tanks at some household because of non- availability of mason to open the cover. A mason can accompany the truck operator or visit one day in advance and be paid by the household; this can help truck operator to avoid loss of time. The ULBs can issue a letter to the service provider mentioning the amount the household should pay to the mason. This will help in proving the authenticity of collection of charges.
- Women must also be hired for desludging process. This facilitates discussions with house occupiers, on desludging operations when male members of the household are not present.

4. Post-Desludging Operations: Disposal of Septage to Faecal Sludge Treatment Plant (FSTP)

4.1. On arrival at treatment plant

- Truck operators should be received at the site entrance by the FSTP security guard.
- Digital record of entry of the desludging truck should be maintained by the guard through registers or by installing RFID (Radio Frequency Identification) systems for digital recording.
- Truck operator should discharge septage at the disposal site during its working hours and when FSTP operator is available to receive the septage.
- Once admitted inside the treatment plant premises, truck operators must follow the approved route to the disposal location, as displayed on site through signage.
- Truck operator has to position the truck in the designated location (receiving point) for sludge removal, park and take the truck out of gear, apply the parking brake, and chock the wheels.
- Upon arrival at the receiving point, the truck operator must meet the FSTP operator.
- The FSTP operator should verify the form and its information and allow the truck operator to connect the suction hose to the FSTP receiving pipework.
- As a monitoring requirement, FSTP operator should check the pH (and any other parameter if feasible) of the incoming septage for their record as required under the monitoring protocol.

Figure 11 Unloading and screening of Faecal Sludge at FSTP



Figure 12 Checking Inlet Quality of Septage at FSTP



- Both FSTP operator and truck operator are wearing the correct PPE such as gloves, mask, gumboot, apron and uniform etc.
- The pipe couplings between the truck and the receiving point should be correctly aligned

to allow smooth septage flow through the pipe connection.

- Upon signal from the FSTP operator, the truck operator will open the tanker outlet valve, and release the septage into the inlet unit of disposal site.

4.2. Discharge termination and decoupling at FSTP

- The FSTP operator shall accept the entire sludge load from the desludging truck. When the truck operator is certain that all septage has been discharged from the truck, he/she should terminate the discharge, and close the valve of the suction hose.
- After delivering the sludge at the plant and terminating the discharge, the truck operator should obtain the signature of the FSTP operator and hand over copy meant for the FSTP (Refer annexure III b) for their record and then proceed to the next household as per the route plan.

Figure 13 Record maintained at FSTP and with desludging operator.



- The practice of washing the desludging trucks must be followed regularly to remove the sludge remains from the tank of the truck. This will help in preventing the formation of sludge cake inside the tank affecting the performance of the truck later.
- It should be noted that the trucks must be washed at the FSTP location only. The sludge coming out of tank after washing must be fed again in to the FSTP, whereas the grit and any other solids should be disposed as per the defined procedure.

Figure 15: SaniTab application can be used for survey.



5.2. Actions for service improvement:

- A monthly meeting should be held with the Chief Officer (CO) / Commissioner of the city along with sanitation department officials and desludging operator's representatives. The agenda of such a meeting should be to review the performance of the previous month, discuss issues of the service provider, comments/ suggestions from CO / commissioner in order to improve the performance/ quality of service, delayed payments, if any or any other relevant matter.
- Quarterly training should be undertaken for service provider's staff for up-skilling. This would ensure improvement in the quality of service. The training should also include lecture/demonstration on importance of use of PPEs, safety precautions to be taken while desludging, rules and regulations to be followed while transporting the sludge – safe driving and following traffic rules, etc.
- ULBs shall ensure that all desludging operation staff undergoes regular medical check-ups and are administered vaccinations as appropriate.

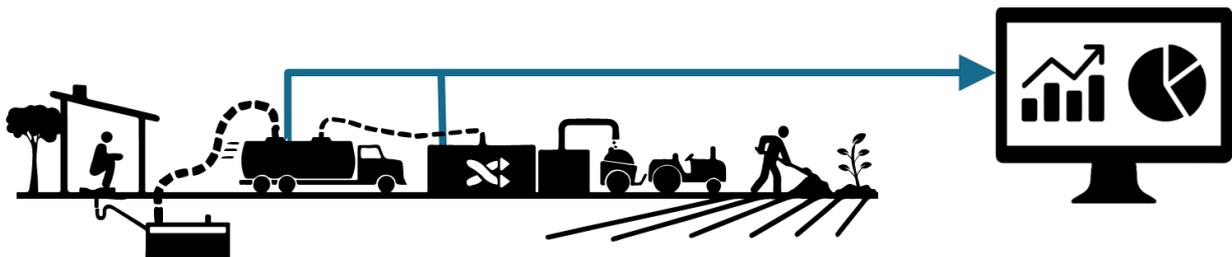
5.3. Monitoring of desludging service

- GPS on trucks: The GPS tracking system can be installed on both ULB desludging vehicles and private service provider’s desludging vehicles. This will help to track the movement of desludging trucks, services location and also ensure ULB that collected septage is disposed only at the treatment plant. This initiative can help improved the efficiency of the desludging operations.
- Tracking and recording the data for each septic tank can enable regular/effective desludging and help create database for future planning.
- Monitoring forms or mobile app can be developed to track and monitor desludging operations like number of trips, volume of septage emptied, etc.

Figure 16 GPS tracking system installed on trucks



Figure 17 A dashboard helps monitor the desludging operations.



6. Precautions and Emergency Preparedness

6.1. In event of spillage of septage

- In the event of accidental spillage of sludge/septage, the truck or FSTP operator shall immediately take action to contain the sludge/septage, minimize the environmental impact, and begin clean-up procedures. The spilled sludge must be covered with lime and/ or mud and should be washed away.
- In case of large spillage, the operator shall notify the concerned officials about the spillage and the nature of remedial action taken within 24 hours. Penalties may be imposed on the operators who shall not comply with the guidelines.

6.2. Medical emergency

- All the desludging operation staff must be familiarized with the emergency medical plan before arriving at the site.
- A first aid kit distinctly marked with a Red Cross on white background shall be readily available in the truck and FSTP site which should at least have the items as listed in Annexure-IX.
- Wash up material like soap and skin cream for applying on the body shall be adequately available at the FSTP site.
- A list of medical care centers available may be prepared and made readily available.
- The truck operator shall be properly trained on the first aid and cardiopulmonary resuscitation procedures.

6.3. Precautions against infections

- The workers involved in the desludging operations must be educated about the importance of wearing PPEs. Regular monitoring to be carried out by the concerned officials from ULB to ensure that all the workers wear the PPEs during the operation at site.
- The worker should be provided with a work clothes to be worn during working hours.
- The workers should be educated about the hazards of waterborne diseases such as typhoid, cholera through sewage and also tetanus due to cuts and wounds. Cuts and grazes should be covered with waterproof plasters. Effective immunization of workers against diseases such as typhoid, cholera, tetanus, etc. should be done by vaccination periodically.
- The importance of personal hygiene should be emphasized and the worker should be instructed to keep finger nails short and well-trimmed, wash hands with soap and hot water before taking food and to keep fingers out of nose, mouth and eyes, because the

hands carry most infection.

- When the work is completed, thoroughly wash all contaminated parts of the body.

Annexure I: Roles and responsibilities of individual carrying out the desludging services

	Key roles and responsibilities
Supervisor	To be in charge of all scheduled desludging activities. Need to manage the staff on-ground and provide them list of households to be desludged every day. Take care of any repairs and maintenance works of the suction emptier vehicle and take care of any essentials of truck operator and helper for service period. Convert daily forms into digital format.
Truck operator	Truck operator is responsible to manage the suction emptier. Responsible to lay down pipes and operate the truck at household site and FSTP site. Fill up daily forms and submit to supervisor.
Helper	Helper is responsible to help the truck operator in all means. Laying pipes, cleaning truck, taking care of spillage, etc.
FSTP security guard	To maintain digital record of entry of the desludging truck
FSTP operator	To check the inlet sludge quality and quantity. Responsible for the operations and maintenance of FSTP.

Annexure II: Sample Questionnaire for Survey

Survey- Sample Questionnaire

1. Property ID : _____
2. Type of structure:

3. Status of property:

4. Are you an owner or a tenant of this property? _____
5. Is this property located in slum or non-slum area?

6. How many households live on this property?

7. Where do you dispose greywater from kitchen and bathroom?

8. Do you have your own toilet within your premises?

9. Is the toilet functional/ in use?

10. Where do you go for use of toilet facilities?

11. What is the type of toilet facility is being used? _____
12. Number of septic tanks within the property:

13. Distance of septic tank from the nearest well/bore :

14. Septic tank outfall is connected to:

- 15. What is the shape of your septic tank:

- 16. Can you provide the dimensions of the septic tank?

- 17. How many chambers are there in the septic tank:

- 18. The base of septic tank is:

- 19. Are there ventilation pipes for septic tanks:

- 20. What construction materials have been used for constructing septic tanks?

- 21. What is the age of septic tank?

- 22. Where is septic tank located?

- 23. Is the septic tank accessible from road for cleaning by using a suction emptier truck?

- 24. What is the approximate distance of septic tank from the road?(in metres)

- 25. Is there proper access with manholes/covers for any of the chamber of septic tank
which can be easily opened : _____
- 26. Material type of access cover _____
- 27. What is the average frequency of cleaning of septic tank?

- 28. When was the septic tank cleaned last?

- 29. Why was the septic tank emptied?

30. Were there any problems during emptying of septic tanks?

31. Whom did you contact for this service?

32. How much did you pay for the septic tank emptying service?

33. Property number as per Council property tax records:

34. Please specify the property number type:

35. Enter the property ID:

36. Name of the respondent:

37. Contact no:

38. Contact no of tenant:

39. Contact no. of owner:

40. Name of the property owner:

41. What is the number of household members?

42. Is the area flooded/ water logged during monsoon season

43. How many times is the area flooded/ water logged?

44. What is the age of this property in years?

Annexure III: Forms filled and submitted at various stages of desludging

- a) **Septic tank cleaning form to be signed by household owner, truck operator, FSTP operator**

Septic tank cleaning form

Household contact details:

1. Name: _____
2. Contact: _____
3. Address: _____
4. Property ID: _____
5. Property type: Individual Household/ Apartment/ Commercial Complex/ Other _____

Septic tank details:

6. Septic tank cover open or not? Yes/No
7. Amount in liter: _____
8. Type: Septic tank or any other _____
9. Has the septic tank cover been placed again? Yes/No
10. Any problems/defects encountered – Pipe not available, manhole at the wrong place, any form of cracks or damage observed, vent pipe availability

I, the person signing below, declare that the details mentioned above are true and my septic tank has been cleaned.

Date: _____ Time: _____

Emptying operators details:

11. Driver’s Name: _____
12. Permit Number: _____
13. License Number: _____

- 14. Truck Capacity: _____ liter
- 15. Septic tank emptying date: _____
- 16. Number of trips for cleaning septic tank: _____

The above described septic tank has been cleaned by me and the collected septage has been transported to the address mentioned below. I affirm that these mentioned details are true.

Driver's name and signature

Receipt from official of Faecal sludge treatment plant's supervisor

Desludging truck operator has disposed the collected septage at our facility.

Was there any debris/rubbish found in the disposed septage? Yes/No

If any:

How many trips were required to transport septage from the above mentioned septic tank to the treatment plant : _____

Date of disposal of this septage at the treatment plant : _____ Time : _____
Quantity of septage : _____

Name and signature of Faecal Sludge Treatment Plants project supervisor

Under the terms and conditions of Municipality.

*These are four carbon copies submitted to various stakeholders

Annexure IV: Flyers for households for awareness



CITY X

“Scheduled Emptying of Septic Tanks scheme”

Septic tanks of each and every property of the municipal council will be emptied at least once in every 3 years

You clean your septic tanks only when it overflows...But are you aware of the side effects of not cleaning it periodically?

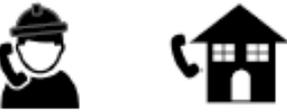
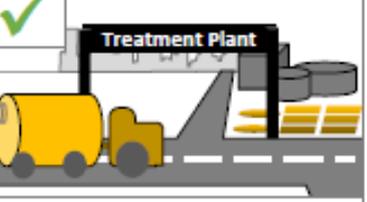
**Septic tank should be emptied every 3 years
Avail Nagarpalika services to empty!**

And the good news is...
Nagarpalika will get in touch with you regarding your turn for emptying as per schedule and you do not have to pay for this.

DON'T MISS YOUR TURN . . .

For queries, please call the call center no : XXXXXXXXXX

Remember!

		 	
<p>Service is available to each household once every 3 years</p>		<p>Contractor will visit between 7 am and 5 pm. Be present at home and ready! Keep Septic tank cover open for visit</p>	
			
<p>Contractor will call 2 days before scheduled visit</p>		<p>When constructing new septic tank, do not seal cover and give proper access</p>	
	 <ul style="list-style-type: none"> Helmet Safety goggles Mask Suit with apron Rubber gloves Torch Gum boots 		
<p>Cleaner should be wearing proper safety gear</p>		<p>No one should enter tank! Manual scavenging is prohibited by law</p>	
			
<p>There should not be any spillage or damage to septic tank</p>		<p>After emptying sign the receipt given by contractor</p>	
			
<p>No payment is to be done to the contractor</p>			
			
<p>Do not put acid/harsh chemicals, or solid waste in your septic tanks</p>		<p>There should not be any spillage in the city or disposal in drains</p>	
			
<p>Septage should only be disposed at designated treatment plant</p>		<p>Septage should only be disposed at designated treatment plant</p>	

Note: These pamphlets can also be converted into vernacular language for wider dissemination

Annexure V: Daily report of desludging operations

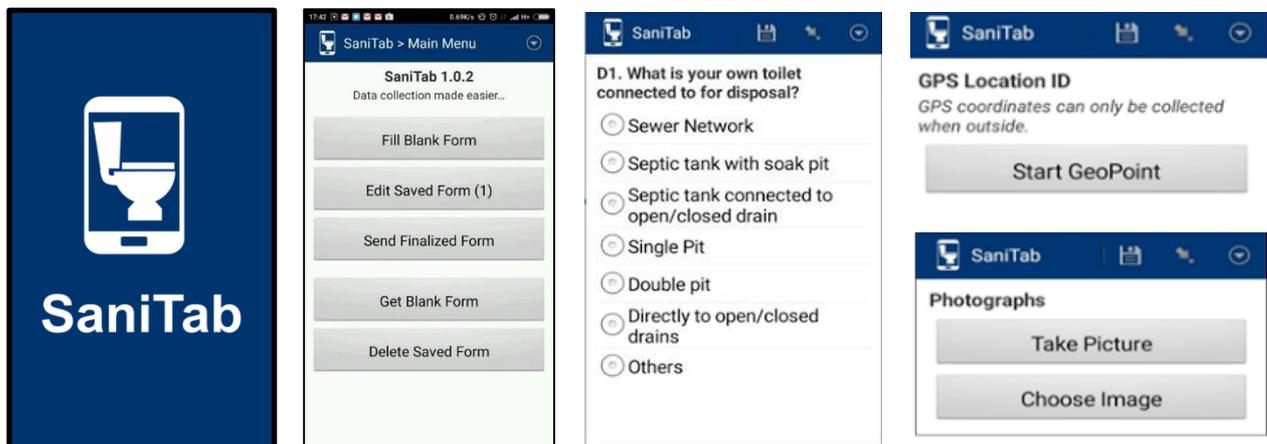
Date Of Desludging	Property Details	Name Of Owner	Mobile No.	Address	Quantity Of Septage (Litres)	No Of Trips	Total Volume Of Septage (Litres)	Vehicle Type and Capacity	No. of Chamber Cover Opened	SepticTank Was Cleaned Previously	If Any Problem

Annexure VI: SaniTab

SANITab is a digital data collection tool for “Sanitation Services Assessment” that is eminently customizable, easy to administer, and that provides quick analyses of surveyed data. The key features are:-

- Mobile application and online dashboard
- Citywide digital data collection tool
- Enabling environment for spatial analysis
- Quick and ease in survey, minimizing human error
- “Real time” monitoring of survey activity
- Survey at scale

The objective of this application is to help cities assess its sanitation scenario, while collecting the required information through household surveys and building a city level database. Based on this cities can make appropriate sanitation improvement plans for their respective cities.



Dashboard captures:

- City specific reports
- Spatial mapping of toilet facility
- Onsite sanitation system
- Geo-tagged data of each household
- Information on reasons for not having toilets
- Credit preferences for building toilets
- Downloadable data

Annexure VII: Geo-reference In-Out Report

Famous Water Supplier
Transports
Geofence In-Out Report
 Vehicle Wise Report
 Order By Time

Vehicle : MH 46 E 1002

Date: 25 Apr 2018 00.00 To 26 Apr 2018 00.00

Event	Geofence	Date
Entering Geofence	Famous Point	25 Apr 2018 09.13
Entering Geofence	Famous Point	25 Apr 2018 09.46
Entering Geofence	Famous Point	25 Apr 2018 12.43
Entering Geofence	Famous Point	25 Apr 2018 13.38
Entering Geofence	Famous Point	25 Apr 2018 17.55
Entering Geofence	Famous Point	25 Apr 2018 18.37
Entering Geofence	Famous Point	25 Apr 2018 21.37

Over-speeding of vehicle report

Famous Water Supplier
Transports
Overspeeding Report : Speed 45 (Kmph)

Vehicle :MH 46 E 1002

Date: 25 Apr 2018 00.00.00 To 26 Apr 2018 19.14.00

Date	Address	Speed (Kmph)
26 Apr 2018 13.57.12	Shankarahi Apartments, Samarth Nagar, New Sanghavi, Pimpri-Chinchwad, Maharashtra 411027, India	49

Annexure IX: First-aid kit checklist

Checklist for Minimum constituents of the first aid kit that shall be made readily available to the staffs employed in Desludging operation at site			
S. No.	Checklist	Minimum constituents	Yes
1	Small sterilized dressings.	6	<input type="checkbox"/>
2	Medium size sterilized dressings	3	<input type="checkbox"/>
3	Large size sterilized dressings	3	<input type="checkbox"/>
4	Large sterilized burn dressings	3	<input type="checkbox"/>
5	Bottle (30ml) containing a two percent alcoholic solution iodine	1	<input type="checkbox"/>
6	Bottle (30 ml) containing Salvolatile having the dose & mode of administration indicated on the label..	1	<input type="checkbox"/>
7	Snakebite lancet	1	<input type="checkbox"/>
8	Bottle (30 gm) of potassium permanganate crystals	1	<input type="checkbox"/>
9	Pair scissors	1	<input type="checkbox"/>
10	Copy of the first-aid leaflet issued by the Director General Factory Advice Service and Labour institutes Government of India.	1	<input type="checkbox"/>
11	Bottle containing 100 tablets (each of 5 gm) of aspirin	1	<input type="checkbox"/>
12	Ointment for burns		<input type="checkbox"/>
13	Bottle of suitable surgical antiseptic solution	1	<input type="checkbox"/>

Source: MoHUA (2018) “Standard Operating Procedure for cleaning of Sewers and septic tank”

Annexure X: Protective gears and safety devices

Desludgers	Fecal Sludge Treatment Plant Operators
1(a) Facemask	1(a) Facemask
1(b) Breath Mask	1(b) Half-face or full-face air purifier respirator with cartridge
2. Rubber Gloves	2(a) Heat Resistant Hand Gloves (Leather)
3. Uniform/ Apron	2(b) Neoprene rubber hand gloves
4. Gumboots	2(c) Nitrile Rubber hand gloves
5. Safety Helmet	2(d) Disposable Gloves
6. Safety Goggles	3. Uniform
7. Torch	4(a) Safety shoes
	4(b) Gumboots
	5(a) Safety helmet
	5(b) Face shield with helmet
	6(a) safety goggles
	7. Ear plugs

*Options a, b, c and d are provided for adopting gears according to the context of work/activity and machinery

Source: MoHUA (2018) “Standard Operating Procedure for cleaning of Sewers and septic tanks”

Annexure XI: Basic qualifications and requirements for desludging operators

Under the Ministry of Skill Development and Entrepreneurship, National Occupational Standards (NOSs) are developed. These specify the standard of performance, knowledge and understanding for carrying out a particular activity in the workplace. A set of NOSs, aligned to a job role called Qualification Packs (QPs), are available for every job role in each industry.

A desludging operator comes under the green sector jobs with waste management as its sub-sector. The reference ID for the QP for desludging operator is SGJ/Q6403. This QP can be referred to identify the job requirements as well as minimum qualification which will be required to carry out the work.

A brief extract from the QP is as follows:

Job Role	Desludging Operator
Role Description	The Desludging Operator, also known as Sludge Emptier is an individual, who is responsible for emptying, transport and disposal of faecal sludge from the septic tank to desludging site / FSTP / Co-treatment plant. He /She has to operate Sludge Vacuum tank with trucks, pumps, suction hoses, and other machinery/equipment to empty the septic tank. He / She is an individual having ability to venture into desludging services for managing Faecal Sludge
NSQF level	4
Minimum Educational Qualifications	5 th Pass
Maximum Educational Qualifications	Not Applicable
Prerequisite License or Training	N/A
Minimum Job Entry Age	18 years
Experience	NA
Applicable National Occupational Standards (NOS)	Compulsory: SGJ/N6411: Emptying of septic tank SGJ/N6412: Preventive maintenance, transportation and safe disposal of sludge SGJ/N6413: Health and safety of workplace while doing desludging services SGJ/N0120: Work effectively with co-worker SGJ/N6414: Entrepreneurship skills for FSSM services

The detailed QP for desludging operators is available at: <https://nqr.gov.in/qualification-title?nid=4360>

Annexure XII: Procedure for medical emergencies

This annex is made to educate the readers. This module does not recommend any one to take first aid steps what have been discussed herewith unless he/she is trained first aid trainer or volunteer after having qualified training from any govt approved agency.

CPR (Cardiopulmonary Resuscitation): It is an emergency lifesaving procedure. It is a combination of:

- Chest compressions that keeps patient's blood circulating.
- Rescue breathing that provides oxygen to patient's lungs.

Chest compressions:

- Place the heel of one hand on the lower half of the person's breastbone.
- Place the other hand on top of the first hand and interlock your fingers.
- Press down firmly and smoothly (compressing to 1/3 of chest depth) 30 times.
- Administer 2 breaths as described below in mouth-to-mouth,
- The ratio of 30 chest compressions followed by 2 breaths is the same, whether CPR is being performed alone or with the assistance of a second person.
- Aim for a compression rate of 100 per minute.

Effective chest compressions will be tiring. It is important to get help from others if possible, to allow changeover for rest and to keep the compressions effective.

Mouth-to-mouth Respiration:

- If the patient is not breathing normally, make sure he/she is lying on their back on a firm surface
- Open the airway by tilting the head back and lifting their chin.
- Close their nostrils with your finger and thumb.
- Put your mouth over the patient's mouth and blow into their mouth.
- Give 2 full breaths to the patient (this is called 'rescue breathing'). Make sure there is no air leak and the chest is rising and falling. If his/her chest does not rise and fall, check that you're pinching their nostrils tightly and sealing your mouth to his/her. If still no breathing, check airway again for any obstruction.
- Continue CPR, repeating the cycle of 30 compressions then 2 breaths until professional help arrives.

Measures for stopping heavy bleeding:

- Put pressure on the wound with whatever available to stop or slow down the flow of the blood.
- Call local emergency numbers or ask for help to get to the hospital.
- Keep pressure on the wound until the help arrives.

Response for burn:

- Call an ambulance for any serious burns. Burns to children or the elderly, electrical or chemical burns as well as burns to the face or genital area, should be attended to immediately.
- Apply CPR if the person is not breathing normally.
- Try to remove clothes and jewellery (from the area that has been burned) only if it is not sticking to the burned area.
- Hold the burned area under gently running water, for about 10 minutes to half an hour.
- To prevent corneal damage (in the case of chemical burns to the eyes), immediately irrigate the eyes with water or a saline solution.
- For second degree burns on the limbs – elevate the limbs higher than the heart.
- To reduce shock as well as loss of body heat, place clean, dry, non-fluffy cloths lightly over the burn.
- Cover the person with a cool, wet, lint-free cloth, while waiting for an ambulance or when transporting the person to hospital.

The details of do's and don'ts and action required for all medical emergency is available at the national health portal: <https://www.nhp.gov.in/miscellaneous/first-aid>

Source: This annex has been extracted from National Health Portal by Government of India. Available at <https://www.nhp.gov.in/miscellaneous/first-aid> accessed on 10.7.20



CENTER FOR WATER AND SANITATION

The Center for Water and Sanitation (CWAS) is a part of CEPT Research and Development Foundation (CRDF) at CEPT University. CWAS undertakes action-research, implementation support, capacity building and advocacy in the field of urban water and sanitation. Acting as a thought catalyst and facilitator, CWAS works closely with all levels of governments - national, state and local to support them in delivering water and sanitation services in an efficient, effective and equitable manner.