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This presentation is used with Lesson Plan 20:
Emptying Latrines and Transporting Sludge in
the Latrine Design and Construction Trainer
Manual.

Available at www.cawst.org/resources

Emptying Latrines and Transporting Sludge



Learning Outcomes

1. Discuss factors for designing latrines that will be emptied.
2. Discuss the advantages and limitations of manual and motorized latrine emptying.
3. Identify health and safety measures to reduce personal and community risk when emptying latrines.



Manual Pit Emptying



Credit: Steven Sugden LSHTM.



Credit: Steven Sugden LSHTM.

Manual Pit Emptying



(Credit: Hofstetter, 2009)

Manual Pit Emptying



(Credit: www.flickrriver.com/photos/gtzecosan/tags/ratingz/)



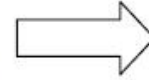
Manual Pit Emptying



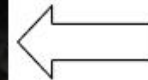
“Most of them request a bottle of rum from their client when emptying a pit to be able to bear the unpleasant working conditions.”



Digging the trench for burying sludge



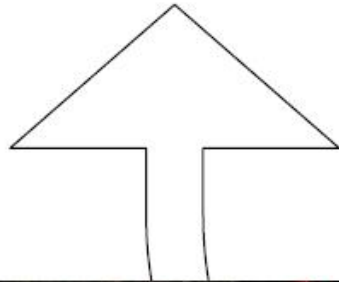
Removing the sludge



Transferring the sludge



Discharging in a manhole or burying in a trench



Cycle for Manually Emptying a Pit from 7.5 to 9 hours

Manually Operated Pumps



- Improve the efficiency of manual emptying
- Better protect the health and safety of workers
- For semi-liquid sludge
- Requires a lot of strength to operate the hand pump

Limitations of Manual Pit Emptying

- Time consuming: can take several days depending on the size of the pit
- Hard and unpleasant work
- Increased health risks from exposure to excreta
- Increased safety risks from entering pits
- Increased environmental risk from spilt excreta
- Requires local excreta treatment, use or disposal since transporting excreta more than 0.5 km is impractical

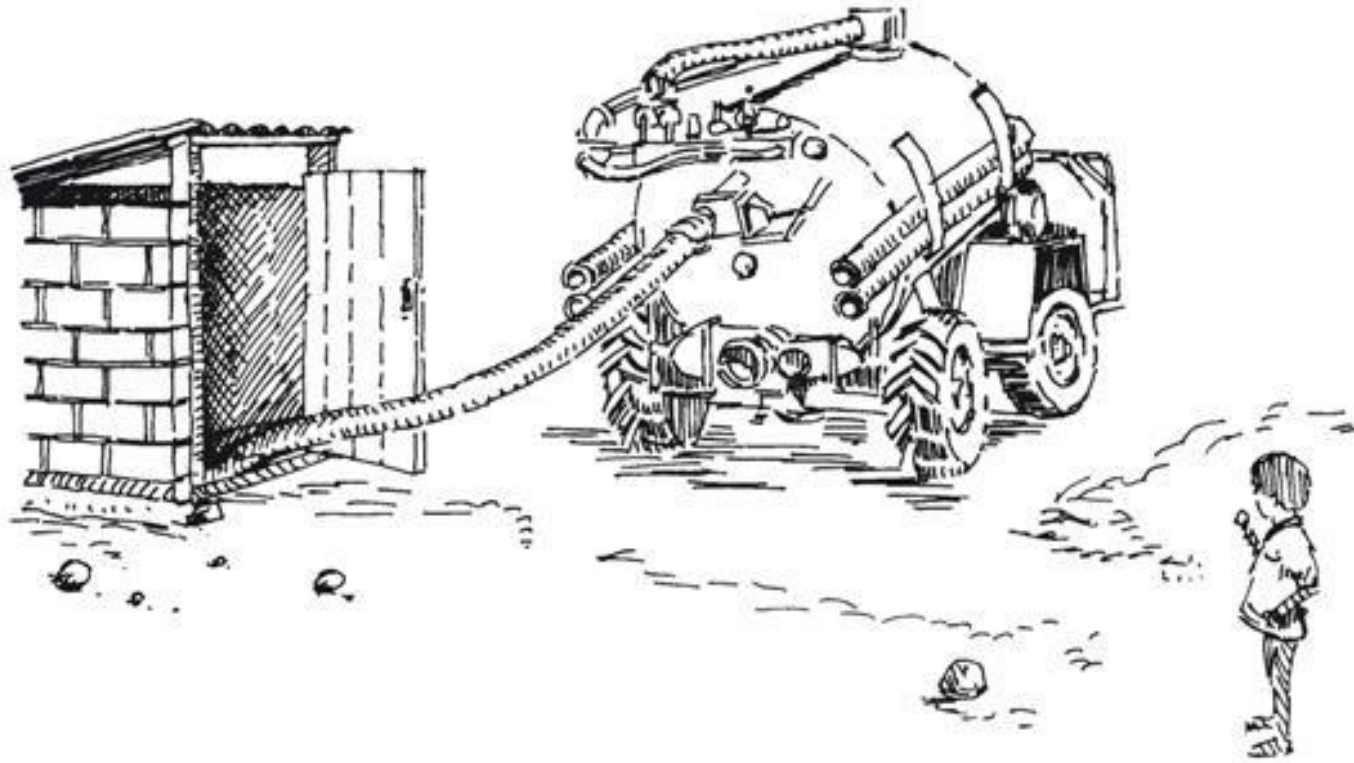


Advantages of Manual Pit Emptying

- Potential for local job and income generation
- Hand pumps can be built and repaired with locally available materials
- Provides service to difficult to access households
- More affordable service for the poor



Motorized Emptying



Vacuum Trucks



Advantages of Vacuum Trucks

- Fast, and generally efficient
- Reduced health, safety and environmental risks
- Can be a source of sustainable income



Limitations of Vacuum Trucks

- Expensive
- Not all households can afford the service
- Difficult to access narrow streets and poor roads
- Cannot pump thick, dried sludge
- Pumps can usually only suck down to a depth of 2–3 metres
- Pump must be within 30 metres of the latrine



Smaller and More Mobile Motorized Options



Other Motorized Options



EVAC:

- For liquid sludge
- Vacuum reservoir system
- Motorized
- Still under development



Other Motorized Options



Manual pit screw auger



Power-operated pit screw

Pit Screw Auger:

- For solid sludge
- 7–25 L /min
- Manual or motorized

How Do You Transport the Sludge?

- Wheelbarrow
- Wagon
- Cart
- Rickshaw
- Pick-up Truck
- Covered containers!



What Is Done With the Sludge?

- Dumped near the latrine
- Dumped into a canal, river or lake
- Disposed in a sewer (not as common)
- Other



(Credit: Mbalo, 2012)