



Water Safety Plan

Let us know

HOW TO KEEP WATER SAFE



 **World Health Organization**
Country Office for Bangladesh

LET US KNOW HOW TO KEEP WATER SAFE

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Introduction

Generally we derive water from three sources - surface, underground and directly from rain through various technologies. However, how far the water of all of those sources is safe depends upon how people properly operate and maintain the sources and technologies. The water from those sources and technologies can become contaminated by chemicals or microorganisms any time due to so many reasons. Users even may not know that they are using contaminated water that causes waterborne diseases.

In order to ensure that only safe water is consumed, necessary measures need to be taken to prevent contamination of water at each step from source to supply system and even at the point of use of water. 'Water Safety Planning' is the best way to accurately use measures to keep water safe from its source to point of use.

In order to prevent contamination of water, users have to learn how their water is being contaminated and what measures have to be adopted to keep that water safe and how the risks of waterborne diseases can be reduced. The booklet titled "Let us know – how to keep water safe" will help the water users to develop the concepts regarding the issues. The booklet illustrates in simple language with pictures about various hazardous events in different stages of water supply system and technological options and how to prevent the risks of hazards so as to keep water safe. Water users will be able to easily perceive whether water from their own technology is getting contaminated or not by seeing the pictures. On the other hand they will also realize if the existing water safety measures are properly maintained or not.

The booklet titled "Let us know – how to keep water safe" has been prepared based on various books published by various development organizations including the World Health Organization (WHO), expert's opinion and practical experience gathered by water users. We do expect that the booklet will play a vital role for implementing Water Safety Planning in both rural and urban areas.

Let us know

What is safe water?

Water which is free from microorganisms and contains chemicals and minerals at the tolerable limit is **Safe Water**.



Safe water is free from taste, color and odor and drinkable

Let us think - Do we all want to drink safe water? Why?
What harm comes from drinking contaminated water?
Let us read the booklet and learn the answers of the questions.

Let us know

What is a Water Safety Plan?

It has been said that 'water is life' – ONLY if water is safe. We want safe water to keep our body sound. But if water is polluted it could be said that 'water is death'. We are polluting water in different ways due to our ignorance or negligence.

A Water Safety Plan is a way to keep water safe at all stages – from lifting water from sources using various technologies to purification, preservation, supply and utilization.

**Objective:
The objective of keeping water safe is to protect us from various water borne diseases.**

let us know

**Who needs to learn about
Water Safety Plans?**



All of us should learn Water Safety Plan

Housewife/ student/ teacher/ farmer/ service holder/
boatman/ rickshaw puller/ pump operator/ plumber/
water bill collector/ tubewell caretaker/ water supplier/
officer of water supply section of municipality/ house
owner/ hotel owner/ restaurant owner/ clinic manager/
health worker/ local government representatives - ALL of
us should know it.

**Let Us Think
whoever am I, why I
should know Water
Safety Plan?**

Let us know



Why I should know Water Safety Plans?

Safe water user

I have to fetch, carry and serve or drink water; so I have to learn the ways to keep water safe; so that the health of my family members or myself is not affected due to my fault.

Water supplier

I ensure supply of water for many people. I can prevent contamination of water by adopting necessary measures and can shoulder a noble duty by supplying safe water.

Water technology operator

I am responsible for providing water at home or institutions. Risks of water contamination can be increased due to my ignorance. I can also prevent the contamination of water through adopting measures regularly if I know about the ways. I should learn for my professional responsibility also.

Tube well care taker

I too have to learn how water is contaminated and the ways to keep the same safe. As I have to follow those during my work, similarly my major responsibility is to inform those to the users.

Water supply manager

Installation of water supply technology, repairing, operation, improvement and skills of staff are raised through my decisions; as much as I learn properly, the common people will get more better quality services.

Let us know

How does water get contaminated?



Water gets contaminated in three main ways:

- **Firstly**, the groundwater is contaminated due to presence of arsenic, salt or toxic chemicals in ground water at more than safe level or if water comes in contact with microorganisms. Surface water gets contaminated if garbage/waste and/or human and animal faeces is mixed with it.
- **Secondly**, if water technology dose not function properly or the distribution line is faulty or leaking, water gets contaminated.
- **Thirdly**, if unclean pot is used during collection, transportation and preservation or even in drinking or hygienic habits are not practiced, water gets contaminated.

Let us know

How can contaminated water cause us harm?

Germ affected water is contaminated water. Diseases like diarrhea, cholera, dysentery, typhoid, hepatitis and jaundice are caused by drinking this water.

Water with excessive arsenic i.e more than the tolerable level is contaminated water. Arsenicosis disease breaks out by drinking this water.

Water with excessive salt and iron i.e more than the tolerable level is contaminated water. Generally people drink this water less than required causing dehydration and skin diseases.

Body will be weakened

Work will not be done

Income will be less

If disease turns serious it can even cause death

Certainly we don't want to suffer from diseases. We don't even want to die from contaminated water. So we have to prevent pollution of water. Therefore we have to make water safety plan.

Let us read the book and let us know-

From which source do we get water- how water gets contaminated at various stages and what are the means to combat those?

Let us know

How do we get groundwater?



Piped water supply system



Deep / Shallow Tubewell



Tara Pump (some people also use deep-set pump)



Ring Well / Dug Well

Compare and see - From which source do we get water?

Think - Can water be polluted from the source where we get it?

Let us know

How do we get surface water?



Piped water supply system



**Rain water
harvesting System**



Pond-Sand Filter (PSF)



Gravity Flow System (GFS)

Compare and see - From which source do I get water?

Think - Can water be polluted from the source where I get it?

Let us know

How water is contaminated in piped water supply system?



Unless connection is properly made in more than one pipe line



If water is collected through pipe line inside the hole



If slit/hole exists in exposed supply pipe or earth is removed from the pipe



Unless connection is properly made on canal / drain



If lichen grows on the body of uncleaned tank



If the surrounding of roof tank remains untidy



If inner portion of the underground reservoir remains unclean



If spout of the tank is uncovered or no lid exists

If spout of the overhead or underground tank equalizes with the ground, dirty water can enter from outside.

Compare and see - If situation is like these pictures and statements - safe water cannot be got through the pipeline

Let us know

Whether water is safe in piped water supply system?



The overhead tank or rooftop tank has no crack and its body is neat and clean (is cleaned regularly)



Manhole of the tank is covered with a lid and water can't enter as the spout of the manhole is raised from the roof level of the tank



Connections are made properly in pipe



Connections are proper and supported in pipe crossing over canal/drain

In addition, it is to be ensured that pipe has been covered properly by earth and there is no leakage or hole in pipeline.

Compare and see - If your situation is like these pictures and statements- it is likely that water collected from pipe line is safe

Let us know

Whether water from **stand post** is being polluted or not?



If stand post is set up near drain, no platform or broken platform at the base and water stagnates at the base



If there are leakages in pipe of the stand post and if bamboo or wooden chips are used in lieu of bib cock.



If fecal matters of animals and bird are near roadside stand post

Compare and see - whether the situation of roadside stand posts turned alike pictures? If so, water is most likely being polluted

Let us know

Is water of **stand post** safe or not?



Bib cock (tap) has been used in stand post and there is no leakage in pipe



The stand post is not attached to drain, there is a platform which is not broken, water doesn't stagnate and the surroundings are clean

Compare and see - is your situation of roadside stand posts like these pictures? If so, most likely you will get safe water

Let us know

Is the **tubewell water** being polluted or not?



If lichen grows on the pump of the tube well



There is no lid on the tube well, so faeces of birds may fall inside the tube well



If spout of the tube well is covered by a cloth



If spout of a plastic bottle is cut and fixed with the spout of tube well



There is no platform or the platform is broken



The platform is unclean, lichen grown up, garbage exists in the surroundings and water used by the drain doesn't drain out properly



Sanitary seal does not exist at the base of tube well

Compare and see - If situation of the tube well is the same as the pictures then most likely water is being polluted

Let us know

Is tubewell water safe or not?



No cloth or bottle in the spout of tubewell and a lid exists over the tubewell



Sanitary seal exists at the base and platform is cemented. The latrine is not within 30 feet from the tubewell



Tubewell pump and platform are being kept clean by cleaning those regularly



Surrounding of the tubewell is clean and no water stagnates there. The drain is clean and the used water drains out

Compare and see - If situation is the same as pictures then most likely we may get safe water from the tubewell

Let us know-

Is the water of **ring well** getting contaminated or not?

There is neither a lid nor a platform of the ring well



Arrangements have been made to lift water by a rope

The lid of the ring well is broken



Dirty water stagnates around the platform

Besides, water may be polluted if pit latrine exists within 30 feet of the ring well.

Compare and see - If situation is the same as picture and description, water of the ring well is most likely getting contaminated

Let us know

Is water of **ring well** safe or not?



As the ring well is covered by a lid, dirty water cannot enter into its inside. There is no pit latrine within 30 feet of the ring well



The platform of the ring well is good and clean, surroundings of the ring well are clean and free from dirt. Instead of rope, tubewell head is being used to lift water

Compare and see - If situation is the same as pictures then most likely we may get safe water from the ring well

Let us know

Is **pond sand filter** water getting contaminated or not?



**Cattle and goats are grazed on the banks of pond or
cattle and goats move there**



**Latrine exists near the pond and lichen has grown in
the water of pond. Bathing, washing clothes and
utensils and cleaning domestic animals are done in
the pond**



Chemical fertilizer or fish food are utilized for aquaculture in the pond.



The platform of PSF is broken and unclean, There is no lid or the lid is damaged. Lichen has grown on the wall of filter and lid

Besides, dirty water / flood water can enter into the pond if banks are lower

Compare and see - If condition of your PSF is the same as pictures then water is most likely getting contaminated

Let us know

Is water of **pond sand filter** safe or not?



- Surrounding of the pond embankment is higher, so dirty water, rain or flood water can not enter into the pond.
- Latrine does not exist near the pond.
- If lichen and hyacinth grow up, those are cleaned regularly

- There is no garbage surrounding the pond
- There are no hanging branches of trees over the pond.
- Bathing, washing clothes and utensils and cleaning domestic animals are stopped in the pond



The platform is tidy and clean; filter and the surroundings of the platform are also clean, that means there is no garbage and water stagnation



PSF is covered by a lid and is good and clean

Compare and see - If condition of your PSF is the same as the pictures then most likely we can get safe water

Let us know

Is water in **rain water harvesting system** contaminated or not?



If the tank wall is unclean and lichen grows there, If a lid is not placed on the spout of the tank or broken lid or dust and garbage fall in it



Water is collected from the roof of asbestos tin, garbage exist or branches of trees hang on the roof or tin of the roof are rust



If dust, garbage and lichen grow in gutter

Besides, unless the tank and tin roof are cleaned with bleaching powder before harvesting water of earlier rain at the advent of rainy season.

Compare and see - If condition of your rain water harvesting system is the same as pictures the most likely water is getting contaminated.

Let us know

Is water of **rain water harvesting system safe** or not?



There is no rust on roof tin, upper part of roof tin is clean, no lichen on the tank-wall, surroundings of the tank are tidy and clean and there is no dust, garbage and lichen in gutter



The tank and roof tin are cleaned with bleaching powder before harvesting water of earlier rain at the advent of rainy season and rain water is harvested after an interval of 10-15 minutes at the start of rain.

Compare and see - If condition of your rain water harvesting system is the same as in the pictures then most likely you will get **safe water**.

Let us know

How do we get safe water during emergency?

Crisis of safe water emerges after flood or any type of natural disaster. Even tube well water gets contaminated mostly. People can get safe water at that time if some simple measures are adopted. Some of the methods are described below:



1. **Boiling water:** Water becomes safe if it is boiled (1-2 minute more after bubbles rise).
2. **Using alum:** After properly mixing half a tea spoon alum in a jar with 20 litres of water, 90% water of the upper portion must be poured into another vessel. The rest of the water including sediments must be thrown away.
3. **Using water purification tablets:** water can be made safe through mixing chlorine tablets of various powers. During collection of tablet user should know how many tablets need to be mixed with how much water.
4. **Using bleaching powder:** Alum is mixed vigorously in water and allowed time to become stable and screen to get clean water. Afterwards water becomes fully safe if water purification tablet or bleaching powder can be applied in it. One fourth (1/4) of tea-spoon dry and white bleaching powder has to be mixed in 20 litres of clean water. During collection of bleaching powder, check whether it has odor of chlorine or not.



Let us know

How to keep water safe during **collection and transportation?**



Compare and see- What I do during collection and transportation of water

During collection of water

- At first, I wash my two hands properly with soap
- Afterwards I wash water container and the lid by clean water and soap.
- I use a lid, a bit larger than the spout of the water container

During carrying of water

- I don't carry water without lid. I don't cover the water container by napkin or part of my dress.
- I do not dip my hands or finger into water after collection of clean water in the vessel



Let us know

How do we keep water safe **during preservation?**



Compare and see- What do I do during preservation of water

- I keep the filled water container in a raised and clean place.
- During pouring water in the jar or glass from the water vessel, I keep the lid in a clean place with upside-down.

Let us know

How do we keep water safe **during use of water?**

Compare and see- What do I do during serving or drinking water



I pour water from larger vessel to a clean jar or glass.



I do not sink smaller mug or pot into the container for collecting water.



My fingers are not in contact with water during pouring.

Let us know once more-

What are the Stages of Water Safety Plan?

Water can be polluted at five stages from the source to the point of use. We can prevent pollution by adopting necessary measures at those five stages.

WSP ensures necessary control measures at five stages



1. Source / media



2. Collection



3. Transportation



4. Preservation



5. Use

Let us know

What are the methods or techniques to inform or complain about water supply?



- **Complaint may be made in the issues such as water is not being supplied in time or water is being supplied in lesser amount than what is supposed to be supplied or a fault has happened in the pipeline or dirty water comes out etc.**
- **Complain to the Mayor/Councilor or water supply division by phone call or through written application**
- **One responsible person will be deployed in each municipality who would receive complaints from the customers of water, note down the complaints and adopt necessary measures.**

Let us know

Whether I have any social responsibilities to keep water safe?



Obviously I have some social responsibilities

- Firstly** : To follow necessary measures for keeping water safe and abide by health habits and encourage others to do so.
- Secondly** : Water is a precious asset, so wastage of water should be avoided. Close the tap after use and alter it if it is found faulty.
- Thirdly** : Pay the bill regularly in time.
- Fourthly** : Promptly inform the municipality if any leakage or crack is found in the pipeline or water falls from the broken tap of the stand post.
- Fifthly** : Avoid illegal connection in order to prevent its wastage and encourage others to do so.

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