



Critical Points Affecting Pit Filling Rates in Emergency Settings

When pit latrines fill faster than anticipated, they become a health risk and occupational hazard. They also cause increased workload in terms of maintenance and emptying and transportation of sludge. Many reasons can contribute to pit filling rate. It is difficult to predict the exact ones. If your latrine pits are filling quicker than you anticipated, use the following questions to understand what can be behind it.

	Criteria	Questions	Effects	Recommendations
1	Solid waste dumping	Is solid waste found in the pit?	If solid waste is dumped in the latrine, pits fill up quickly. Examples of solid waste include: plastic bags, paper, cardboard, clothes, plant leaves, plastic, glass bottles, sanitary pads and diapers. Solid waste can clog the pipes of vacuum trucks and makes emptying the pit difficult.	Post signs and posters around latrines discouraging users from dumping solid waste in the pit.
2	Number of users	Does one latrine have a higher number of users than the others?	Latrines may have a higher number of users due to easy access, safety, location, attractiveness, cleanliness etc. Higher numbers of users can fill up the pit more quickly.	<ul style="list-style-type: none"> • Improve less used latrines to attract users. • Distribute the users evenly between all latrines.
3	Latrine cleaning materials	Which product is used to clean the latrine?	Some disinfectants can kill the microorganisms in the pits and affect the biodegradation rate of the sludge.	Promote biodegradable material for cleaning e.g., “septic safe” cleaners.
4	Anal cleansing materials	What is the anal cleansing practice in the community?	Anal cleansing materials that take a long time to break down contribute to high sludge accumulation.	Promote biodegradable anal cleansing material such as water, tissue paper etc.
5	Emptying frequency	How frequently are the pits emptied?	Over time microorganisms in latrines build up, breaking down fecal sludge more quickly. The more microorganisms, the quicker the fecal sludge is broken down, and the less volume of sludge accumulates in the latrine. During the initial period of the latrine’s operation, sludge will accumulate quickly as the breaking down process will be slow.	<ul style="list-style-type: none"> • Don’t empty the pits completely. Leave a small amount of digesting sludge at the bottom to help microorganisms grow. • Empty pits when sludge is 0.5 metres from the top. Don’t wait until the pits are full.

	Criteria	Questions	Effects	Recommendations
6	Ground water table	What is the average depth of the ground water table?	<p>If ground water enters the pit, the pit will be filled more quickly with water instead of sludge.</p> <p>Liquid will seep into the ground and contaminate the ground water around the pit. There is a risk of nearby water sources getting contaminated as well.</p>	The bottom of the pit should at least be 1.5 metres above the highest seasonal ground water level.
7	Seasons and temperatures	<p>What is the present season (dry/rainy)?</p> <p>What is the average temperature?</p>	<p>Rain has an important effect on the water flow into and out of the latrine pits and can increase the filling rate.</p> <p>Higher temperatures make the sludge break down more quickly resulting in less sludge accumulation.</p>	If the rainy season is the prevailing season in the area, latrines should be built to consider the higher volume of sludge that will be produced.
8	Type of pit	Is the pit lined?	Liquid can seep faster from an unlined pit to the surrounding soil reducing the volume of the sludge.	<ul style="list-style-type: none"> • If pits are lined for stability, try to make them larger or empty them more frequently. • Introduce more perforations in the liner to allow faster infiltration.
9	Soil characteristics	What is the type of soil around the pit?	<p>The infiltration capacity of a pit depends mainly on the type of liquid, the surface area which allows infiltration, and the surrounding soil type.</p> <p>Sandy soil has a higher infiltration capacity than silt and clay. The water from the pit will seep away quickly if the surrounding soil is sandy.</p>	In case of clay soil around the pit, provision should be made to accommodate the slow seeping liquid in the pit, for example- dry latrine, urine diversion, diversion of wash water, drain field/soakaway for liquids, etc.

