

Lesson Plan: Solid Waste Management



60 minutes total

Lesson Description



This lesson introduces the importance of managing waste. It covers an integrated solid waste management and the different stages where intervention activities can be effective, including reducing, reusing, recycling, composting, burning, and burying.

Learning Outcomes



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

1. Discuss the importance of managing waste
2. Discuss ways to reduce, reuse, and recycle solid waste
3. Describe composting and its benefits
4. Discuss ways to collect and transport solid waste
5. Discuss the hazards and safety precautions of burning and burying solid waste

Materials



- Flipchart paper
- Tape
- Markers
- Scissors
- Bag of garbage (e.g., bottles, cans, paper, plastic, food waste)
- Gloves
- 'Bag of Garbage' activity cards

Preparation



- Review topic in Technical Brief 'Solid Waste Management'
- Print and cut out the cards from the activity 'Bag of Garbage'
 - 1 copy with enough cards for each participant
 - 3 copies for review activity
- Write the heading "*Reduce*" on flipchart paper
- Write the heading "*Recycling*" on flipchart paper
- Write the heading "*Composting*" on flipchart paper
- Write the heading "*Burning*" on flipchart paper
- Write the heading "*Burying*" on flipchart paper
- Optional: Write the Learning Outcomes on flipchart paper

Introduction**5 minutes**


1. Wearing a pair of gloves, go through a bag of garbage in an exaggerated way looking for something. Toss the items all over the floor.
2. Respond to the participants' reaction accordingly, eventually asking what's wrong with what you are doing?
3. **LINK:** Ask the participants why throwing garbage all over the place is not a good practice?
4. Present the lesson description or learning outcomes.

The Importance of Managing Waste**10 minutes**

1. Divide the participants into groups of 3-4 people.
2. Ask each group: "Why is it important to manage waste properly?" Write their answers on flipchart paper:
 - *Reduce breeding grounds for bugs, rodents, mosquitos, snakes, and other animals which can spread diseases*
 - *Protect the environment and water sources*
 - *Waste can block drainage canals and contribute to flooding*
 - *Rotting waste produces air pollution, which is harmful to your health*
 - *Using more waste requires the making of new products, which is bad for the environment*
 - *Hazardous waste can be dangerous*
 - *Visible pollution*




Reduce, Reuse, Recycle**10 minutes**

1. Give each participant a card from the 'Bag of Garbage' activity. Explain that for the rest of the lesson they will be the item on the card that they hold. Tell participants that all together, the items create an imaginary bag of garbage that belongs to you. They are going to go through the different ways to manage waste.
2. Explain to participants that the goal of this activity will be to manage all of the waste in the bag properly. By the end of the activity, we want to have nothing left in the bag.
3. Ask participants: "What is the very first thing we can do to make the bag smaller?" *Reduce the amount of waste we use in the first place.*
4. Ask participants: "Why is it important to use less?" *Using less means we can be more efficient in the products that we use and make the disposal and management of waste that much easier.*

5. Ask participants: "What are some things that we can do in our everyday lives that can help reduce the amount of waste we create?" Write their answers on the 'Reduce' flipchart.
 - *Don't take a plastic bag when you buy something from a shop*
 - *Use reusable containers, like plastic bottles rather than buying new ones*
 - *Try to fix or repair things when they break*
6. As participants give you answer, you will notice that some are actually relevant to reusing products rather than simply reducing. When, and if, this happens, add the title: "Reuse" to the title of this flipchart.
7. Ask the participants: "Are there any items that could be reused for the same, or for a different purpose?" Add their answers to the list.
8. Explain to participants that there is a 3rd 'R' that they could do with waste: "Recycling".
-  9. Ask the participants: "What is recycling?" and "What are some benefits of recycling?" Record answers on the "Recycling" flipchart.
 - *Recycling is taking a product, breaking it down from its current form, and making something new from the same material*
 - *Recycling companies often pay for materials, income can be generated*
 - *Good for the environment, uses less raw materials*
10. Ask participants: "Are there any recycling centres in the country?"
11. Ask the participants: "What items can be recycled here?" Record answers on "Recycling" flipchart.
 - *Paper, metal, plastic, glass*
12. Ask the participants: "If your card item can be recycled, then please bring it and make a small pile in the middle of the room with your cards." Tell participants that we have taken those items out of our garbage bag to be recycled.

Composting

10 minutes

-  1. Ask the participants: "What is composting?" Record answers on the "Composting" flipchart.
 - *A natural process that breaks down organic material (material that once came from a living thing) to create a valuable soil amendment*
-  2. Ask the participants: "What items can be composted?" Record answers on "Composting" flipchart.
 - *Fruit, vegetables, paper, husks, grass, leaves*
3. Ask those participants with compostable items to bring their cards and make a new pile in the middle of the room.
-  4. Discuss the benefits of composting. Record main points on "Composting" flipchart.

- *In developing countries, up to 85% of the waste stream is organic material that can be composted*
 - *Reduces the amount of waste to be collected and transported*
 - *Creates valuable resource for agriculture, including a home garden*
 - *Soil holds water better*
 - *Enhances effectiveness of fertilizer*
 - *Can be done at home*
 - *Costs very little to get started and nothing to operate*
5. Explain to participants that you have now reduced and reused the items that you could, you have recycled the ones you could at the recycling centre, and you have sorted all the compost into an area in the back of the household.

Leftover Waste

25 minutes



1. Tell the participants that you can now lift the bag, but you want it to be taken away because you don't want to see garbage scattered across your yard or community. Ask the participants: "How can I get the bag of garbage taken away?" Discuss the following points and record them on the "Collection" flipchart.



- *Formal collection services – mostly serve planned urban and wealthy areas. Big trucks often can't fit into unplanned areas because roads are too narrow, too steep, or poor quality.*
 - *Take waste to a centralized point where waste services will pick it up.*
 - *Pay someone with smaller vehicles to pick it up – tricycle carts, hand carts, semi-motorized carts.*
2. Tell participants that you checked your imaginary area and there are absolutely no collection services near you. Not even a centralized pick-up site. Ask the participants what can you do to make the garbage disappear?
- *Burn it, bury it*
3. Ask the participants: "What are the dangers of burning waste at home?" Record responses on the "Burning" flipchart.
- *Fire spreading*
 - *Chemicals released into the air – plastics are especially dangerous. Wood, paper, and some construction debris are less dangerous. Chemicals cause serious air pollution and are related to illnesses such as cancer.*
 - *Smoke from burning is hazardous to human health, especially lungs. Also bothers eyes, nose, and throat.*
4. Ask those with cards left in the garbage bag to line up from least hazardous at the front, to most hazardous at the back. Once lined up, ask the participants to say their item aloud.

5. Ask the participants: “If there was no other option but to burn the materials, how can that be done safely?” Record main points on “*Burning*” flipchart.
- *Burn waste as far away as possible from people and items that can catch fire, such as your house*
 - *Burn it in a pit or a barrel to prevent fire spreading*
 - *Bury ashes in a pit or landfill; they may have dangerous substances in them*
6. Tell participants that you have lots of property and you want to bury the waste because you don’t want to burn it due to the health effects. Explain what happens when garbage is buried.
- *Leachate, a liquid that is produced as materials break down, is formed and can contaminate groundwater*
 - *Greenhouse gases (e.g., methane) are released. Taking out the organics and composting them reduces the amount of gases produced*
 - *Methane gas can also migrate and is explosive*
7. Knowing the concerns, ask the participants to discuss what they would recommend for locating and maintaining a pit. Record responses on the “*Burying*” flipchart.
- *Locate the site at least 500 metres away and downhill from drinking water sources.*
 - *Ensure that there are at least 2 metres between the bottom of the disposal pit and the highest annual groundwater level. The more distance between the bottom of the pit and the groundwater, the lower the risk of contamination.*
 - *Do not dispose of waste in an area susceptible to flooding.*
 - *Locate the site in clay-like soil if possible. The smaller the soil grain size, the lower the risk of soil and groundwater contamination. Do not dispose of waste in sandy areas.*
 - *Cover waste with 0.1 metres of soil or ash regularly (e.g., daily or weekly) to reduce smells and pests, and prevent waste from blowing away.*
 - *Construct a fence to keep animals and children out of the disposal site.*
8. Discuss any hazardous waste materials that are left over (e.g., batteries, used syringe) and options for their disposal.
- *Do not reuse containers that held hazardous material*
 - *Do not burn hazardous waste*
 - *Do not dispose of hazardous waste in latrines, drainage channels, water sources, or on the ground*
 - *Use less hazardous materials as substitutes*
 - *Separate hazardous waste from general household waste*
 - *Use better storage before and during collection of hazardous waste*
 - *Dispose of hazardous waste in a separate landfill site from general household waste*

- *Take medical waste to a local health care facility for disposal, if available*
9. Ask the participants to discuss in pairs what they have learned and what methods they might use to promote better solid waste management in communities. Share some responses with the large group.

Review**5 minutes**

1. Divide participants into three groups. Hand out one set of the 'Bag of Garbage' activity cards to each group.
2. Explain that the participants will take turns running across the room to place one card in the correct waste management pile (e.g., recycle, compost, burn/bury, hazardous waste). The participant must return to their group before the next person can do the same. The first group to sort all their cards wins.

Reflections on Lesson

Activity: Bag of Garbage



