

## Lesson Plan 5: Waste Management



### Lesson Description



The focus of this lesson is to identify and explain types of waste and describe its different management techniques and practices.

### Learning Outcomes

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



1. Explain types of waste.
2. Describe different waste management techniques and practices.

### Materials



- Brown sheet paper
- Masking tape
- Permanent marker
- Word cards of different waste (See end of lesson plan)
- Gifts with multi-wrapper
- Projector
- Computer

### Preparation



- Read and prepare lesson plan
- Write learning outcomes or lesson description on flip chart paper
- Print and cut word cards of different waste (3 sets).
- Prepare gift with some wastes
- Prepare power point presentation on composting and 'Goth Sudhar'

### Introduction

10 minutes



1. Divide participants in 2 groups to play quiz contest about previous sessions.  
Questions for the quiz contest:
  - a. What are the 5+1 components of total sanitation?
  - b. What are the types of latrine?
  - c. What is the full form of FSM?
  - d. What are locally appropriate technologies for FSM?
2. Provide prize to the winner and ask to disclose the prize in large group. There will be multi-wrappers (i.e. papers, stone, plastic, etc.). Ask to the participants is it the best way to dispose it, the way they did. Ask what might be the best way to dispose the waste.
3. Explain to the participants that we will discuss more on the session.
4. Present the lesson description or learning outcomes.

### Types of waste

15 minutes



1. Discuss with participants what do they mean by waste? Summarize as follows:
  - Waste is that material which rises from various human activities and is normally discarded as useless or unwanted.
  - That unwanted/ discarded materials could be resources for others. **“Resources at wrong place”**

- Ex. I got new television set in my home and replaced the old one. Old television set is a waste to me, but some other would take it more than happily.
2. Explain to the participants that waste thus discussed can be described in different types. One of the common types is: Solid waste and Liquid waste
  3. Ask with participants what do they understand by solid waste. Ask few to volunteer their answer. Define solid waste and liquid waste as:
    - a. **Solid waste:** The term solid waste means: material such as household garbage (includes recycling), food wastes, yard wastes. It also includes discarded items like household appliances, old torn clothes, worn out shoes, plastics, animal waste, furniture, scrap metal, machinery and abandoned or junk vehicles.
    - b. **Liquid waste:** Liquid waste can be defined as such fluids as wastewater generated from kitchen, washing clothes, bathing along with faecal sludge, etc. Wastewater can originate from a combination of domestic, industrial, commercial or agricultural activities, surface runoff or storm water, and from sewer inflow or infiltration



### Solid Waste

15 minutes



1. Inform participants, discussing on solid waste, it can be further categorized into 3 types:
  - a. **Degradable** - Able to be chemically or biologically degraded. For example; fallen leaves, vegetable residues. Among the wastes, 65% to 70% wastes are degradable.
  - b. **Non-degradable** - Not able to be degraded. For example; broken bucket, plastic bag. 20% to 25% wastes are non-degradable.
  - c. **Hazardous** - Involving risk or danger. For example; used syringe. Hazardous wastes are 5%. Ex. pesticide bottles, expired pesticides and chemicals
2. Inform participants they are further going to explore on solid waste and the management of solid waste.
3. For the purpose, they are going for a group work. Participants will be divided into 3 groups and in each group they will be provided a flip chart paper, package of cut cards detailing different types of waste and participants are to paste the cards categorizing into 3 types.
  - a. Degradable
  - b. Non-degradable
  - c. Hazardous
4. Ask participants if they are clear on instruction. Divide into groups and provide materials needed and ask participants to start the activity.
5. Once all groups have finished activity, discuss and summarize in large group whether they have posted correctly or not.
6. Ask participants how we can manage the waste which is already listed. After brain storming, summarize; we can manage waste by '3R' principles. i. e. (i) Reduce (ii) Reuse (iii) Recycle.
7. Divide participants into 3 groups and ask them to write each principle in detail with examples.
  - i. **Reduce:** Reduce the wastes in sources. For example; use of jute bag, use of commodity with less packaging, reduce use of water by closing tap whiling brushing, etc.



- ii. **Reuse:** Use the waste again as a resource. For example; making basket and mat from plastic wrapper, using grey water to flush toilet, watering plants, etc.
  - iii. **Recycle:** Use again the waste by changing the physical characteristic. For example; making slippers by melting the waste plastic bags, using waste water for flushing, vehicle wash after recycling, etc.
8. Again linking waste as resource, introduce composting as one of the waste management technique by giving examples like, making compost, selling waste to reuse and recycle. Focus the benefit of waste management in nutrition part as well by giving example of compost use in kitchen garden and roof top farming.
- Soil quality enhancer
  - Financial benefit
9. Inform participants that composting is an effective technique of waste management so will be discussing more on composting and present power-point presentation on composting.



**Trainer note:** Remember to address the community level composting in various parts of Nepal.

- i. Pile composting in Ramnagar, Rupandehi
- ii. Honey cum composting in Hetauda
- iii. Vermi composting in Methinkot, Kavre and Gagalphedi, Kathmandu

*Lack of proper management of team or institution, community level composting is facing many challenges.*

10. Explain to participants while discussing about waste management and composting one should focus on managing animal shed-'Goth Sudhar', as well. Community tends to neglect the management of animal shed and neglecting surrounding environment. For the purpose, urine of animals should be collected separately in pit or should use in composting process and animal feces in proper composting process.
11. Present slides on 'Goth Sudhar' with what it is, why it is important and how it is done.

## Liquid Waste

**15 minutes**



1. Further ask participants, if solid waste is managed, the community is clean enough, however more things need to be addressed. Link the answer to liquid waste and discuss further.
2. Liquid waste as discussed earlier is a waste water generated in household level and can be further categorized into 2 types:



- a. **Grey water:** Washing water (while maintaining personal hygiene like bathing, washing face, washing clothes, floors, dishes, etc.), also known as grey water or sullage
  - b. **Black water:** Human excreta (feces and urine) often mixed with water for anal cleaning is known as black water.
3. Ask participants why it is necessary to manage waste water. Ask few to volunteer their answer and link the answer to the consequences due to improper management of it in the community as a whole. Ex. Water being drained in yard which makes a household, and community as a whole, filthy. Similarly, poor management of black water has its consequences.
  4. Discuss with participants, particularly, discussing about waste water management, it can be managed in following way:

- I. Grey water: - generally that water comes from kitchen and bathroom
  - Reuse of grey water
  - Can be used with or without treatment
  - Water from kitchen can be used in kitchen garden, roof top farming,
  - Similarly, water from bathroom, washing, bathing, can be used for flushing toilet, cleaning vehicles, etc.
  - Proper drainage management
- II. Black water: - Water mixed with human excreta and urine
  - Septic tank
  - Waste water treatment plant
  - Fecal Sludge Treatment Plant (FSTP)
  - Safe disposal
- III. Yellow water:- Water mixed with urine only
- IV. Brown water:- Water mixed with human excreta only (no urine is mixed)
- V. Blue water:- Rain water or runoff water
- VI. Process water:- Industrial waste water

---

**Review****15 minutes**

1. Divide participants into 3 groups and ask each group to discuss on assigned topic:
  - a. What is waste
  - b. Types of waste
  - c. Main principle of waste management
2. Give 2 to 3 minutes to discuss on the topic and after the time ask a participant from each group to volunteer their discussion.
3. After all the questions are discussed provide newsprint paper and a marker to each group and assign a type of composting to each group.
4. Ask groups to discuss and write 3 to 4 points on a topic.
5. Provide 2/3 minutes for the activity and after the time ask groups to present and summarize the presentation.

---

**Reflections on Lesson**