

Water

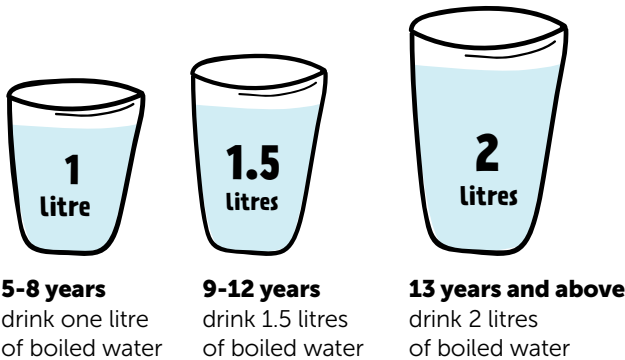


Water is essential in our lives because it is one of the basic needs for human life. That is why we hear people say "Water is life."

We stay healthy if we drink sufficient, clean and safe water. Water is linked to our health, general wellbeing and livelihood.

How much water to drink every day?

Different age group needs different amount of water



Safe drinking water

Safe water is drinking water which is free from bacteria and other sources of contamination. Water that is safe to drink is called 'potable water'

The World Health Organization (WHO) says 'safe water' is water that:

- does not pose any significant health risk over a lifetime
- is suitable for drinking and all domestic purposes
- has no objectionable smell or taste
- is available in sufficient quantities.

Uses of water



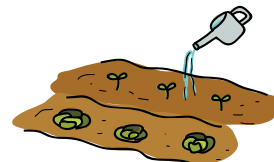
Basic human need:
to be able to breathe.



Cooking:
to clean and boil food such as fish and breadfruits before cooking.



To keep clean:
bathing, hand washing, brushing teeth to keep bodies healthy and strong.



Growing food:
We need water to grow food for ourselves, to water our plants such as cabbage; and for babai to grow in wet pits.

Why is it important to drink safe water?

- Unsafe water leads to a high risk of water-borne diseases such as diarrhoea. Kiribati has one of the highest rate of deaths of children under five from diarrhoea in the Pacific region.
- Childhood death from diarrhoea is more common in Kiribati than in other Pacific Island countries. Health officials report an average of three outbreaks of acute diarrheal disease in South Tarawa every year.
- If water becomes contaminated, it is not safe and can be harmful to one's health. Drinking water that has been contaminated by bacteria in faeces can cause diarrhoea. Even clear water can be very contaminated.

How to make our drinking water safe?

Boil water to the rolling boil then leave it for two minutes on a rolling boil to kill the germs. Remember not to simmer the water. Simmering water does not kill germs and is not safe to drink.

Make your well water safe before boiling by:

- Covering the well every day. Do not leave it open. Well water left open can attract bacteria or germs. Rubbish, food or contaminants can easily be dropped into the well.
- Change your well water to a Tamana or Marakei pump.

You can also use SODIS process for unsafe water.

People in some areas of Kiribati (some families, office workers or students in boarding schools) drink treated sea water that has been treated through desalination. This water is safe to drink.

Kiribati's water sources

Well water

Well water is the main source of water in Kiribati. The surrounding area of a well should be kept clean, covered and built 30 meters away from any source of possible contamination such as graves, pig stys, toilets or a babai pit.

Wells take the water from the lens beneath a house (see diagram below). On South Tarawa, these water lenses are often contaminated. Contamination happens because germs get into the water. Water from these wells should be used with caution as well water is highly contaminated.

Well water needs to be boiled with two full minutes of **rolling boil** to make it safe.

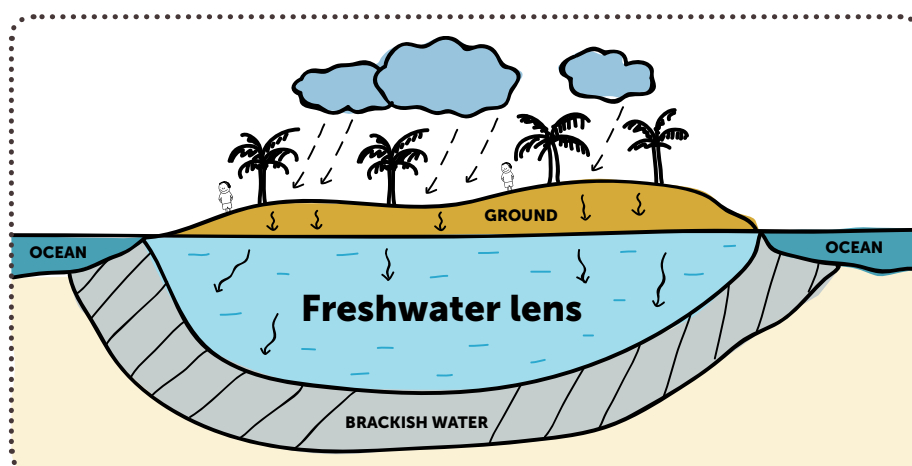
What is a rolling boil?

A rolling boils is when liquid is heated up and then boiled rapidly with lots of bubbles. A rolling boil will kill germs. Simmering water will not kill or break up germs.



Rainwater

Rainwater is the safest water to drink in Kiribati. When it is raining allow 15 minutes before collecting rainwater in closed containers or water tanks. Once the rainwater is collected, keep the containers closed. Rainwater should be boiled using the rolling boil method or solar disinfection (SODIS).



PUB water

PUB is a government company within the Ministry of Public and Work Department that stands for Public Utilities Board.

PUB water is underground water collected from the water reservoir in Bonriki and Buota close to the international airport. The PUB treats or purifies this underground water with chlorine then distributes to all households in the government quarters as well as some private homes. Families pay for water bills every month. PUB water should still be boiled or disinfected.

Bottled water

Bottled water sold in stores is safe to drink and does not need to be boiled. However, it can be very expensive.

Desalinated water

Desalination is the process of removing salts and minerals from sea water to produce water suitable for human consumption. Desalination provides an alternative water source for Banaba Island.

Other source of water in Kiribati

Water Lifestrav

The Australian Rotary Club has donated the Water Life Straw to schools and clinics in South Tarawa in an effort to eradicate waterborne diseases. The water Life Straw removes almost all of waterborne bacteria and parasites.

Reducing the health risks of drinking unsafe water

- **Rainwater is not safe to drink.** We need to boil it before drinking.
- **Well water is not safe to drink.** E-coli bacteria is rich in wells and must be boiled or disinfected (using the SODIS methods) before drinking.
- **PUB Water is not safe to drink.** There is a leak along the pipe that can contaminate water. We need to boil PUB water before drinking.
- **Drinking contaminated water or eating food that has been washed by untreated water can contain bacteria that will infect people.** We need to boil water when preparing food.

Major contributors to waterborne diseases

- unsafe water, inadequate sanitation and hygiene are significant contributors to the 1.8 million deaths caused by diarrhoea every year
- bacteria, viruses and parasites can enter drinking water in many ways
- animals excreting into a catchment area, from seepage of contaminated water into 'leaky' pipes in a distribution system and from unhygienic handling of stored household water
- chemical contamination may come from natural or human sources.



Te mauri, te raoi, te tabomoa iaora ni bane!

Water or 'moimoto' is a healthy drink that helps our body to:

- Circulate air to our lungs for healthy breathing
- Digest food
- Circulate blood to all parts of our bodies easily
- Lubricate the joints in our bodies
- Stay healthy every day.

Remember coloured or sweet drinks do not help the body do its work properly.

If your mother, father or family members have diseases or illnesses such as high blood pressure

or sugar diabetes, you can help them by reminding them to drink a lot of water.

Keep and use rainwater wisely for drinking and cooking only. Our well water is not really safe sometimes if we live in a crowded area, always boil well water before drinking.

If you want to be a healthy boy or girl, change to drinking water when you are thirsty or when you eat. Help your family to boil or do SODIS water for the family safe drink. Always bring your water bottle to school.

This will help you fight against diarrhoea and other diseases.

SODIS (Solar Disinfection) is a simple, low-cost solution for preparing drinking water at the household level. SODIS uses both sunlight and the heat of the sun to kill 99.9% of germs in water. Rain water, well water and PUB water can be treated through the SODIS process.

SODIS trials in Kiribati have shown its effectiveness and potential for wide spread use across this region. Kiribati has perfect environmental conditions for SODIS, and it can be applied at school and at home.

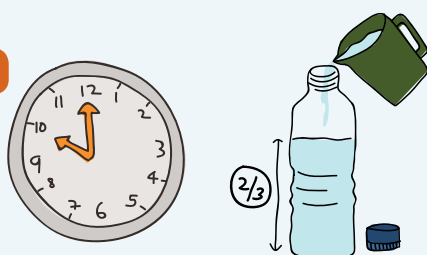
SODIS guidelines

STEP 1



Use clean, PET bottles only

STEP 2



Start SODIS in the morning before 10 am.
Fill the bottle two thirds full of water

STEP 3



Shake it for ten seconds and then fill the bottle to the top.

Why? Shaking increases the creation of reactive oxygen species (ROS), which improve the disinfection process.

STEP 4



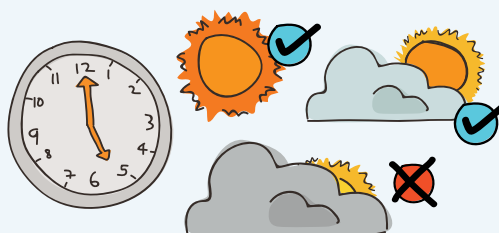
Put the bottle on an elevated surface (e.g. table or roof) which is ideally reflective (e.g. corrugated iron or aluminium foil).

Why? This keeps the reactor away from faecal contamination by animals. Reflective materials increase the reception of solar energy in the bottles.

Ensure that there is no shade (e.g. from surrounding trees) on the SODIS spot all day.

Why? Shade decreases the disinfection process by reducing the received solar energy.

STEP 5



Finish SODIS in the evening after 5 pm. Remember the cloud cover conditions from this day. If the sky was clear or a little cloudy, the water is safe to drink and should be directly consumed out of the bottle.

Why? Consuming the water directly out of the bottle reduces the risk of recontamination through dirty containers.

If the sky was very cloudy, the water should not be consumed today. Start with step 4 tomorrow.

Why? There is a risk that there are still pathogens in the water due to an insufficient dose of solar radiation.

STEP 6



If the bottle was not opened before consumption, properly treated SODIS water can be stored in a dark place but only for up to three days.

Why? If there are any bacteria still in the bottle, they could reproduce and reach a health-risk concentration.

STEP 7



Once the bottle has been opened, the water should be drunk soon after to prevent secondary contamination.

When followed correctly, SODIS kills 99.9% of harmful germs found in water.