

Training Manual

For Sanitation Workers



WASH Institute

**Supported by:
USAID**

Acknowledgement

We would like to sincerely express our gratitude USAID and supporting partners BMGF, NFSSM Alliance and all the organizations for their efforts that enabled us to deliver training program and developing the training manual.

We also thank the Ministry of Housing and Urban Affairs, Government of India for their guidance, support and valuable contribution on the topic.

We would also like to thank the participants and trainers for taking out their valuable time for successful completion of the training.

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About WASH Institute

Water, Sanitation and Hygiene Institute (WASHi) is a registered non-profit organization established in Kodaikanal, Tamil Nadu, India in the year 2008. WASHi provides technical, training, research and development services to a wide range of stakeholders - Governments, Industry, DFIs, philanthropic organizations, and other NGOs. WASHi is dedicated to providing practical solutions to a wide range of water, sanitation, hygiene and environmental issues. It operates from 14 locations spread across nine states and one Union Territory in India. WASH Institute has a multi-disciplinary team of over 180 employees with expertise in engineering, urban planning, policy and business models, capacity building, communication and behaviour change.

WASH Institute is a sector partner for Ministry of Jal Shakti that provided skill and capacity building trainings to Government Officials across the country. WASH Institute regularly undertakes training programs for government functionaries (technical staff, decision makers, elected representatives, policy makers), frontline community workers (Swachhta Doots, volunteers supporting cleanliness efforts) and sanitation workers (masons, operators). The training programs cover the entire spectrum - water security and water management, integrated water supply, water quality, water and sanitation during emergency, ECOSAN, Citywide Inclusive Sanitation (CWIS), Faecal Sludge Management (FSM) and Decentralized Wastewater Management. So far WASH Institute has trained more than 13,000 professionals across the country - Engineers/Govt. officials, NGO/INGO professionals, over Master Masons – as well as school children.

Technical Assistance:

1. Provides Technical Assistance (TA) to Ministry of Housing and Urban Affairs (MoHUA) on Swachh Bharat Mission Urban (SBM Urban), since 2015
2. As part of TA, WASH Institute has also been providing dedicated support to Central Public Health & Environmental Engineering Organization (CPHEEO), MoHUA, since 2017
3. Provides Technical Assistance to Department of Drinking Water and Sanitation (DDWS), Ministry of Jal Shakti on Swachh Bharat Mission Grameen, since 2016
- Provides Technical Assistance to Department of Drinking Water and Sanitation (DDWS), Ministry of Jal Shakti on Jal Jeevan Mission, since 2019

About the Program:

Skill Development in Fecal Sludge and Septage Management Sector in India Towns and Cities

With more than 62 lakh toilets built in Urban India under the Swachh Bharat Mission between 2014 and 2019, we have almost succeeded in providing access to toilets to everyone. However, with more than 50 % Indian households depending on on-site sanitation systems (OSS), the challenge we face today is to manage the waste collected in the OSS. Faecal Sludge and Septage Management (FSSM), a quick and inexpensive solution that can drastically transform the sanitation situation in small towns and cities, has been wholeheartedly adopted by most urban bodies in India, especially in Odisha.

This project – namely “Skill Building for FSSM in Indian Towns and Cities” has been developed to equip Urban Local Bodies to improve the service quality in the FSSM sector. An initiative of WASH Institute and USAID in collaboration with BMGF and Ministry of Housing

and Urban Affairs (MoHUA), leverages the rich knowledge, experience and learnings gathered in the sector over the past 1.5 years.

WASH Institute has been in the sanitation sector since 2008, we expertise in building capacities and preparing towns and cities to plan, implement and maintain wastewater management and FSSM systems.

About the training manual

Safety of sanitation workers remains an often-ignored aspect in Faecal Sludge Management. While shifting workers from manual to mechanical means of desludging remains a priority. There are a number of issues including exposure to sludge faced by sanitation workers even in a mechanised context, where desludging trucks are utilised to provide desludging services. Based on a detailed analysis of observation of desludging process, there are three safety concerns: inhalation of harmful gases, contact with sludge, and physical injury. The causes are varied including behaviours and practices by households such as non-compliance of septic tank construction to design standards, irregular cleaning, improper disposal of inappropriate items in toilets; inappropriate or inadequate design of decanting stations, tools and equipment, and inadequate awareness and knowledge among all stakeholders. Ensuring safety and well-being of sanitation workers, through elimination of hazardous entry for sewer and septic tank cleaning through mechanization of cleaning operations, provision of protective gear/ PPE kits to sanitation workers, etc. is one of the most important factors mentioned in SBU-2.

About the manual

Through the training manual we aim to enlighten Sanitation Inspectors, Private Operators and Sanitation Workers (Desludging Operators) via hands-on demonstration on proper use of PPEs and other tools, health & safety and various schemes for their welfare.

Aim

To train operators, who play a vital role in the FSM value chain, by introducing them to the standard operating procedures of emptying and transportation of faecal sludge and about the health and safety aspect related to desludging services.

Classroom

- Understanding the need for use of proper PPE's, Do's and Don'ts and work related potential hazards
- Hands-on experience of properly wearing and removing PPEs
- Enhancing preparedness, knowledge levels and the safety conditions of the sanitation workers through mock drills
- Learn about various Standard operating Procedures related to work in maintenance holes and septic tanks
- Knowledge about various government schemes for welfare of sanitation workers

Practical

- How to operate the truck?
- Operation & Maintenance of cesspool vehicle
- Types of regular suction machines and their uses

Orientation Program of Desludging Operators

(Location)

AGENDA

Date:

Venue:

Time	Topic
Day 1	
10:30- 11:15	<ul style="list-style-type: none"> • Registration • Welcome and Introduction
11: 15- 11:30	<ul style="list-style-type: none"> • Expectations from the participants • Objectives of the training • Pre- Test
11:30- 12:15	Laws pertaining to sanitary workers <ul style="list-style-type: none"> ○ When manual cleaning is allowed? ○ Initiatives of Government of India
12:15- 01:30	Types & Methods of Cleaning: Desludging Process <ul style="list-style-type: none"> ○ Procedure for mechanical cleaning of sewers ○ Procedures for mechanical cleaning of septic tanks (Vacuum Trucks) ○ Equipment for Emptying and transportation
01:30- 02:15	Lunch
02:15- 03:30	Health & Sanitation
03:30- 04:00	Personal protective equipment (PPE) <ul style="list-style-type: none"> ○ What to use & why?

Day 2	
10:00 – 10:30	Recap from the last day
10:30– 12:00	Personal protective equipment (PPE) <ul style="list-style-type: none"> ○ Donning and doffing activity
12:00 – 13:00	Sludge Disposal Practices
13:00- 13:45	Lunch
13:45 – 14:45	Demonstration of desludging
14:45- 15:15	Precautions & Emergency Preparedness <ul style="list-style-type: none"> ○ First Aid – Basics and Demonstration
15:15- 15:45	<ul style="list-style-type: none"> ○ Government Schemes for Sanitary Workers ○ Gender Sensitisation
15:45- 16:30	<ul style="list-style-type: none"> ○ Feedback and certificate distribution ○ Post Test

Session 1:

Welcome & Introduction

Setting Up the Objective



सुरक्षा शपथ

मैंभारत का एक जिम्मेदार नागरिक होने के नाते यह शपथ लेता हूँ, कि मैं कोई भी कार्य होते हुए या पहले से किया हुआ देखूँगा तो उसमें सुरक्षा व गुणवत्ता का पूर्णतः ध्यान रखूँगा।

मैं कार्य करते हुए यह ध्यान रखूँगा की मेरा पूरा परिवार मेरा सुरक्षित घर लौटने के लिए इंतज़ार कर रहा है।

मैं दुनिया के लिए एक आम आदमी हूँ, पर अपने परिवार के लिए पूरी दुनिया हूँ।

जय हिंद

जय सुरक्षा, जय सुरक्षा, जय सुरक्षा





Objectives of the training

- Enhancing preparedness, knowledge levels and the safety conditions of the sanitation workers through mock drills
- Learn about various Standard operating Procedures related to work in maintenance holes and septic tanks
- Understanding the need for use of proper PPE's, Do's and Don'ts and work related potential hazards
- Hands-on experience of properly wearing and removing PPEs
- Knowledge about various government schemes for welfare of sanitation workers



Expectations of the Participants

what do
YOU
expect?

VIDEO



Session 2:

Laws pertaining to sanitary workers



Background of Manual Scavenging

- Due to socio-economic reasons traditionally a section of the society has been engaged in manual cleaning of human excreta
- Manual Scavenging is an occupation that violates the basic human dignity
- Successive Central & State Governments have been trying to bring to an end this occupation with varying success
- Areas of high priority for the Government
- Eradication of manual scavenging and the rehabilitation of manual scavengers in alternative occupations
 - Elimination of insanitary latrines
- Towards this end, a multi pronged strategy has been followed consisting of
 - Legislative Interventions
 - Programmatic Interventions



Objectives of the MS Act, 2013

- Identification of manual scavengers and their rehabilitation in alternative occupations
- Identification of insanitary latrines, their demolition and conversion into sanitary latrines
- Prohibition of hazardous cleaning of sewers and septic tanks



Manual Scavenger definition as per MS Act 2013

A manual scavenger is a person engaged to manually clean, carry, dispose of, or otherwise handle in any manner, human excreta that is not fully decomposed.

“Manual Scavenger means a person engaged or employed, at the commencement of this Act or at any time thereafter, by an individual or a local authority or an agency or a contractor, for manually cleaning, carrying, disposing of, or otherwise handling in any manner, human excreta in an insanitary latrine or in an open drain or pit into which the human excreta from the insanitary latrines is disposed of, or on a railway track or in such other spaces or premises, as the central Government may notify, before the excreta fully decomposes in such manner as may be prescribed, and the expression “manual scavenging” shall be considered accordingly.”



Identification of Manual Scavengers



- As per Sections 11 and 15 of the MS Act, 2013, if any Municipality or Panchayat has reason to believe that some persons are engaged or employed in manual scavenging within its jurisdiction, the CEO shall cause a survey to identify such persons.
- Accordingly, Ministry of SJ&E piloted a nationwide survey, to be conducted by the concerned local authorities.



Types of Manual Scavenging

1

Cleaning of Dry Latrines



2

Toilet flushed into Open Drain



Types of Manual Scavenging



3

Cleaning of drains into which human excreta is flushed from insanitary latrines



4

Cleaning of Railway Tracks





Manual Scavenger vs Safai Karamchari

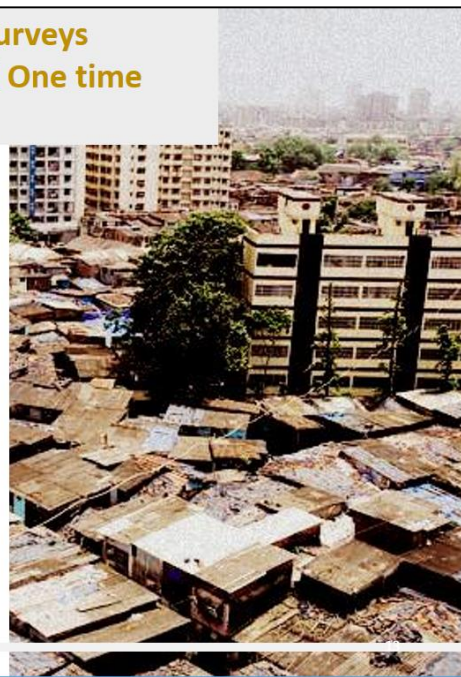
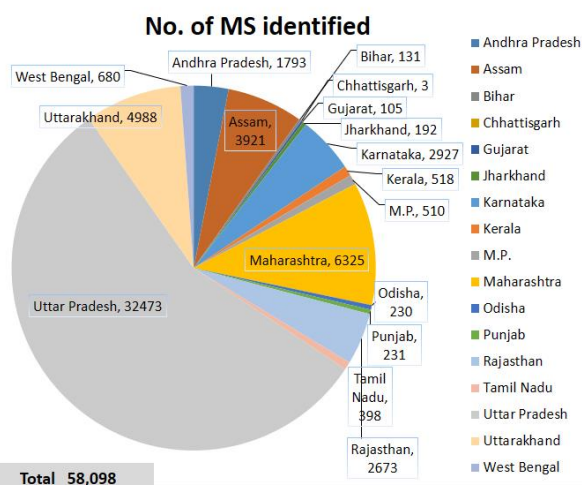
Manual Scavenger

A person engaged or employed on regular or frequent basis by an individual or a local authority or a public or private agency, for manually cleaning, carrying, disposing of, or otherwise handling in any manner, human excreta in an insanitary latrine or in an open drain or pit into which human excreta from insanitary latrines is disposed of, or on a railway track, before the excreta fully decomposes.

Safai Karamchari

A person engaged as 'Sweeper' or 'sanitation/cleaning worker' in municipalities, government and private offices and by individual excluding domestic worker. The person may be direct employees of these bodies (municipalities, government/private sector organizations) or may be contract employee who happen to be working for these organizations.

Eligible Manual Scavengers Identified under the surveys conducted by States under MS Act, 2013 and paid One time Cash Assistance of Rs. 40,000/- upto 31.3.2021



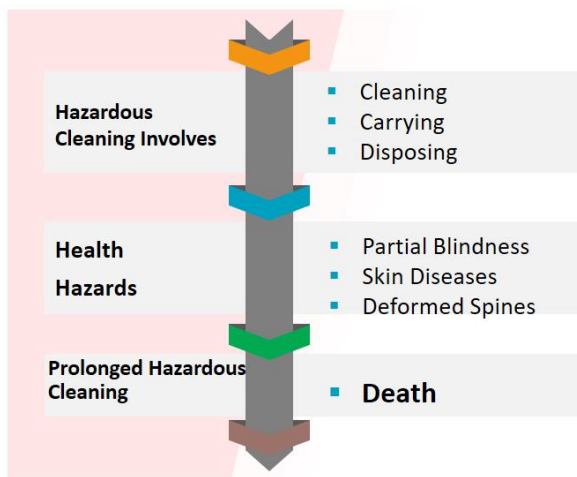
Hazardous Cleaning definition as per MS Act 2013

Hazardous Cleaning is manual cleaning of sewer or septic tank without proper protective gear and cleaning devices.

“Hazardous Cleaning” by an employee, in relation to a sewer or septic tank, means its **manual cleaning by such employee without the employer fulfilling his obligation to provide protective gear and other cleaning devices and ensuring observance of safety precautions**, as may be prescribed or provided in any other law, for the time being in force or rules made thereunder;



Health Issues associated with Hazardous Cleaning of Sewers and Septic Tanks



Implications of Hazardous Cleaning

- Every year a number of deaths are reported during the cleaning of Sewers and Septic Tanks
- The deaths caused due to illness and disease could be even more and are normally not reported



Manual Scavenging vs Hazardous Cleaning



Manual Scavenging

As per MS Act, 2013 manual scavenging is completely banned.

It signifies that the workplaces resulting in manual scavenging (i.e. dry latrines and other insanitary toilets) would not exist and hence there will be no need to clean them.

Contravention of the provisions is punishable with imprisonment upto 2 years and fine upto Rs. 2 lakh or with both.

Hazardous cleaning

As per MS Act, 2013 hazardous cleaning of sewers and septic tanks is regulated.

However, manual cleaning of sewers and septic tanks can be undertaken under exceptional circumstances with the protective gear and safety devices with the written permission of CEO of the local authority as sewers and septic tanks is accepted system of disposal of human waste.

Contravention of the provisions is punishable with imprisonment upto 5 years and fine upto Rs. 5 lakh or with both.

Punishment for Hazardous cleaning as per MS ACT 2013

Punishment for 1st Time:

- Fine Upto 2 years of Jail
- Or Fine Upto Rs. 2 lakh
- Or Both

Punishment for 2nd Time:

- Fine upto Five Years of Jail
- Or Fine upto Rs.5 lakh
- Or Both

In a case filed by Safai Karamchari Andolan, Hon'ble Supreme Court of India has ordered to pay a compensation of Rs. 10 lakh to dependants of sanitation workers died while cleaning sewers/septic tanks since 1993

30 8. Whoever contravenes the provisions of section 5 or section 6 shall for the first contravention be punishable with imprisonment for a term which may extend to one year or with fine which may extend to fifty thousand rupees or with both, and for any subsequent contravention with imprisonment which may extend to two years or with fine which may extend to one lakh rupees, or with both.

Penalty for contravention of section 5 or section 6.

35 9. Whoever contravenes the provisions of section 7 shall for the first contravention be punishable with imprisonment for a term which may extend to two years or with fine which may extend to two lakh rupees or with both, and for any subsequent contravention with imprisonment which may extend to five years or with fine which may extend to five lakh rupees, or with both.

Penalty for contravention of section 7.

MS ACT 2013



Efforts made by MoSJE to tackle Sewer Deaths



- M/o SJE is closely monitoring the cases of deaths of sanitation workers while cleaning sewers/septic tanks.
- In each such incident the matter is taken up with the CEO of Municipality/District Magistrate impressing upon:
 - Register of criminal case against the employer
 - Payment of compensation of Rs. 10.00 lakh to the family of deceased
 - Furnish compliance report in the incident
- Efforts being made through various measures and constant monitoring has started given positive results. The number of deaths have come down heavily during the last year

Obligations of Employer under MS Rules, 2013



- Obligations towards employees engaged in cleaning of sewer/septic tank under Chapter II of the MS Rules, 2013
- **No person to clean sewer manually except with permission of CEO of local authority & under exceptional conditions**
 - for removal of concrete or FRP or damaged manhole door where mechanical equipment's cannot be operated
 - for interlinking of the newly laid sewer line with the existing sewer main etc.
- **Any person engaged to clean a sewer or septic tank shall be provided protective gear and safety devices which will include**
 - face mask, full body wearer suite, hand gloves, helmet, safety belt, safety goggles, safety gum boots, safety search light
 - air compressor for blower, air line breathing apparatus, gas monitor, air purified gas mask etc.

22

Obligations of Employer under MS Rules, 2013



- The local body shall ensure that during cleaning of sewer or septic tanks, cleaning devices are used which will include
 - suction machine, hydraulic trolley, jetting machine, hoses and washing instruments etc.
- The employer shall also ensure the following safety precautions
 - testing for oxygen, combustible and toxic gases; ventilating the sewer line by opening at least two manholes on both sides; presence of minimum three employees including supervisor
 - cleaning in day-light only; cleaning duration not exceeding 90 minutes at a stretch; proper barricading of area; use of tripod etc.
- The employer shall ensure that worker has life insurance policy for at least Rs. 10 lakh and premium is paid by employer

23

Provisions for Mechanized cleaning of sewers and septic tanks



Under Section 33 of the MS Act, 2013:

- It shall be the **duty of every local authority and other agency to use appropriate technological appliances for cleaning of sewers, septic tanks and other spaces within their control** with a view to eliminate the need for the manual handling of excreta in the process of their cleaning
- It shall be the **duty of the appropriate Government to promote, through financial assistance incentives and otherwise, the use of modern technology**, as mentioned in sub-section (1)



21

Where Manual Cleaning is Allowed



- for the removal of concrete or FRP (Fiber Reinforced Plastic) or damaged manhole door where mechanical equipment's cannot be put into operation.
- for inter-linking the newly laid sewer main with the existing sewer main, in case of sewer of size of more than 300 mm diameter.
- for removal of submersible pump sets fixed at the bottom of the suction wells.
- for the reconstruction of the manhole or rectification of the sewer main.
- Any circumstance, when it is absolutely necessary to have manual sewer cleaning, after the CEO of the local authority has permitted to do so after recording in writing the specific valid reasons for allowing such cleaning.

Source: Training Module for Sanitary Workers on
Cleaning of Sewers and Septic Tanks by CPHEEO

25

VIDEO- 2



Session 3: Types and Methods of Cleaning



Types and Methods of Cleaning

Manual Cleaning

- Sectional Sewer Rods
- Scraper

Mechanical Cleaning

- Sewer Cleaning Bucket Machine
- Rodding Machine with Flexible Sewer Rod
- Hydraulically Propelled Devices
- Velocity Cleaners (Jetting Machine)
- Dredger (Clamp-Shell)
- Gully Emptier and OTHERS



Procedures for mechanical cleaning of Sewers

1

Reaching the site

2

Identification and isolation of the area

3

Verify the presence of any gases or other hindrances

4

Removal of silt/wax (mechanically)

5

Leaving from the site

3

1

Reaching the site

- Selection of prospective employees for the sewer cleaning should take into account the duties they will be expected to perform;
- The complete hazard involved in the cleaning activity should be explained clearly to the employees by the supervisor and should get their consent in written before starting cleaning activities;
- A supervisor along with adequate machinery and staff shall reach the designated site, preferably during lean period of sewage flow in sewers;
- The supervisor shall have the names, address and emergency contact information of the staff involved in cleaning the sewers; and
- Appropriate protective gears and safety devices shall be worn by the staff before beginning the work of cleaning the sewers.





2



Identification and isolation of the area

- Identify the stretch to be cleaned and identify the manholes associated with the stretch;
- Barricade the area where cleaning is to be carried out; and
- A flag man shall be stationed at least 15 m ahead of the site and should be visible to incoming traffic for at least 150 m.
- Cones (similar to the one used by police) shall be placed on the road.

5

4

Removal of silt/ wax (mechanically)

- Appropriate machines, at least to the extent specified in this SOP are to be used to remove the silt/wax;
- The operating procedures of these machines shall be strictly followed for cleaning; and
- The manhole cover shall be closed tightly after cleaning





5

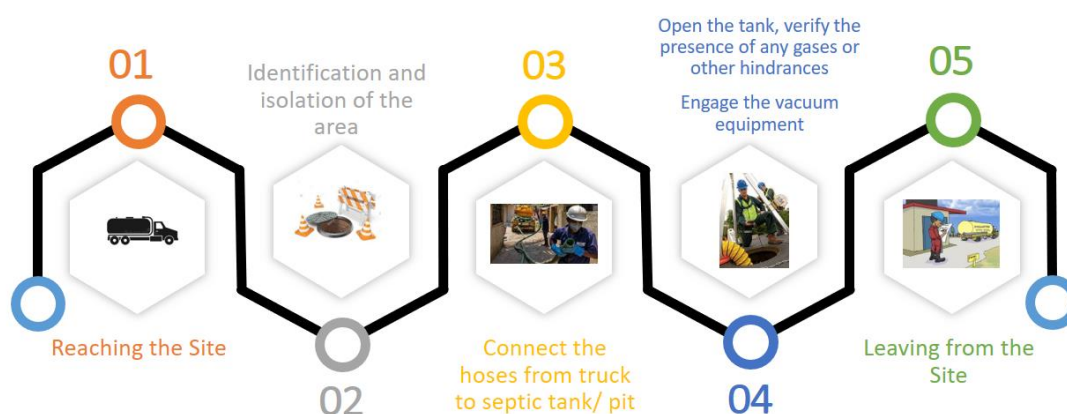
Leaving from the site



- All the equipment/ machineries along with the protective gears and safety devices that had any direct contact with the sewage shall be cleaned properly as per the cleaning procedure specified by the manufacturer;
- All the equipment, safety gears, barricades etc. shall be removed from the working area and the crew shall move to the base or to the next site; and
- The entire operation shall be monitored and documented by the supervisor

8

Procedures for mechanical cleaning of Septic Tanks



Equipment for emptying and transportation



Rodding Tools

10

Tools to carry for desludging



Crow bar



Rope



First aid kit



Torch



Stick



Barricade tape



PH paper

11

WASH institute - SW Training

Equipment for emptying and transportation



Sewer Suction Machine



Safety Gear

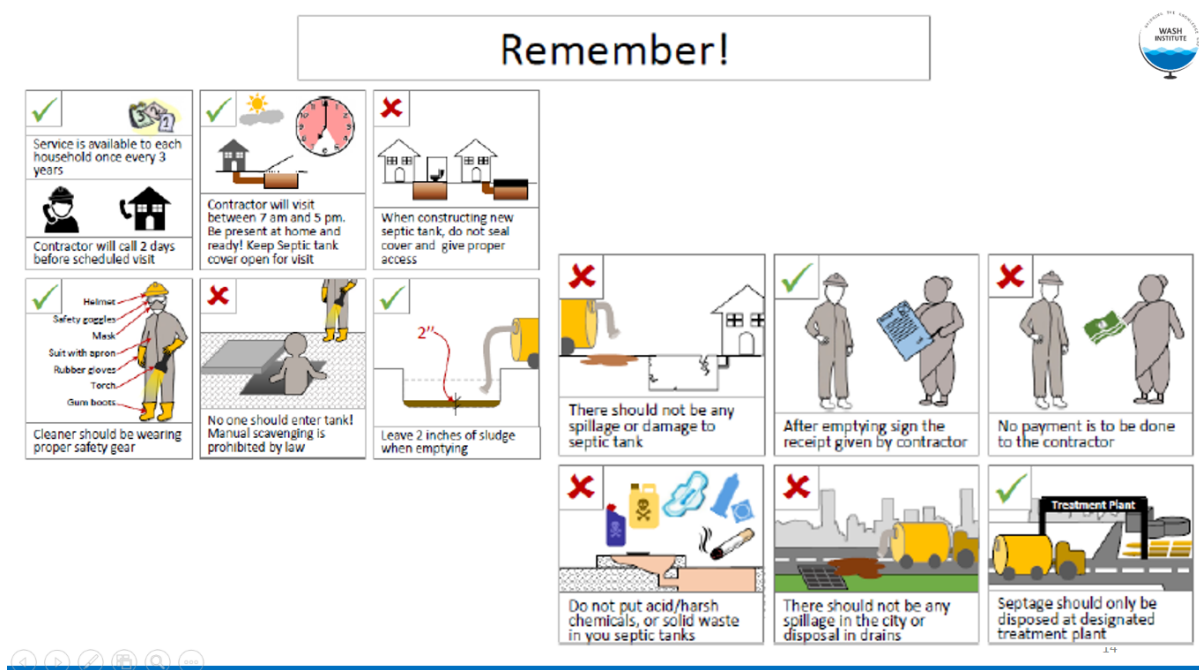
12

Roles and responsibilities of individual carrying out the desludging services



Designation	Key Role and Responsibility
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.

13



VIDEO- 3

फीकल स्लज और सेप्टेज
मैनेजमेंट के सुरक्षित वहन
और उपचार का तरीका

Safe Transport and Treatment module for Faecal Sludge and
Septage Management

Session 4: Health & Sanitation



Training of Trainers
for
Sewer Entry Professionals
for
Desludging Operators

Session 4:
Health & Sanitation

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 **WASH INSTITUTE**

Manual Scavenging



2

मानव द्वारा मैला ढोना



मैल की सफाई करने के दौरान हुई लोगों की मृत्यु

DEATH by deadly sewer gas: Labourer dead and two left in critical condition after inhaling toxic gases down Delhi hospital manhole

- The 45-year-old man named as Rishpal died at the Lok Nayak Jai Prakash Hospital (LNJP) site on Sunday afternoon.
- Two others in their 20s remain in hospital after breathing in deadly sewer gas.
- It is the 10th death of its kind in the national Capital, presenting a very poor picture of an old and unsustainable sewer system.
- Modern suction equipment is available to do the life-endangering work, but it is expensive and 'poor men will do it for just Rs 200'.
- See more news from India at www.dailymail.co.uk/indiahome

By BUREAU AGAS
PUBLISHED: 22:52 GMT, 21 August 2017 | UPDATED: 00:34 GMT, 22 August 2017

A 45-year-old labourer died after inhaling toxic sewer gases after going into a manhole on the Lok Nayak Jai Prakash Hospital (LNJP) site on Sunday afternoon.

The man, named as Rishpal, was followed by two other men in their 20s, called K and Shahan, who are both in hospital in a critical condition.

A third worker, Sumit, who valiantly brought them out, also lost consciousness thereafter and was hospitalised, said eye witnesses.



Police at the scene where Rishpal died due to inhalation of toxic gases in the sewer of Lok Nayak Jai Prakash Hospital on Sunday.

The incident took place in a green patch just behind the Gymnastics Department of LNJP from Gate number two around 11:30am.

3 more of manholes were registered in the 18 Estate Online Station. Some of the

Bengaluru: 3 Manual Scavengers Die From Suffocation After Entering A Manhole



Govt is committed to double the income of farm

Home & States in South in Telugu

Four found dead inside manhole in Hyderabad

Published 14-Aug-2016 07:34 IST



The Nation NEWS - OPINION - MULTIMEDIA - EDITOR'S PICKS - PRI

LATEST 9:39 PM, January 26, 2018 Indian Shelling Targets Nepal 9:08 PM, January 26, 2018 Updated with comments

Irfan Masih: When duty becomes death

10:43 PM, June 25, 2017 SHARE: f t in Save to Facebook



hindustantimes

18°C New Delhi, India 10:43 PM, June 25, 2017

India operations world sports world social entertainment lifestyle business tech education photos videos ...

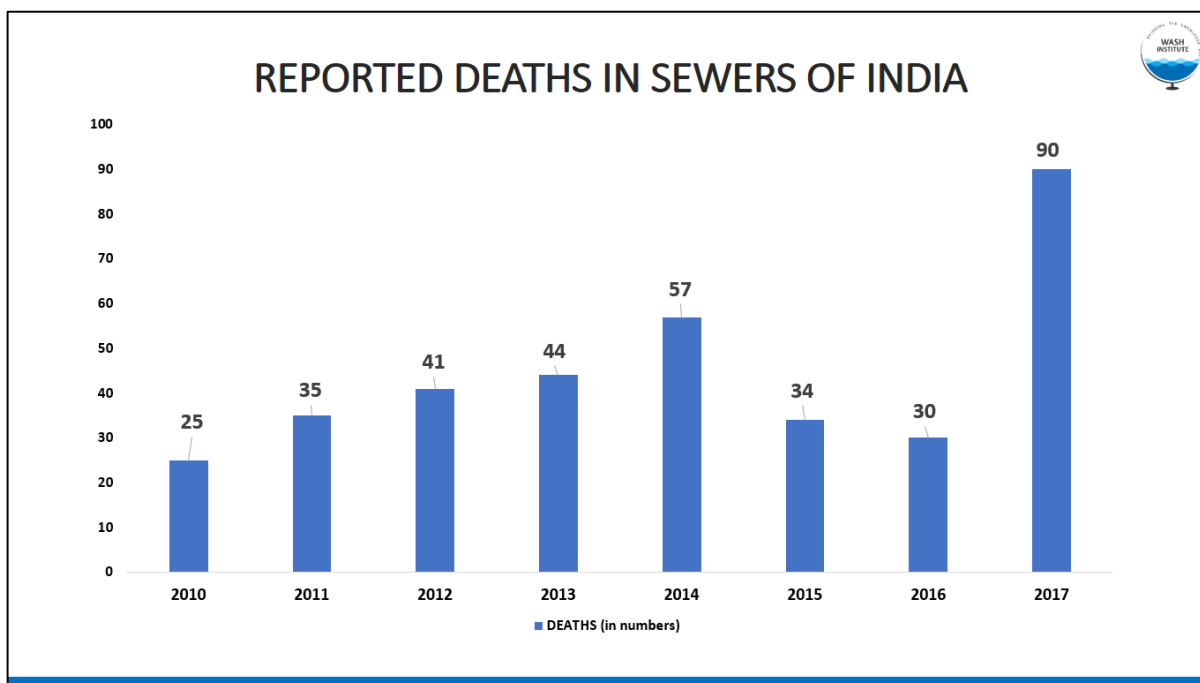
In Delhi sewer, three deaths in just seven minutes but not one cry for help

Three labourers died in south Delhi's Lajpata Nagar on Sunday after inhaling poisonous fumes from a sewer drain they had entered to clean without any safety gear.

10:43 PM, June 25, 2017

New Delhi, India Hindustan Times







From the 90's to Now



Dangers, health risks faced by sanitation workers



Physiological Health Issues

Psychological Issues

8

Physiological Health Issues

- Accidents and Injuries
- Musculoskeletal Disorders
- Gastrointestinal Disorders
- Respiratory Disorders
- Dermatological Disorders
- Ophthalmic Problems
- Infections



9

Types of occupational hazards.



Biological Hazards

Include pathogens e.g., bacteria, viruses, protozoa, parasitic worms, fungi) and other infectious microorganisms that can cause illnesses such as hepatitis, typhoid fever, dysentery and cholera. Inhaling or ingesting contaminated mists may result in serious illnesses)





Types of occupational hazards.

Leptospirosis(Weil's disease)

Occurs due to coming in contact with animals and their discharges. Leptospira are excreted in the urine of the infected animals.

Symptoms are:

- High Fever
- Headache
- Bleeding, Muscle Pains, Chills, Red eyes, and vomiting.
- Diarrhoea, Nausea
- Rashes or Red spots.



Types of occupational hazards.

Gastroenteritis

Bacterial Infection

Symptoms:

- Excessive burping.
- Feeling bloated.
- Nausea or vomiting.
- Lack of appetite, or anorexia.
- Unexplained weight loss.
- Foul Breath.

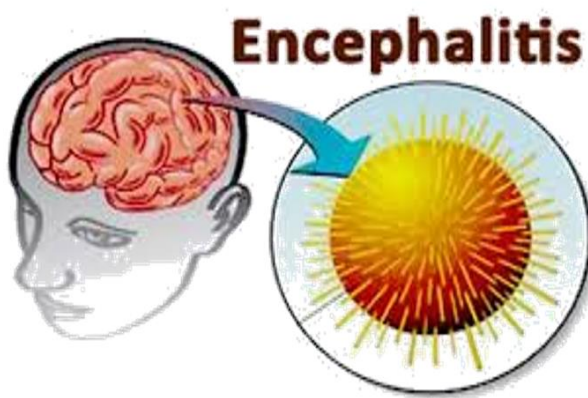




Types of occupational hazards.

Encephalitis

- Bacterial Infection
- **Symptoms:**
- Headache
- Neck stiffness
- Very high fever
- Paralysis
- Reduced consciousness perhaps coma



Types of physical hazards associated with work



Types of physical hazards associated with work



Limited way for entry and exit



Types of physical hazards associated with work



- slide,
- to roll over,
- slippery and
- falls due to oblique surfaces;



Types of physical hazards associated with work



Obstacles due to pipes and other structures



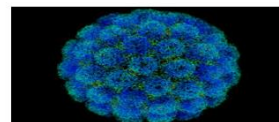
Types of physical hazards associated with work



Corroded stair treads



Keep Vaccinated- Polio



Transmission-
Orally by
contaminated
food/water

Effects-Muscle
weakness, partial
paralysis or
permanent
deformation.

Treatment- None

Keep Vaccinated- Tetanus



Transmission-
via cuts or
punctures in
skin

Effects- Muscle
spasm or
tightening of
muscles in Jaw.

Treatment-
Hospital/
Antibiotic

Keep Vaccinated- e.coli

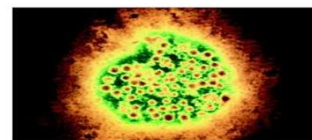


Transmission-Orally,
contaminated food/
water, contact with
infected person/
animal

Effects- varied,
generally mild
fever, stomach
cramps,
diarrhea,
vomiting.

Treatment-
Hospital

Keep Vaccinated- Hepatitis A



Transmission-
Orally via
contaminated
food/water,
contact with
infected person

Effects- Liver
damage,
Jaundice, Fever,
vomiting

Treatment-
Hospital

Keep Vaccinated- Typhoid fever



Transmission-
Orally via food and
water, contaminated
directly by infected
person

Effects- High
fever, weakness,
stomach pain.

Treatment-
Antibiotic

Psychological Issues



Due to heavy workload, the sanitary workers are undergoing lot of psychological impacts such as stress and depression. The psychological problems arise

- because of failure to adapt to the working environment,
- lack of job satisfaction,
- job insecurity,
- poor relationships among workers,
- lack of communication,
- emotional disturbances,



26

Session 5: Personal Protective Equipment (PPE)



Training of Trainers
for
Sewer Entry Professionals
Bhubaneswar
Odisha

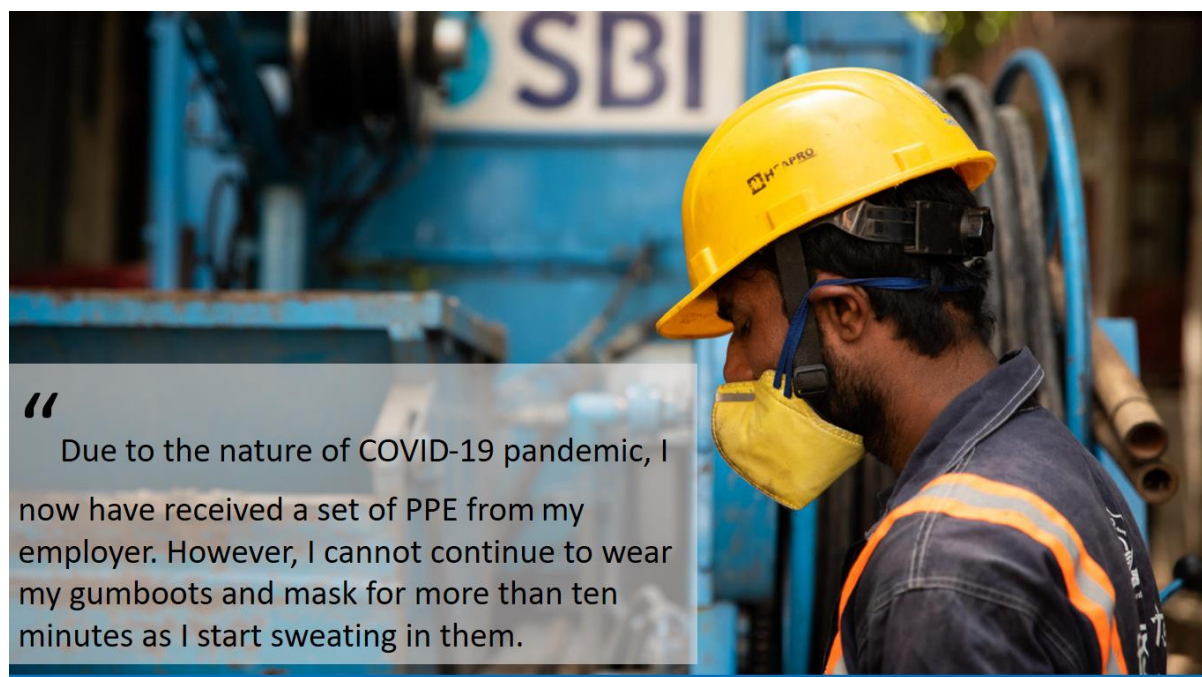
**Orientation Program
for
Desludging Operators**

**Session 5:
Personal Protective
Equipment (PPE)**

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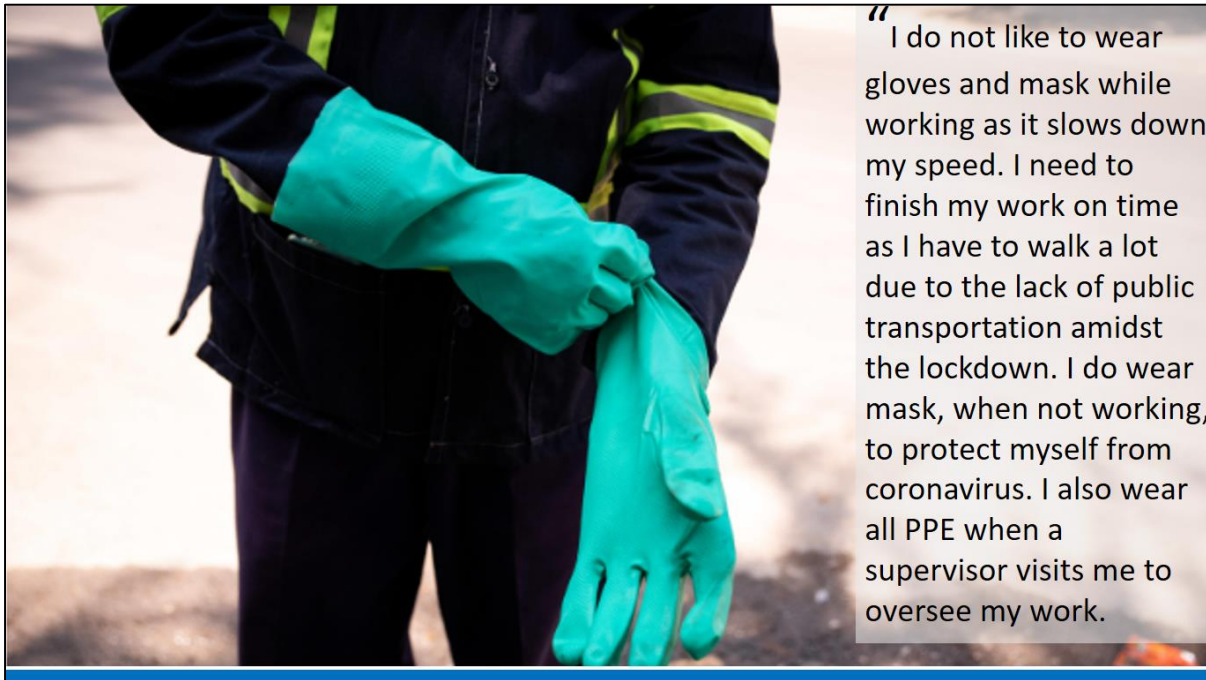
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ADVANCING THE SANITATION
REVOLUTION



“

Due to the nature of COVID-19 pandemic, I now have received a set of PPE from my employer. However, I cannot continue to wear my gumboots and mask for more than ten minutes as I start sweating in them.



What is PPE?

- Personal protective equipment, commonly referred to as "PPE", is equipment worn to minimize exposure to hazards that cause serious workplace injuries and illnesses.
- These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards.
- Personal protective equipment may include items such as gloves, safety glasses and shoes, earplugs or muffs, hard hats, respirators, or coveralls, vests and full body suits.



What can be done to ensure proper use of personal protective equipment?

- All personal protective equipment should be safely designed and constructed, and should be maintained in a clean and reliable fashion.
- It should fit comfortably, encouraging worker use. If the personal protective equipment does not fit properly, it can make the difference between being safely covered or dangerously exposed.
- Workers should know how to use personal protective equipment:
 - When it is necessary
 - What kind is necessary
 - How to properly put it on, adjust, wear and take it off
 - The limitations of the equipment
 - Proper care, maintenance, useful life, and disposal of the equipment

5

When to use PPE



Head Protection

Should be worn in case of physical hazards such as impact due to falling object, collision with fixed objects at workplace. Type of helmet depends on the physical risk present at the workplace



Face Protection

Should be worn in where there is risk of continuous droplets or splashes of fluids, heat from hot solid bodies and electric arcs.



Lung Protection: Respirators

Should be worn when working in confined space where there is risk of oxygen deficiency and or when concentration of toxic substances are at dangerous levels.



Ear Protection

Should be worn in case of risk of exposure to high decibels noise at the workplace. They are also recommended where continuous exposure to mist or droplets of fluids / spray is expected.



Eye Protection

Should be worn in case of risk of incidental impact of fragments and dusts, gases and droplets or splashes of fluids.



Lung Protection: Face Masks

Should be worn when there is risk of solids and liquid particles including nanoparticles such as dusts, fumes, mists, fibers, vapours, gases and microorganisms.

6



When to use PPE



Hand Protection

Hand Protection are classified as mechanical resistant and chemical resistant gloves.

Mechanical resistant are recommended where there is higher risk of abrasion, cut, tear or puncture and incidental contact with hazardous liquids.

Chemical resistant gloves are recommended where intentional contact with the hazardous liquid is expected and there is higher risk of penetration or permeation of chemicals into the gloves.



Body Protection

Body protection are used for as chemical & biological hazards, thermal hazards and high visibility. Further intentional and incidental exposure to hazard determines the type of body protection.

These hazards in sanitation are mostly due to incidental exposure to hazardous substance. Intentional exposure is only observed in case of sewer workers engaged in manual cleaning of sewerage systems and septic tanks



Foot Protection

Foot protection is recommended to protect the workers from physical and chemical hazards at the workplace. Foot protection helps to avoid injuries arising from contact from falling, rolling or cutting object, penetration from soles and uppers, contact with hazardous substances and slipping and falling on the wet surfaces.

Types include – safety footwear, protective footwear and occupational footwear.

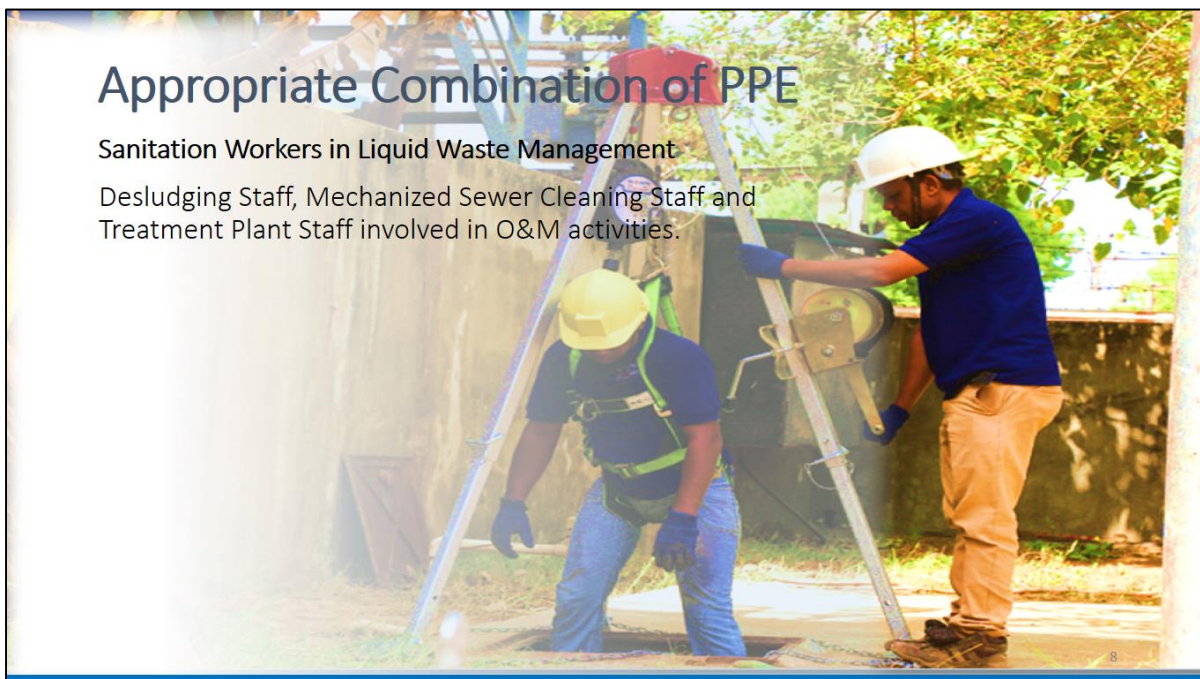
Material – leather and similar material, rubber or all polymeric material





7

Appropriate Combination of PPE




Sanitation Workers in Liquid Waste Management

Desludging Staff, Mechanized Sewer Cleaning Staff and Treatment Plant Staff involved in O&M activities.



Hand Protection	Ear Protection	Face Protection	Eye Protection
			
Hard Hat	Ear Plugs	Face Shield	Safety Goggles
Hard Hat with shell made out of polypropylene Co-Polymer with headband, harness, sweatband, peak and chinstrap. Recommended for use only when hazard of falling object, working at height or near open chambers.	Corded, flanged shaped ear plugs made out of non irritant and non allergic material. The ear plugs should be washable and reusable. Recommend for use only in case of noise hazard.	Face shield made out of clear Polycarbonate having size 8.0" x 15.5" and thickness of 1.0 mm. The shield should be compatible with the safety hard hat.	Safety goggles must be light weight made out of clear Polycarbonate material offering high impact resistance and 99.9% UV protection.

9

Lung Protection	Hand Protection	Hand Protection
		
N 95 Face Mask	Mechanical Resistant Gloves	Chemical Resistant Gloves
N 95 face mask with exhalation valve and straps made out of Thermoplastic Elastomer, Aluminum nose clip, Polyurethane nose foam, Polypropylene filter, Polyester shell and cover web	Mechanical resistant, nitrile coated gloves having nylon lining, specialized grip such as dotted or sandy and knitted cuffs. Recommended to be worn for jobs which might include incidental contact with liquid hazardous waste or chemical.	Chemical resistant, nitrile gloves having flock lines inners, diamond finish grip, straight cuff, minimum thickness of 0.38 mm and length of 330 mm. Recommended to be worn on jobs which includes continuous and intentional contact with liquid hazardous waste or chemical.

10



Body Protection



Full Sleeves Shirt

High visibility full- sleeves shirt made out of high wicking polyester for comfortable use in hot and humid conditions. Presence of reflective strips for high visibility in low conditions is optional.

Body Protection



Full Length Pants

High visibility full length pants made out of polyurethane coated breathable polyester for comfortable use in hot and humid conditions and easy cleaning. Presence of reflective strips for high visibility in low light conditions is optional.

Foot Protection



Protective Footwear

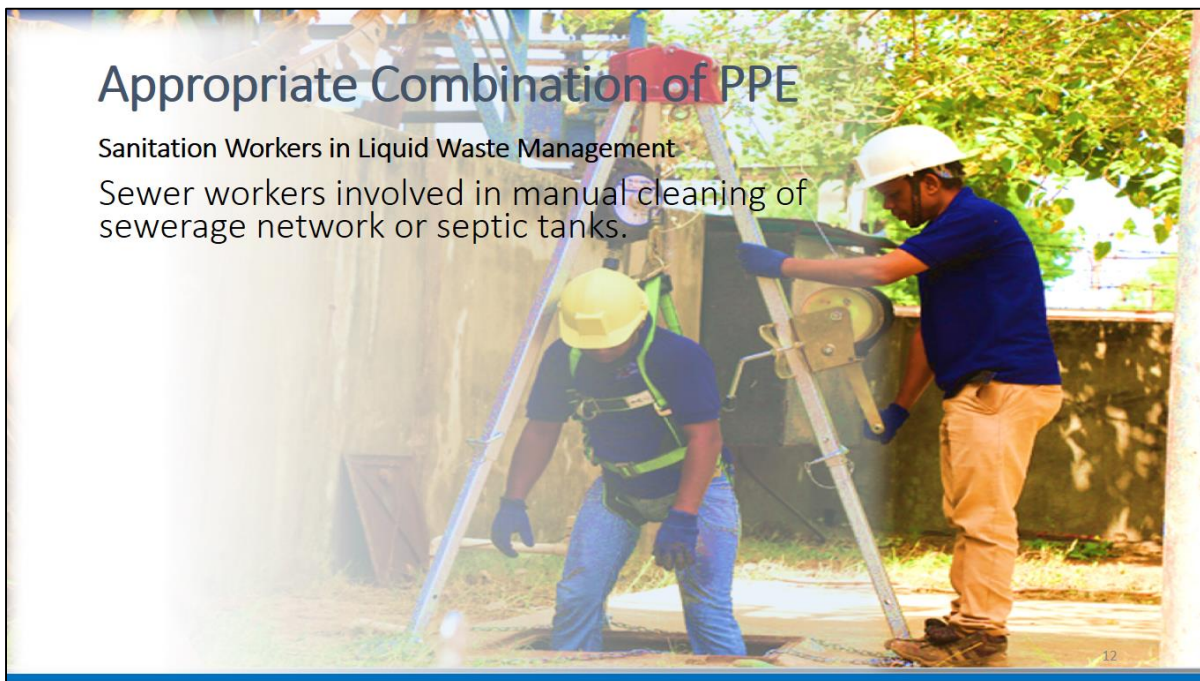
Protective footwear having steel toe with upper body made out of grain leather and polyurethane outsole for protection against physical hazards. Ankle length shoes when paired with full pants provides complete protection from incidental splashes of hazardous liquids.

11


Appropriate Combination of PPE





Sanitation Workers in Liquid Waste Management

Sewer workers involved in manual cleaning of sewerage network or septic tanks.







12



Hand Protection	Ear Protection	Lung Protection	Lung Protection
			
Hard Hat	Ear Plugs	Full Face Respirator	PAPR
<p>Hard Hat with shell made out of Polypropylene Co-Polymer with headband, harness, sweatband, peak and chinstrap. Use of hard hat is mandatory when working in confined spaces such as sewerage system or tanks.</p>	<p>Corded, flanged shaped ear plugs made out of non-irritant and non-allergic material. The ear plugs should be washable and reusable. Recommend for use only in case of noise hazard.</p>	<p>Full face respirators with replaceable filter cartridge. The mask is made out of clear Polycarbonate material and have high impact resistant. The silicone seal around the mask and thermoplastic elastomer, makes it air tight.</p>	<p>Powered Air Purifying Respirator are full face respirator with battery powered blower. It is recommended for use in confined spaces which are well ventilated having concentration of the toxic substances at dangerous levels.</p>

13



Lung Protection	Hand Protection	Body Protection
		
SCBA	Chemical Resistant Gloves	Full Sleeves Shirt
<p>Self-Contained Breathing Apparatus is a full face respirator which comes with a cylinder which provides necessary oxygen for breathing. It is recommended for use in confined spaces having deficiency of oxygen such as sewers or underwater.</p>	<p>Chemical resistant, nitrile gloves having flock lined inners, diamond finish grip, straight cuff, minimum thickness of 0.38 mm and length of 330 mm. Recommended to be worn on jobs which includes continuous and intentional contact with liquid hazardous waste or chemical.</p>	<p>High visibility full-sleeves shirt made out of high wicking polyester for comfortable use in hot and humid conditions. Presence of reflective strips for high visibility in low conditions is optional.</p>

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Body Protection



Full Sleeves Shirt

Disposable Coveralls made out of non-woven polypropylene with polyethylene barrier film. The coveralls are breathable and protect the worker from incidental splashes of hazardous liquid waste.

Foot Protection



Full Length Pants

Chest Wader Suits made out of polyester coated with PVC, steel toe rubber shoes molded into the suit to provide complete water tightness. These are recommended for use where the lower body of the worker will be continuous contact with hazardous liquid waste.

Body Protection



The sewage proof diving suit are completely water tight from head to toe with integrated gloves and shoes. It comes with a diving helmet and inline air blower kept above the ground. This ensures continuous supply of fresh air for prolonged work under wastewater.

15

Personal Protective Equipment : PPE



16

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Always remember



PPE should be chosen based on gender



PPE should be chosen based on size and fit of the person
Damaged PPE should not be repaired or reused



PPE should be cleaned and maintained once its usage is over



Certified (IS, BIS, etc.) PPE to be used

WASH Institute SW Training

VIDEO- 4



Session 6: PPE- Donning & Doffing



Orientation Program
for
Desludging Operators

Session 6:
PPE:
Donning & Doffing

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Vocabulary

- PPE- Personal Protective Equipment
- Donning – putting on
- Doffing- taking off



2



Donning Procedure

1. Gown
2. Boots
3. Mask
4. Goggles
5. Helmet
6. Gloves



3



Donning Procedure

1. Gown/ Apron
 - Fully cover from neck to knees, arms to end of wrists, and wrap around the back.
 - Fasten in back of neck and waist



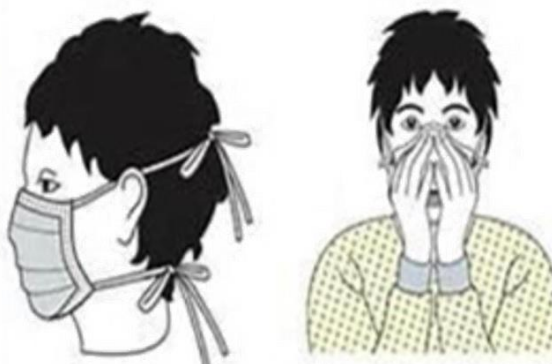
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Donning Procedure

1. Masks

- Secure ties or elastic bands at the middle of the head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin



5



Donning Procedure

Goggles or Face Shield

- Place over face and eyes and adjust to fit.



6



Donning Procedure

4. Gloves

Extend to cover wrist



7

Safety tips while wearing PPE

- Keep hands away from the face
- Perform hand hygiene
- Limit surfaces touched
- Change gloves when torn or heavily contaminated

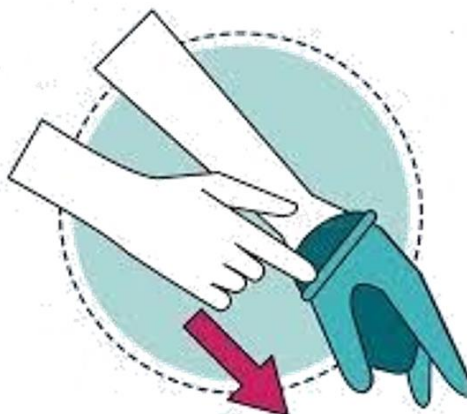


8



Doffing Procedure

1. Gloves
2. Helmet
3. Goggles
4. Boots
5. Gown
6. Mask

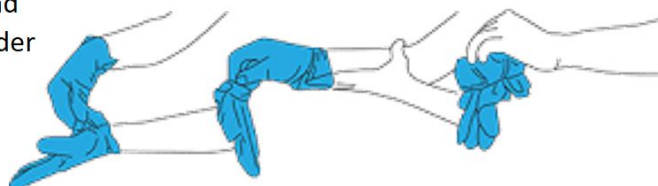


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Doffing Procedure



- Gloves
 - Outside of gloves are contaminated
 - Grasp outside of glove with opposite gloved hand; peel off
 - Hold removed glove in gloved hand
 - Slide fingers of ungloved hand under remaining glove at wrist
 - Peel glove off over first glove
 - Discard gloves in waste container



10



Doffing Procedure

- Goggles/ Face Shield
- Outside of goggles or face shield is contaminated
- To remove, handle by head band or ear pieces
- Place in waste container



11



Doffing Procedure

- Gown/ Apron
- Gown front and sleeves are contaminated
- Unfasten ties
- Pull away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard



12



Doffing Procedure

- Mask
- Front of mask is contaminated – DO NOT TOUCH!
- Grasp bottom, then top ties or elastics and remove



13



Safety tips when removing PPE

- Perform hand hygiene immediately after removing the PPE



14



Donning & Doffing of PPE- Demonstration

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Session 7: Safe Sludge Disposal Practice



Training of Trainers
for
Sewer Entry Professionals
Bhubaneswar, Odisha

Orientation Program
for
Desludging Operators

Session 7:
Sludge Disposal
Practice



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Desludging Practices

Desludging practices can be grouped into two categories:

- Demand based desludging
- Scheduled desludging



2



Demand based desludging practices

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.



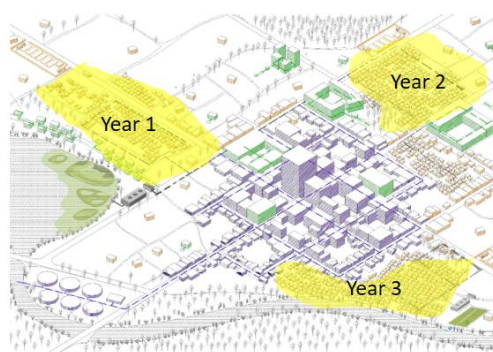
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Schedule desludging practices

Scheduled Desludging-

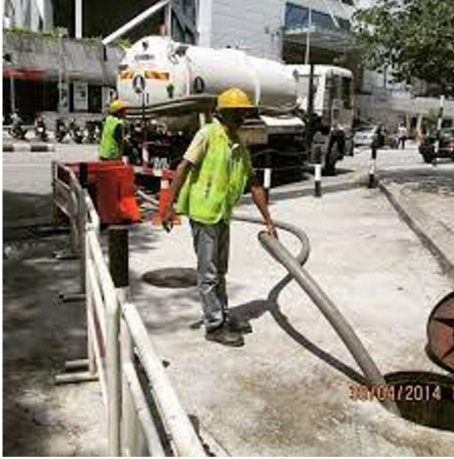
The scheduled desludging approach is essentially based on the need for regular desludging. Under this, all septic tanks in a city are desludged once during a fixed cycle. The schedule (usually three years or five years) is decided by the ULB and the service is provided by them to the households.



4



What are the risks associated with your work? How you can work safely ?



5

Objective

- What is the process of desludging
- Risks associated with cleaning of septic tank and sewerage



6



Process of desludging



7

Accident



An accident is an unplanned, unforeseen and uncontrolled event that occurs due to unsafe conditions or unsafe acts or both, causing injury or damage to property

8

Hazard

Any situation that may result in an accident or contribute to the severity of the accident.

Which may result in injury or damage to property.

The process of doing work that is likely to cause an accident



9

Risk

Risk is the possibility of injury or damage to property due to hazards encountered in your work.



Low Risk



10



Risk associated with the work of sanitation

- Illness/ Disease
- Injury
- Accident



11

Impact of accident



Listed below are the broad three impacts of accident:

1. Moral



2. Financial



3 Legal



12

Unsafe Act



13

Unsafe Condition



14



Cause of Accident

- Overconfidence
- Disability
- peer pressure
- stress
- equipment failure
- access block
- Intentional bad decision



15

Septic tank is a confined space



Confined space is identified as any region;

- limited means of access/
- Exit lack of oxygen
- accumulation of flammable vapors or any airborne contaminant





Examples of confined space



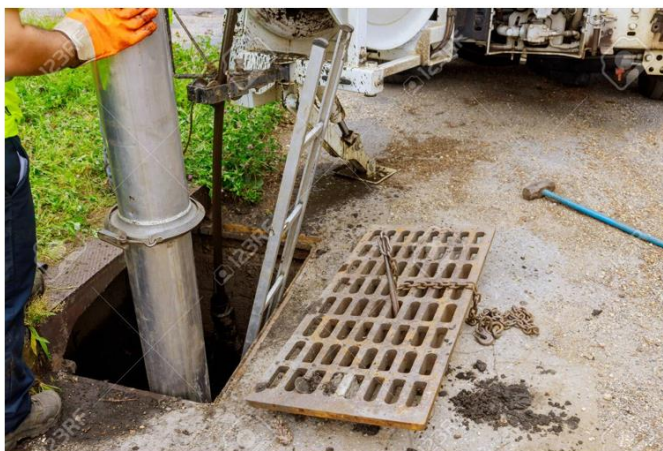
17

Risk associated with confined space



Dangerous Environment

- ↑ unsafe amount of flammable gas,
- ↑ vapor,
- ↑ haze, or dust
- ↑ harmful levels of a dangerous substance



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Gases inside septic tanks and their effect

- Methane,
- Hydrogen Sulphide (H₂S),
- Carbon di Oxide,
- Sulphur di Oxide
- Ammonia,
- Nitrogen Di Oxide
- Carbon Monoxide



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Unsafe Environment



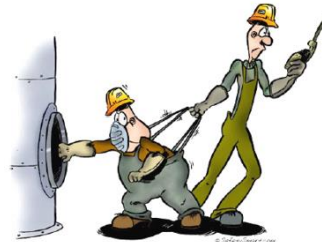
Unsafe Environment

1. the environment is toxic
2. Oxygen deficient (less than 19.5%), oxygen rich (more than 23.5%),
3. Flammable.



Safe Environment

- an environment that has been tested
- proven to be non-hazardous



20

Other Risks

- Falling object
- Rusted item such as
- suffocating debris,
- wet surfaces



These dangers become even more serious because it will be difficult for rescuers to reach the injured for help.

74

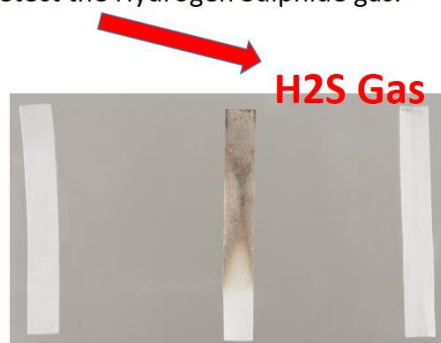
Simple techniques for gas detection



Level of Oxygen- 19.5% - 23.5%

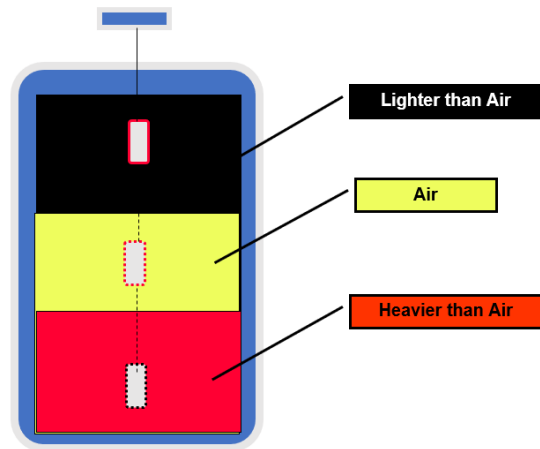
Lead Acetate Paper

Lead acetate paper is majorly used to detect the Hydrogen Sulphide gas.



75

Gas Detector



73

Ventilation



74

ERGONOMICS



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26

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Manual Handling

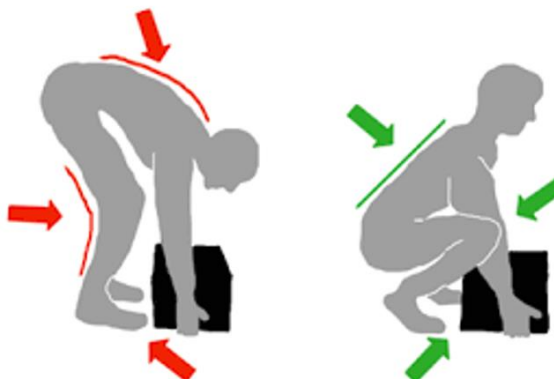
Manual handling refers to lifting any one of the following

- pick up
- carry weight
- pull
- pick up
- push



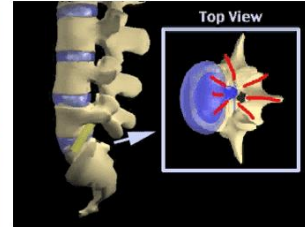
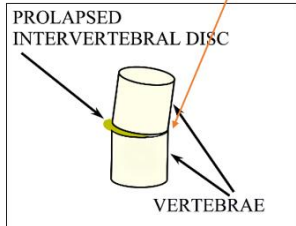
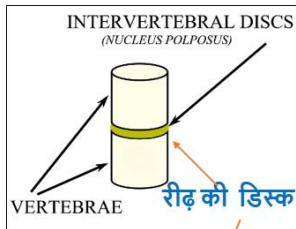
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Why is it necessary to lift weights appropriately?



28

The human spine



29

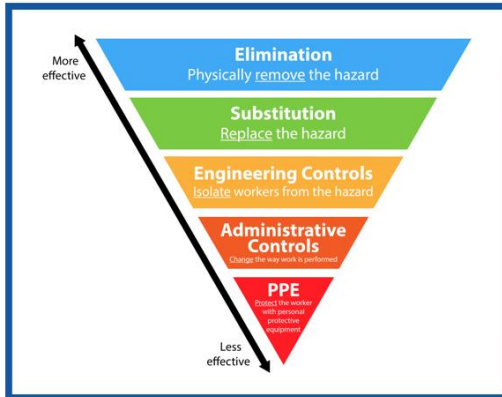
Manual handling can be assessed by looking at four main factors

1. Type of Work
2. Load
3. Environment and
4. Personal Abilities



30

Control measures during sludge removal



Sludge Disposal Practice



32

Desludging Process



								
कीचड़ टैंक से जुड़ी पाइप को सेप्टिक टैंक में स्थापित कर	कीचड़ को बाहर निकालने से पहले सेप्टिक टैंक पर शेड्यूल मीटर की जाँच करे	सेप्टिक टैंक के तल में रह गए गहरे कीचड़ को प्रबंध करें	सेप्टिक टैंक कवर को बंद करने का प्रबंध करे	साइट छोड़ने से पहले सेप्टिक टैंक से सक्शन पाइप को हटाए और परिवेश और पाइप को साफ करने का प्रयास करे	यह सुनिश्चित करे कि रास्ते में जाते समय कीचड़ वाहन लीक तो नहीं कर रहा है	कीचड़ टैंक से जुड़ी पाइप को सेप्टिक टैंक में स्थापित करे	सेप्टिक टैंक से कीचड़ खाली कर	सेप्टिक टैंक से सक्शन पाइप हटाए और एक्सेस कवर को बंद कर



22

Ease of access to the location of the septic tank



- wide good road
- easy to reverse
- Road near tank is good
- Ask the family members about the location of the tank



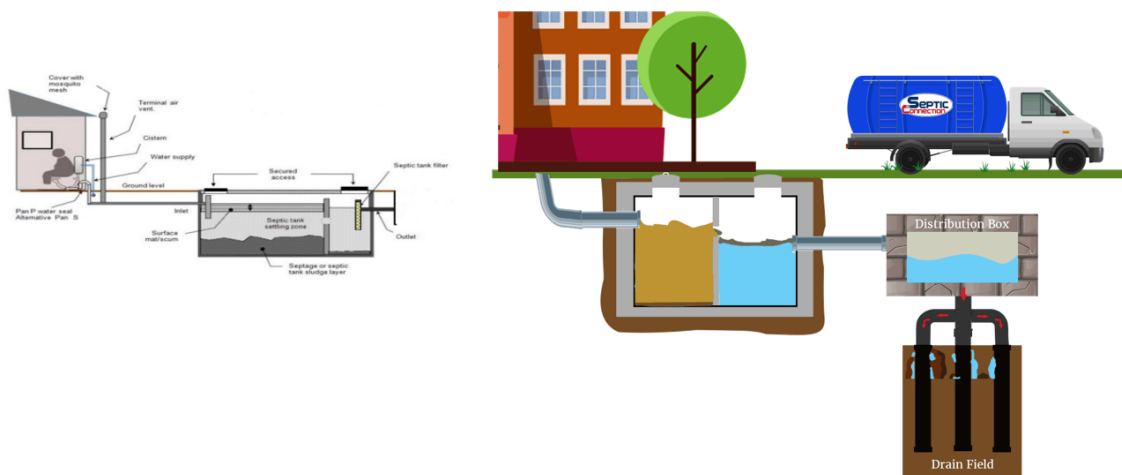
23



- Do not block the path of Ambulance and Fire trucks
- Don't block the way for people to come and go



Process to check the tank



36



Before emptying the tank

- what to do and
- what not to do?

37



- Close septic tank cover properly
- clean the surrounding area
- don't litter wash your hands
- open the way
- go after



Transportation of Sludge



Do not fill more than 80 %



39

Caution while transporting faeces



- विभिन्न प्रकार के डी-कीलिंग / वैक्यूम ट्रकों का उपयोग किया जाता है।
- कीचड़ वैक्यूम ट्रक के लिए लाइसेंस और परमिट ऑपरेटर के पास होने चाहिए।
- ड्राइवर का लाइसेंस हर समय उसके साथ होना चाहिए।

डी-कीलिंग/वैक्यूम ट्रक:



40



Caution while transporting faeces

- निकाले जाने वाले कीचड़ को हटाने के उपकरण साथ होने चाहिए (जैसे होसेस आदि)
- फैले हुए कीचड़ के प्रबंधन उपकरण साथ होने चाहिए (फावड़ा, चूना, संग्रह बैग और रेत आदि)

नियंत्रण रिसाव:



41

- डी-स्लजिंग ऑपरेटर को सड़क के नियमों और लैंडिंग साइट पर गतिविधियों का पालन करने की आवश्यकता होती है।
- कर्मियों को ड्यूटी पर रहते हुए हर समय स्वास्थ्य और सुरक्षा उपकरणों का उपयोग करना चाहिए।

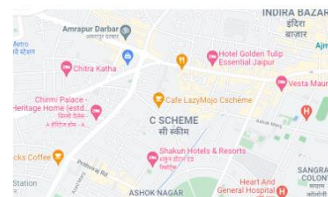
स्वास्थ्य और सुरक्षा:



42

The following points should be kept in mind by the operator while transporting the sewage

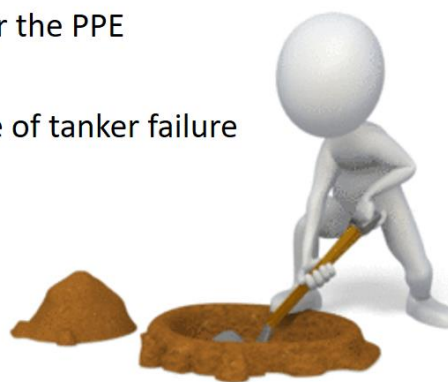
- Heavy Truck Timings in city
- road map information
- Supervisor should be informed in case of tanker failure



42

Health and Safety Precautions during transportation of sludge

- In case of handling spilled sludge, wear the PPE
- Don't smoke in the truck
- Supervisor should be informed in case of tanker failure



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Safe disposal of sludge



Safe draining of sewage into FSTP plant



45

What to do in FSTP ?



- Drain should be done only in FSTP plant
- Leakage should be taken care of while draining
- Stand the truck near the STP tank
- Properly clean pipes and outlet valves when truck is empty



46



Proper way to dispose of Feaces

- Consider the Instruction of STP Plant
- Clean the truck after drain
- Use PPE properly



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Checklist for Prerequisites

1	Did you barricade the area of work?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
2	Have you opened upstream and downstream manholes?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
3	Is there a regular overflow?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
4	What kind of area is it?	Commercial	<input type="checkbox"/>	Residential	<input type="checkbox"/>
5	Does the worker have the safety equipments?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
6	Has the worker applied oil?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
7	Is the sewage cleaning machine available?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
8	Is the suction of the cleaning machine verified?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
9	If yes, is it in good condition?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
10	Has the stagnant sewage water been cleared from the overflowing manhole?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>



Page 1



Checklist for Prerequisites

11	Is the health condition of the worker acceptable?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
12	Are the pipelines silted?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
13	Where is the chockage?	Manhole	<input type="checkbox"/>	Pipeline	<input type="checkbox"/>
14	Is there an Oxygen Cylinder?	Small Cylinder	<input type="checkbox"/>	External Cylinder	<input type="checkbox"/>
	If yes, choose the appropriate option:	Pipe leading to Manhole	<input type="checkbox"/>	No	<input type="checkbox"/>

Session 8: Demonstration of Desludging



Session 9: Precautionary & Emergency Preparedness



Orientation Program
for
Desludging Operators

Session 9:
Precautions &
Emergency
Preparedness

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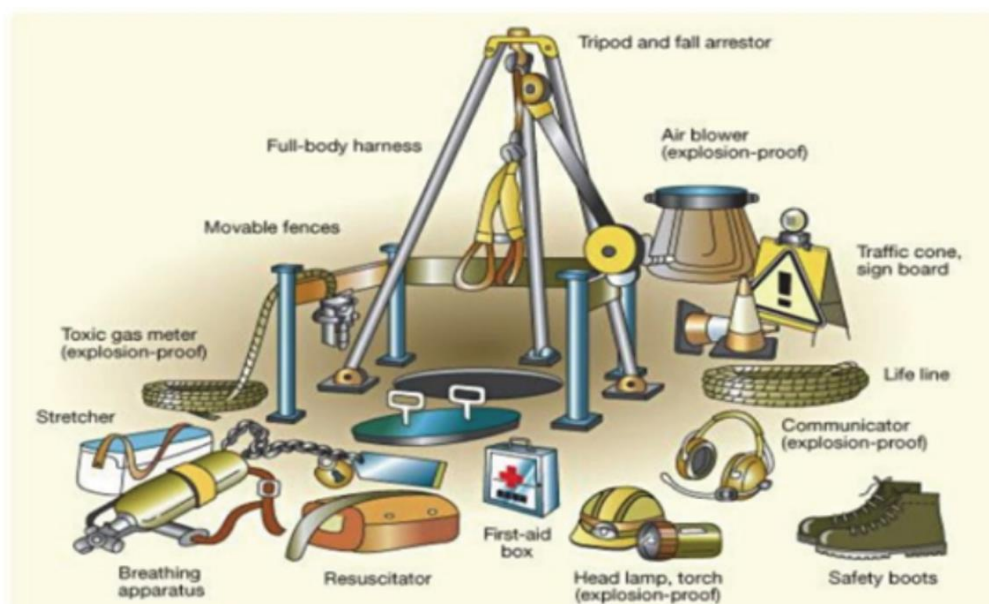


EMERGENCY PREPAREDNESS

- Emergency plan to execute the work shall be prepared before arriving at the site
- The supervisor and all the crew members involved in sewer cleaning should be familiarized with the emergency plan;
- A tripod attached with rope & pulley and harness or some other suitable system shall be put in place for retrieving the injured worker
- A first aid kit distinctly marked with a red cross on white back ground shall be readily available at the site which should at least have the items listed in Annexure-I.
- Wash-up material like soap & skin cream for applying on the body shall be adequately available at the site.



3



4



EMERGENCY PREPAREDNESS

- A list of medical care centers available near the site may be prepared and made readily available;
- Vehicle preferably an ambulance shall be available at the site for carrying the injured worker(s) to the hospital, in case of any emergency.



5

Minimum constituents of the first aid

S. No.	Checklist	Minimum Constituents	Yes
1	Small sterilized dressings	6	
2	Medium size sterilized dressings	3	
3	Large size sterilized dressings	3	
4	Large sterilized burn dressings	3	
5	Bottle (30ml) containing a two percent alcoholic solution iodine	1	
6	Bottle (30 ml) containing Salvolatile having the dose & mode of administration indicated on the label.	1	
7	Snakebite lancet	1	
8	Bottle (30 gm) of potassium permanganate crystals	1	
9	Pair scissors	1	
10	Copy of the first-aid leaflet issued by the Director General Factory Advice Service and Labour institutes Government of India.	1	
11	Bottle containing 100 tablets (each of 5 gm) of aspirin	1	
12	Ointment for burns	1	
13	Bottle of suitable surgical antiseptic solution	1	

6



GAS EMERGENCY

- If a gas emergency occurs everyone should immediately put on their escape sets (breathing apparatus) and raise the alarm.
- The men at the ground level are trained rescuers and they shall immediately send down the rescue sets and await the men working in sewer to come out. The men at the ground level shall attempt to rescue the man inside sewer with all the equipment at their disposal.
- If there is a casualty, he (should be propped up out of sewage in a comfortable position. Immediately call the emergency services (ambulance, fire brigade). When the victim has the gas mask on the face and if he is breathing, a rescuer should always be with him because he may vomit thereby choking the supply of oxygen.
- Guidelines for giving first-aid to a gas victim are given below:
 - a. Remove him to fresh air as soon as possible.
 - b. Apply artificial respiration with an oxygen resuscitation if he is not breathing. If one is not available, apply mouth to mouth breathing; and
 - c. Keep him lying down and wait for an ambulance.

7





PRECAUTIONS

- Precautions against Gas Hazards
- Precautions against Infection
- Precautions to be taken while working near Vehicular Traffic



Precautions against Gas Hazards

The following shall not be allowed,

- (a) smoking,
 - (b) open flames and
 - (c) spark
- Erect warning signs.
 - Use only safety gas-proof electric lighting equipment or mirror for reflection of light
 - Test the atmosphere for noxious gases and oxygen deficiencies

11



Precautions against Infection

- The workers should be educated about the hazards of waterborne diseases such as typhoid and cholera through sewage and tetanus through cuts and wounds.
- 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
- Use of rubber gloves shall be insisted so that sewage or sludge does not come in direct contact with hand. Before starting work, skin likely to be exposed to sewage should be covered with barrier cream.
- The worker should be provided with a complete change of work clothes to be worn during working hours. Gum boots should also be provided for the workers.
- When the work is completed, thoroughly wash all contaminated parts of the body.

12

Precautions to be taken while working near Vehicular Traffic



- Workers (on foot) exposed to vehicular traffic must wear fluorescent flagging garments.
- Workers shall not wear any type of headgear that can interfere with hearing back up alarms, warnings, etc.
- When hazards to workers exist because of vehicular traffic, use traffic controls in conformance with the Local Transport Authority.
- Additionally, controls such as detours, warning signs, or barricades shall be used when necessary. Flagmen are required where these controls are ineffective.
- Wherever mobile equipment operation encroaches upon a public thoroughfare, a system of traffic controls must be used.

13



15



PROTECTIVE GEARS AND SAFETY DEVICES

S. No.	Protective gears and safety devices	S. No.	Protective gears and safety devices
1	Air compressor for blower	2	Airline breathing apparatus
3	Airline respirator with manually operated air blower	4	Air purifier gas mask/chin corse
5	Artificial respiration/reticulate	6	Barrier caution tape
7	Barrier cream	8	Barrier cone
9	Blower	10	Breath mask
11	Breathing apparatus	12	Caution board
13	Chlorine mask	14	Emergency medical oxygen resuscitator kit
15	First aid box	16	Face mask
17	Gas monitor (4 gases)	18	Guide pipe set
19	Full body wader suit	20	Fishing wader suit attached with boots
21	Hand gloves	22	Head lamps
23	Helmet	24	Helmet demolishing
25	Lead acetate paper	26	Life guard pad
27	Modular airlines supply trolley system	28	Normal face mask
29	Nylon rope ladder – 5 m	30	Nylon safety belt
31	Nylon safety belt	32	Nylon safety belt
33	Pocket book	34	Port oxy
35	Raincoat	36	Reflecting jacket
37	Safety belt	38	Safety body clothing
39	Safety body harness	40	Safety goggles
41	Safety gumboots	42	Safety helmets
43	Safety showers	44	Safety torch
45	Safety tripod set	46	Search light

Session 10: Government Schemes



Training of Trainers
Sewer Entry Professionals for
Desludging Operators

Session 10:
Government
Schemes

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Self Employment Scheme for Rehabilitation of Manual Scavengers (SRMS)

SRMS provides the following benefits to the identified Manual Scavengers(MS):

- Onetime cash assistance of Rs.40000/-.
- Skill Development Training with Stipend of Rs.3000/- per month.
- **Loans upto Rs. 15 lakh for income generating activities with capital subsidy upto Rs. 5,00,000/-.**

In addition, SRMS also provides the following

- a) Organising Health Camps.
- b) Organising Workshops for Sewage/Septic Tank Workers, Officers, Engineers, Contractors of municipalities.
- c) Behavioral Skill Development Training to sanitation workers.
- d) Coverage of MS under Ayushman Bharat, PM-JAY.



Assistance for Sanitation Related Project: SRMS

Eligibility: Identified Manual Scavengers, Sanitation Workers and their dependants.

Capital subsidy:



Projects upto Rs.
5.00 lakh

50% of project cost

Projects between Rs.
5.00 lakh to Rs. 15.00
lakh

Rs. 2.50 lakh + 25% of the
remaining project cost
between Rs. 5.00 lakh to
Rs. 15.00 lakh

3

Assistance for Sanitation Related Project: SRMS



Capital subsidy for Group Projects:

Maximum Project Cost

upto Rs. 50.00 lakh

Maximum project share
per beneficiary

Rs. 10.00 lakh per
beneficiary

Maximum capital subsidy
per beneficiary

Rs. 3.75 lakh.
Rs. 2.50 lakh for project
cost upto Rs. 5.00 lakh +
25% of remaining project
cost

4



Assistance for Sanitation Related Project: SRMS

Interest subsidy

Rate of Interest

6% p.a.

Interest subsidy

For rate of interest
charged by bank over and
above 6%

Repayment Period

**Upto 7 years, including
moratorium period upto
6 months**

5



Assistance for Sanitation Related Project: SRMS

Interest subsidy

Rate of Interest

6% p.a.

Interest subsidy

For rate of interest
charged by bank over and
above 6%

Repayment Period

**Upto 7 years, including
moratorium period upto
6 months**

5

EXPECTATIONS FROM ULBs



Assessment of sewer septic tank cleaning process and need for deployment of additional equipments/vehicles and related funds to ensure complete mechanization of the process.



Nominating Safai Karamcharis/Dependents from ULB as the beneficiary of the scheme for taking up related Sanitation Enterprise.



Providing long term and assured mechanized cleaning work contract to the target group of NSKFDC and their inclusion in the panel of approved service providers.



Arrangement to deduct the EMI and remit the same to the Bank from the payments due to the applicant by the Municipality to boost confidence of banker in lending to them



Support in Liaisoning with banker/channel agency of NSKFDC for provision of loan to the beneficiaries. A Letter of Assurance regarding assured work may be provided to the banker.

6

SUY DIRECT LOANS TO ULBs



- NSKFDC also provides financial assistance to Urban Local Bodies (ULBs) for procurement and operation of sanitation related equipments/vehicles for mechanized cleaning as per the details given below:-

Per Unit Cost	Beneficiary Profile	Interest Rate	NSKFDC Share	ULB Contribution	Repayment Period
Upto Rs.50.00 lacs*	Municipal Corporations/ Municipalities/Jal Boards/ Public Health & Engineering Dept/ Cantonment Boards etc.	4%* (Further, 1% rebate for timely repayment)	90%	10%	Maximum upto 10 Years

* No of units could be more than 1

Process of Application:-

- The MoA to be executed between NSKFDC and the Urban Local Bodies (ULBs) to implement the scheme.
- Submission of proposal for sanction and release of funds to NSKFDC along with Electronic Clearing Service (ECS) instruction in favour of NSKFDC for repayment.

7



SUPPORT REQUESTED FROM ULBs

- Persuasion with Canara Bank local branches to facilitate Loans to the identified Sanitation Workers/Dependents nominated by the ULB and support in completion of documentation formalities required by Bank.
- Take up the Loan cases with other banks as well, preferably the bank in which ULB is having bank account.
- ULBs which have not organised Loan Mela's are requested to promote some Sanitation entrepreneurs by nominating suitable persons as beneficiaries and providing assured mechanised cleaning work to them.
- ULBs desirous of above may intimate the same to NSKFDC through MoHUA so that necessary tie-ups and arrangements could be made accordingly.

8



**Pradhan Mantri Suraksha
Bima Yojana**

Introduction: Pradhan Mantri Suraksha Bima Yojana



- ▣ Pradhan Mantri Suraksha Bima Yojana is a government-backed accident insurance scheme offering accidental death and disability cover.
- ▣ The Scheme was launched by Prime Minister Narendra Modi on May 9, 2015.
- ▣ The scheme offers coverage from 1st June to 31st May.
- ▣ The new entrants who did not join in the earlier years will be able to join in the subsequent years while the scheme is still valid.

10

What does Pradhan Mantri Suraksha Bima Yojana offer?



Benefit	Sum Assured
Death	2 lakhs
Permanent loss of vision of both the eyes or loss of use of both hands or feet or loss of sight of one eye and loss of use of one hand or one foot	2 lakhs
Permanent loss of sight in one eye or loss of use of one hand or one foot	1 lakhs

11



Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY)

Introduction: Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY)

- Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY) is a scheme as part of Atmanirbhar Bharat to supply free food grains to migrants and poor.
- The PMGKAY scheme for Phase VI from April-September, 2022 would entail an estimated additional food subsidy of Rs. Rs. 80,000 Crore.



Benefits

- People will be provided 5 kg free wheat/rice per person/ month along with 1 kg free whole chana to each family per month.
- Wheat has been allocated to 6 States/UTs, - Punjab, Haryana, Rajasthan, Chandigarh, Delhi and Gujarat and rice has been provided to the remaining States/UTs.

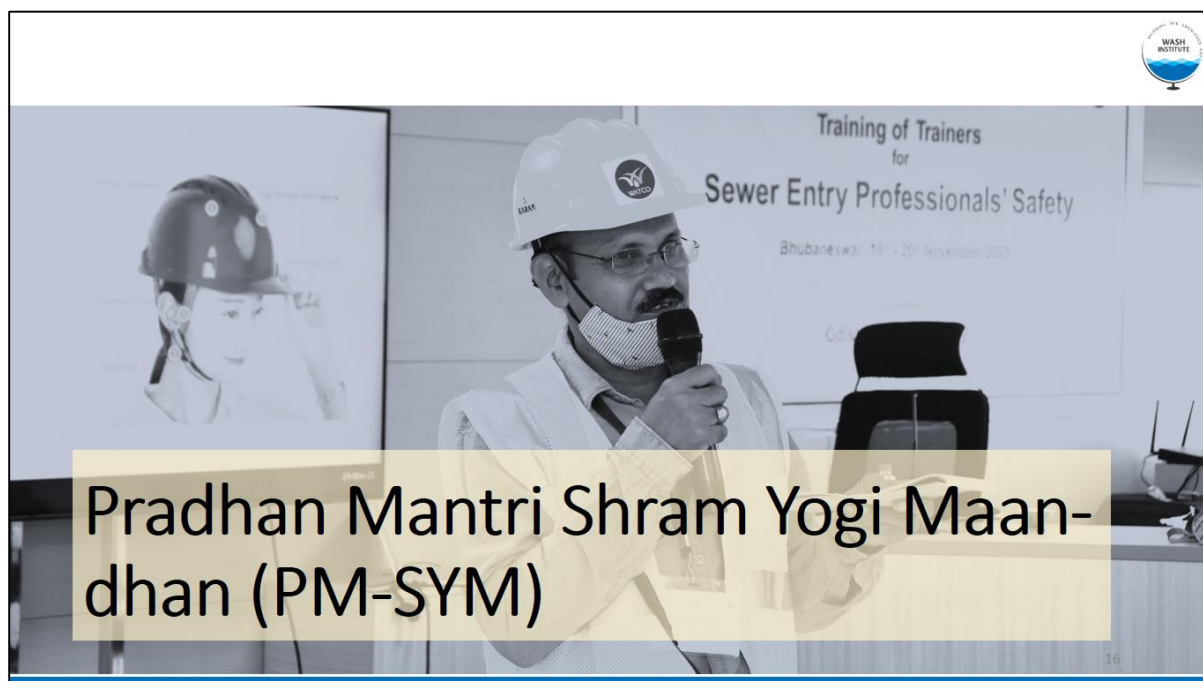
14



Eligibility

- Families belonging to the Below Poverty Line - Antyodaya Anna Yojana (AAY) and Priority Households (PHH) categories will be eligible for the scheme.
- PHH are to be identified by State Governments/Union Territory Administrations as per criteria evolved by them. AAY families are to be identified by States/UTs as per the criteria prescribed by the Central Government:
- Households headed by widows or terminally ill persons or disabled persons or persons aged 60 years or more with no assured means of subsistence or societal support.
- Widows or terminally ill persons or disabled persons or persons aged 60 years or more or single women or single men with no family or societal support or assured means of subsistence.
- All primitive tribal households.
- Landless agriculture labourers, marginal farmers, rural artisans/craftsmen such as potters, tanners, weavers, blacksmiths, carpenters, slum dwellers, and persons earning their livelihood on daily basis in the informal sector like porters, coolies, rickshaw pullers, hand cart pullers, fruit and flower sellers, snake charmers, rag pickers, cobblers, destitutes and other similar categories in both rural and urban areas.
- All eligible Below Poverty Line families of HIV positive persons.

15



Pradhan Mantri Shram Yogi Maan-dhan (PM-SYM)

Introduction: Pradhan Mantri Shram Yogi Maan-dhan (PM-SYM)

- Government of India has introduced a pension scheme for unorganised workers namely **Pradhan Mantri Shram Yogi Maan-dhan (PM-SYM)** to ensure old age protection for Unorganised Workers.
- The unorganised workers whose monthly income is Rs 15,000/ per month or less and belong to the entry age group of 18-40 years.
- They should not be covered under New Pension Scheme (NPS), Employees' State Insurance Corporation (ESIC) scheme or Employees' Provident Fund Organisation (EPFO).
- Further, he/she should not be an income tax payer.



Features of PM-SYM

It is a voluntary and contributory pension scheme, under which the subscriber would receive the following benefits :

1. Minimum Assured Pension:
2. Family Pension
3. If a beneficiary has given regular contribution and died due to any cause (before age of 60 years), his/her spouse will be entitled to join and continue the scheme subsequently by payment of regular contribution or exit the scheme as per provisions of exit and withdrawal.

18

Contribution by the Subscriber



Entry Age	Superannuation Age	Member's monthly contribution (Rs)	Central Govt's monthly contribution (Rs)	Total monthly contribution (Rs)
(1)	(2)	(3)	(4)	(5)= (3)+(4)
18	60	55	55	110
19	60	58	58	116
20	60	61	61	122
21	60	64	64	128
22	60	68	68	136
23	60	72	72	144
24	60	76	76	152
25	60	80	80	160
26	60	85	85	170
27	60	90	90	180
28	60	95	95	190
29	60	100	100	200

19



Gender and PWD

Specific points to be kept in mind regarding Gender and PWDs:

- ☐ Use inclusive language in the workplace.
- ☐ Setup a complaints process to resolve any gender-based issues as quickly as possible.
- ☐ Ensure ramps and lifts are available for easy accessibility for the PWD / Differently-abled.
- ☐ Help PWDs overcome the challenges they face on the daily basis
- ☐ Respecting every employee and customer irrespective of gender, caste, colour etc.
- ☐ Ask the employee if they face any kind of discrimination from time to time.
- ☐ Discuss about government platforms with them to keep them aware of their rights.
- ☐ Asking employees about improvement ideas or suggestions for the workplace.



Working effectively with co-workers

The following characteristics are needed to work effectively with co-workers:

- ☐ Be honest and straightforward.
- ☐ Share the workload equally and help others if necessary.
- ☐ Treat others with respect and dignity.
- ☐ Be an active listener and speak discreetly when communicating with your colleagues.
- ☐ Acknowledge the contributions of your team members.
- ☐ Every new employee must be properly trained before the start of work.
- ☐ Review your co-workers work from time to time and assist wherever necessary.



Communicating and Interacting with co-workers

When you are working with a team, gather everyone's opinions and best ideas. It is also important to use their time and energy efficiently. The following points should be considered:

Always be polite and open to suggestions.

Communicate your views openly using the appropriate language with due respect.

Allow people to share alternative ideas.

Always explain your decision and reason behind your choice.

If you are the leader, assign tasks according to the person's ability and area of expertise and briefly explain what to do and why.

Acknowledgements

Donors



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Under the Guidance of



Contact us:

**Water, Sanitation and Hygiene
Institute (WASH Institute)**

Head Office-
Third floor, FPAI Bhawan,
Sector-4, Rama
Krishna Puram, New Delhi,
Delhi 110022

[Website - https://www.washinstitute.org/](https://www.washinstitute.org/)

[Email id-office@washinstitute.org](mailto:email-id-office@washinstitute.org)

Annexure 1: Sample Pre- Post Test



How long before the septic tank should be opened for cleaning



What is/ are the precaution(s) to be taken when a sewer or a manhole is required to be entered for cleaning or clearing an obstruction?

- A) Wear proper PPE kit
- B) Smoking, open flames and spark shall not be allowed at the site
- C) Erect warning signs
- D) All of the above





Arrange the steps of mechanical cleaning of Septic Tanks (from Step 1 to Step 5):

- A. Replace & seal the cover with plaster.
- B. Break the mortar seal and inspect the tank for cracks or damage.
- C. Clean up any spillage using proper sorbent materials.
- D. Break up sludge and empty the septic tanks between 90% and 95%.
- E. Connect the hoses from the truck to the tank or pit to be emptied.



Which of the following are protective gears and safety devices used while cleaning sewers and septic tanks?

- a. Safety helmet
- b. Breath mask
- c. Safety body harness
- d. Crowbar
- e. Artificial respiration/reticulate
- f. Water bottles/containers

Annexure 2: Sample Registration Sheet

[illegible]

Annexure 3: Registration Form



















Training for Sanitation Workers

Feedback Form

Date- _____

Participants Name: _____

Contact Number: _____

S. No.	Question	Answer
1.	How was the registration process to be part of the training?	  
2.	How happy are you with the training curriculum and content?	  
3.	How happy are you with regard to the training tools used?	  
4.	How happy are you with the trainer?	  
5.	Did you enjoy being part of the training? (Participative/Non Participative)	  
6.	How useful do you think the training was in your opinion?	  
7.	What else do you think should be made part of the training which would be useful for you?	I. More Videos II. Games III. Interactive Content IV. Group Exercises V. No change VI. Any other _____
8.	Anything else that you would like to share/query you would like to raise	

Annexure 4: Link for Training Videos

S. No.	Session Name	Training Video
1	Session 1- Welcome & Object Setting	Showing respect to sanitation workers
2	Session 2- Laws pertaining to sanitary workers	Safai Mitra Suraksha Movie
3	Session 3- Desludging Process	Faecal Sludge Management
4	Session 5- Personal protective equipment (PPE)	Zindagi Bula Rahi Hai

Annexure 5: Checklist for Pre-requisites

Checklist for Prerequisites					
1	Did you barricade the area of work?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
2	Have you opened upstream and downstream manholes?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
3	Is there a regular overflow?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
4	What kind of area is it?	Commercial	<input type="checkbox"/>	Residential	<input type="checkbox"/>
5	Does the worker have the safety equipments?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
6	Has the worker applied oil?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
7	Is the sewage cleaning machine available?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
8	Is the suction of the cleaning machine verified?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
9	If yes, is it in good condition?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
10	Has the stagnant sewage water been cleared from the overflowing manhole?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
11	Is the health condition of the worker acceptable?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
12	Are the pipelines silted?	Yes	<input type="checkbox"/>	No	<input type="checkbox"/>
13	Where is the chockage?	Manhole	<input type="checkbox"/>	Pipeline	<input type="checkbox"/>
14	Is there an Oxygen Cylinder?	Small Cylinder	<input type="checkbox"/>	External Cylinder	<input type="checkbox"/>
	If yes, choose the appropriate option:	Pipe leading to Manhole	<input type="checkbox"/>	No	<input type="checkbox"/>

Annexure 6: Minimum Constituents of First Aid

Minimum constituents of the first aid			
S. No.	Checklist	Minimum Constituents	Yes
1	Small sterilized dressings	6	
2	Medium size sterilized dressings	3	
3	Large size sterilized dressings	3	
4	Large sterilized burn dressings	3	
5	Bottle (30ml) containing a two percent alcoholic solution iodine	1	
6	Bottle (30 ml) containing Salvolatile having the dose & mode of administration indicated on the label.	1	
7	Snakebite lancet	1	
8	Bottle (30 gm) of potassium permanganate crystals	1	
9	Pair scissors	1	
10	Copy of the first-aid leaflet issued by the Director General Factory Advice Service and Labour institutes Government of India.	1	
11	Bottle containing 100 tablets (each of 5 gm) of aspirin	1	
12	Ointment for burns	1	
13	Bottle of suitable surgical antiseptic solution	1	

Annexure 7: Protective Gears and Safety Devices

PROTECTIVE GEARS AND SAFETY DEVICES			
S. No.	Protective gears and safety devices	S. No.	Protective gears and safety devices
1	Air compressor for blower	2	Airline breathing apparatus
3	Airline respirator with manually operated air blower	4	Air purifier gas mask/chin cortege
5	Artificial respiration/reticulate	6	Barrier caution tape
7	Barrier cream	8	Barrier cone
9	Blower	10	Breath mask
11	Breathing apparatus	12	Caution board
13	Chlorine mask	14	Emergency medical oxygen resuscitator kit
15	First aid box	16	Face mask
17	Gas monitor (4 gases)	18	Guide pipe set
19	Full body wader suit	20	Fishing wader suit attached with boots
21	Hand gloves	22	Head lamps
23	Helmet	24	Helmet demolishing
25	Lead acetate paper	26	Life guard pad
27	Modular airlines supply trolley system	28	Normal face mask
29	Nylon rope ladder – 5 m	30	Nylon safety belt
31	Nylon safety belt	32	Nylon safety belt
33	Pocket book	34	Port oxy
35	Raincoat	36	Reflecting jacket
37	Safety belt	38	Safety body clothing
39	Safety body harness	40	Safety goggles
41	Safety gumboots	42	Safety helmets
43	Safety showers	44	Safety torch
45	Safety tripod set	46	Search light

Annexure 8: Certificate Prototype

		 Ministry of Housing and Urban Affairs Government of India	
<p>Pithampur Municipal Council & Population Services International, India in association with Water, Sanitation and Hygiene Institute (WASH Institute)</p>			
<p>Certificate of Merit This certificate is awarded to</p>			
<p>for successfully completing the Training for Desludging Operators & Sewers Workers conducted from 12 to 13 May 2022</p>			
<p>We wish you the best for your future endeavors!</p>			
<p>_____ <i>Dr. Madhu Saxena</i> Chief Municipal Officer Municipal Council Pithampur</p>	<p>_____ <i>Sanjay Singh</i> Project Lead Population Services International, India</p>	<p>_____ <i>Rajesh H Pai</i> Senior Technical Expert WASH Institute</p>	

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For any queries,
please contact:
Program Office
FPAI Bhawan,
Third Floor,
Sector IV, RK
Puram,
New Delhi – 110022,
India

trainings@washinstitute.org
washacademy.org



