

## Lesson Plan: Introduction to Faecal Sludge Management



30 minutes

### Lesson Description



This lesson introduces the sanitation service chain. It focuses on the last three components which encompass faecal sludge management (FSM): (1) collection and transportation of faecal sludge from on-site sanitation technologies, (2) faecal sludge treatment, (3) and use or disposal of faecal sludge. Participants will explore the importance of each component in protecting public health. They will also learn the difference between sewerred and non-sewerred sanitation systems.

### Learning Outcomes



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

1. List the five components of a sanitation service chain.
2. Identify the three components that are called “faecal sludge management”.
3. Explain the difference between non-sewerred and sewerred sanitation systems.
4. Identify how faecal sludge management can effectively manage sanitation and protect public health.

### Materials



- Flip chart paper
- Tape
- Markers
- Sanitation Service Chain Posters (1 set)

Optional:

- Sanitation Service Chain diagram (1 for every 2 participants)
- PowerPoint: Introduction to Faecal Sludge Management
- Computer and projector

### Preparation



- Review Chapter 1: The Global Situation of *Faecal Sludge Management: Systems Approach for Implementation and Operation*
- Print the Sanitation Service Chain Posters or draw each component of the sanitation service chain on flip chart paper. Tape the posters together to create a sanitation service chain. The posters should be visible to all participants. It will be a useful visual tool to refer to throughout the workshop. Tape flip chart paper under each component. Write the heading “*Sanitation Service Chain*” above.
- Optional: If not using PowerPoint, print and cut out the Sanitation Service Chain diagram (1 for every 2 participants)
- Optional: Write the learning outcomes on flip chart paper

- If using PowerPoint: Introduction to Faecal Sludge Management
  - Review the PowerPoint presentation
  - Print the speaker's notes
  - Check that the projector is working
  - Cue the PowerPoint on the computer

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**Introduction**
**5 minutes**

1. Ask the participants “What is needed to make a phone call to someone? What does that entire service chain look like?”
  - *The caller and receiver both need to purchase phones.*
  - *The caller needs to have credit or an agreement to pay the bill for the phone call.*
  - *The caller needs to know how to use the phone to dial the number.*
  - *The cell phone towers need to connect the calls.*
  - *The receiver needs to pick up the phone.*
2. Ask the participants “What would happen if one part of this service chain didn't work?”
  - *You still might have the phone and be able to use it to play games or music.*
  - *You could get the call display and know that the person called you.*
  - *In most of the cases, the call would not be made and the message would not be communicated.*



3. Ask participants to now think of sanitation as a service chain. Ask, “What would happen if one part of the sanitation service chain didn't work?” Share some answers as a large group.
  - *Contaminated environment*
  - *Contaminated drinking water*
  - *Sick people*
4. Present the lesson description or learning outcomes.

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**What is a Sanitation Service Chain?**
**20 minutes**

1. Explain that sanitation (or managing human excreta) is much more than building on-site sanitation technologies (like a latrine) and stopping people from open defecation. Sanitation requires an entire service chain, and people interacting at each step in the chain, rather than a single technology.
2. Explain to participants that they will be looking at a sanitation service chain diagram. The sanitation service chain is also called other names, like sanitation system or

sanitation chain. Ask participants what other words they use to describe the sanitation service chain. Add these words to the *Word Wall*.



3. In pairs, they should identify and discuss the purpose of the different components.
4. Divide participants into pairs. Options: Hand out a Sanitation Service Chain diagram to each pair or use the PowerPoint: Introduction to Faecal Sludge Management to show the diagram.
5. After 1 or 2 minutes, share responses as a large group. Write the sanitation service chain components on the flip chart paper under each poster. Participants may use different terms for the components. Write these terms on the flip chart paper. Agree on one term for each component. This term should be used consistently throughout the workshop. Explain that we should all be accepting of the different terminology.

- *User interface: Toilet, slab, superstructure, latrine accessories (e.g., anal cleansing materials, a place to dispose of menstrual hygiene products, handwashing station). May also be called: User experience, toilet, or latrine.*
- *Containment: On-site sanitation technologies need to include some type of pit, tank or chamber to safely collect and store excreta until it is removed. Treatment may or may not occur in the containment. May also be called: excreta storage.*

*Note: User Interface and Containment together are referred to as an on-site sanitation technology.*

- *Collection and transport: Manual or mechanical methods to remove faecal sludge and transport it (for example, vacuum trucks). May also be called: emptying and transport.*
- *Treatment: This refers to treatment after the fecal sludge is collected. It does not include the treatment that happens in the containment.*
- *Use or disposal: May also be called end-use or resource recovery. Disposal is the return of fecal sludge to the environment, ideally in a way that poses less risk to the environment and public health. Disposal is sometimes described as the containment of fecal sludge on-site. This is not disposal – it is containment.*



6. Explain that faecal sludge management consists of the last three components of the sanitation service chain. This workshop will focus on collection and transport, treatment, and use or disposal of faecal sludge. Explain that although we will not cover user interface and containment in detail, these components influence the rest of the sanitation service chain. They will be discussed as needed in the workshop, and for further information refer to the CAWST and Eawag-Sandec websites where relevant resources can be downloaded for free.
7. Explain that the sanitation service chain is a general term for both non-sewered and sewered sanitation. Ask “What is a sewered sanitation system? What is a non-sewered sanitation system?” Use PowerPoint: Introduction to Faecal Sludge Management to show the definitions of non-sewered and sewered. Explain that the terms “on-site” and “off-site sanitation” are also used. Add “*Non-sewered sanitation*” and “*Sewered sanitation*” to the *Word Wall*.
  - *Non-sewered sanitation (also known as on-site sanitation): A sanitation system in which faecal sludge is stored on the location where it is produced. The faecal sludge is emptied, treated, and used or disposed of on-site or off-site.*

- *Sewered sanitation (also known as off-site sanitation): A sanitation system that transports wastewater through a pipe network (like a simplified sewer, solids free sewer or conventional sewer) to another location for treatment, use or disposal. This includes centralized and decentralized wastewater treatment systems (DEWATS).*



*Note: The difference between wastewater and faecal sludge can be confusing for participants. Explain that these will be discussed in more detail in the characterization and quantification lesson. Make it clear that for this workshop: sewerage sanitation (transported through a sewer) = wastewater, and non-sewered sanitation (on-site sanitation) = faecal sludge.*

8. Emphasize that this workshop focuses on the management of faecal sludge (non-sewered sanitation). It is not on wastewater (sewered sanitation). It therefore does not cover decentralized wastewater treatment systems (DEWATS). However, there is some overlap between faecal sludge treatment and DEWATS.
9. Ask: “What types of on-site sanitation technologies are used in your community?” Confirm whether these are on-site sanitation technologies. They should not mention flushing toilets connected to a sewer system. This will help participants distinguish the difference between non-sewered and sewerage sanitation.
  - *Examples of on-site sanitation technologies: pit latrines, septic tanks, aqua privies, dry toilets, non-sewered public toilets*
10. Ask the participants to cover the collection and transportation component of the sanitation service chain with their finger. Ask: “What happens if there are no sludge collection and transportation services?” Discuss as a large group.
  - *On-site sanitation technologies will fill up.*
  - *On-site sanitation technologies will overflow or be abandoned.*
  - *Users will have to manually empty the on-site sanitation technology themselves. They will dig holes in their yard to dispose of the faecal sludge or they will dump it in the environment.*
  - *This will contaminate the environment and have impacts on public health. Faecal pathogens will be pervasive in the environment and make people sick. For example, sometimes diarrhea rates increase during the rainy season. Pits and tanks fill up with rainwater or groundwater. This can lead to faecal sludge being flushed into the environment, rivers or infiltrating groundwater.*
  - *In addition to human and environmental impacts, no one wants or deserves to live in dirty, smelly, and unsanitary conditions.*
11. Ask the participants to cover the treatment component of the sanitation service chain with their finger. Ask: “What happens if there are no treatment options?” Discuss as a large group.
  - *Faecal sludge will be used or disposed of without treatment.*
  - *This will contaminate the environment and result in human and environmental health issues. Faecal pathogens will be transmitted and make people sick.*
12. Ask the participants to cover the use and disposal component of the sanitation service chain with their finger. Ask: “What happens if there is nowhere to safely use or dispose of faecal sludge?” Discuss as a large group.

- *Treated faecal sludge would be dumped into the environment (for example, discharged into surface water). Often contaminates drinking water sources and cause public health issues. Faecal pathogens will be transmitted and make people sick.*
  - *For example, the cholera outbreak in Haiti 2010 following the earthquake was caused by “contamination of the Artibonite River as a result of human activity”. There was poor disposal of faecal sludge at a camp. The faecal sludge was contained in holding tanks. It was collected twice a week in vacuum trucks and dumped into a large open pit on higher ground. Local residents commented that the disposal site was susceptible to flooding and overflow into a tributary of the Artibonite River, during rainfall. (Source: Cravioto, A., et al. Final Report of the Independent Panel of Experts on the Cholera Outbreak in Haiti: <http://www.un.org/News/dh/infocus/haiti/UN-cholera-report-final.pdf>)*
- *Dumped faecal sludge can attract animals, insect vectors, and smell bad.*
- *No one wants to live in dirty, smelly, and unsanitary conditions*

Use PowerPoint: Introduction to Faecal Sludge Management to briefly show pictures of on-site sanitation technologies and faecal sludge management.

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**Review**
**5 minutes****Option A: Sanitation Service Chain Action**

1. Explain that participants will work in groups to create actions to help remember the 5 components of a sanitation service chain. They will have 2 minutes to complete the activity.
2. Optional depending on time: After 2 minutes, ask each group to share their actions.
3. Optional depending on time: Call out each component and get the whole group to do their action. Do this more than once and when participants are comfortable, you can start calling them out of order.

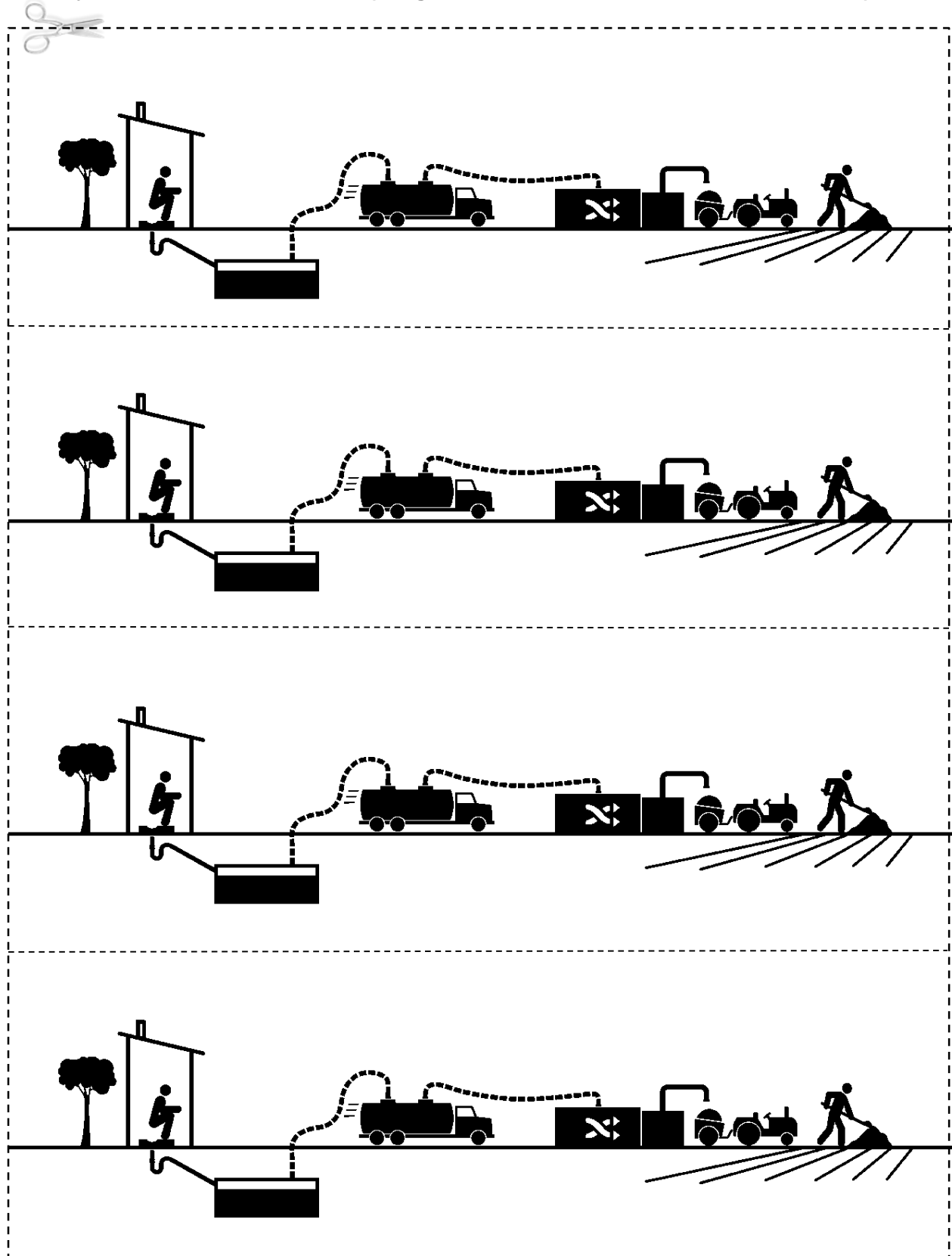
**Option B: Draw Your Sanitation Service Chain**

1. Ask participants to draw the different components of the sanitation service chain. Participants will have 2 minutes to prepare. They will then share their sanitation service chain with a partner.

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**Reflections on Lesson**

Activity: Sanitation Service Chain (Image Credit: Bill & Melinda Gates Foundation)



Posters: Sanitation Service Chain

