

TRAINING MODULE DE-SLUDGING OPERATOR

Sector: **GREEN JOBS**

Sub-Sector: **WASTE MANAGEMENT**

Ref ID: **SGJ/Q6403**





About Urban Management Centre (UMC)

UMC works towards professionalizing urban management in India and worldwide by providing technical assistance and support to city governments and facilitates change through peer-to-peer learning processes. It enhances the capacity of city governments by providing expertise and ready access to innovations on good governance implemented in India and abroad. It facilitates city governments to design, implement and evaluate municipal development and management projects. UMC extensively works in the areas of urban water and sanitation, heritage management, urban planning, urban health, municipal finance, urban management, urban transportation and institutional restructuring. More details are available on www.umcasia.org

DISCLAIMER

This training material has been prepared by Urban Management Centre (UMC) in consultation with Sector Skill Council for Green Jobs (SCJG) for all the aspiring youth who desire to gain special skills & gain meaningful & dignified livelihood in FSSM, sector.

The preparation of this manual would not be possible without the support and feedback of the Sector Council for Green Jobs (SCGJ) and the National Faecal Sludge and Septage Management Alliance (NFSSM Alliance) members.

If any part of the report is reproduced or replicated, UMC and SCGJ shall be acknowledged. All photographs by UMC team unless otherwise mentioned.

JOB ROLE

Name of the Job Role

De-sludging Operator

NSQF level

4

Education Qualification

Minimum- 5th Pass

Maximum- Not Applicable

Job Entry Age

18 years

Experience

Nil

How can you get engaged
as a Desludging Operator?



1. Empanelled agency



2. ULB Worker



3. Your own enterprise

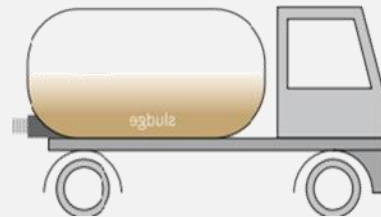
1 EMPTYING OF SEPTIC TANK



Outcome:

- Understand process of taking a request from customer
- Understand process of emptying of septic tank

2 TRANSPORTATION OF SLUDGE



Outcome:

- Understand process of transporting sludge to disposal site
- Understand process of control of spillage

3 SAFE DISPOSAL OF SLUDGE



Outcome:

- Understand the process of disposal of faecal sludge

4 HEALTH & SAFETY AT WORKPLACE



Outcome:

- Awareness about Potential operational hazards
- Mitigation of Potential operational hazards

5 ENTREPRENEURSHIP SKILLS FOR FSSM SERVICES



Outcome:

- Understand process to set up entrepreneurship in de-sludging services

6 WORKING EFFECTIVELY WITH OTHERS



Outcome:

- The importance and the correct way of working effectively with co-workers
- Importance of diversity and inclusion
- Procedure for addressing grievances

7 EMPLOYABILITY & ENTREPRENEURSHIP SKILLS



Outcome:

- Understand about digital literacy
- Understand about money related components
- Understanding about entrepreneurship

Name of Module

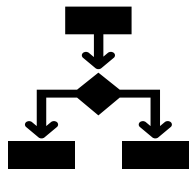
Module 1: EMPTYING OF SEPTIC TANK



Theory



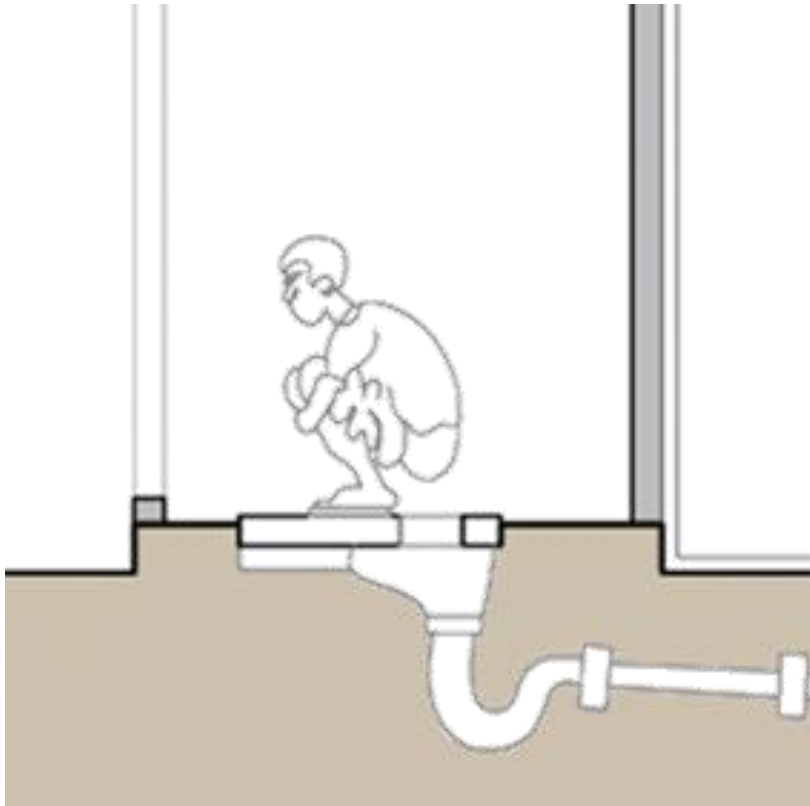
Practical



Outcomes

1. Understand process of taking a request from customer
2. Understand process of emptying of septic tank

TOILET: EVERYONE HAS TO GO!!



Wondered, what happens when you flush?

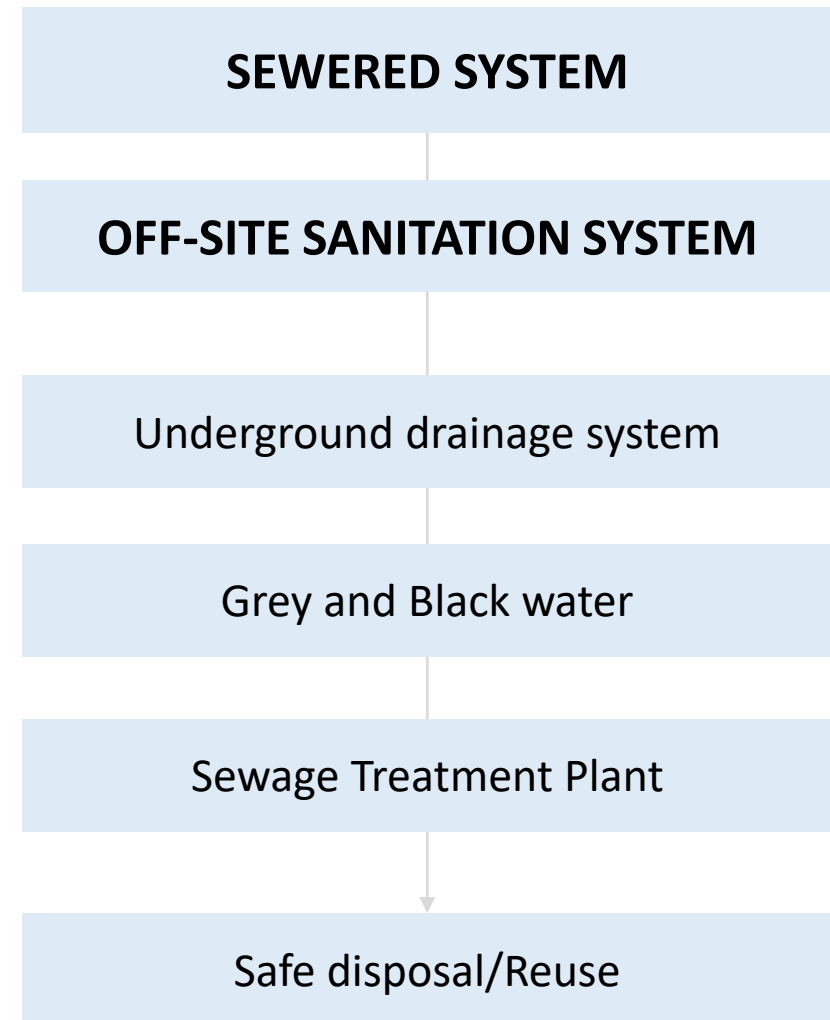
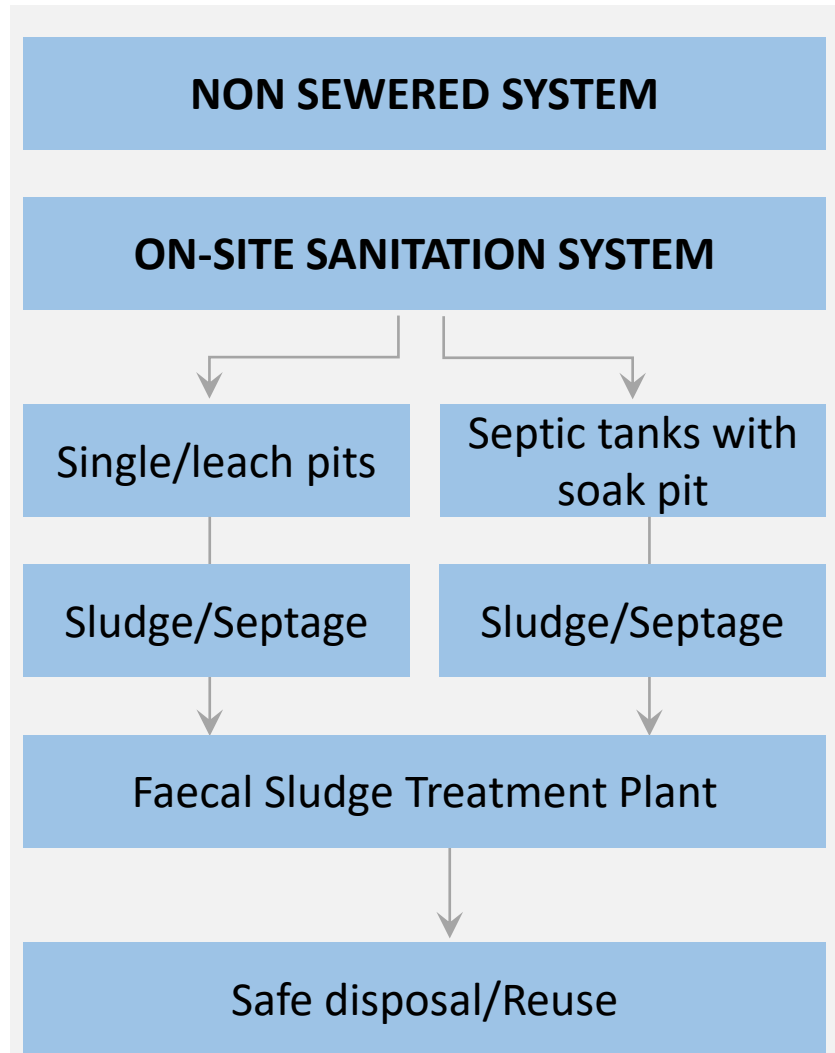
<https://www.youtube.com/watch?v=UJqlftFVNiE>

Where you go matters!

<https://www.youtube.com/watch?v=K12osl3B8co>

THE SYSTEM

Toilet

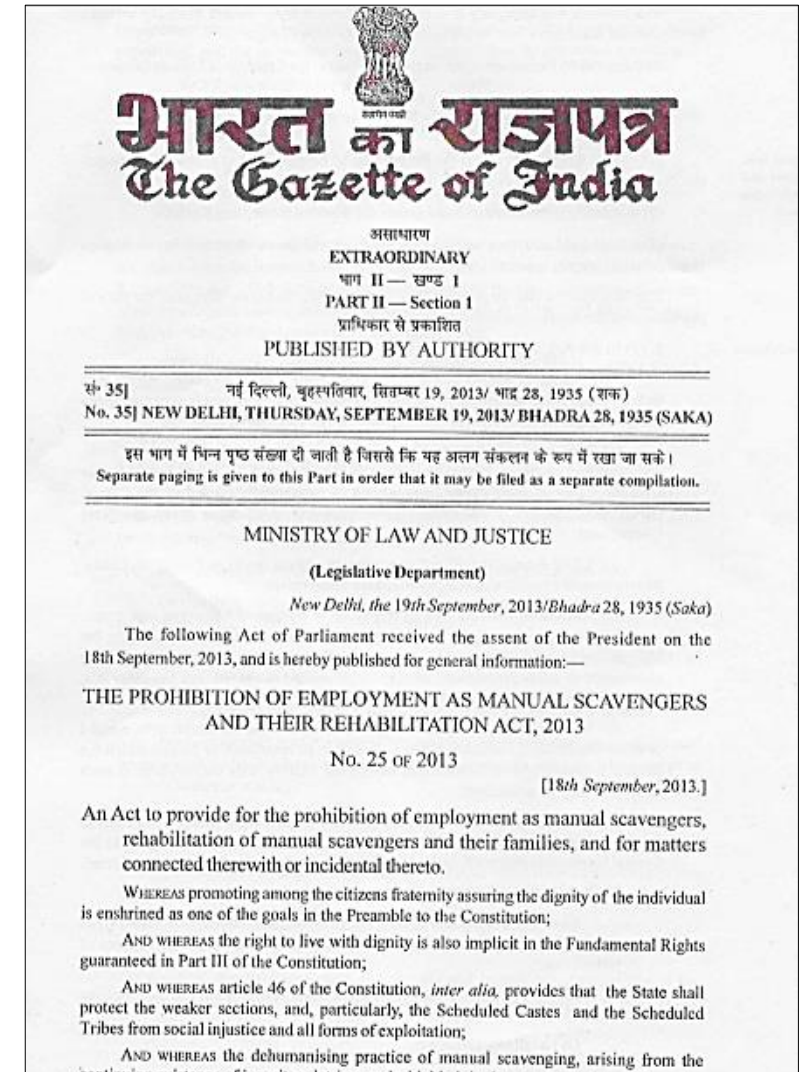


WHAT IS MANUAL SCAVENGING?

Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013

DEFINITION

Manual scavenging refers to the practice of manually cleaning, carrying, disposing or handling of faecal sludge from dry latrines, sewers and septic tanks. It involves using basic tools such as buckets, brooms and baskets.



MANUAL SCAVENGING ACT: SALIENT FEATURES

1. **Prohibition of manual scavenging and rehabilitation of manual scavengers.**
2. **Prohibition of insanitary latrines**, which include such latrines where human excreta needs to be cleaned or handled manually.
3. Definition of manual scavenger is widened to include a person engaged or employed for manual cleaning of human excreta in an **insanitary latrine or in an open drain, pit or railway tracks.**
4. Provisions for **identification of manual scavengers** in insanitary latrines.
5. **Prohibition of hazardous manual cleaning** of septic tanks and sewers, so as to ensure that health and safety of such workers is not compromised.
6. Provision of construction of adequate number of sanitary community latrines in urban areas, within three years from the date of commencement of this Act to **eliminate the practice of open defecation.**
7. **National Commission for Safai Karmacharis (NSCK)** would, monitor the implementation of Act and enquire into complaints.



MANUAL SCAVENGING: EFFECTS

1. Health related problems

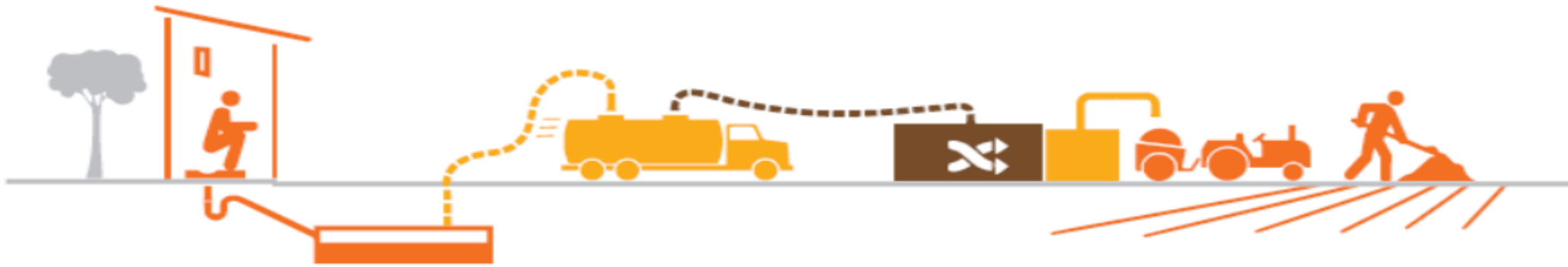
- Exposure to harmful gases like, Hydrogen disulphide, Methane, Carbon dioxide, etc. causes irritation to eyes, problems in respiratory track and can lead to loss of consciousness and can also lead to death.
- Musculoskeletal disorders like spinal troubles, pain in neck and back.
- Skin infections are caused due to direct contact with faecal sludge or through cuts or wounds.

2. Caste, Gender and Social discrimination

- Manual scavengers are stigmatized by community due to nature of their job. They are regarded as untouchables and are forced to accept their conditions. Most of them are women and members of marginal class, and is excluded from moving to a better occupation.



FAECAL SLUDGE MANAGEMENT



Containment	Emptying	Transport	Treatment	Reuse/Disposal
Faecal sludge or septage in contained in an on-site system, together with grey water	On-site system is emptied by a de-sludging truck with a vacuum mechanism	Faecal sludge or septage is transported to designated treatment plant or disposal site	Faecal sludge or septage is treated at Faecal Sludge Treatment Plant (FSTP) or co treated with sewage at a Sewage Treatment Plant	Treated waste can be reused or disposed off

DEFINITIONS TO UNDERSTAND

Sewage

Is the liquid waste matter that is transported through the sewers. Normally combination of blackwater and greywater. Thus, sewage is domestic (household) wastewater in totality.

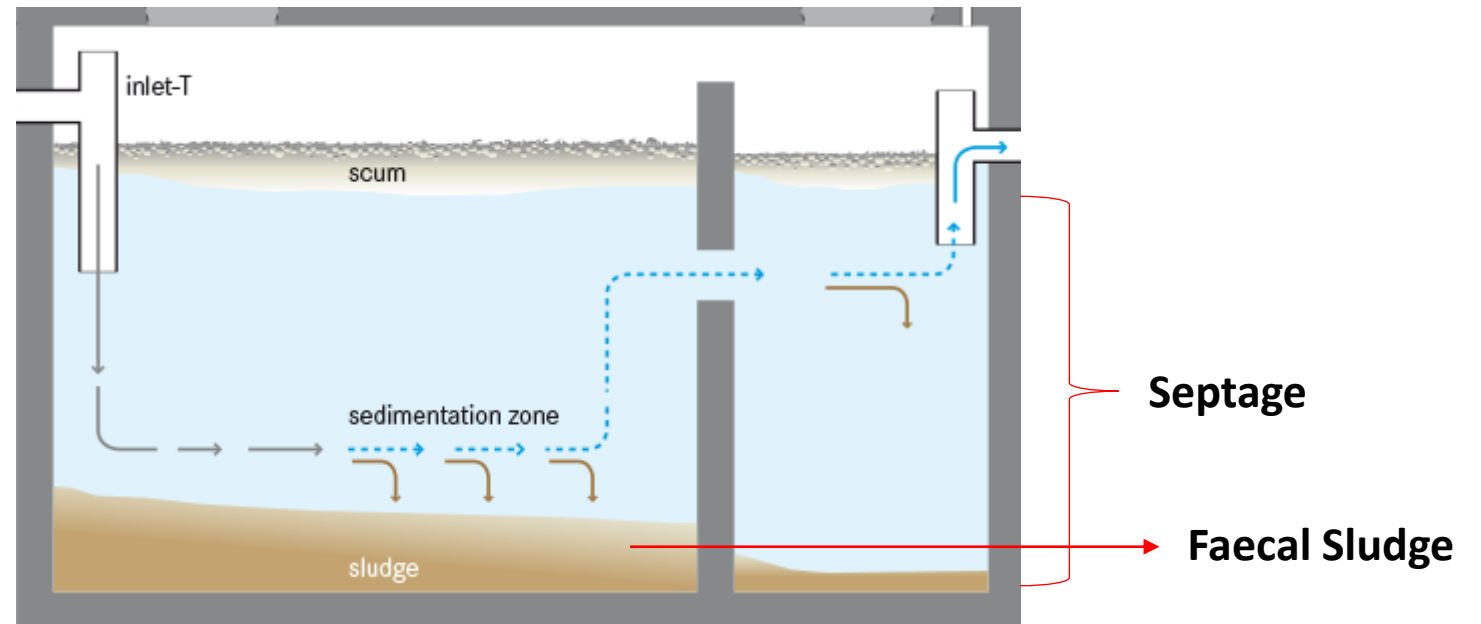


Faecal Sludge

The accumulated semi-solid or solid portion that settled at the bottom of the septic tank.

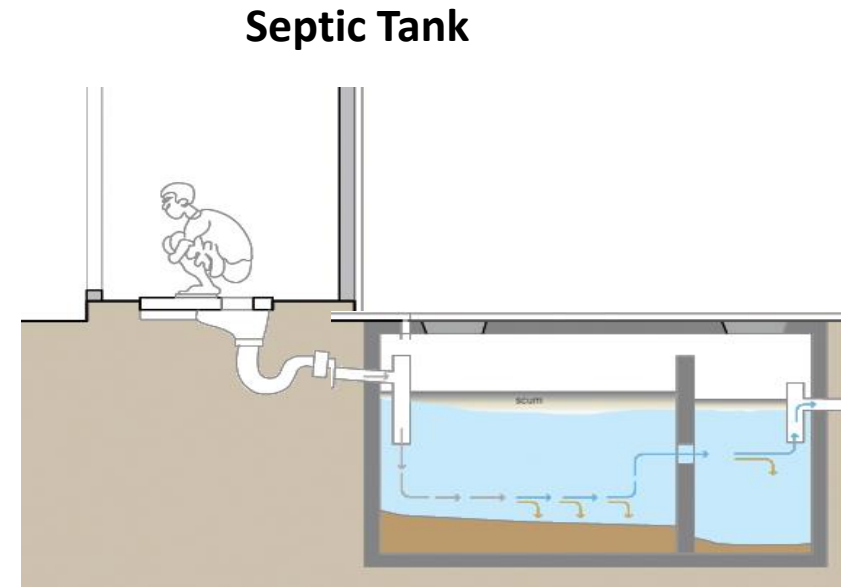
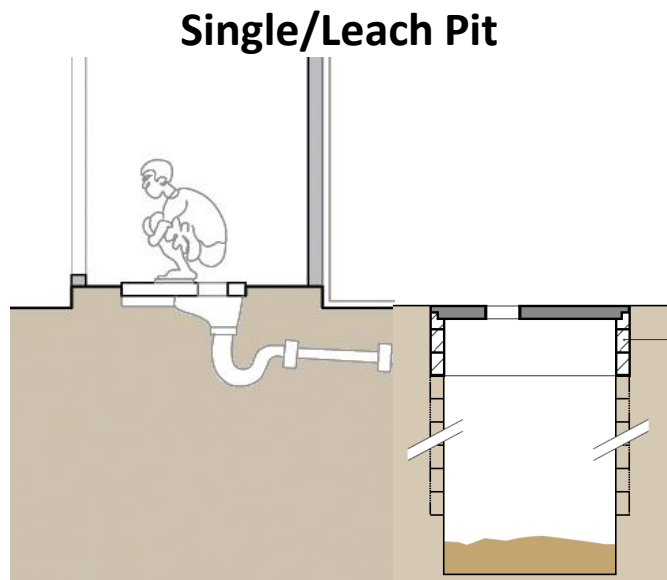
Septage

Is the liquid and solid material that is pumped from a septic tank, cesspool, after it has accumulated over a period of time.



ON-SITE SANITATION SYSTEMS

- The systems where faecal sludge goes after the flushing are called the on-site sanitation system
- Two types of OSS widely used:



to learn more about OSS Please watch the video below:

<https://www.youtube.com/watch?v=dFpF2RK-gO4>

<https://swachhbharat.azurewebsites.net/learner#/course/270/item/1962>

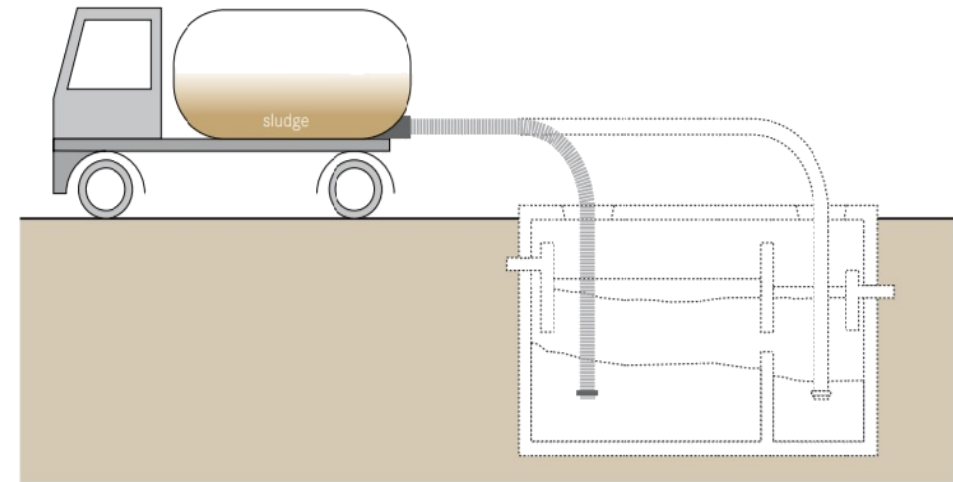
Date: as on 30/09/2019

WHAT IS DESLUDGING?

Desludging is the process of emptying the On-Site Containment system.

The Desludging vehicles act as a “Mobile Sewer Network” for onsite sanitation system.

They collect the septage from the residential, commercial and institutional areas and safely transport the sludge to the faecal sludge treatment plant



Date: as on 30/09/2019

Please watch the video to learn about successful desludging women operator <https://www.youtube.com/watch?v=r7GEiKjXzaA>

WHO IS A DESLUDGING OPERATOR

Person involved in emptying, transport and disposal of faecal sludge



DESLUDGING OPERATOR: ROLES AND RESPONSIBILITIES

A Desludging Operator should be empanelled with the Urban Local Body



Operate desludging equipment



Emptying of septic tank



Transportation and disposal of sludge to designated & safe disposal site assigned by competent authority



Maintenance of vacuum truck and other equipment



Record keeping



Use and Maintenance of PPE

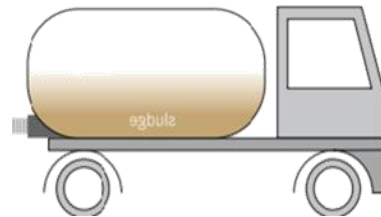
1 EMPTYING OF SEPTIC TANK



Outcome:

- Understand process of taking a request from customer
- Understand process of emptying of septic tank

2 TRANSPORTATION OF SLUDGE



Outcome:

- Understand process of transporting sludge to disposal site
- Understand process of control of spillage

3 SAFE DISPOSAL OF SLUDGE



Outcome:

- Understand the process of disposal of faecal sludge

4 HEALTH & SAFETY AT WORKPLACE



Outcome:

- Awareness about Potential operational hazards
- Mitigation of Potential operational hazards

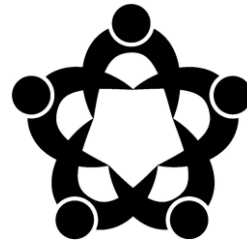
5 ENTREPRENEURSHIP SKILLS FOR FSSM SERVICES



Outcome:

- Understand process to set up entrepreneurship in de-sludging services

6 WORKING EFFECTIVELY WITH OTHERS



Outcome:

- The importance and the correct way of working effectively with co-workers
- Importance of diversity and inclusion
- Procedure for addressing grievances.

7 EMPLOYABILITY & ENTREPRENEURSHIP SKILLS



Outcome:

- Understand about digital literacy
- Understand about money related components
- Understanding about entrepreneurship

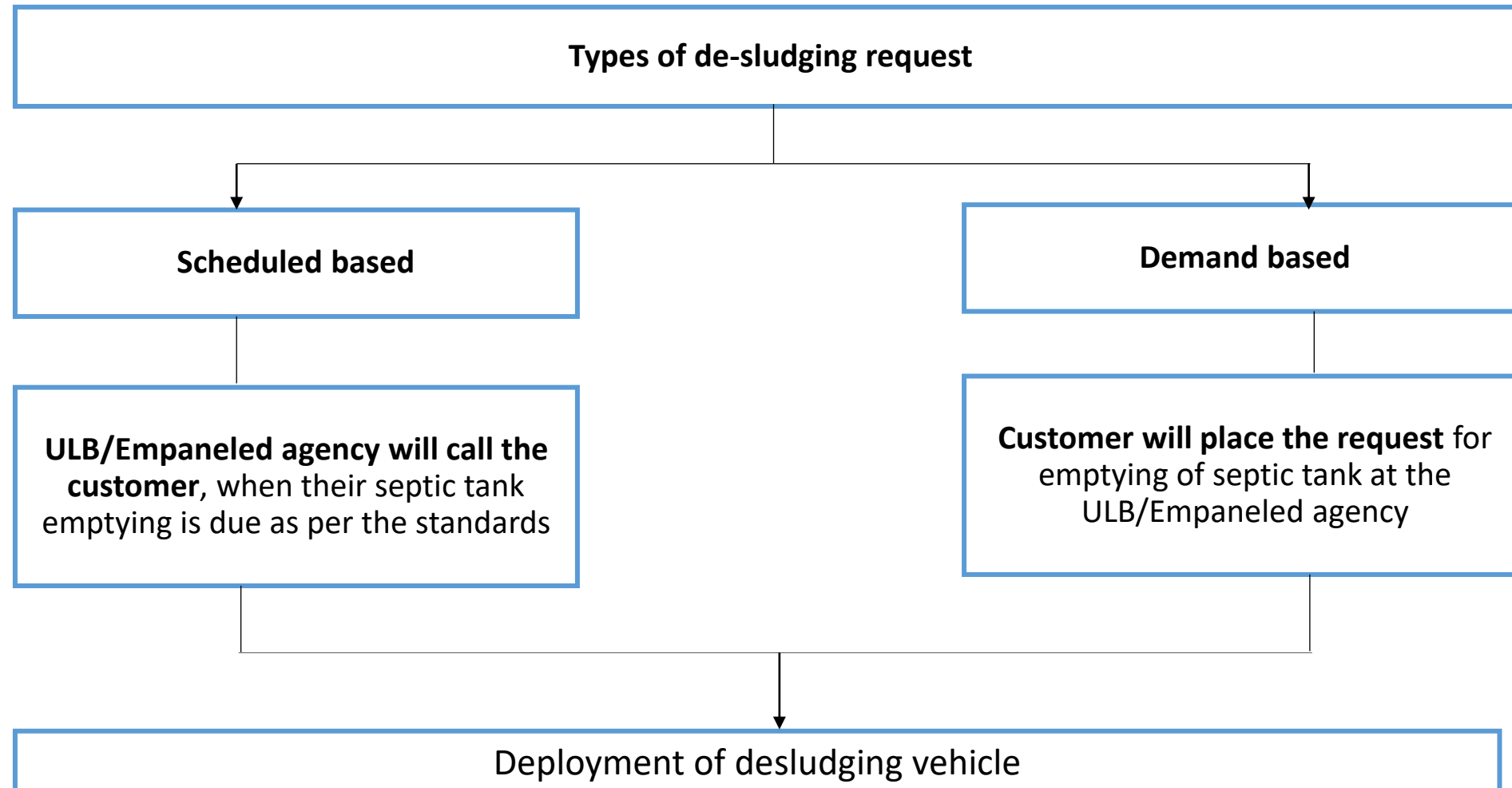
MODULE 1 - EMPTYING OF SEPTIC TANK

OUTCOME

STEP 1 - Understand types of de-sludging request

STEP 2 - Understand process of emptying of septic tank

STEP 1: TYPES OF DESLUDGING REQUESTS



WHO WILL TAKE THE REQUEST?

Call Operator at the ULB/Empanelled agency will take the request and forward it to the concerned Desludging operator empaneled with the ULB

Instructions for the Call Operator:

1. Understand nature of request properly and respond
2. Explain nature of service, rates and availability of slots
3. Store the data of requests received, resolved and of complaints.
4. Request for a feedback from customers on the services provided.
5. Call operator should be trained in handling the calls
6. Fluent in local language
7. Schedule the appointment and forward it to desludging operator
8. Instruct the property owner to open the lid of septic tank, only if it is safe



Instructions for Desludging operator:

1. Once received the request from Call Operator note down the date, time and scheduled address of the site
2. Carry out the services at the site
3. Give relevant receipt of completion to the property owner
4. After the completion of service on site, report back to the concerned supervisor
5. Submit relevant receipt or bill to the concerned supervisor and ULB



DESLUDGING VEHICLE

De-sludging vehicle is a complex mechanical system that needs proper operation and maintenance while doing the service.

Types of de-sludging vehicles used in India:

Mini van mounted (500 to 800 liters capacity)

Truck mounted vacuum tankers have vacuum pump with hydraulic motor



Tractor mounted (3,000 to 5,000 liters capacity)

Tractor mounted vacuum tankers are made locally across India



Truck mounted (1,500 to 10,000 liters capacity)

Truck mounted vacuum tankers have vacuum pump with hydraulic motor



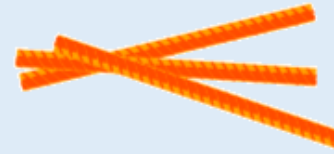
DESLUDGING EQUIPMENTS



Water pipe/hose



L – Shovel, Straight shovel



Rod



Wheel chokes



Personal Protective Equipment



First aid box



Pumps



Lime

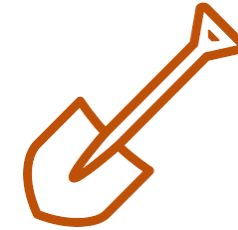
BEFORE REACHING THE SITE



1. Check hoses for cracks and wear



2. Check PPE

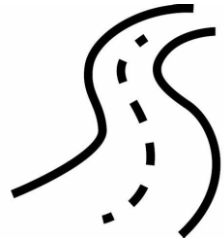


3. Check spill control equipment

- If the capacity of vacuum tank is **3000 liters**, Desludging Operator has to **dispose faecal sludge after emptying from every site.**
- If the capacity of vacuum tank is **9000 liters or above**, through **gauge meter check** the level of faecal sludge and **decide on disposal** based on volume of septic tank to be emptied.
- In any circumstances, **don't open the vacuum tank** to check the level of faecal sludge.

ACCESSIBILITY TO SITE & IDENTIFICATION OF SEPTIC TANK

1. Accessibility to site



Take wide streets for easy passage of vacuum truck



Wide streets will have enough space to turn vacuum truck to turn around



Access of roads that are in good condition

2. Identification of septic tank



Ask the property owner



Risers, tank lids and manholes



Sewer outlet line

STEP 2: EMPTYING OF SEPTIC TANK



STEP 1: Install hose in septic tank



STEP 2: Add chlorine in the septic tank



STEP 3: Check the consistency of sludge



STEP 4: Connect hose pipe to septic tank

STEP 2: EMPTYING OF SEPTIC TANK



STEP 5: Check level of sludge in tank while emptying



STEP 6: After the vacuum tank is full, close the valve



STEP 7: Add chlorine on hose after emptying



STEP 8: Close the lids of septic tank

ACCESSIBILITY TO SEPTIC TANK (VIDEO)

M1



PRECAUTIONS TO BE OBSERVED

1. In case of spillage, use shovel and disinfect it with lime.
2. Keep extra hoses depending on distance between truck and tank.
3. Check for backflow into tank from pipe.
4. Wash hands with soap after emptying of septic tank.
5. In case of breakage of lid, property owner has to repair or replace it.
6. Inspect the tank for cracks or damage before and after emptying the tank.

DO'S - EMPTYING A SEPTIC TANK



1. Carry First Aid box



2. Close the access cover before departure from septic tank site



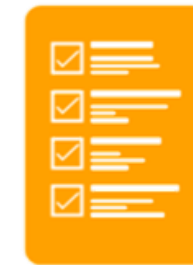
3. Park sludge vacuum truck at an appropriate distance



4. Check water fixtures for any leakages in pipeline regularly



5. Clean the area near septic tank after de-sludging activities

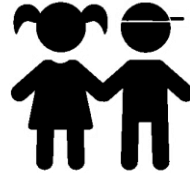


6. Keep record of customers

DONT'S - EMPTYING A SEPTIC TANK



1. Don't park or drive on septic tank



2. Don't allow children near septic tank



3. Don't smoke while carrying out de-sludging activities



4. Don't allow plastic to enter septic tank



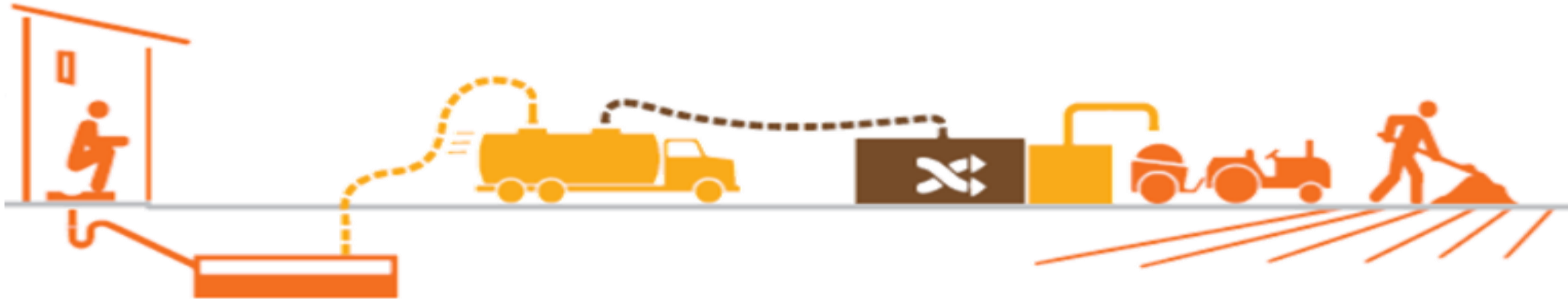
5. Don't engage in manual scavenging

This training module gives information on following list:

1. Understanding on On-site sanitation system, Manual Scavenging and Faecal Sludge Management.
2. Information about roles and responsibilities and different training modules for a De-sludging operator.
3. Detailed procedure for emptying of septic tank.
4. Various equipments used in emptying of septic tank.

QUIZ - IDENTIFY THE FOLLOWING PROCESS

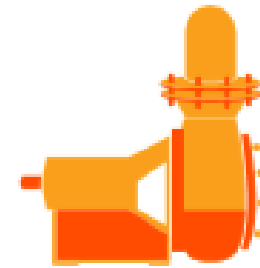
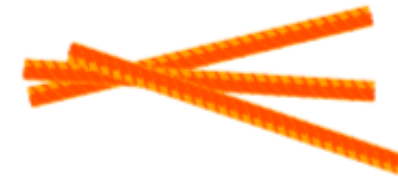
M1



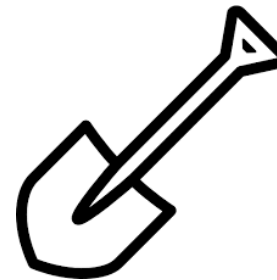
QUIZ - NAME THE FOLLOWING



Desludging Vehicle



Desludging Equipments



QUIZ - MATCH THE FOLLOWING



Don't allow plastic to enter septic tank

Wear PPE

Carry First Aid box

Don't smoke while carrying out de-sludging activities

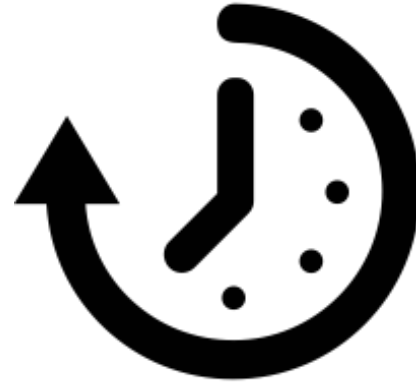
QUIZ - IDENTIFY

M1



QUIZ - NAME THE FOLLOWING

ULB/Empaneled agency will call the customer, when their septic tank emptying is due as per the standards



Name the process

.....

Customer will place the request for emptying of septic tank at the ULB/Empanelled agency



.....

NUMBER THESE PICTURES IN RIGHT ORDER

Connect hose pipe to septic tank



Check the consistency of sludge



Close the lids of septic tank



Check level of sludge in tank while emptying



After the vacuum tank is full, close the valve



Install hose in septic tank



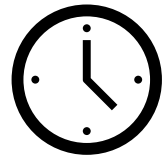
Add chlorine in the septic tank



Add chlorine on hose after emptying

Name of Module

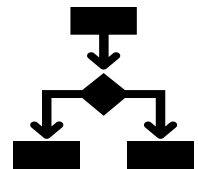
Module 2: TRANSPORTATION OF FAECAL SLUDGE



Theory



Practical



Outcomes

1. Understand process of transport of faecal sludge from septic tank to sludge disposal site
2. Understand how to control spillage of faecal sludge during transportation

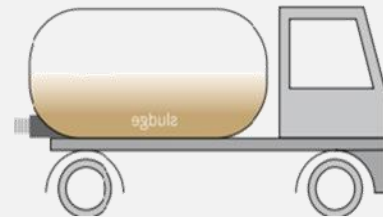
1 EMPTYING OF SEPTIC TANK



Outcome:

- Understand process of taking a request from customer
- Understand process of emptying of septic tank

2 TRANSPORTATION OF SLUDGE



Outcome:

- Understand process of transporting sludge to disposal site
- Understand process of control of spillage

3 SAFE DISPOSAL OF SLUDGE



Outcome:

- Understand the process of disposal of faecal sludge

4 HEALTH & SAFETY AT WORKPLACE



Outcome:

- Awareness about Potential operational hazards
- Mitigation of Potential operational hazards

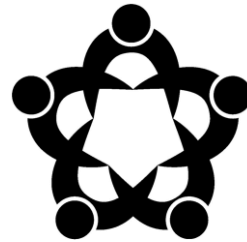
5 ENTREPRENEURSHIP SKILLS FOR FSSM SERVICES



Outcome:

- Understand process to set up entrepreneurship in de-sludging services

6 WORKING EFFECTIVELY WITH OTHERS



Outcome:

- The importance and the correct way of working effectively with co-workers
- Importance of diversity and inclusion
- Procedure for addressing grievances.

7 EMPLOYABILITY & ENTREPRENEURSHIP SKILLS



Outcome:

- Understand about digital literacy
- Understand about money related components
- Understanding about entrepreneurship

MODULE 2 - TRANSPORTATION OF FAECAL SLUDGE

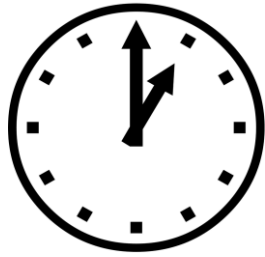
M2

OUTCOME

STEP 1 - Understand process of transport of sludge from septic tank to disposal site

STEP 2 - Understand how to control spillage of sludge

STEP 1 - TRANSPORTATION OF FAECAL SLUDGE



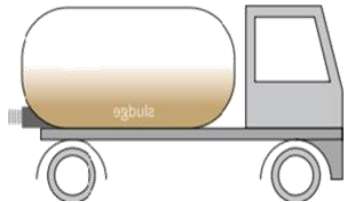
Be aware of the timings of restrictions on movement of heavy vehicles in urban areas



Take the predecided route to transfer the sludge, this will help in reduction of illegal dumping of sludge



Carry license of truck driver



Ensure there is no spillage during transportation



In case of any mechanical fault or leakage in vacuum truck, report to superior

STEP 2 - SPILLAGE OF FAECAL SLUDGE

In case of spillage of sludge during transportation:



It is the responsibility of desludging operator to remove the spillage from the site



Try to recover the spilt sludge using a shovel



If recovery is not possible, pour sand over the spilt sludge and cover it with lime



In case of uncontrolled spilt, inform Health Dept of ULB



Wear PPE while attending spilt sludge

PRECAUTIONS TO BE OBSERVED



In case of handling spilt sludge, make sure to wear the PPE

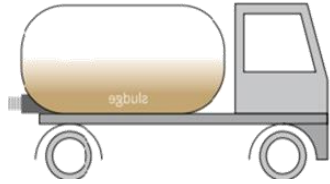


Don't smoke while in the truck



Incase there is a fault with the truck, inform the supervisor immediately

DO'S – TRANSPORTATION OF SLUDGE



Make sure that all locks on the vacuum tank are secured and that there is no leakage



Make sure that the hose is intact



Use the pre-decided route to transport the sludge to the disposal site



Make sure that the road on the route chosen is in a drive worthy condition



Control spillage while transporting the sludge



Put lime and sand on the spill

DONT'S – TRANSPORTATION OF SLUDGE



Don't drive fast or over the speed limit



Don't smoke inside the truck



Don't take a different route from the one that has been pre-decided



Don't try and dispose the sludge enroute to the actual disposal site

SUMMARY

This training module gives information on following list:

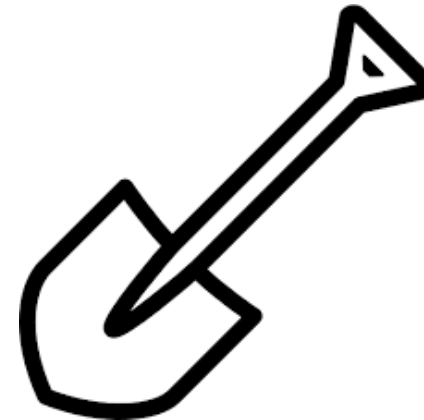
1. Transport faecal sludge from septic tank to designated disposal site.
2. Control any spillage during transportation of sludge.

EXERCISE

Q.1. Which of the steps are involved in transportation of faecal sludge?

- A) Be aware of the timings of restrictions on movement of heavy vehicles in urban areas.
- B) Once discharged, close the valve
- C) Keep a register to note down the entry and exit time and date of disposal
- D) In case of any mechanical fault or leakage in vacuum truck, report to superior.

Q.2. Name the following and define their use:



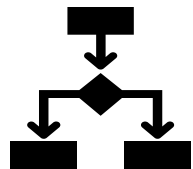
Name of Module **Module 3: SAFE DISPOSAL OF FAECAL SLUDGE**



Theory



Practical



Outcomes

1. Understand the process of disposal of faecal sludge

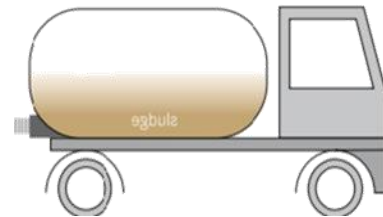
1 EMPTYING OF SEPTIC TANK



Outcome:

- Understand process of taking a request from customer
- Understand process of emptying of septic tank

2 TRANSPORTATION OF SLUDGE



Outcome:

- Understand process of transporting sludge to disposal site
- Understand process of control of spillage

3 SAFE DISPOSAL OF SLUDGE



Outcome:

- Understand the process of disposal of faecal sludge

4 HEALTH & SAFETY AT WORKPLACE



Outcome:

- Awareness about Potential operational hazards
- Mitigation of Potential operational hazards

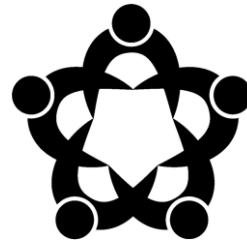
5 ENTREPRENEURSHIP SKILLS FOR FSSM SERVICES



Outcome:

- Understand process to set up entrepreneurship in de-sludging services

6 WORKING EFFECTIVELY WITH OTHERS



Outcome:

- The importance and the correct way of working effectively with co-workers
- Importance of diversity and inclusion
- Procedure for addressing grievances.

7 EMPLOYABILITY & ENTREPRENEURSHIP SKILLS



Outcome:

- Understand about digital literacy
- Understand about money related components
- Understanding about entrepreneurship

MODULE 3 – SAFE DISPOSAL OF FAECAL SLUDGE

OUTCOME

STEP 1 - Understand the process of disposal of sludge

STEP 1 - DISPOSAL OF FAECAL SLUDGE

M3



STEP 1

Dispose sludge only at the designated faecal sludge treatment plant or disposal site



STEP 2

Follow instructions at treatment plant for disposal of residential, commercial or industrial sludge at designated area



STEP 3

Position the vacuum truck in a way that only one length of hose is used



STEP 4

Open the valve and discharge the sludge



STEP 5

Once discharged, close the valve



STEP 6

Clean the hose after discharge

STEP 1 - DISPOSAL OF FAECAL SLUDGE



STEP 7

Clean up spillage near discharge point



STEP 8

Keep a register to note down the entry and exit time and date of disposal



STEP 9

Make sure to collect the receipt from FSTP operator after the discharge



STEP 10

Follow safety precautions at the disposal site

TYPES OF FAECAL SLUDGE DISPOSAL SITES

1 Faecal Sludge Treatment Plant

FTSP treats faecal sludge collected from the onsite sanitation systems. FSTP may be a suitable choice in small cities or towns where STPs do not exist.



2 Co-treatment Plant

Co-treatment of septage at Sewage Treatment Plants is one of the solutions that can be implemented for treatment of faecal sludge.



TYPES OF SLUDGE DISPOSAL SITES

3 Sewage Treatment Plant

STPs help in removing contaminants from the wastewater. Cities where FSTP or Co-treatment plant is not available, STP is used to dispose off faecal sludge.

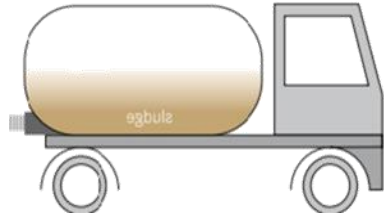


4 Designated disposal site by ULB

In case of non availability of any of the above treatment facility, disposal shall be done at a site designated by the ULB. Under any circumstances, it should not be discharged in any water body, natural drain within or outside the jurisdiction of ULB.



DO'S - DISPOSAL OF FAECAL SLUDGE



Ensure that all the necessary steps have been taken to avoid any leakages during transportation



Park the vehicle at the appropriate sludge disposal point



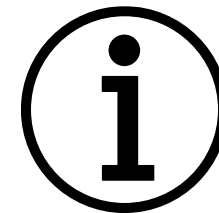
Clean area near disposal point for any spillage



Clean the desludging truck after emptying at the designated disposal site

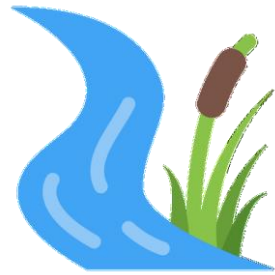


Desludging operator and truck driver must ensure hygiene practices after disposal



Follow instructions at disposal site

DONT'S - DISPOSAL OF FAECAL SLUDGE



Don't dispose sludge in or near water bodies



Don't dispose sludge near residential areas



Don't smoke while disposing the sludge



Don't drive fast or exceed the speed limit



Don't take any route which has the risk of accidents

SUMMARY

This training module gives information on:

1. Aware about the procedure to follow at the designated disposal site and will be able to dispose off sludge at the site.
2. Awareness about types of sludge disposal sites.

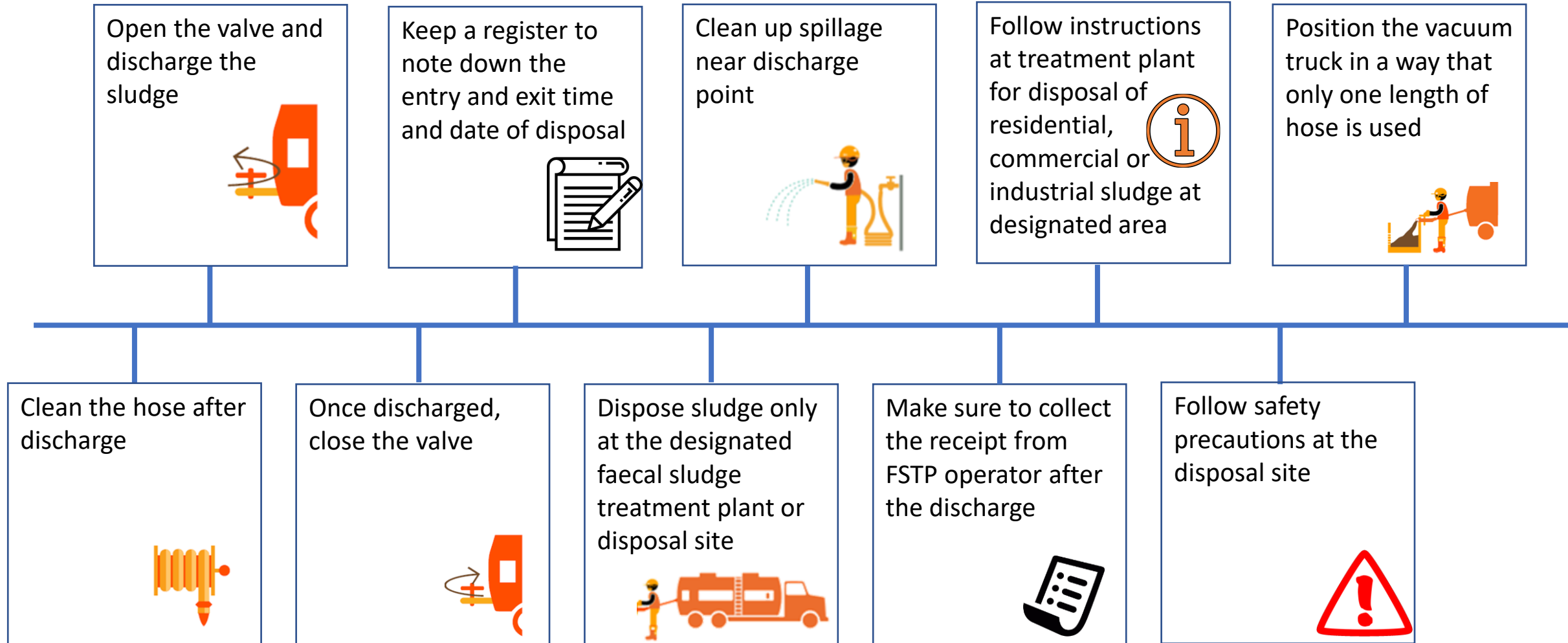
EXERCISE

Q.1. Name the following faecal sludge disposal site



EXERCISE

Q.2. Number the steps for disposal of faecal sludge



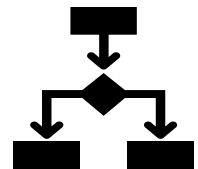
Name of Module **Module 4: HEALTH AND SAFETY AT WORKPLACE**



Theory



Practical



Outcomes

1. Awareness about Potential operational hazards
2. Mitigation of Potential Operational Hazards

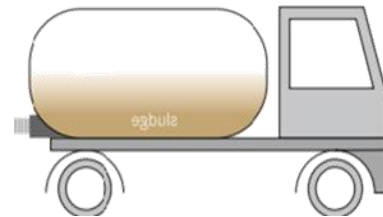
1 EMPTYING OF SEPTIC TANK



Outcome:

- Understand process of taking a request from customer
- Understand process of emptying of septic tank

2 TRANSPORTATION OF SLUDGE



Outcome:

- Understand process of transporting sludge to disposal site
- Understand process of control of spillage
- Understand process of disposal of sludge

3 SAFE DISPOSAL OF SLUDGE



Outcome:

- Understand the process of disposal of faecal sludge

4 HEALTH & SAFETY AT WORKPLACE



Outcome:

- Awareness about Potential operational hazards
- Mitigation of Potential operational hazards

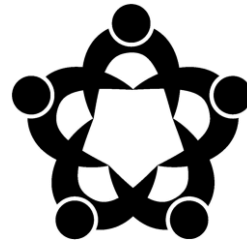
5 ENTREPRENEURSHIP SKILLS FOR FSSM SERVICES



Outcome:

- Understand process to set up entrepreneurship in de-sludging services

6 WORKING EFFECTIVELY WITH OTHERS



Outcome:

- The importance and the correct way of working effectively with co-workers
- Importance of diversity and inclusion
- Procedure for addressing grievances.

7 EMPLOYABILITY & ENTREPRENEURSHIP SKILLS



Outcome:

- Understand about digital literacy
- Understand about money related components
- Understanding about entrepreneurship

MODULE 4 - HEALTH AND SAFETY AT WORKPLACE

OUTCOME

STEP 1- Awareness about Potential operational hazards

STEP 2- Mitigation of Potential Operational Hazards

STEP 1- POTENTIAL HAZARDS



PHYSICAL HAZARDS

- Collapse of septic tank or pit wall
- Slips, trips and falls
- Exposure to sharp objects like glass, metal, blade, etc.
- Any other accident particularly during traveling



EXPLOSIVE/FLAMMABLE GASES

Exposure to flammable gases from septic tank like, Methane and Carbon dioxide



BIOLOGICAL HAZARDS

A large number of coliform groups, various kinds of pathogen, and egg parasites exist in the septic tank. These pathogens can cause a number of diseases such as jaundice, worm infestation, infection, typhoid etc.



FIRE

Fire can occur in septic tanks due to methane gas during high temperature

STEP 2 - MITIGATING PHYSICAL HAZARDS

PERSONAL PROTECTIVE EQUIPMENTS

Mandatory to wear PPE to avoid any kind of hazard while carrying out de-sludging services and to avoid direct contact with faecal sludge



TRAINING PROGRAMS

Training programs on health and safety measures, Usage of PPE and First Aid.



MEDICAL CHECK UPS AND IMMUNIZATION

De-sludging operator should be immunized for Tetanus, Hepatitis A and Diphtheria on a regular basis



PERSONAL PROTECTIVE EQUIPMENTS

M4



PPE should be worn at all times while carrying out de-sludging activities

PERSONAL PROTECTIVE EQUIPMENT

The following are the personal protective equipment required for a desludging operator



HELMET



GUM BOOTS



HAND GLOVES



SAFETY GOGGLES



REFLECTIVE VEST



SAFETY TORCH



APRON

MAINTENANCE OF PERSONAL PROTECTIVE EQUIPMENT

- Clean PPE with soap and hot water after each use and store properly.
- Clean contaminated work clothing daily.
- Eat in designated areas away from work area and removed all PPE before eating
- Store PPE away from eating and food storage areas.



FIRST AID BOX COMPONENTS



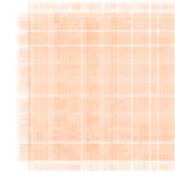
First aid chart

Chart details out the use of the first aid box in an emergency.



Medical plasters

Elastic bandages are used without the need for dressing injured area



Medical gauze

Small, medium and large sterile gauze dressings



BANDAGES: These bandages are used to hold the dressing on a wound.



Distilled water

For cleaning wounds



Sterile gloves

These gloves are used in medical examination



Scissors

The scissors are used in cutting of bandages, gauze and injured area



Cleansing wipes

The wipes are used in the cleaning of the wound



Antiseptic cream

Used for Skin rash, spray to relieve insect bites and stings



Ointment for burns

Used in case of burns on skin



Soap

Handwash before and after desludging activities

STEP 2- MITIGATING BIOLOGICAL HAZARDS

Presence of pathogens, bacteria and viruses in septic tank, can cause infections and in some cases snake bites, hence following precaution should be taken:



Take effective immunization for Tetanus, Hepatitis A and Diphtheria, Typhoid, Cholera, etc. on a regular basis



Use rubber hand gloves and cover skin with barrier cream



After the work is completed, thoroughly wash hands with antiseptic soap



In case of any cuts or wounds, use bandage and antiseptic cream to cover the wound and prevent further infection

STEP 2- MITIGATING GAS HAZARDS

Exposure to flammable gases from septic tank like, Methane and Carbon dioxide can cause breathing problems, nausea or asthma

Following shall not be allowed near septic tank



SMOKING

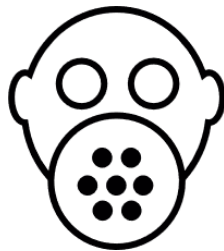


OPEN FLAMES



SPARK

In case of gas emergency



WEAR BREATHING MASK



ERECT WARNING SIGNS

STEP 2- MITIGATING FIRE/HAZARD EMERGENCY

Presence of chemicals and the flammable nature of methane gas in present in septic tank, can be the cause of fire

Type of Fire that can be caused at the septic tank site: **Class C**

Source of origin: Fires involving flammable gases under pressure including liquefied gases, where it is necessary to inhibit the burning gas at fast rate with an inert gas, powder or vaporizing liquid for extinguishment.



Dry Powder



Clean Agent



Carbon Dioxide

SUMMARY

This training module gives information on the following list:

1. Potential hazards and risks faced during carrying out de-sludging activities.
2. Steps to take before and during a emergency.
3. Identify, Use and Maintain Personal Protective Equipments.
4. Identify components in a First Aid box.

EXERCISE

How does this protect you?

Do you need any training to use this PPE?

What kind of hazard might be avoided through this PPE?

Why might you not want to wear this while working?



SPOT THE HAZARD



SPOT THE HAZARD

M4



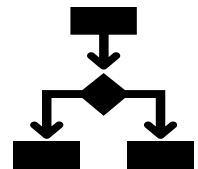
Name of Module **Module 5: ENTREPRENEURSHIP SKILLS FOR FSSM SERVICES**



Theory



Practical



Outcomes

1. Understand the components for setting up an enterprise in De-sludging services

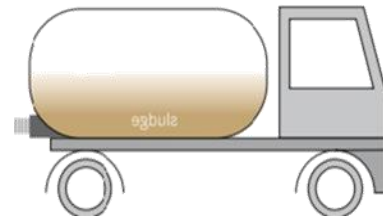
1 EMPTYING OF SEPTIC TANK



Outcome:

- Understand process of taking a request from customer
- Understand process of emptying of septic tank

2 TRANSPORTATION OF SLUDGE



Outcome:

- Understand process of transporting sludge to disposal site
- Understand process of control of spillage
- Understand process of disposal of sludge

3 SAFE DISPOSAL OF SLUDGE



Outcome:

- Understand the process of disposal of faecal sludge

4 HEALTH & SAFETY AT WORKPLACE



Outcome:

- Awareness about Potential operational hazards
- Mitigation of Potential operational hazards

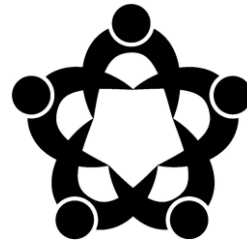
5 ENTREPRENEURSHIP SKILLS FOR FSSM SERVICES



Outcome:

- Understand process to set up entrepreneurship in de-sludging services

6 WORKING EFFECTIVELY WITH OTHERS



Outcome:

- The importance and the correct way of working effectively with co-workers
- Importance of diversity and inclusion
- Procedure for addressing grievances.

7 EMPLOYABILITY & ENTREPRENEURSHIP SKILLS



Outcome:

- Understand about digital literacy
- Understand about money related components
- Understanding about entrepreneurship

OUTCOME

STEP 1 - Understand the components for setting up an enterprise in De-sludging services

STEPS FOR SETTING UP AN ENTERPRISE



STEP 1: Identification and understanding of key activities of de-sludging operations



STEP 2: Licensing, certificate and registration process



STEP 3: Empanelment with the ULB



STEP 4: Identify size and configuration of key equipment



STEP 5: Procurement of human resource and vehicle



STEP 6: MoU with ULB to define nature of the services (Demand or Scheduled based)

REQUIRED HUMAN RESOURCE

M5



Call operator



Truck driver



De-sludging operator

ROLES AND RESPONSIBILITIES OF DESLUDGING OPERATOR

A Desludging Operator should be empanelled with the Urban Local Body



Operate desludging equipment



Emptying of septic tank



Transportation and disposal of sludge to designated & safe disposal site assigned by competent authority



Maintenance of vacuum truck and other equipment



Record keeping



Use and Maintenance of PPE

ROLES AND RESPONSIBILITIES OF CALL OPERATOR

M5



Understand nature of request properly and respond



Explain nature of service, rates and availability of slots



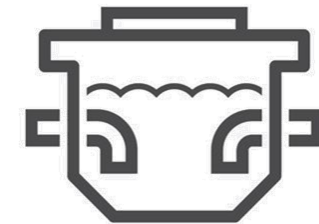
Store the data of requests received, etc.



Request for a feedback from customers



Schedule the appointment and forward it to desludging operator



Instruct the property owner to open the lid of septic tank, only if it is safe

ROLES AND RESPONSIBILITIES OF DESLUDGING VEHICLE DRIVER

M5



Drive the Desludging vehicle to the septic tank site and to the designated faecal sludge disposal site



Operation and Maintenance of Desludging vehicle



Follow protocols and safety rules for maintenance of vehicle and vehicle parts



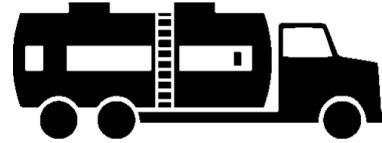
Carry driving license during transportation

LICENSES, CERTIFICATES AND REGISTRATIONS

List of licenses, certificates and registrations required to start an enterprise



License for providing de-sludging service from ULB



Registration of truck from RTO office



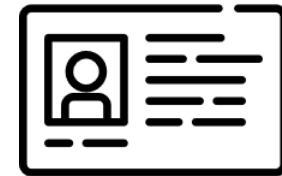
Pollution certificate of vehicle



Health insurance of workers



Vehicle insurance



Relevant license for the desludging vehicle driver

TYPES OF DESLUDGING VEHICLES



**Truck mounted
(500 - 800 liters capacity)**



**Truck mounted
(1,500 - 10,000 liters capacity)**



**Tractor mounted
(3,000 - 5,000 liters capacity)**

PROCUREMENT OF DESLUDGING VEHICLE



STEP 1: Identify Capacity of desludging vehicle



STEP 2: Explore market for availability of vehicle



STEP 3: Book the vehicle with respective vendor



STEP 4: Payment and delivery of vehicle



STEP 5: Training for operation and maintenance

NSKFDC loans

KEY EQUIPMENTS REQUIRED

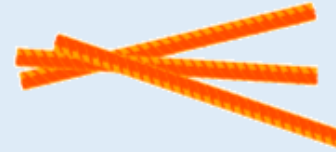
M5



Water pipe/hose



L – Shovel, Straight shovel



Rod



Wheel chokes



Personal Protective Equipment



First aid box



Pumps



Lime

POTENTIAL CUSTOMERS: PRIVATE AGENCY/ULB



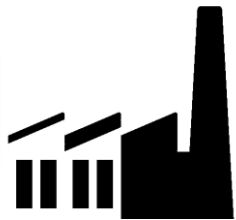
Residential

- Individual households
- Housing societies
- Government housing estates



Commercial

- Restaurants
- Retail areas
- Hotels
- Hospitals
- Government buildings



Industrial

- Factories
- Small and large scale industries



Institutional

- Schools
- Colleges
- Educational Institutes

TYPES OF ENTERPRISE MODEL

Parameters	Full Private Model (Vehicle capex by private and Operations by private)	Full Government Model (Vehicle capex by ULB and Operations by ULB)	Public Private Partnership (Truck capex by government and Operations by private)
License Fees to ULB	✓		✓
Capital Expenditure: Desludging Vehicle Desludging Equipments	✓	✓	
Operational Expenditure: O&M of Desludging vehicle and equipments	✓	✓	✓
Fees: Contract Fees Local taxes	✓		✓
Office Space	✓	✓	✓
Other Expenses	✓	✓	✓

RECORD KEEPING

M5

The following are the information and details required for record keeping



1. Name of the customer



2. Area and Location



3. Date of request of de-sludging



4. Date of de-sludging services completed



5. User Charge and receipt number



6. Date of disposal of sludge



7. Name of FSTP



8. Any accident/spillage

CHECKLIST



Usage of Personal Protective Equipment



Record Keeping



Final disposal of sludge at designated FSTP



Daily checks of equipments before work



Lack of regular maintenance of emptying equipments

After completing this training module gives information on the following list:

- Steps for setting up a successful desludging enterprise
- Key activities of a De-sludging services
- Licenses, certificates and registrations required for setting up a De-sludging services enterprise.
- Information on configuration and size of equipments required.
- Process of procurement of equipments and identify potential customers.
- Information and details required to keep records.

EXERCISE

ROLE PLAY

Call operator has received a request for Desludging: What will a call operator, a desludging operator and desludging vehicle driver will do?



You have to procure a Desludging Vehicle: How will you procure it?



You have to set up a Desludging enterprise: What are the steps you will take into consideration to form an Desludging enterprise?



You are a Desludging vehicle driver:
What are your roles and responsibilities?



You want to open your own Desludging service enterprise:
What all licenses you will need to form one?



You want to open your own Desludging service enterprise:
What type of a enterprise model you will adopt and Why?



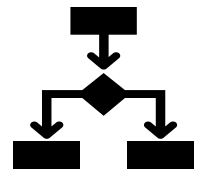
Name of Module **Module 6: WORKING EFFECTIVELY WITH OTHERS**



Theory



Practical



Outcomes

1. The importance and the correct way of working effectively with co-workers
2. Importance of diversity and inclusion in an organization
3. Procedure for addressing grievances

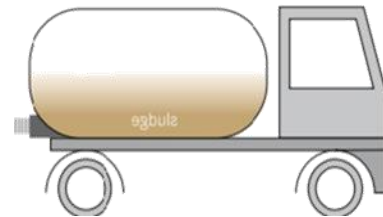
1 EMPTYING OF SEPTIC TANK



Outcome:

- Understand process of taking a request from customer
- Understand process of emptying of septic tank

2 TRANSPORTATION OF SLUDGE



Outcome:

- Understand process of transporting sludge to disposal site
- Understand process of control of spillage
- Understand process of disposal of sludge

3 SAFE DISPOSAL OF SLUDGE



Outcome:

- Understand the process of disposal of faecal sludge

4 HEALTH & SAFETY AT WORKPLACE



Outcome:

- Awareness about Potential operational hazards
- Mitigation of Potential operational hazards

5 ENTREPRENEURSHIP SKILLS FOR FSSM SERVICES



Outcome:

- Understand process to set up entrepreneurship in de-sludging services

6 WORKING EFFECTIVELY WITH OTHERS



Outcome:

- The importance and the correct way of working effectively with co-workers
- Importance of diversity and inclusion
- Procedure for addressing grievances.

7 EMPLOYABILITY & ENTREPRENEURSHIP SKILLS



Outcome:

- Understand about digital literacy
- Understand about money related components
- Understanding about entrepreneurship

MODULE 6 - WORKING EFFECTIVELY WITH OTHERS

M6

OUTCOME

STEP 1 – Understand about work ethics & etiquettes

STEP 2- Information & data security rules

STEP 3 – Aspects for diversity & inclusiveness at workplace

STEP 4 – Characteristics required to work effectively with others

STEP 5 – Expression of problems with the appropriate authority

STEP 1 - WORK ETHICS AND ETIQUETTES

The following are the work ethics and etiquettes to be considered in addition to professional duties



Properly and consciously operate desludging services & equipment following the safety measures



Always consider personal safety, the safety of fellow workers and customers while working



Properly and accurately fill record books and/or make reports



Avoid unprofessional activities

STEP 2 - INFORMATION AND DATA SECURITY RULES

It is crucial to keep certain data confidential and the kind of data which needs to be shared publicly.

Following are the information which you should share only with your senior



Employee details like, name, contact details, pay scale, etc.



Financial information

Following are the information which can be shared with the public



Brochures & flyers giving information about your work or company



Advertorials as news stories & reviews on newspaper



Newsletters to keep public informed about your desludging services or operations

STEP 3 - DIVERSITY AT INCLUSION AT WORKPLACE

Following are the elements required to maintain diversity and inclusion at workplace, so the employees experience:

Fairness and respect

Value and belongingness

Safe and open

Empowered and growing

STEP 4 - WORKING EFFECTIVELY WITH OTHERS

Since you will be working mostly in teams it is very important to develop good habits to work effectively with co-workers

Following characteristics are required to work effectively with co-workers:

Be honest and straight forward

Share the work load equally & assist others

Treat others with respect and dignity

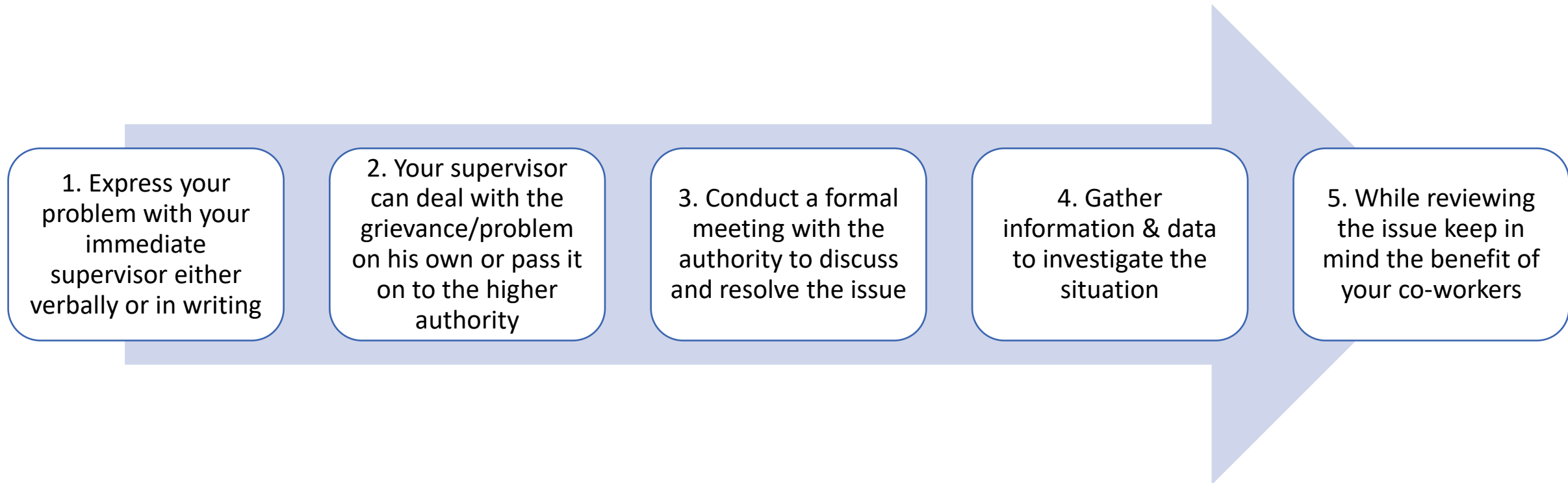
Be an active listener and speak with discretion

Acknowledge contribution of your team members

STEP 5 - HOW TO EXPRESS PROBLEMS TO APPROPRIATE AUTHORITY

Problems or Grievances are basically a feeling of resentment or discontent which can be against a supervisor, co-worker, machine, equipment, about the environment, against workload etc.

Following is the general outline of a typical grievance process:



SUMMARY

This training module gives information on:

1. The importance and the correct way of working effectively with co-workers
2. Importance of diversity and inclusion in an organization
3. Best practices for a diverse and inclusive work culture
4. Procedure for addressing grievances.

QUIZ

Please answer the following question

1. What are the four key elements of inclusive workspace?

Please answer the following question

1. What is a grievance?

Answer True or False

Laborer reports directly to his/her supervisor	
Smoking is allowed while working	
Financial information can be shared publicly	
Do not inform anyone if you feel discriminated	

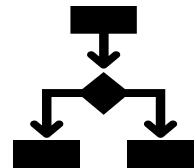
Name of Module **Module 7: EMPLOYABILITY & ENTREPRENEURSHIP SKILLS**



Theory



Practical



Outcomes

1. Understand about digital literacy
2. Understand about money related components
3. Understanding about entrepreneurship

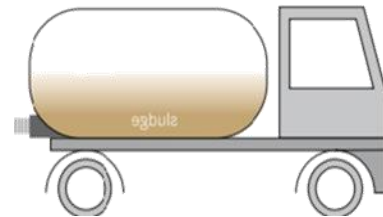
1 EMPTYING OF SEPTIC TANK



Outcome:

- Understand process of taking a request from customer
- Understand process of emptying of septic tank

2 TRANSPORTATION OF SLUDGE



Outcome:

- Understand process of transporting sludge to disposal site
- Understand process of control of spillage
- Understand process of disposal of sludge

3 SAFE DISPOSAL OF SLUDGE



Outcome:

- Understand the process of disposal of faecal sludge

4 HEALTH & SAFETY AT WORKPLACE



Outcome:

- Awareness about Potential operational hazards
- Mitigation of Potential operational hazards

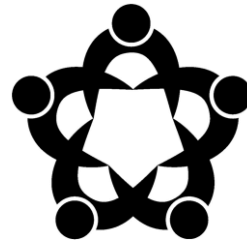
5 ENTREPRENEURSHIP SKILLS FOR FSSM SERVICES



Outcome:

- Understand process to set up entrepreneurship in de-sludging services

6 WORKING EFFECTIVELY WITH OTHERS



Outcome:

- The importance and the correct way of working effectively with co-workers
- Importance of diversity and inclusion
- Procedure for addressing grievances.

7 EMPLOYABILITY & ENTREPRENEURSHIP SKILLS



Outcome:

- Understand about digital literacy
- Understand about money related components
- Understanding about entrepreneurship

MODULE 7: EMPLOYABILITY & ENTREPRENEURSHIP SKILLS

OUTCOME

STEP 1 – Understand about digital literacy

STEP 2 – Understand about money related components

STEP 3 – Understand entrepreneurship

STEP 1 – DIGITAL LITERACY

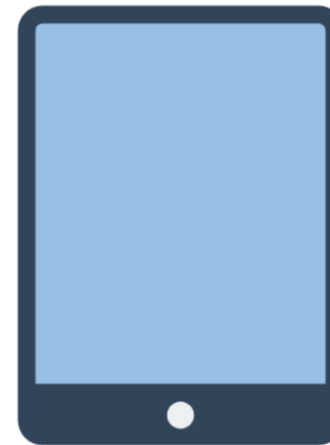
Following are the types of electronic devices:



Smart phone



Computer



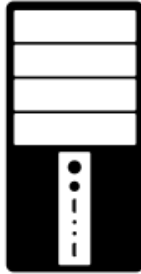
Tablet



Laptop

STEP 1 – DIGITAL LITERACY

Basic parts of a computer



Central Processing Unit (CPU)

The brain of the computer. It interprets and carries out program instructions



Hard Drive

A device that stores large amounts of data



Monitor

The device that contains the computer screen where the information is visually displayed



Desktop

The first screen displayed after the operating system loads



Mouse

A hand-held device used to point to items on the monitor



Printer

A device that converts output from a computer into printed paper documents

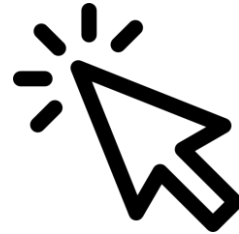
STEP 1 – DIGITAL LITERACY

Basic parts of a computer



Icon

A small picture or image that visually represents something on your computer



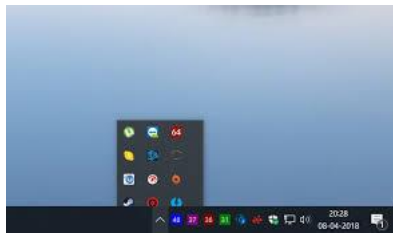
Cursor

An arrow which indicates where you are positioned on the screen



Program Menu

A list of programs on your computer that can be accessed from the Start menu



Taskbar

The horizontal bar at the bottom of the computer screen that lists applications that are currently in use.



Recycle Bin

A temporary storage for deleted files

STEP 2 – MONEY MATTERS

Why should one save money?

Saving money steadily through the years is so important, it will help improve your financial situation over time.

Inculcating the habit of saving leads to a vast number of benefits. Saving helps you:

Become financially independent

Pay for emergencies

Afford large purchases

Be prepared for surprise expenses

Get out of debt

Invest in yourself through education

STEP 2 – MONEY MATTERS

Process for opening a bank account

Step 1: Fill in the Account Opening Form

This form requires you to provide the following information:

- Personal details Method of receiving your account statement
- Details of your initial deposit
- Manner of operating your account
- Ensure that you sign wherever required on the form.

Step 2: Affix your Photograph

Stick a recent photograph of yourself in the allotted space on the form.

Step 3: Provide your Know Your Customer (KYC) Details

- KYC is a process that helps banks verify the identity and address of their customers.
- To open an account, every individual need to submit certain approved documents with respect to photo identity (ID) and address proof.

Step 4: Submit All your Documents

- Submit the completed Account Opening Form and KYC documents.
- Then wait until the forms are processed and your account has been opened

Who is an Entrepreneur?

Anyone who is determined to start a business, no matter what the risk, is an entrepreneur.



STEP 3 – UNDERSTANDING ENTREPRENEURSHIP

As an entrepreneur in India, you can own and run any of the following types of enterprises:

1 Sole Proprietorship

In a sole proprietorship, a single individual owns, manages and controls the enterprise

2 Partnership

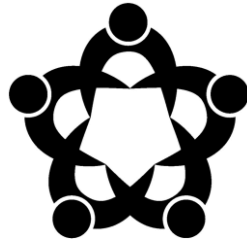
A partnership firm is formed by two or more people. The owners of the enterprise are called partners

3 Limited Liability Partnership (LLP)

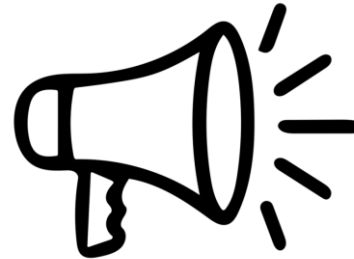
In a Limited Liability Partnership or LLP, the partners of the firm enjoy perpetual existence as well as the advantage of limited liability.

STEP 3 – UNDERSTANDING ENTREPRENEURSHIP

An entrepreneur requires a certain set of qualities or skills to run their enterprises successfully



Leadership and team work



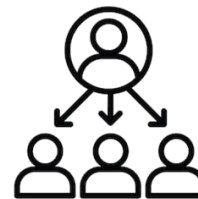
Effective communication skills



Problem solving & negotiation skills



Skills to identify business opportunities



Developing network with various stakeholders

STEP 3 – UNDERSTANDING THE ENTREPRENEURSHIP

Every entrepreneur requires a business plan before starting their own enterprise or business.

Why Create a Business Plan?

A business plan is a tool for understanding how your business is put together. It can be used to monitor progress, foster accountability and control the fate of the business

The following are the elements to be considered for developing a business plan:

KEY PARTNERS

Who are your key partners/suppliers?

KEY ACTIVITIES

What key activities does your value proposition require?

VALUE PROPOSITION

What core value do you deliver to the customer?

CUSTOMER RELATIONSHIP

What relationship that the target customer expects you to establish?

CUSTOMER SEGMENT

For which customers are you creating your business for?

KEY RESOURCE

What key resources does your value proposition require?

DISTRIBUTION CHANNEL

Through which channels that your customers will be reached?

COST STRUCTURE

What are the most cost in your business?

REVENUE STREAMS

What are your various revenue channels?

SUMMARY

This training module gives information on:

1. Understanding digital literacy
2. Understanding financial literacy
3. Understanding entrepreneurship skills required and components of a business plan.

Please answer the following question

1. Steps for opening a bank account

Please answer the following question

1. List the skills required to become a entrepreneur

Please answer the following question

1. Components of a business plan