

Lesson Plan 19: Lining Latrine Pits



55 minutes total

Lesson Description



A partial or full lining of every latrine pit is important to prevent the pit from collapsing. This lesson plan identifies five design rules to follow when lining a latrine pit. Participants will also discuss the advantages and limitations of different materials that are locally available to line a latrine pit.

Learning Outcomes



At the end of this session participants will be able to:

1. Explain why it is important to line a latrine pit.
2. List the rules to follow when lining a latrine pit.
3. Identify locally available and appropriate materials to line a latrine pit.

Materials



- Flipchart paper
- Paper
- Tape
- Markers
- Pit Footing and Full Pit Lining Diagrams

Preparation



- Review topic in the Latrine Construction Manual
- Write the heading “*Why Line a Pit?*” on flipchart paper
- Write the word “*Permeable*” and its definition on flipchart paper
- Write the word “*Impermeable*” and its definition on flipchart paper
- Write the heading “*Local Pit Lining Materials*” on flipchart paper
- Draw the Pit Footing Diagram on flipchart paper
- Draw the Full Pit Lining Diagram on flipchart paper
- Research which materials are commonly used for pit lining in the region
- Optional: Write the learning outcomes on flipchart paper

Introduction**5 minutes**

1. In pairs, ask the participants to discuss “What do you know already about lining pits from the previous lessons?”
2. Share some responses as a large group.
3. Present the lesson description or learning outcomes.

Pit Lining**30 minutes**

1. Ask the participants “Why do you need to line a pit?” Record responses on “*Why Line a Pit?*” flipchart.

- *Prevent the pit from collapsing*
- *Provide a stable support for the slab and superstructure*
- *Reduce the risk of surface water infiltration, erosion and undercutting of the slab*



2. Explain that there are some key words for this lesson. This may review from previous lessons. Ask the participants “What does permeable mean?”

- *Liquids can pass through.*

3. Reveal the pre-written definition and add it to the Word Wall. Explain that latrine pit walls must be permeable for liquid to pass through (infiltrate) into the surrounding soil.



4. Ask the participants “What does impermeable mean?”

- *Liquids cannot pass through. Also called watertight.*

5. Reveal the pre-written definition and add it to the Word Wall.

6. Explain that they are going to receive a diagram of a fully lined pit. In groups they will discuss the key design features of the lining. Afterwards, the large group will discuss design rules to follow when lining a pit.



7. Divide participants into groups of 3 people. Hand out one Pit Footing and Full Pit Lining Diagrams to each participant. Give participants 3–5 minutes to discuss the diagram.



8. Show the “*Full Pit Lining Diagram*” and “*Footing Diagram*” flipcharts. Ask the participants to share one design feature that they discussed. If it is one of the following rules, explain the rule and record it on the diagram. Continue until all of the rules have been identified. Explain any rules that are not mentioned by the participants.

1. *The top 0.5 metres of all pit latrines should be lined. This is called a footing.*
 - *Soils near the surface are more prone to collapsing into the pit because they are less compacted than deeper soils.*
 - *The footing supports the slab and prevents the pit from collapsing.*

2. *Impermeable lining should be 10 centimeters above the ground.*
 - *Prevents surface water from entering the latrine under the slab or over the slab in wet weather.*
3. *Always fully line a pit if it will be emptied.*
 - *Soils may become instable after sludge has been sitting in the pit for some time.*
 - *Complete pit linings are usually permeable, to allow liquids from the pit to infiltrate into the soil.*
4. *Always fully line a pit in unstable ground (e.g., soft sand, gravel, crumbly, uncompacted soils).*
 - *The pit is likely to collapse in these types of soils.*
5. *For a fully lined pit, the lining below the top 0.5 metres should be permeable.*
 - *Allows liquids to pass through the pit walls into the surrounding soil*
 - *Increases the life span of the pit; otherwise the pit will fill very quickly.*

Pit Lining Materials

10 minutes



1. Ask the participants to turn to the Lining Pits Section of their Latrine Construction Manual. Explain that the Latrine Construction Manual explains how to construct a footing and pit linings from poured concrete, brick/block/stone, ferrocement, and concrete or fired clay rings.

For information on how to construct wood/bamboo, metal drum and other pit linings, see the document Household Latrine Construction (Cambodian DRHC, 2010).



2. Ask the participants “What materials are available locally that can be used for lining a pit?” Record responses on the “*Local Pit Lining Materials*” flipchart.
3. Discuss the limitations and advantages of using the different materials.

Review

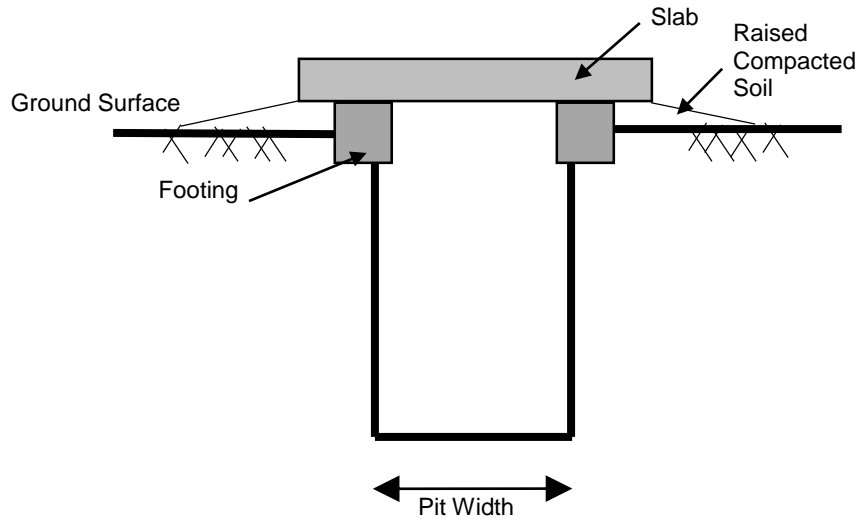
10 minutes



1. In pairs, ask one person to state a rule and ask their partner to explain why it is important.
2. Switch roles until all five rules have been reviewed.
3. Ask the participants to turn to the Excreta Storage section in their Sanitation System Design Workbook. They can make any design additions or changes based on this new information.

Reflections on Lesson

Footing (Partial Pit Lining) Diagram



Full Pit Lining Diagram

