



WASH

KEEPING HEALTHY
THROUGH WATER,
SANITATION AND
HYGIENE

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INTRODUCTION

Safe drinking-water, sanitation and hygiene (known by the acronym WASH) are crucial to human health and well-being. Safe WASH is not only a prerequisite to health, but contributes to livelihoods, school attendance and dignity and helps to create resilient communities living in healthy environments.

Despite COVID-19 putting the spotlight on the importance of hand hygiene to prevent the spread of disease, three billion people worldwide do not have access to handwashing facilities with soap. People living in rural and informal areas are the most vulnerable and the most affected. Drinking unsafe water impairs health through illnesses such as diarrhoea, while untreated excreta contaminates groundwaters and surface waters used for drinking-water, irrigation, bathing and household purposes. While water and sanitation services are the responsibility of the local municipality, there is much that households can do to keep themselves safe from disease.

This booklet practically illustrates how households can protect themselves from specifically water-related microbial diseases such as Cholera (*Vibrio cholera*), Typhoid (*Salmonella typhi*) and dysentery (*Shigella spp*).



GLOSSARY

EXPLANATION OF TERMS USED IN THIS BOOKLET

Diarrhoea – Passing looser, watery or more frequent poo (stools) than is normal for you. Most pathogens that cause diarrhoea are passed from the stool (faeces) of one person to the mouth of another

Faeces – The solid waste that people defecate, ‘poop’

Microorganisms – Organisms of microscopic size (also known as microbes) so small they can only be seen with a microscope

Pathogens – Harmful microorganisms (germs) which cannot be seen with the naked eye but can cause infections and diseases and make you sick. Includes bacteria, viruses, parasites and fungi. The diseases caused by these pathogens are known as microbial diseases

Transmission – How the pathogens are passed from one infectious place / person / animal to another

Vector-borne diseases – Diseases (for example, malaria) caused by bites or stings from insects, which act as carriers

WASH – The acronym used for water, sanitation and hygiene

Water source – A source of water can be a body of water such as a river, stream, lake, dam, spring or groundwater that provides water to communities





THE SPREAD OF PATHOGENS

Hands are very important “germ spreaders” in the home because hands can spread germs from faeces to food or water. A person can get pathogens from contact with other infected or sick people, from handling contaminated food or dirty utensils (cloths, cups, spoons etc) during their daily activities.

Pathogens which cause diarrhoeal diseases are shed in very large numbers in the faeces and vomit from an infected or sick person.

Some people are more likely to become seriously ill as a result of exposure to pathogens. This includes children, elderly people, people with a weakened immune system (as a result of medication or an illness such as AIDS), and pregnant women.

For this reason, it is very important to wash hands regularly with soap and water or with a alcohol-based waterless cleanser.

THE IMPORTANCE OF HAND WASHING



WHEN TO WASH HANDS:

01



After using the toilet

02



After changing baby's nappy /
being in contact with faeces

03



Before preparing food, eating
and / or feeding children

04



After contact with contaminated surfaces,
such as rubbish bins, cleaning cloths

05



After handling pets and
domestic animals

06



Before and after care to a sick person

07



After wiping or blowing your
nose

Washing your hands

Step 1

1

Wet hands
under running
water.



Step 2

2



Add soap
to aid cleaning and
to kill germs.

Step 3

3

Rub well
for at least
15 seconds.



Remember

Rub the front and
back of your hands
well and between
your fingers

Step 4

4



Rinse well
under warm running
water.

Step 5

5

Dry hands
with clean
paper towels.







THE ROLE OF THE HOME ENVIRONMENT IN THE SPREAD OF PATHOGENS

Most pathogens can survive for some time on dry surfaces. Pathogens survive better if they are protected by dirt or other soil such as food material.

Pathogens can be spread from one site or surface to another during our normal daily activities. The main surfaces which spread germs are the hands, hand contact surfaces, food contact surfaces and cleaning utensils such as cloths, mops, etc.

Pathogens can also be spread from one surface to another by insects such as flies or through the air on the surface of dust particles or in aerosol particles generated by coughing, sneezing or toilet flushing.

Keep surfaces clean by vacuum cleaning, dusting and brushing. Detergent or soap and water is sufficient for cleaning floors.

SAFE DISPOSAL OF HOUSEHOLD WASTE

The random disposal of household solid waste close to the home can add to fly breeding and harbour rats and other insects. Refuse should never be discarded onto the ground, but rather put into containers and handed over to municipal collectors. Wherever house-to-house collection is not possible, community bins (one bin for 10-20 houses) should be provided. Infectious waste should be stored in separate, secure containers and disposed of as soon as possible.

WASHING UP MATERIALS

Cloths and sponges are sources and spreaders of pathogens – never use a dirty cloth or sponge. Dirty cloths and sponges pose a high risk of cross-contamination for the following reasons:

- They are used to clean items and surfaces that are soiled with dirt. This means they inevitably become contaminated with microorganisms.
- They are touched by hands, which can then become contaminated.

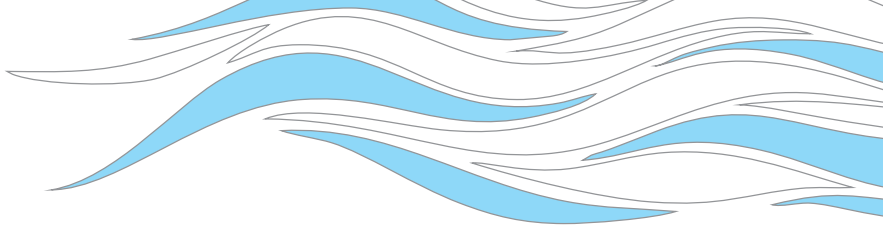
HOW TO HYGIENICALLY CLEAN CLOTHS, SPONGES, MOPS AND BUCKETS:

- Clean sponges and cloths with soap or detergent and warm water and soak in a disinfectant (like bleach) for 20 minutes

OR

- Clean with soap and detergent and warm water and immerse in boiling water for 20 minutes
- Dry thoroughly after cleaning
- Clean mops using detergent or soap and warm water and soak in disinfectant for 20 minutes, wring out and leave head-up to dry
- Clean buckets using detergent or soap and warm water and leave upside down to dry





TOILETS AND LATRINES



Toilets act as reservoirs for microbes because they are inevitably wet and contaminated with faeces, thus providing ideal conditions for the growth of microorganisms. Microorganisms can be transmitted from toilets and latrines either by direct contact with these items or indirectly via contaminated hands, or via insects. In general, the risk from a toilet bowl is not high if the toilet is functioning correctly and is kept covered by a lid, although some splashing and aerosol formation (small particles in the air) can occur during flushing.

If an individual within the household has diarrhoea, they excrete large numbers of pathogenic microorganisms during and for some time after their illness. In this situation, there is a considerable increase in the risk of spread arising from splashing and aerosols. Where there is diarrhoea, add disinfectant to the toilet bowl before flushing, with the lid down, to prevent spread of microorganisms via aerosolised droplets of toilet water.

In the toilet bowl, pathogenic microorganisms are most usually found under the flushing rim and in the scale that forms on the porcelain surface. There is a greater risk of spread from babies with diarrhoea because they have no control over their bowels and they rely on others to meet their hygiene needs.

The toilet or latrine needs to be kept clean, including any surfaces which are touched by hands. A separate cloth should be reserved for cleaning the toilet and toilet area. The toilet should be kept covered to prevent transfer of germs by flies, etc. After cleaning toilets and latrines, wash hands thoroughly or protect hands from soiling by wearing rubber gloves.

In homes where sewage is disposed of 'on site', e.g. in septic tanks or pits, take care not to introduce excessive amounts of detergent, soap or disinfectant into the system. In these systems the waste is broken down or decomposed by bacteria and other living organisms in a natural system called biodegradation. High levels of soap, detergent or disinfectant can inhibit biodegradation.

If you don't have a toilet, don't defecate in the vicinity of the house; and bury faeces immediately – do not leave them lying around.

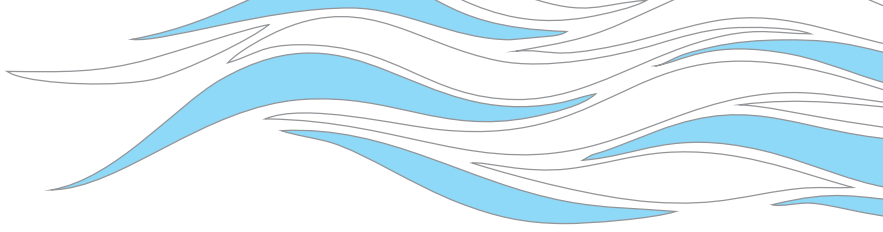
For baby faeces:

- disposable nappies should be sealed in a plastic bag and placed in a waste bin
- When reusable nappies are used the faeces should be transferred to the toilet. Then place the nappies in a nappy bucket and soak in bleach. The nappy bucket content should be flushed down the toilet and not poured down the kitchen sink
- Ensure that reusable nappies are washed separately from other laundry items, particularly cloths which are used in the kitchen
- Surfaces contaminated with faecal matter (e.g. changing mats) should be cleaned and disinfected

DID YOU KNOW?

One gram of faeces
can contain up to
1 million bacteria
and 10 million
viruses.





For the faeces of young children:

- Small children should be encouraged to use a potty. The contents of the potty should be disposed of into a toilet or latrine and the potty then rinsed and the rinsing disposed of in the same way.
- It is important to clean the bottoms of young children to get rid of all the faecal material
- Use toilet paper to clean the child's bottom
- If children defecate without using the toilet or potty, the faeces should be cleaned up immediately and put down the toilet or latrine, or buried. If this occurs inside the home, the floor area should be cleaned and if possible, disinfected.

Always wash your hands after changing baby's nappy or assisting young children to go to the toilet.





THE ROLE OF WATER IN THE SPREAD OF PATHOGENS

Water can be contaminated at the source, in the home, or during the journey in between. Pollution of water sources or supplies takes place when the water comes into contact with human and animal wastes. Water may also be contaminated with faeces (sewage) during floods and other natural disasters.

Municipalities may introduce safe water into the supply system, but often the quality is not maintained at the point-of-use (household) or during collection by the consumer. This could be due to deficiencies in the distribution system and intermittent water pressure.

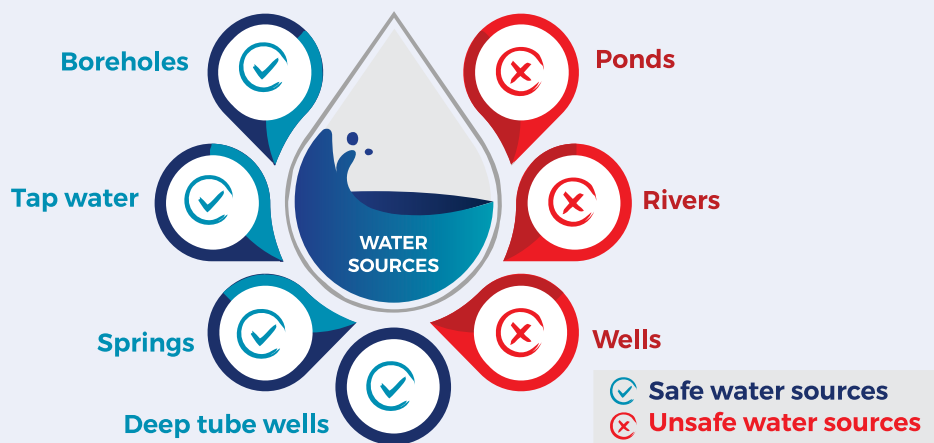
A water source that is not protected, a dirty container, or unwashed hands can easily turn water, even water that looks and tastes clean, into something that makes people ill.

HOW CAN A WATER SOURCE BE CONTAMINATED?

A water source can be contaminated through a number of routes, including:

- Leaking septic tanks and poorly constructed toilets
- Contaminated surface water runoff entering wells and springs
- Collecting water with unwashed hands and / or dirty containers
- Animals using the same source
- Objects falling into the well
- Farming activities (use of pesticides)
- Industries next to the source

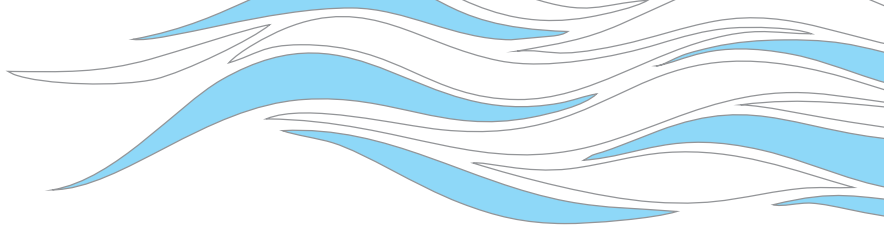




TRANSMISSION ROUTES OF PATHOGENS BY WATER

- **Waterborne transmission:** Pathogens are already in the water and drunk by a person or animal.
- **Water-washed transmission:** Pathogens are spread via surfaces such as hands or other parts of the body to the water.
- **Water-based transmission:** Pathogens spend part of their lifecycle in water and depends on a host who lives in water to complete their lifecycle.
- **Water-related insect vector transmission:** Pathogens are spread through insects that either breed in water or near water





KEEPING WATER CLEAN AND SAFE IN THE HOME

DO	DO NOT
Keep water containers and tanks clean	Don't allow anyone to put their hands into the water during collection and storage
Keep containers and tanks covered	Don't allow anyone to drink directly from the storage container or tank during collection and storage
If possible, water storage containers should have a narrow neck and a tap at the bottom so that hand contact is not possible	Don't continually top up containers with water – empty at least every 3 days
Take water out of storage container using clean utensils (cups)	Don't store water close to animals
After each emptying of storage containers, it must be thoroughly cleaned and disinfected	Never leave buckets of water unattended if there are small children around
Storage tanks should be regularly cleaned and disinfected	Never have electricity and water near each other – people may get electrocuted
Water in storage containers should be stored in home for the shortest time possible	Never leave pots of boiling water on a stove unattended
Mosquito proof wire netting should be used in air conditioners and water storage tanks	
Open water storage tanks outside the house must be emptied at least once in 3 days	





TREATING WATER IN THE HOME

The water at the source is only the first stage of the water chain. Even clean water collected from a source can be contaminated prior to use at critical points due to unsafe hygiene practices such as:

- Transporting water from the source to the house in dirty water containers
- Storing water at home in open and/or dirty water containers
- Handling water at home with dirty utensils or hands

Household water treatment is an activity performed to improve water quality at the household level. Safe water storage includes the use of clean containers with covers AND good hygiene behaviours that prevent contamination during water collection, transport and storage in the home.

The minimum amount of water that needs to be treated is the quantity needed for drinking and preparing uncooked foods. If the untreated water looks reasonably clear, it will not usually need to be treated before being used for other domestic purposes such as bathing or laundry.

Clear water does not necessarily mean the water is safe for drinking or cooking purposes. There are three types of water treatment:

- **Sedimentation** – allowing dirt to fall through the bottom of a water container over time.
- **Filtration** – Physically removing dirt by passing the water through a material such as ceramic or sand.
- **Disinfection** – This is done by chemicals, heat (e.g. boiling) or even sunlight.

HOME DISINFECTION

The water must not be muddy (turbid) or dirty because the particles in the water will decrease the disinfection of the water.

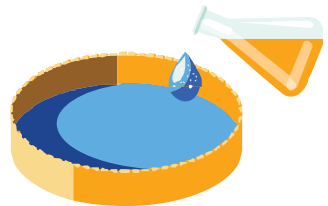


BOILING

1. Boil water in a pot for at least 10 minutes.
2. Allow the water to cool.
3. Keep this boiled water covered with a lid or clean cloth to protect it from being contaminated by insects and dirt.

ADDING BLEACH ('JIK')

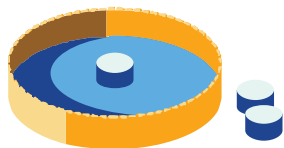
1. Add one teaspoon of bleach to 20 litres of water.
2. Allow to stand for a minimum of 2 hours (not in sunlight).
3. Keep this boiled water covered with a lid or clean cloth to protect it from being contaminated by insects and dirt.



ADDING IODINE

1. Before using iodine make sure no-one in the household is allergic to it. Iodine is not recommended for long-term use.
2. Add 5 drops (1 drop = 0,05 ml) iodine to one litre of water.
3. Cover the water with a cloth or lid and let it stand for 15 hours.
4. If the water is cloudy, filter it through a clean cloth and double the dose to 10 drops of iodine per litre of water.

WATER PURIFICATION TABLETS

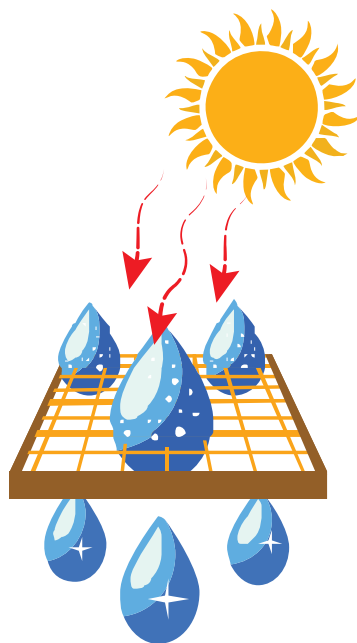


1. There are a number of water purification tablets available. Follow the instructions on the pack carefully.
2. When the dirt settles to the bottom of the container then filter the clean water through a clean cloth. The dirt will be left on the cloth.

SOLAR DISINFECTION

Ultraviolet rays from the sun inactivate pathogens present in water. Exposing water to sunlight will destroy most pathogens that cause disease.

1. Fill a two-litre clear plastic bottle with water, shake it thoroughly and leave in the hot sun for six hours.
2. The exposure time should be increased if the weather is partly cloudy (up to two days).
3. If half the bottle is painted black and it is placed on a corrugated iron sheet, the heating process is sped up.
4. To be effective, solar disinfection must be applied to relatively clear water.
5. Water treated by this method should be stored safely and used within a few days.



HOME DISINFECTION

The water must not be muddy (turbid) or dirty because the particles in the water will decrease the disinfection of the water.

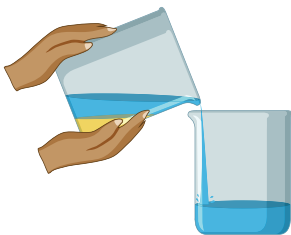


SEDIMENTATION



This method reduces, but does not totally remove, disease causing germs.

If water is muddy, giving it time to settle or adding chemicals can cause the dirt to fall to the bottom of the container and make the water clear. Straining the water through a cloth can make this process more efficient.



With the 'three-pot' method, water is stored in containers, allowing the dirt to settle, with cleaner water moved to different containers over time.

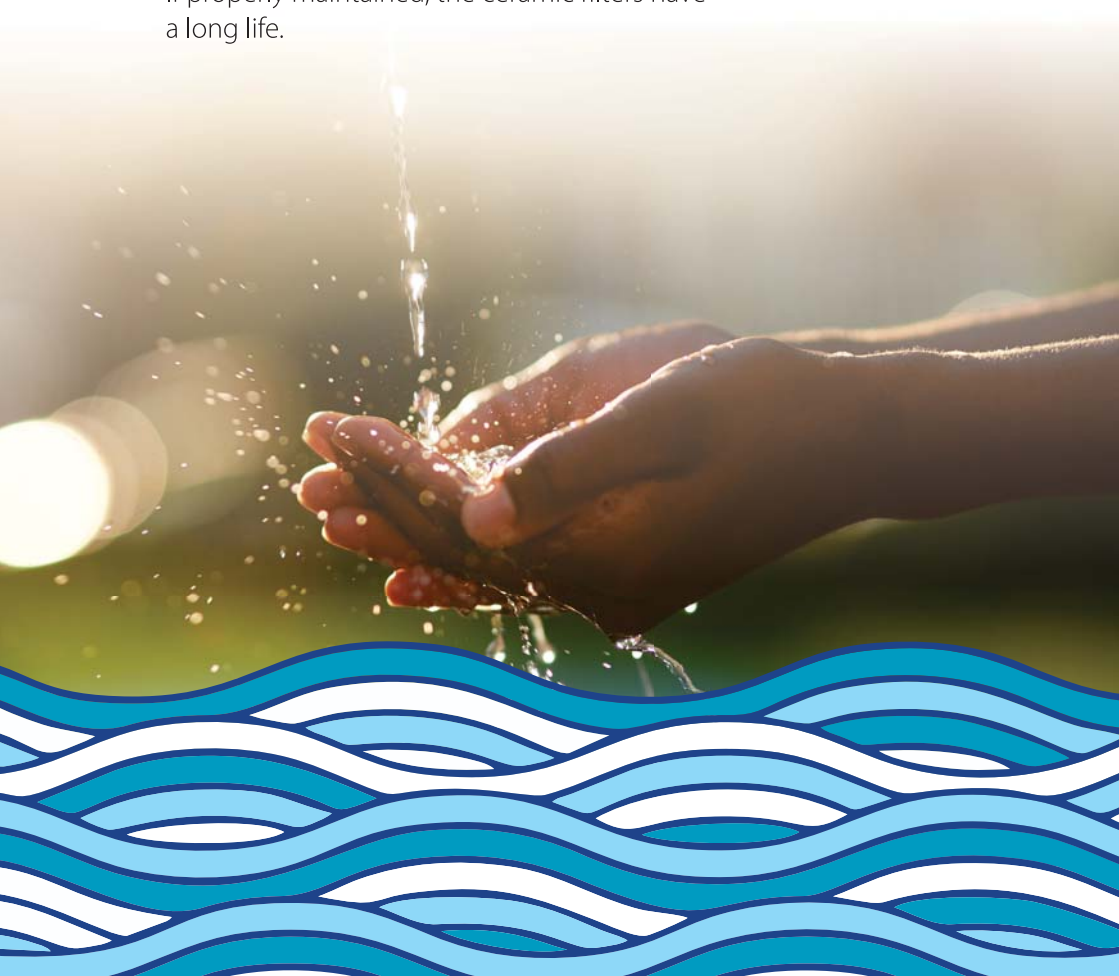
How does the three-pot method work?

1. Pour water collected from the source into pot 1. Strain through a cloth. Allow the water to settle for a day.
2. Slowly pour water stored in pot 1 into pot 2. Allow water to settle for a day.
3. Slowly pour water from pot 2 into pot 3.
4. Wash out pots 1 and 2.
5. Only drink water from pot 3. Keep this pot covered all the time.

FILTRATION

Ceramic filters with small pores, often coated with silver, can be effective at removing microorganisms (especially bacteria) and suspended solid (small solid particles in the water)

- Filters do not remove viruses and parasites from water. These filters also need to be cleaned regularly.
- Monthly maintenance involves scrubbing the filter to unclog pores and washing the receptable tank and spigot.
- If properly maintained, the ceramic filters have a long life.







DOMESTIC WASTEWATER

Inadequate drainage and accumulation of water in the vicinity of the home is a cause of vector breeding (e.g. mosquitoes) and transmission of vector-borne diseases.

Make sure that empty or discarded cans, tyres, etc. are not left lying in the courtyard or in the immediate surroundings of the home, which could accumulate water and act as a breeding place for mosquitoes.

Effluents (wastewater) from septic tanks, pit latrines, laundry and sullage water from the kitchen and bathroom should not be allowed to stagnate around the area of the home and provide a breeding ground for insects.

In urban areas:

- Drainage channels around tap-stand / bore-wells to flush away wastewater to the municipal drain must be present
- Drainage channels to channel wastewater and rainwater from the home to the municipal drain/sewerage system must be present

In rural areas:

- Household wastewater and rainwater can be disposed of by digging a soak pit or digging a channel to the kitchen garden or to the field where vegetables are grown.

