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# Safe water, better health!

Hygiene promotion manual for Community Health Volunteers (CHV)





# Safe water, better health!

Welcome to the Hygiene promotion manual for Community Health Volunteers (CHV), produced by Siemens Stiftung in collaboration with KWAHO

## About Siemens Stiftung

As a non-profit corporate foundation, we promote sustainable social development, which is crucially dependent on access to basic services, high-quality education, and an understanding of culture. To this effect, our project work supports people in taking the initiative to responsibly address current challenges. Together with partners, we develop and implement solutions and programs to support this effort, with technological and social innovation playing a central role. Our actions are impact-oriented and conducted in a transparent manner.

## About Kenya Water for Health Organization (KWAHO)

Kenya Water for Health Organization (KWAHO) is a national Non-Governmental organization implementing Water Sanitation and Hygiene (WASH) promotion activities to improve health of marginalized communities and institutions through access to safe water, improved sanitation, hygiene promotion, capacity building of community structures in overall management of the WASH facilities for sustainable development.

Its vision is to have a healthy world with sustainable water, sanitation and hygiene for all with a mission of facilitating all-inclusive and sustainable water, sanitation and hygiene programmes for marginalized communities.

## Topics

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## Impressum



1

# What do we use water for?

## Water usage

Water is crucial for every human being. The objective of this exercise is to reflect the role of water in our own personal environment and to become aware of the importance of water to us.<sup>1</sup>



Look at the picture and identify the purposes for which we need and use water.

<sup>1</sup> In larger groups: Ask one participant to write the groups ideas on a flipchart paper. Mark purposes for which safe water is needed and highly recommended.



**Look at the picture and identify the purposes for which we need and use water.**

Water is used for:

- Drinking
- Cooking
- Cleaning utensils
- Washing clothes
- Bathing
- For animals to drink
- Cleaning food
- Cleaning the house
- Watering flowers and vegetables
- Farming and irrigation

**Make clear:**

Water is very important in our daily life and is used for various purposes. The most important usage of water is for drinking:

**Drinking water must be safe water!**

Other purposes for which **safe water is needed**, are:

- Washing hands
- Washing and preparing food, e.g. vegetables and fruits
- Cleaning kitchen utensils like plates, cups, pots and sufurias

Purposes for which **clean water** is recommended are bathing and washing clothes.

**Less quality or recycled water** might be sufficient for:

- Watering the garden where vegetables or flowers grow

**Key Message: Safe water is necessary for drinking and cooking as well as for washing hands and kitchen utensils. Clean water is recommended for bathing and washing clothes.**



2

# Where do we fetch water from?

## Water sources

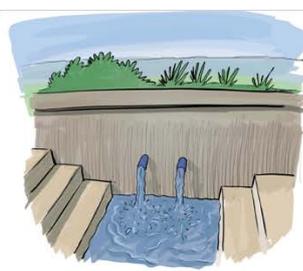
Water is very important in our daily life, and is used for many different purposes. The objective of this exercise is to reflect different water sources available in our community and assess their potential risk to our health.



Boreholes



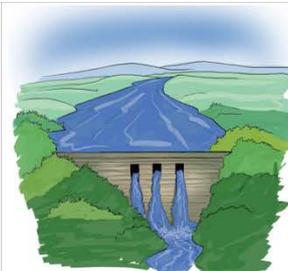
Rainwater Harvesting



Protected spring



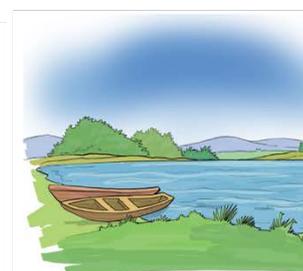
Rivers and streams



Dams



Ponds



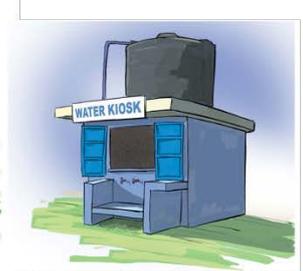
Lakes



Standpipes



Maji Safi Kiosk



Water kiosks and other water ventors

Other...

Look at the pictures. What is/are your main water source(s)?



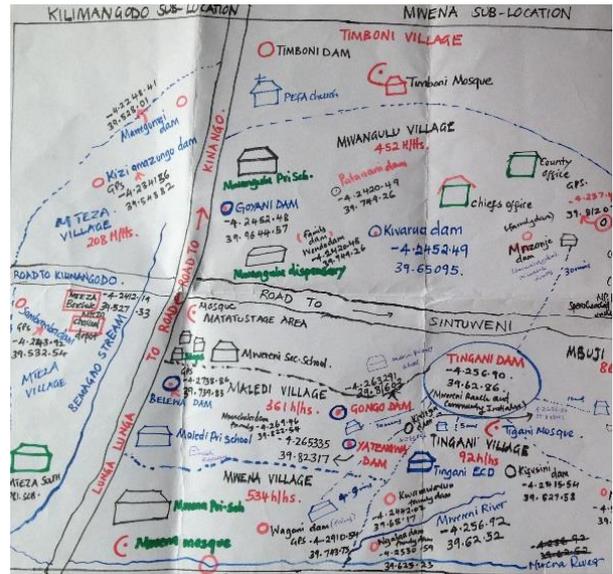
### Activity

Ask participants to draw a simple map<sup>1</sup> of their community including main roads, landmarks like churches, schools, health centres. Let them locate their houses, indicate the water sources they use or know of, latrines and open defecation sites.<sup>2</sup>

Discuss characteristics, advantages and disadvantages of using certain water sources. Find out people’s opinions and habits, and explore alternative opportunities.

Reflect and discuss the questions below:

- Considering the quality of water sources: What might be their potential risk to our health?
- Which is your preferred water source? Why?
- Are there any open defecation (OD) sites near the water source(s)?
- How would you rate the quality of the water?
- Which is your preferred source for drinking water? Why? Do you think the source is safe?
- If not: Do you treat your drinking water? Which method do you use?



### Make clear:

Depending on the kind of source, the quality of the water can be very different. In order to keep all family members in good health, it is important to ensure that safe water is available and used for drinking, washing food and cleaning kitchen utensils. Water must be treated to make it safe.

**Key Message: In a community, there are different water sources available offering different qualities of water. Make sure that you either buy safe water (from Maji Safi Kiosk) or treat your water to make it safe and avoid recontamination.**

<sup>1</sup> The map can be drawn on a board or flip-chart, also a big piece of cardboard will do as well when using chalk for instance. You can also use the ground and simple things like leaves as water sources.

<sup>2</sup> In case you are able to do mapping, draw first and then discuss the questions. If not, just go straight to the questions to discuss water sources.

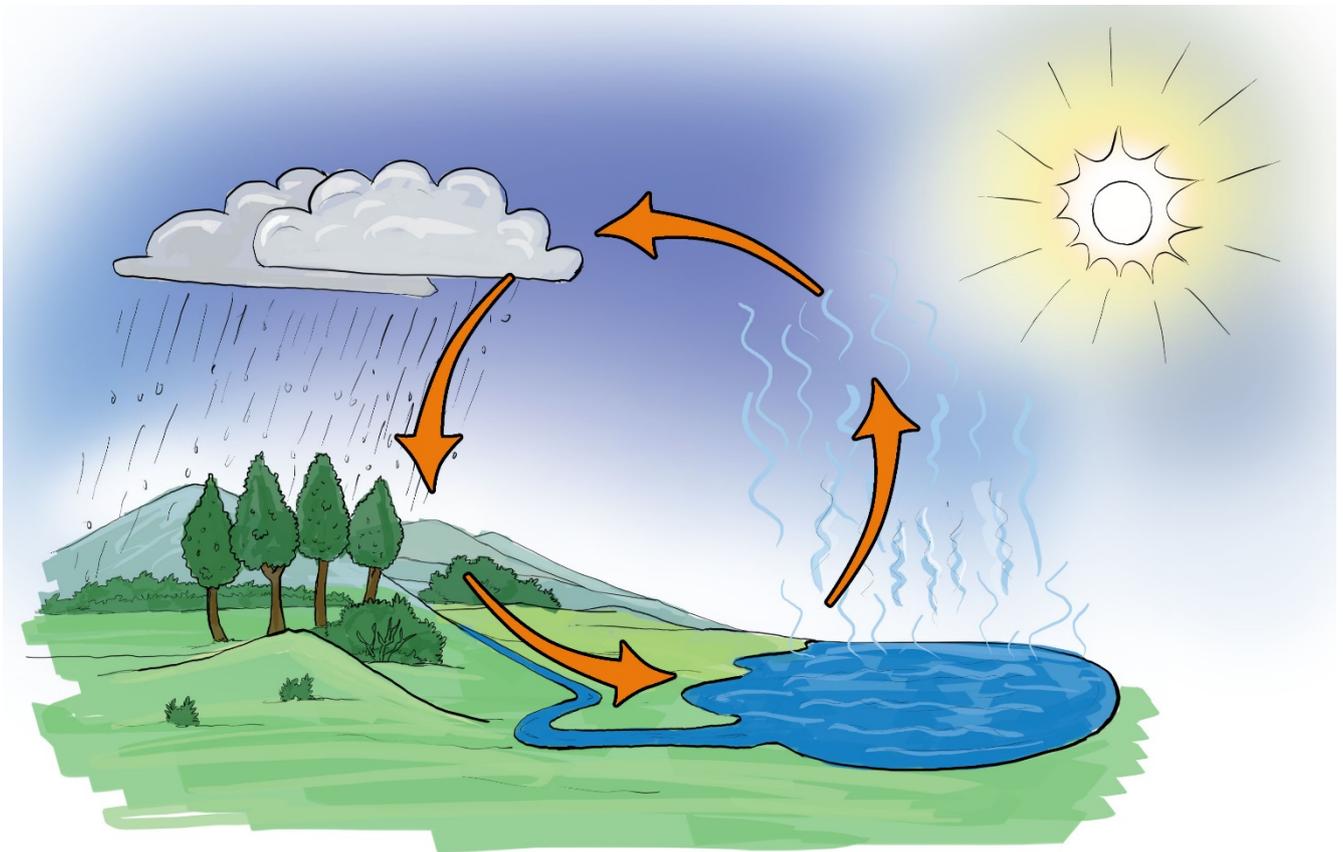


3

# How does the water cycle work and why should I know this?

## Water cycle

Water is life and necessary for every creature on earth. The objective of this exercise is to understand the self-cleaning effect of water and why it is our responsibility to protect water sources.



Look at the picture and assume what happens to water in a continuous cycle.

What are the effects of the water cycle and why is this important?



## Activity

From this picture, what kind of appearances does water have? What do you think is the purpose and benefit of the water cycle?

### Optional:

- Let participants draw the sun, clouds and rain drops on a plastic bag with a zipper and fill it with some soil plus water like shown in the picture. If available, let them put a green plant into it.
- Place the closed bag in bright sunlight and observe it 10 minutes later.
- Drops of water will appear on the inner upper side of the plastic bag. The drops are all clear – very much different to the muddy looking water at the bottom of the bag.



### Make clear:

Water evaporates as the sun heats up the atmosphere, it forms clouds, comes down again as rain and flows into the rivers and then to the oceans. This is a natural continuous process which happens all over the world all the time.

When evaporating, water leaves behind all substances and contaminants it contained before and comes down as pure water in the form of rains. So, the water cycle has a self-cleaning effect. However, rain water is not safe for drinking because it gets contaminated during harvesting. Water on earth always stays the same but it is limited, therefore, we need to protect it.

- Talk about good and bad experiences with water and responsibilities participants have taken to keep water clean and safe.

**Key Message: Water has a self-cleaning mechanism, but is always the same. It is our obligation to keep it safe for use, not to waste it and pollute it. We need to take care of it as we all depend on it!**



4

# Does *clear* water mean *safe* water?

## Clear and safe water

When water looks dirty, usually everyone would assume that it is not drinkable without taking health risks. But how would you judge, if it looks clear? The objective of this exercise is to become aware that clear water is not necessarily safe water.



**Look at the two glasses of water: Are you able to decide which glass contains safe water and which one contains water that is *looking* clear only?**



## Activity

1. Let your participants prepare two glasses, one filled with safe water and the other filled with water and half-spoon of kitchen salt. Stir it until salt has completely dissolved. Can they see a difference between the water in the two glasses?



2. Then let them reflect on the difference of clear and safe water. Is clear water safe for drinking? Is it possible that contaminants are still contained in clear water?

3. Let one person hold a spoon with safe water over a burning candle, a second person performs the same way with the salted water.

4. Keep the spoons over candle flames till all water evaporates: The first spoon is clean, the second shows a thin crust of salt. Result: Clear water can also contain different matters which are not visible.

Discuss the following:

1. What else besides kitchen salt might be contained in clear water?

Some examples:

- Hazardous salts, e.g. from heavy metals like cobalt, nitrates, or organic poisons
- Microorganisms like bacteria, amoeba, eggs of worms, viruses etc.

2. What are the health consequences when consuming unsafe water?

Possible answer: People might become sick with Diarrhoea, Dysentery, Cholera, Typhoid or worms, – just to mention the most common.

### Make clear:

One cannot judge with the naked eye only, if water is safe or not!

**Key Message: There is a difference between clear and safe water. Clear water may not be necessarily safe for drinking unless it is treated or fetched from a safe source like the Maji Safi Kiosk.**



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# Is Diarrhoea a waterborne disease?

## Waterborne diseases

The prevalence of waterborne diseases, especially diarrhoea, is a major challenge to many communities all over the world. The objective of this exercise is to become aware of the high prevalence of diarrhoea and of the fact, that it is a serious waterborne disease which can be avoided.



**Look at the picture: Try to identify the symptoms shown in the picture.**



## Discuss the following

1. Possible symptoms related to diarrhoea are:

- Abdominal pain
- Stomach cramps
- Headache
- Loss of appetite
- Malaise
- Vomiting
- Fever
- Fatigue
- Dizziness
- Shivering

2. Do you know diseases causing such symptoms? Are they common in your community?

Possible answers:

- Diarrhoea
- Cholera
- Typhoid
- Amoeba

3. What might be the cause of diarrhoea? Correct answers are:

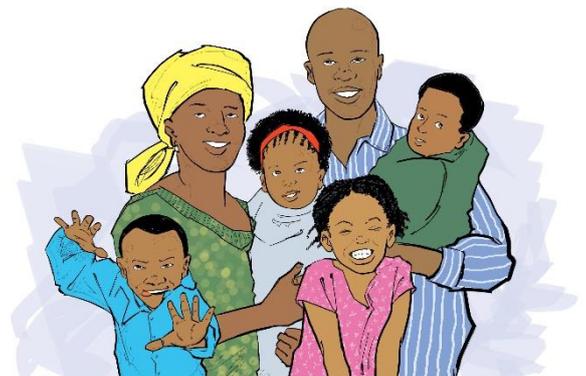
- Ingestion of contaminated food
- Consumption of unsafe water
- Poor hygiene practices, e.g. irregular handwashing, not keeping the body clean, handwashing without soap or ash, not using cleansing material after using the toilet, etc.

**Make clear:** Diarrhoea is a waterborne disease which in most cases is caused by consumption of contaminated water or food and poor hygiene practices.

Diarrhoeal diseases can be avoided by consuming safe water and through blocking the germs' transmission routes by practicing personal hygiene.

**Key Message: Diarrhoea is a dangerous illness which may cause death especially to children under the age of 5 years and old people.**

**To avoid diarrhoeal diseases, consume safe water and food and perform good personal hygiene.**



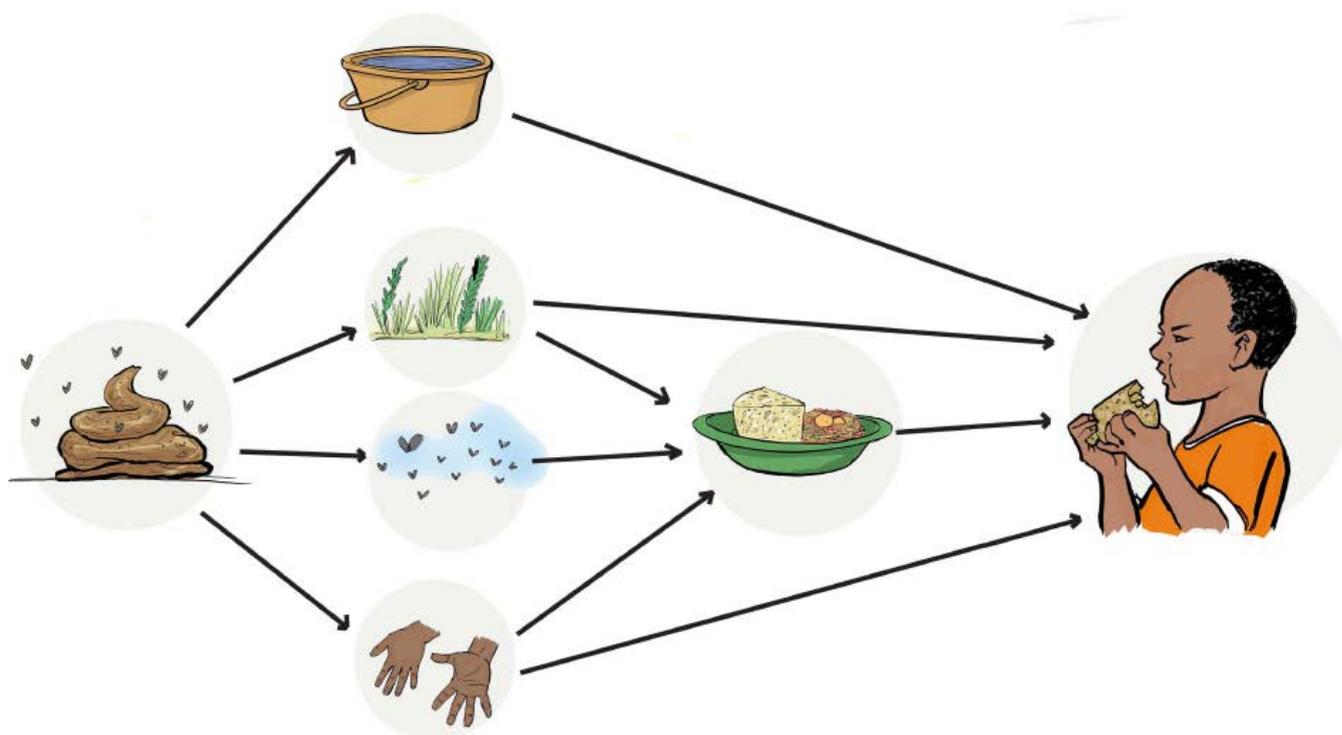


6

# How can we protect ourselves from waterborne diseases?

## Prevent germs transmission

Harmful germs like parasites, bacteria and viruses are all around us, but are invisible. Especially due to open defecation practices, faeces and other germs easily find their way into the water cycle and the food chain. In many communities, people consume each other's germs in a continuous cycle and so perpetuate serious infections. The objective of this exercise is to understand the germs' transmission routes and how to block them.

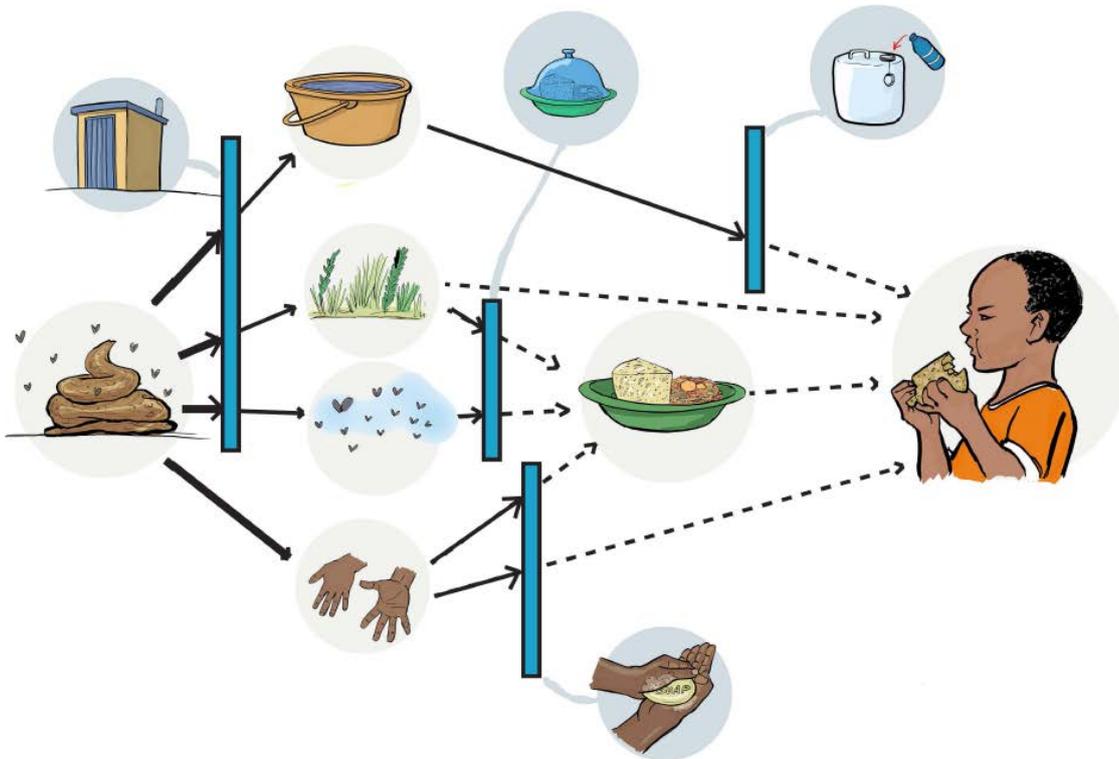


Look at the diagram, how are pollutants transmitted? Explain how the diagrams are related to each other. What might be the meanings of the arrows?



## Activity

What can be done to block these routes? Find out which of the means are already used in a family and which could be established without much effort.



**Make clear:** To block germs' transmission routes there are several means, most of them can easily be applied:

- **Proper faecal disposal** by using latrines instead of open defecation
- **Protecting water sources, covering water** vessels during transport and at storage
- Buying safe water or applying **water treatment** methodologies for drinking, cleaning kitchen utensils, fruits and vegetables
- **Covering food**
- Practicing good **personal hygiene**, especially **hand washing** before preparing food, eating and after defecation: Use soap or ash and safe water!

**Key Message: Germs are transmitted easily from one person to another and from objects to persons. To avoid waterborne and other diseases, these germs' transmission routes must be blocked!**



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# When shall you wash your hands?

## When to wash hands

Germes are everywhere – but some situations are even more risky, either to fetch germs from elsewhere on one’s own body or to transfer germs on to others. Most to be taken care of are all outdoors activities like playing, gathering waste, working in the garden, visiting another village and similar. Vice versa there are most delicate situations indoors, too, like changing baby’s nappies, feeding a sick person, preparing food, drinking or eating and alike.



**Look on the picture above and consider:  
After what situations is it essential for you to wash your hands?**



## Activity



Let the participants report on their personal hygiene: In what situations they wash their hands at any rate. Let them name the situations shown on the front side picture and if they follow personal hygiene then in any case. Finally let them identify special situations they have experienced themselves which could have been rather risky in regard of infection.

### Optional:

Many people like to roleplay. So, ask groups of 3 or 4 to produce a short story about the risks when not taking care of personal hygiene. Let them think about and assign the parts during 5 minutes and then let them perform their story in front of the others. Set a time limit for the performance and make all the members discuss what they have seen and what one might learn from it.

### Make clear:

- Hygiene can stop people becoming ill. Some serious diseases can put people in hospital, even for weeks. In some cases, people can die.
- If you resign hygiene practices you will continuously consume germs like bacteria, viruses from faeces (also from other people) through eating and drinking contaminated food and water. This can make you ill, over and over again.
- Hygienic behaviour also avoids spreading illnesses within the community. This means you can also prevent other people from getting ill.
- Proper hygiene practices demonstrate your respect towards yourself and towards others.

**Key Message: Hands should be washed before handling food, before eating, before feeding children and after defecation, after helping children to defecate and after touching anything suspicious.**

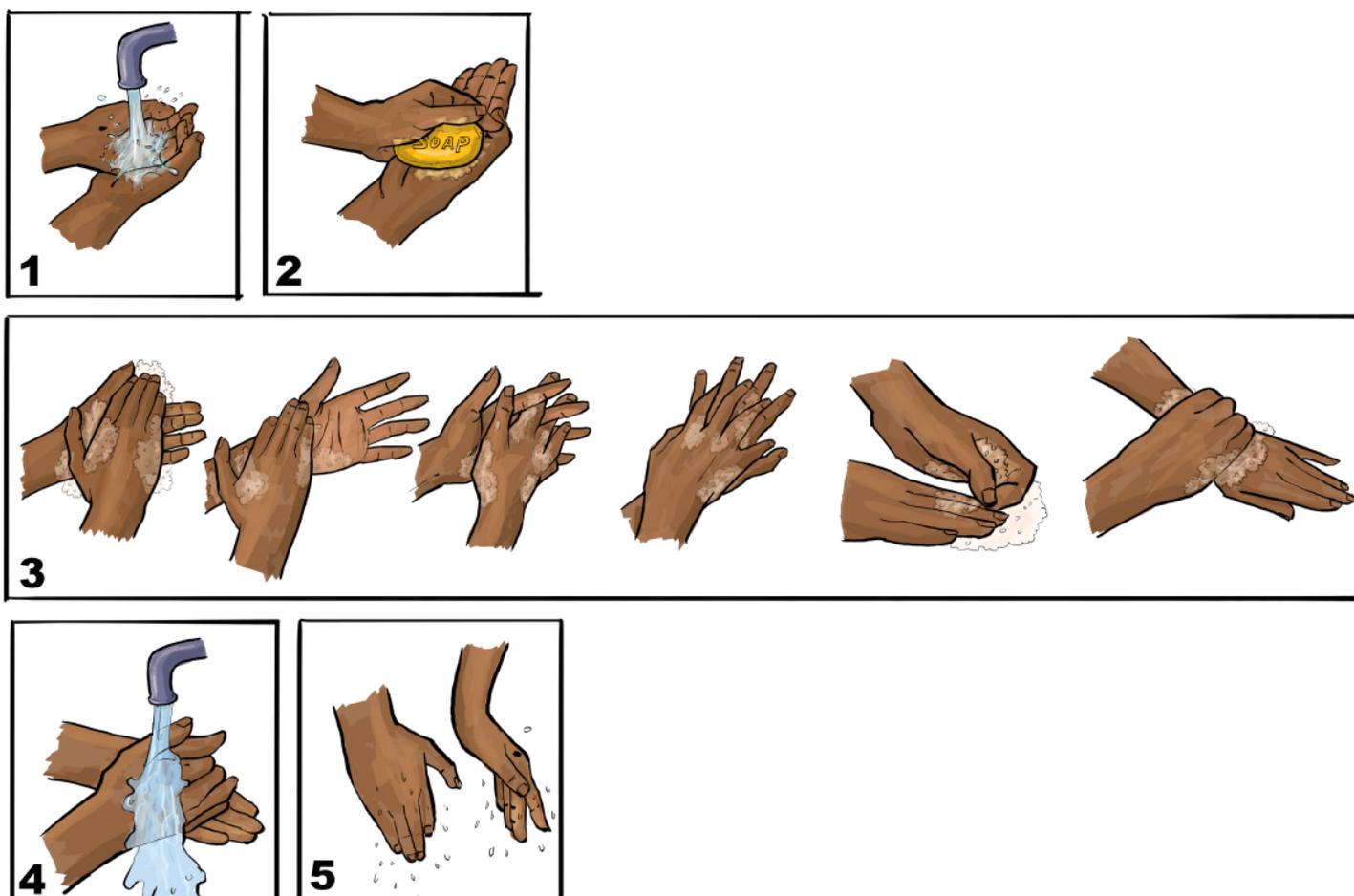


8

# How effective is handwashing?

## Hand washing

80% of infections are transmitted by hands (WHO). So, personal hygiene plays an important role in order to keep yourself and your family healthy. It means to keep bodies, hair, hands, teeth and fingernails as well as clothing clean. The items used for personal hygiene such as bath sponges, towels and toothbrushes should not be shared. The objective of this exercise is to remind participants that handwashing is the most effective hygiene method to avoid infections.



Look at the illustration and consider: What does your personal hygiene practice look like when washing your hands? How do you explain the correct practice to your children?



## Activity

Let the participants report on their personal hygiene: How do they wash their hands?

Let a few of them put one drop of cooking oil on their hands and try to rinse it off, first with water alone and secondly, with water and soap. Let them observe and describe the difference between the two techniques.

This experiment illustrates the benefits of using soap as a hygienic way to clean the hands. Microorganisms stick to the skin. The soap particles encircle dirt as well as microorganisms so that they can then be washed away with water. The oil can easily be washed away by using soap.

**Make clear:** Handwashing needs to be a routine all the day through as this practice prevents most infections.

- Personal hygiene is an important element of family and community hygiene.
- Proper hand washing means: Using soap, rub whole hands for at least 15 seconds, also wash the wrists, palms/centre of palms, back of the hands, between fingers and under fingernails and wash down with clean water.

Promote the following **five simple steps** to remove germs from ones hands:

WET – SOAP – RUB – RINSE – DRY

**Key Message: Washing hands with soap is the most effective hygiene practice to prevent illnesses. Wash your hands regularly!**





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# How can we treat our water and make it safe for drinking?

## Water purification methods

Water can be made safe for human consumption by applying different methods. Each of them works in its own special way, each has advantages and disadvantages. The objective of this exercise is to reflect different water purification methods and understand their way of operation.

Use clean PET bottles

Fill bottles with clean water and close the cap

Expose bottles to direct sunlight for at least 6 hours (or for two days under very cloudy conditions)

Store water in the SODIS bottles

Drink Sodis water directly from the bottles, or from clean cups

Look at the pictures: Can you identify the different water treatment methods illustrated?

Do you use one or more of these methods?



## Discussion

Common household water treatment methods are: boiling, chlorination, SODIS method.

Let participants debate about their reasons of choice of the water treatment methods and explain how they usually treat water.

Then share the advantages and disadvantages of each methodology:

- **Boiling** kills all the microorganisms, easy to apply and the most recommended purification technique. However, it only works when boiling temperature of 100° C is fully reached. It is also costly, because of the firewood needed.
- **Chlorination** is a common method of water disinfection as it kills all microorganisms. It is well available at an affordable price. But dosage is crucial: putting too much chlorine into drinking water might be harmful as chlorine is a chemical, too little might not be enough to kill all the germs.
- **SODIS method** is also effective against most microorganisms and the cheapest method as you only need PET bottles for sunlight exposure. It only works properly if the bottles are exposed to direct sunlight for at least 6 hours on a sunny day or two days on a cloudy day. This method is not appropriate during very cloudy or rainy days.

## Important

Share the following story “Why boiling sometimes fails” with your participants:

Fridah lives in Donyo in Thika County with her husband and 4 kids. As waterborne diseases often occur in their community, she is aware of the importance of drinking safe water. Usually, Fridah uses the remaining glow after she has cooked their meals to boil drinking water for her family. Still, her children often suffer from diarrhoea. What might be the reason? Correct answers:

- The remaining fire Fridah uses for boiling the water, is not sufficient to properly boil the water and kill the germs in it (must reach 100° C, blisters in the water are visible)
- Fridah and her family do not wash food with safe water before consumption.
- Poor hygiene is practiced in the family, especially handwashing is not applied.

**Key Message: Water can be made safe for drinking through boiling, chlorination or SODIS. Consuming safe water keeps family members healthy and saves money.**



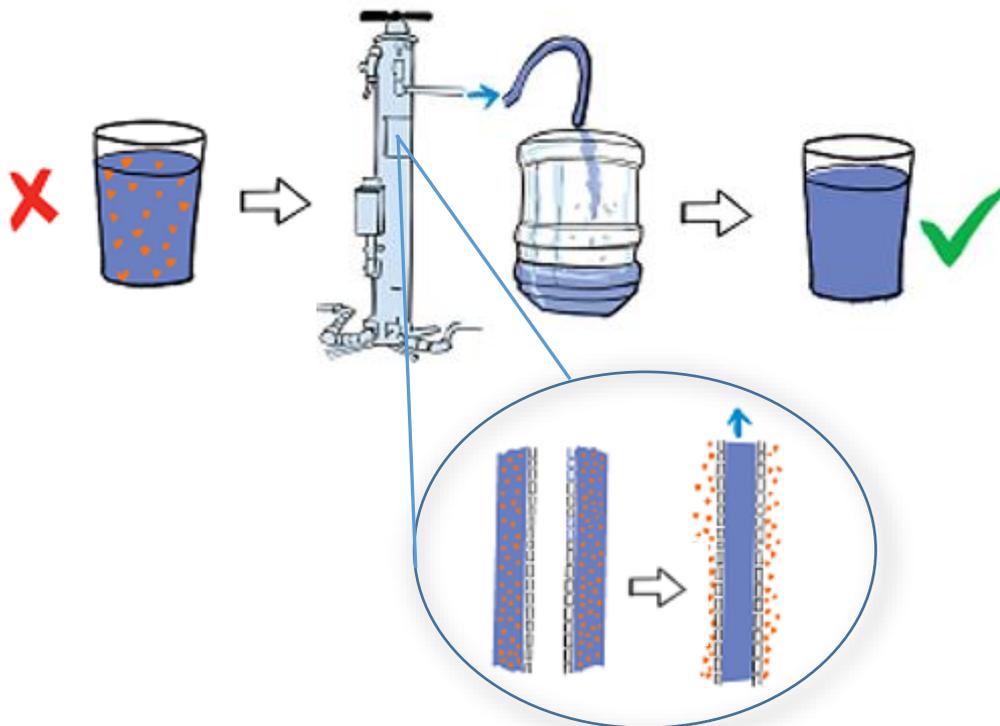
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# How is water treated at the Maji Safi Kiosk?

## Water treatment at Maji Safi Kiosks



The Maji Safi Kiosk has an innovative technology that purifies the water for its customers. The water is of best quality and comes at a good price, so it is a great option for community members. However, for people to start using this option, they need to know, understand and be assured that the water is really safe and worth the price. People need to understand how the technology works through filtration without any chemicals.



**Look at the pictures above and learn how the SkyHydrant purifies water without any chemicals – just by ultra-filtration!**



## Activity

Explain the way of the water through the SkyHydrant machine using the sketches on front side. Ask people to verify and describe in their own words.

Explanation: Inside a Maji Safi Kiosk a so called SkyHydrant is at work. It contains thousands of thin tubes with ultra-small pores in their walls. Contaminated water comes from a container above the roof of the kiosk.

The force of gravity presses it into the SkyHydrant. The water molecules pass through the pores, while all the dirt and pollutants stay outside.

The hydrant machine is rinsed once a day with water only and treated with chlorine solution for disinfection once a week.

### Optional:

**Perform the purification process with the model-device** you have received during the instruction workshop. Even better: Let someone perform the cleaning process under your guidance.

For the demonstration use turbid water (e.g. water with a bit of soil added).

- Fill the syringe with the turbid water.
- Fill the containment of the model with turbid water, too.
- Connect the syringe to the SkyHydrant model.
- Press the plunger with decent force.
- Gather the water which comes from the bottom of the model-device.



You can even taste the water produced this way, as it is as safe as from the big SkyHydrant. *(Please clean the inside of the SkyHydrant model with a soft tooth brush from time to time.)*

### Key Message:

**THE MAJI SAFI KIOSK PROVIDES SAFE WATER WITHOUT ADDING ANY CHEMICALS!**  
**Safe Water from Maji Safi Kiosks always has best quality!**



11

# How can you avoid re-contamination?

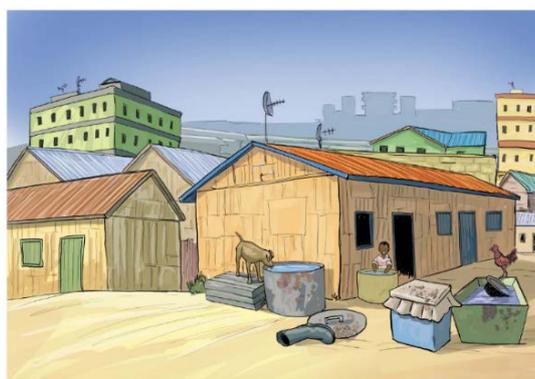
## Re-contamination of water

Water can be re-contaminated easily when not treated carefully. Taking care is even more necessary as one cannot always see whether the water is still safe for consumption. So, having fetched water from a safe source (e.g. buy from the Maji Safi Kiosk) one needs also to transport and store it properly. In case of using raw water this needs to be treated at point of use.



Contamination at source

## Re-contamination during transport



Re-contamination at storage

Look at the pictures above and consider: What can you do to prevent water from being contaminated or Safe Water from being RE-contaminated?



## Activity

Let your participants look at the sketches on front side and ask them to tell about their precautions to avoid re-contamination. Let them discuss referring to the pictures:

- What is going wrong in these pictures?
- What should be done differently?

Let them report what they do on their way home when carrying safe water and what they would avoid in any case.

## Optional:

Try to reach all the four areas

- Situation at source and how to prevent contamination  
Possible answers: Disinfect container before refill, Use a safe water source, etc.
- Situation during transport and how to keep safe water safe  
Possible answers: Do not dip your fingers into the water, Cover the water, Avoid that leaves or soil enter the water, etc.
- Situation at storage and how to prevent contamination there  
Possible answers: Cover the water, Do not dip your fingers into the water, Do not let animals drink from the water, Use disinfected utensils (e.g. spoon, scoop) to get water from the storage tank, Keep safe water separate from raw water, etc.
- Finally situation at use, at home and in the open  
Possible answers: Do not defecate at a place close to water sources, Avoid open defecation in general, Use clean utensils for drinking (e.g. cups, glasses etc.), Use disinfected utensils (e.g. spoon, scoop) to get water from the storage tank, etc.

Discuss practical means to keep safe water safe in all the situations mentioned, even practical means like buying or constructing a cover, changing the place of storage or developing routines of handling safe water.

**Please note:** When fetching safe water from a safe water source (e.g. Maji Safi Kiosk), the containers need to be disinfected with some small amounts of chlorine before refill. At Maji Safi Kiosks, this is done by the kiosk operator, at other water kiosks clients might need to take care of this themselves.

**Key Message: KEEP SAFE WATER SAFE – WHEN FETCHING, DURING TRANSPORT, AT STORING!**



## Impressum

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