

## Lesson Plan 4: Point of Use Options



75 minutes

### Lesson Description



In this lesson plan, participant will get the information on different types of water purification options.

### Learning outcomes

At the end of this training participants will be able to



1. Discuss different PoU options with their operation and maintenance
2. Demonstrate SODIS and chlorine dosing

### Materials



- Flip chart paper
- Markers
- Piyush
- Water bottles
- Scissors

### Preparation



- ◆ Prepare learning outcome on the flip chart paper
  - ◆ Print and cut the alphabets (B, C, F, S) for Alphabet Game
  - ◆ Write on the flip chart paper Boiling, Chlorination, Filtration and SODIS with sub topic.
  - ◆ Prepare flip chart paper with Boiling Verify Check list, Chlorination Verify Check list, Filtration Verify Check list and SODIS Verify Check list.
  - ◆ Print and cut PoU Review Activity
- Optional:** Prepare PowerPoint on verifying checklist of PoU options.

### Introduction

10 minutes



1. Tell the participant that they are going to play a hidden alphabet game.
2. Distribute a piece of paper with alphabet to each participant. The alphabet includes B, C, F and S.
3. Ask them to make group of people having same alphabet. There will be four groups in total.
4. Disclose of meaning of alphabet: **B** for Boiling, **C** for Chlorination, **F** for Filtration and **S** for SODIS. They are all household water treatment options.
5. Tell them they have to prepare a short act to portray the household water treatment option being used which they have got in the form of alphabet. They will be provided 2 minutes for preparation and only 30 second to show act. Act should be clear enough to recognize which option they are presenting.
6. Make them present their act one by one group.
7. Link that, the group presented different Point of Use Options (points where water is used- household) and session will be focused on that.

### POU options

50 minutes



1. Ask the participant to raise their hand who is using point of use water purification options.
2. Ask those participants who raised their hand to explain the process (in short) using point of use water purification options.
3. Ask the participants to think about what kind of information they have to pass to community people, so that they can understand and use the option properly. Or what are the basic thing a user should know for proper use?
4. Provide one minute to think and ask two volunteers to share their idea.
5. Summarizing their idea, explain that basically they have to know four thing: what is it? How it work? How to Operate? Key point to consider during the use of option.
6. Provide a brown sheet to each group and ask them to fold the paper twice (once by its length and the second by breadth- so as to form a box). And ask to open and draw the line to create 4 boxes.
7. Ask participants to write 'what is it?' in a box, 'how it work?', 'How to operate' and 'key points to consider' in each of other boxes respectively.

**Or**, provide the paper with the following chart included:

What is it? •	How it work? •
How to operate? •	Key point to consider? •

8. Inform participants now they are to write down these points on their water treatment option: Boiling, Chlorination. Filtration and SODIS to respective group and ask them to write the information in bullet form on the chart after discussion in the team.
9. Inform that they have 15 minutes to complete the task and 5 minutes to present and discuss on the topic.
10. Ask them to present their task after 15 minutes and provide 2 minutes to clarify to audience if there is any confusion by the presenter.
11. Paste the Verify check list of same treatment option and make them to do comparison between these two and identify if any points are missing in their flip chart paper.
12. Repeat same process for remaining treatment options and verify the information.

**Demonstrating SODIS and Chlorination**

**5 minutes**



1. Place the Piyush and plastic bottle in front of class room in visible place.
2. Ask the participant, which options are possible to demonstrate right now. By seeing Piyush and bottle, they may answer: SODIS and Chlorination. If not, inform them as bottle and Piyush are available, SODIS and Chlorination can be demonstrated right now.
3. Ask chlorination group to demonstrate Chlorination option and SODIS group to demonstrate SODIS.
4. Add on more points if necessary.

**Review**

**10 minutes**



1. Distribute one or two cut pieces of PoU review activity but make sure everyone have cut pieces.

Total Sanitation

Point of Use options

2. Ask them to read and make the groups of PoU options that their information belongs to.
3. Provide two minutes to arrange the group.
4. Ask them to present which cut pieces in their group.
5. Make sure every pieces are in right group.

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**Reflection on lesson**

**Verify Check List****BOILING**

What is it?

- Traditional and popular water treatment option
- Mostly, during sickness only they drink boiled water

How it work?

- Temperature raise up to 100 degree (boiling point)
- Pathogen dies because of excessive heat

How to operate?

- Put clean water into a boiling pot and cover it properly
- Provide heat
- Boil it at least first rolling boil

What should be considered?

- Remove physical and chemical contamination before boiling Ex. iron, turbidity
- Do not half boil for drinking purpose
- Do not boil arsenic contaminated water

**CHLORINATION**

What is it?

- Water treatment option using chemical/chlorine
- Use different form of chlorine such as Piyush, Aqua-Tab, etc. to kill pathogens
- According to WHO guideline, concentration of chlorine should be maintained.

How it work?

- Chlorine kill pathogens
- Free Residual Chlorine protect from recontamination

How to operate?

- Take untreated clean water into a water vessel such as water bottle, bucket with lead or *gagri*
- Ensure volume of water (how many liters)
- Add chlorine solution as mentioned in user instruction such as 3 drops of Piyush into 1 litter of water, 3 ml Piyush Plus in 15 liters of water.
- Keep 30 minute or half an hour to disinfect water.

What should be considered?

- Use right amount of chlorine (not less nor more)
- Do not eat or drink chlorine solution directly
- Keep chlorine solution out of reach of children

**FILTRATION**

What it is?

- A techniques to separate/remove pathogen from water using filter media or micro fiber
- Some filter also kills pathogen such as collide silver filter.
- Best for physical and chemical contamination removal
- Different type's and qualities of filters are available in the market such as Candle filter, Colloidal Silver filter, Bio-sand filter, etc.

How it work?

## Total Sanitation

## Point of Use options

- Because of small porosity, harmful pathogen trap in filter media
- Kills pathogen in Colloidal Silver, UV ray, Biofilm, etc. used filter.

### How to operate?

- Close outlet tap
- Pour raw water into first part or chamber
- Filtered water collect in to second chamber
- Use water from second chamber.

### What should be considered?

- One should select filters as per water quality
- Water filter should be cleaned frequently
- Filter water should be stored in good container with dispenser
- Should be placed in proper location

## **SODIS (Solar Water Disinfection)**

### What is it?

- Water treatment option by using plastic bottle and sun rays
- It is zero cost techniques
- Reuse of plastic pet bottle such as drinking water and cold drinks.
- Easy to apply

### How it work?

- Ultra Violet rays kills harmful virus and bacteria
- Heat provide support/ magnifies the process

### How to operate?

- Clean the bottles properly (removing level, wash cover and bottle)
- Fill raw water completely and keep cover properly
- Display the water bottle in the sun light continuously 7 hours or one day slightly inclining towards sun.
- Keep two consecutive day if weather is cloudy

### What should be consideration?

- Bottle should be PET bottles such as water bottle and cold drinks bottle
- It should be transparent and base not more than 10 cm diameter
- It only remove biological contamination.

**PoU Review Activity**

1. Traditional and popular water treatment option
2. Temperature rise up to 100 degree (boiling point)
3. Pathogen dies because of excessive heat
4. Boil it at least first rolling boil
5. Do not half boil for drinking purpose
6. Do not boil arsenic contaminated water
7. Water treatment option using chemical/chlorine
8. Use different form of chlorine
9. Chlorine kill pathogens
10. Add chlorine solution as mentioned in user
11. Keep 30 minute (half an hour) to disinfect water
12. Do not eat or drink chlorine solution directly
13. A techniques to separate/remove pathogen from water using filter media or micro fiber
14. Some also kills pathogen such as collide silver filter.
15. Candle filter, Colloidal Silver filter, Bio-sand filter, etc.
16. Because of small porosity, harmful pathogen trap in
17. Pour raw water into first part or chamber
18. Use water from second chamber.
19. Water filter should be cleaned frequently
20. Water treatment option by using plastic bottle and sun rays
21. Zero cost techniques
22. Ultra Violet rays kills harmful virus and bacteria
23. Clean the bottles properly
24. Expose continuous for 7 hours or one day slightly inclining towards sun.
25. Transparent and not more than 10 cm diameter