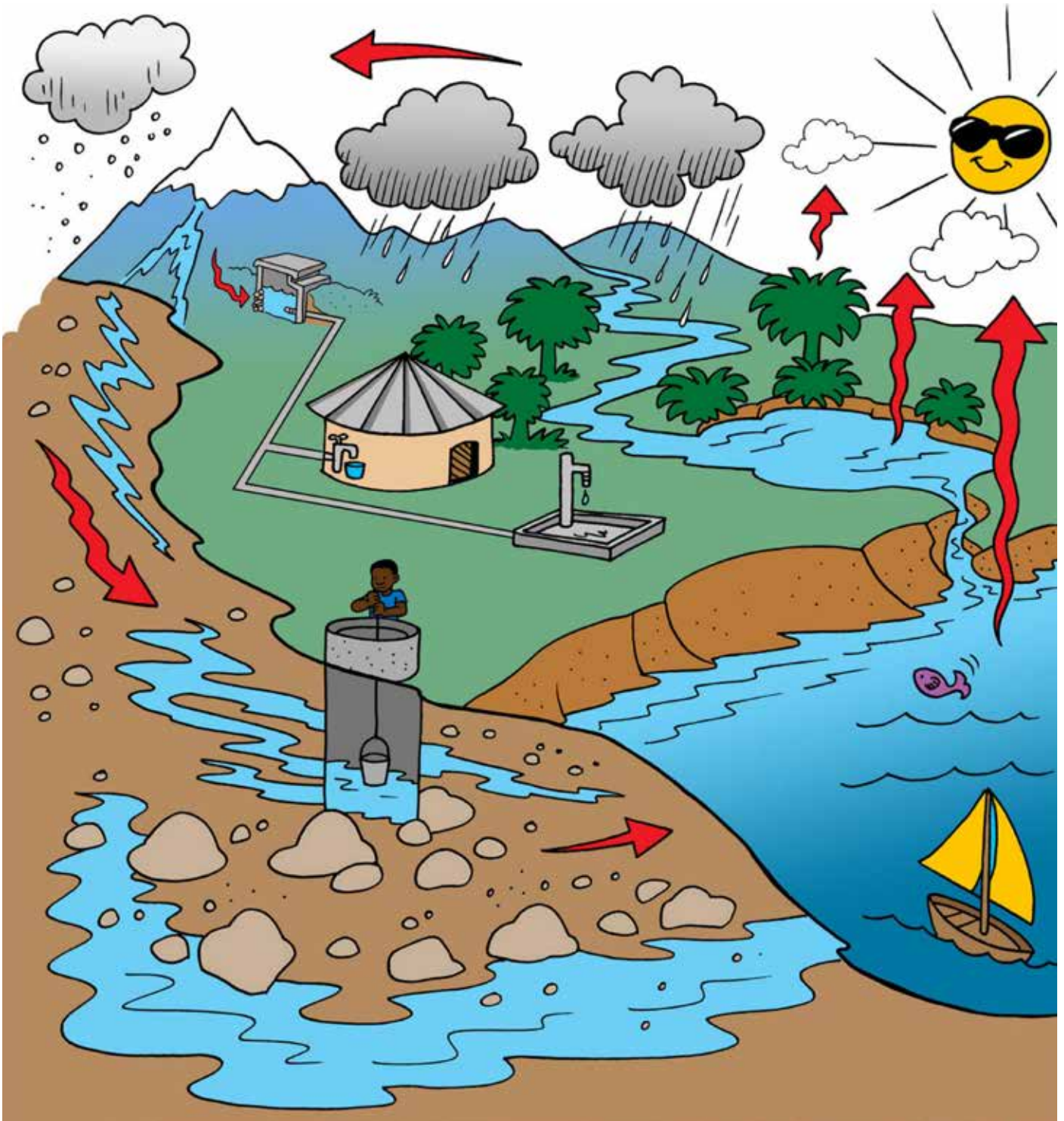


Unsafe Water and insufficient Hygiene make you sick!

In this brochure you will learn what you need to take into account, so that this does not happen to you and your family.



Water Sources and Cycles



Water on the earth's surface evaporates under the influence of the sun, rises to the sky, condenses on top, forms clouds and falls back to earth as rain or snow. The volume of water on earth is about 1'365 Mio km³.

97.5% of water is located in the oceans.

Only 2.5% is fresh water, divided into:

68.9% snow and glaciers

30.8% groundwater

0.3 % lakes, rivers and streams

Choose the best method to get your drinking water



1) Hand dug well



2) Drilling for ground water



3) Capture of a spring

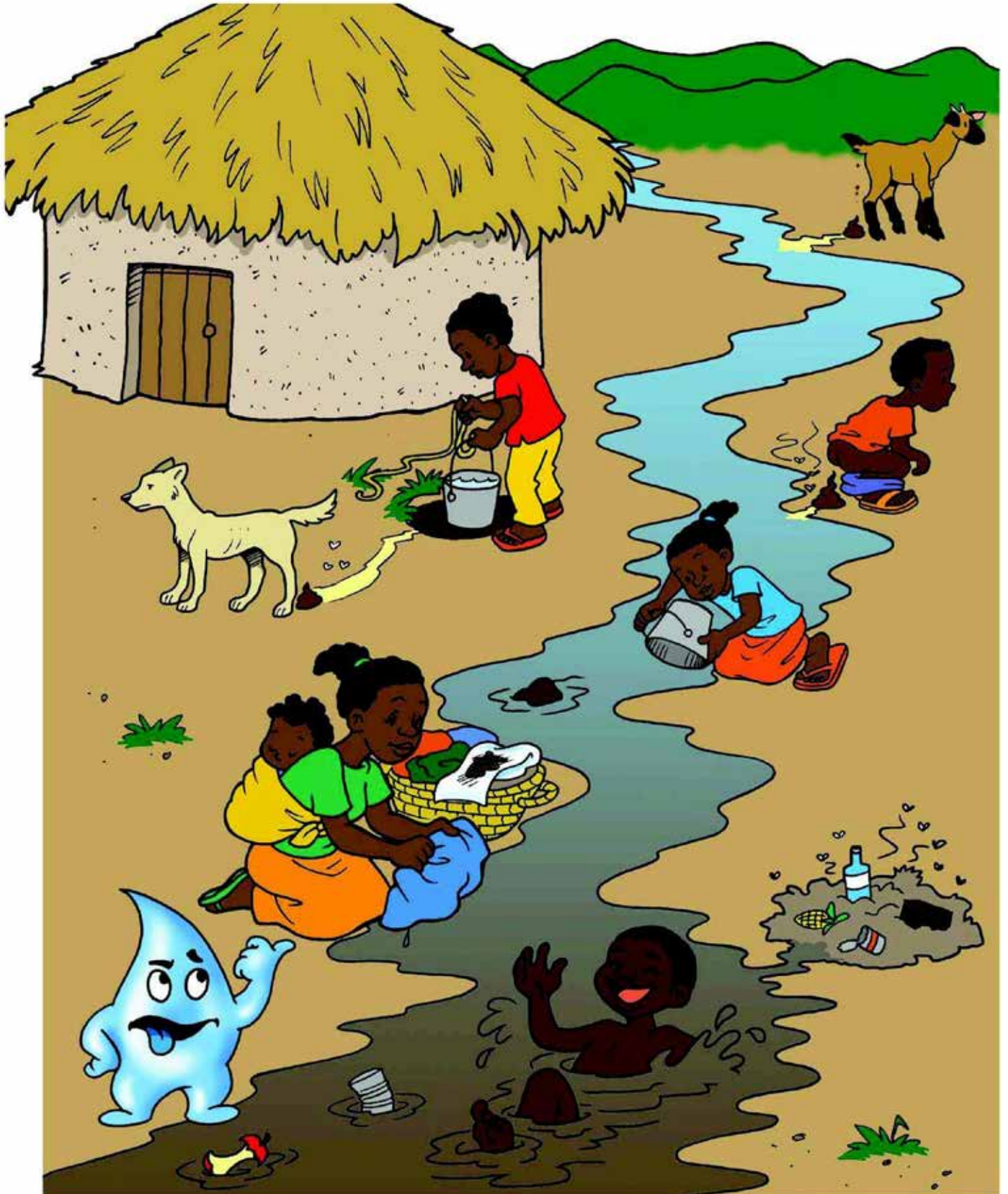


4) Damming of a stream



5) Rainwater harvesting

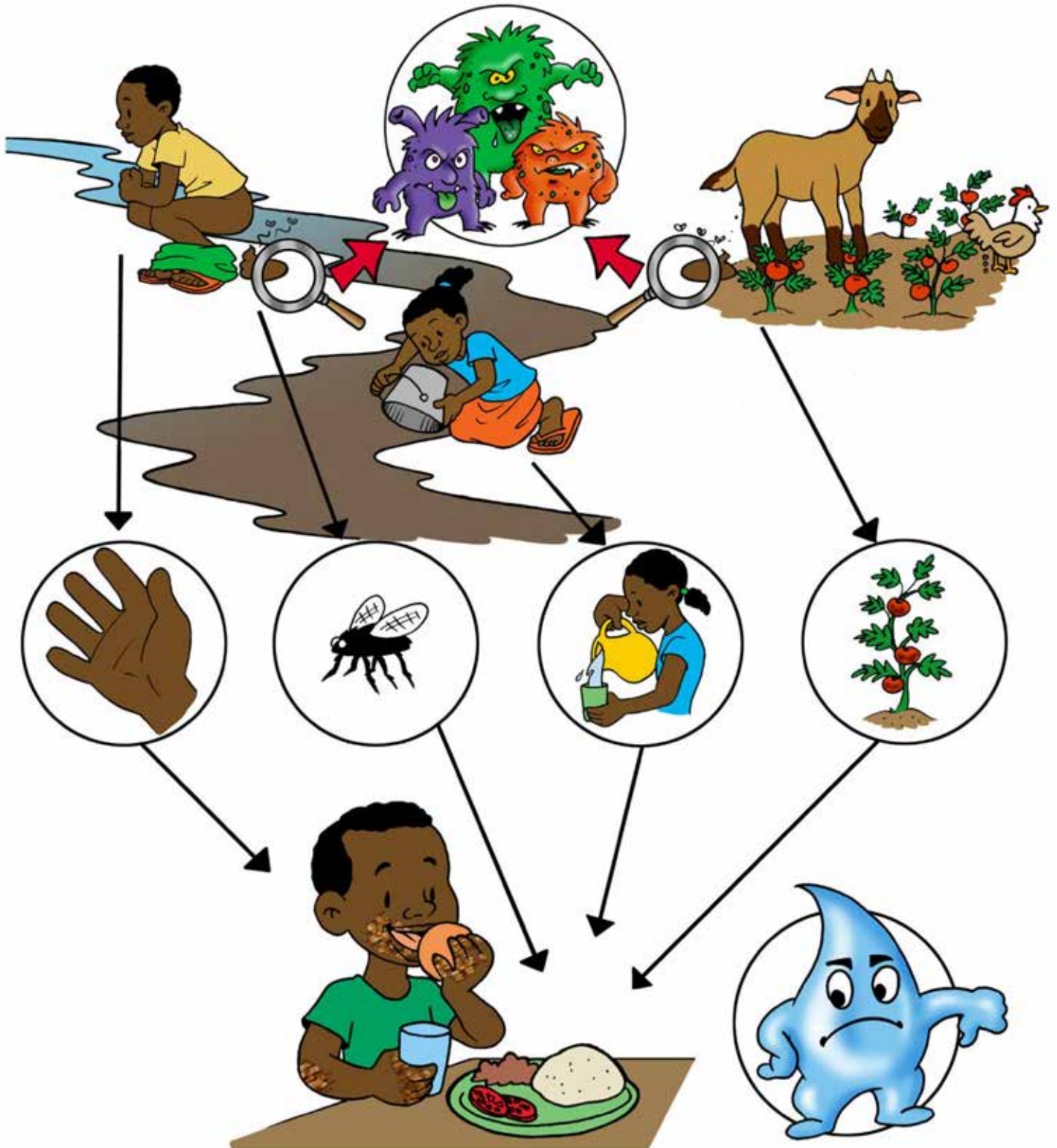
Humans and animals contaminate the water



In addition, household waste and industrial waste water contaminate the water

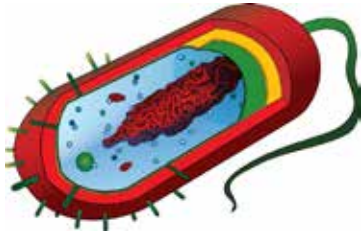


The most common form of water pollution is in the form of E-coli microbes present in human and animal waste

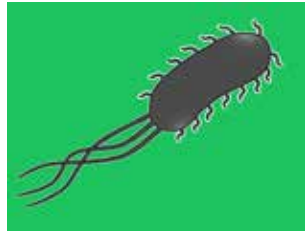


What is a MICROBE?

A microbe is an organism so small that it cannot be seen with the naked eye. A microscope must be used to examine it.



Model of a bacteria



Escheria Coli



Cholera



Protozoa

Bacteria, viruses, protozoa and fungi (not the ones we eat!) are all microbes (micro organisms)!

There are useful microbes that are important for the production of beer, cheese, yoghurt and yeast for bread etc. On the other hand, there are many harmful microbes that cause diseases.

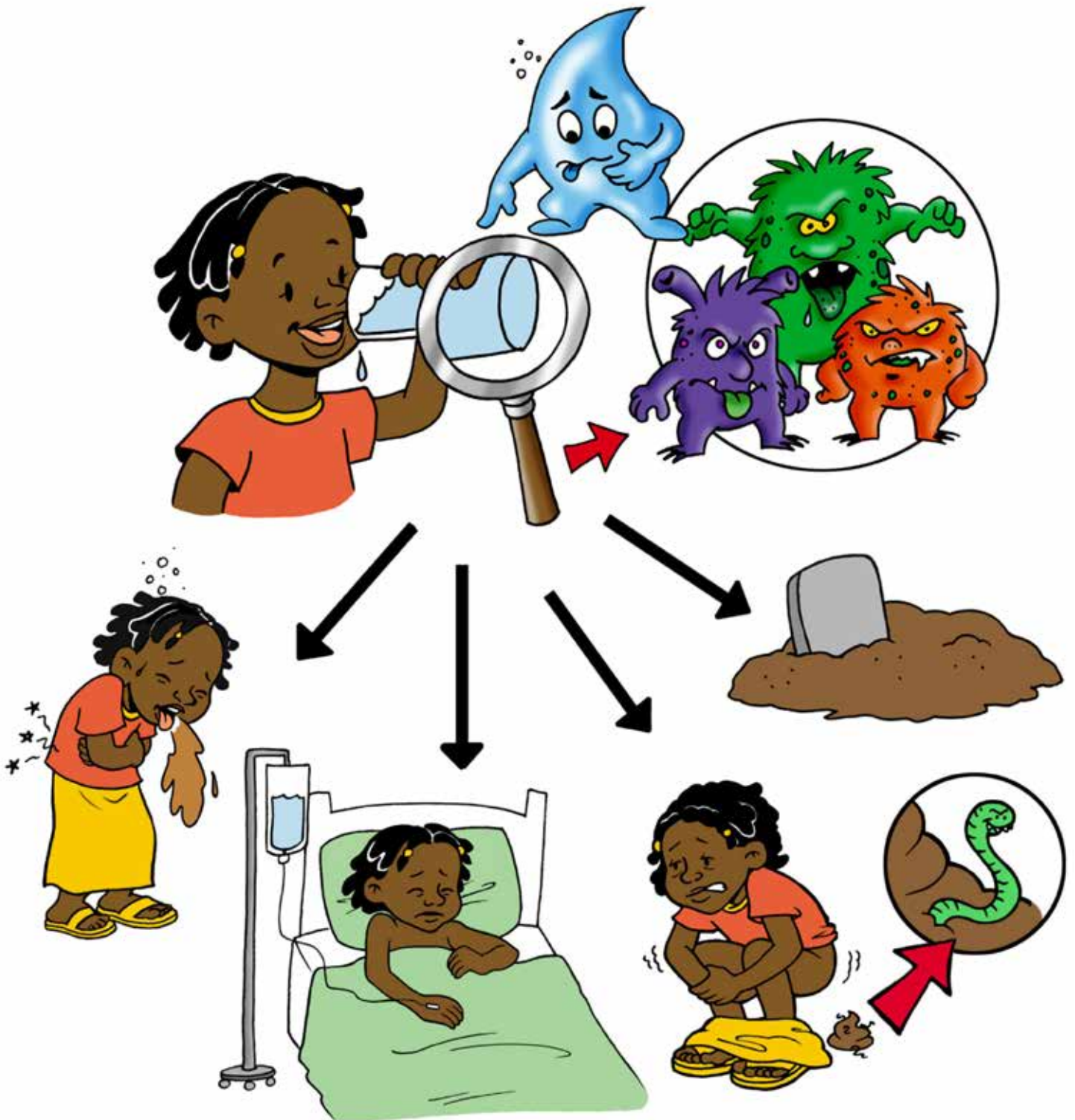
In drinking water, **the following bacteria are some of the ones that make you sick:**

- **E-coli**, causes diarrhoea, nausea and severe abdominal pain and vomiting.
- **Salmonella** causes diarrhoea, severe abdominal pain, vomiting and headaches.
- **Cholera** is an extremely virulent disease that can cause severe acute diarrhoea.

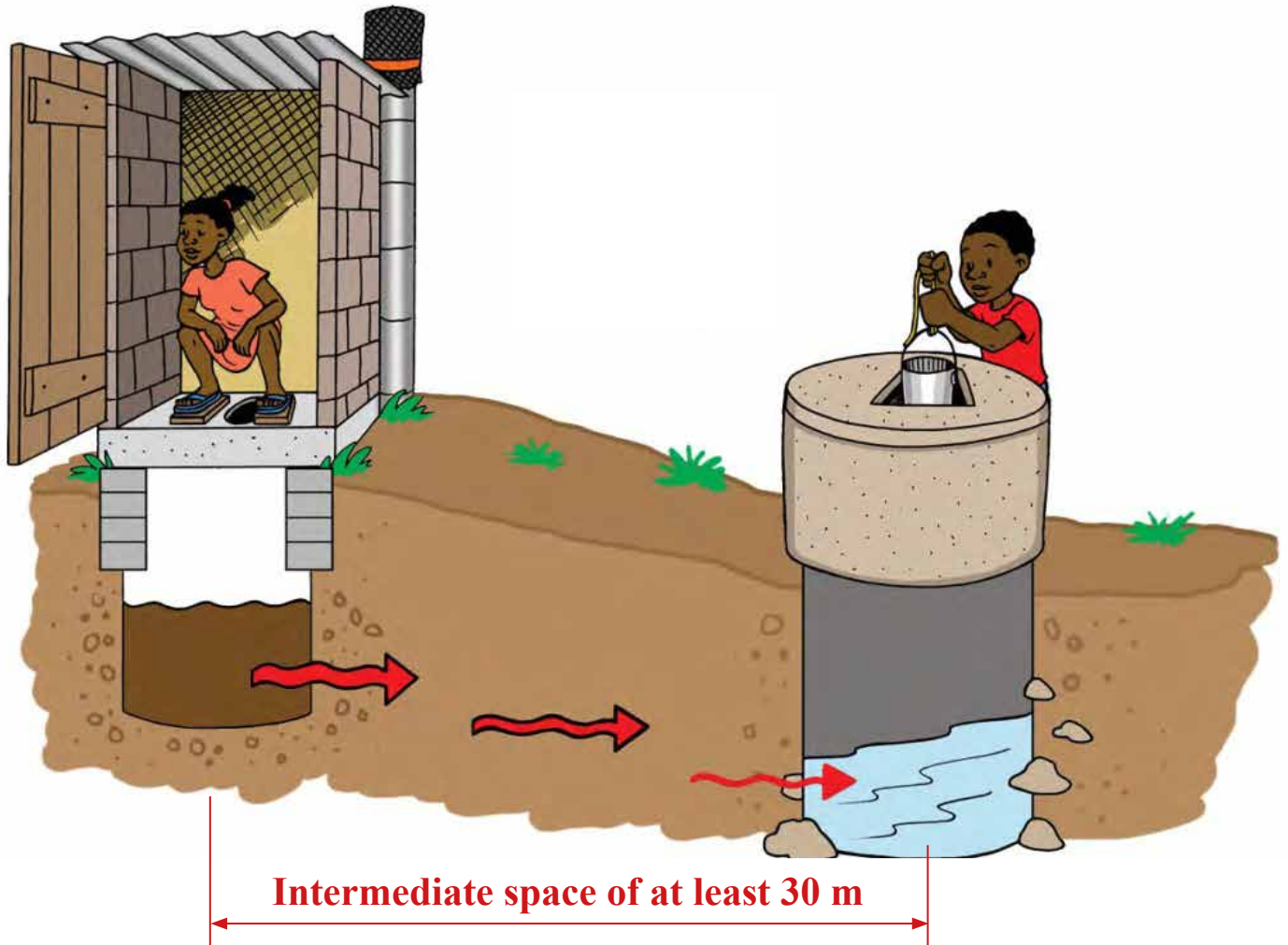
Other harmful substances

- The following chemical substances make water unsafe to drink: **Arsenic, lead, iron, fluorine, manganese**, because they are toxic or unpleasantly alter the water in terms of smell or taste.
- **Fertilizer and herbicide** residues.
- In stagnant lakes and rivers, **Bilharzia** worms can penetrate your skin while you are immersed in the water.

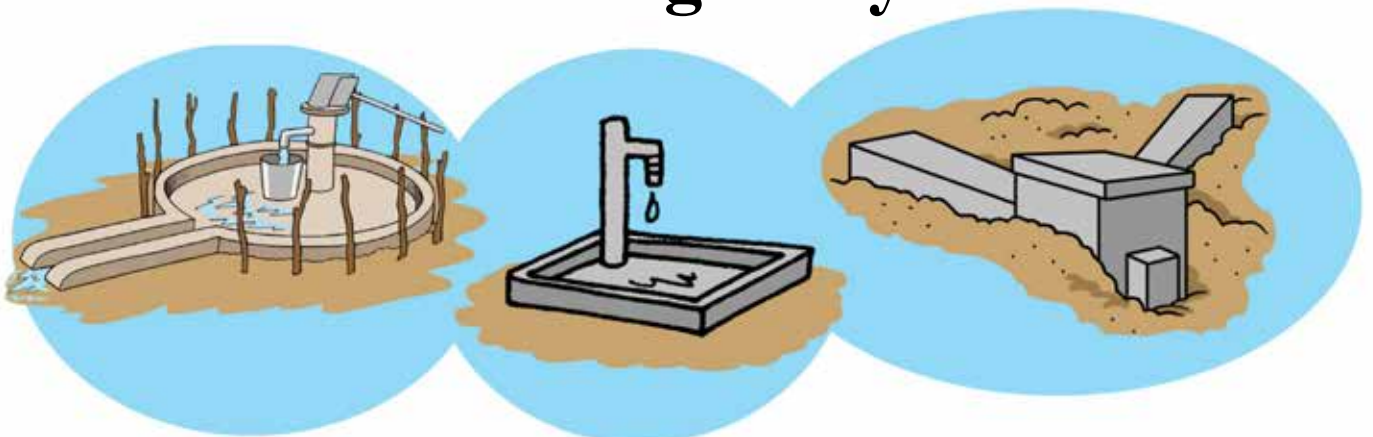
Contaminated water contains MICROBES that make you sick



Build your water supply system carefully and make sure that the water cannot be contaminated

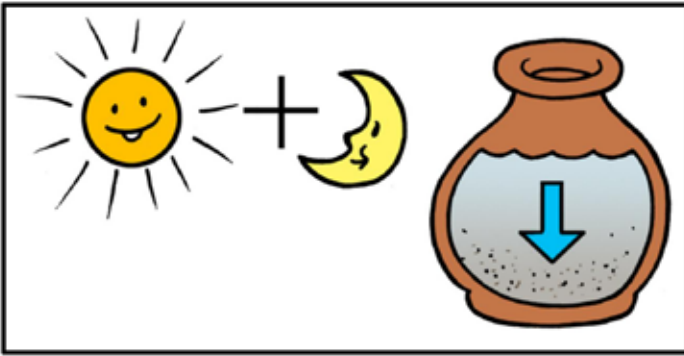


Protect your drinking water system and carry out maintenance work reliably and regularly!



Filter your water!

(There are several ways to do this)



Let the sediment settle for 24 hours



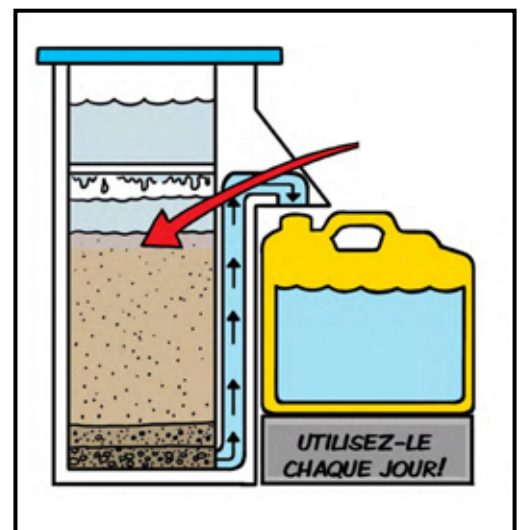
Fabric filter



Ceramic pot filter

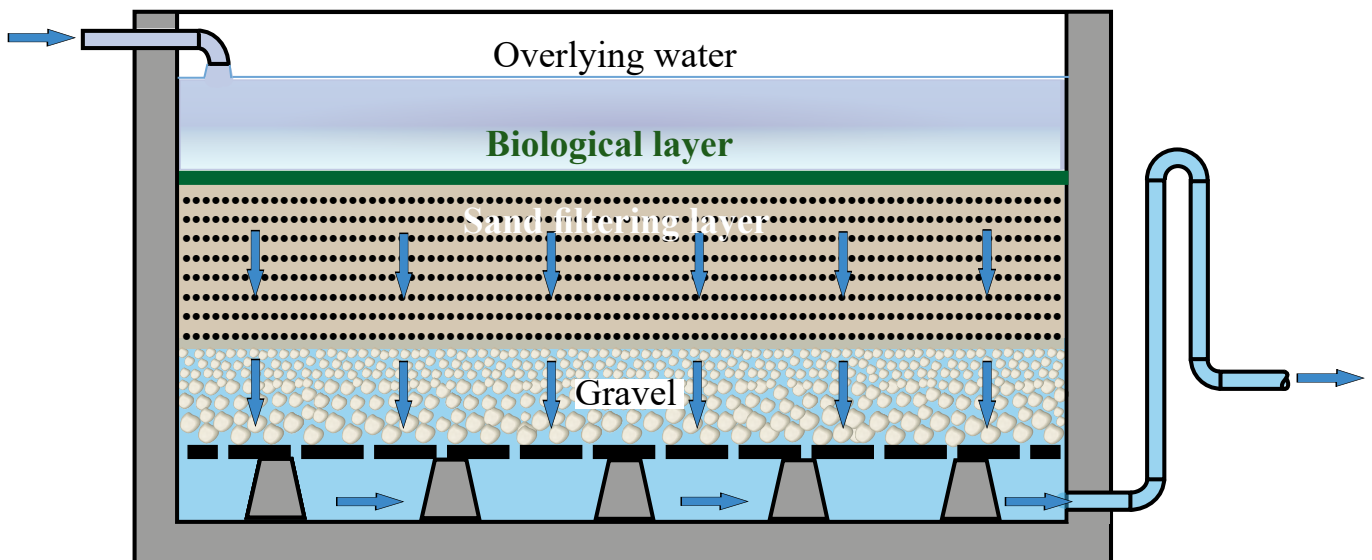


Ceramic candle filter



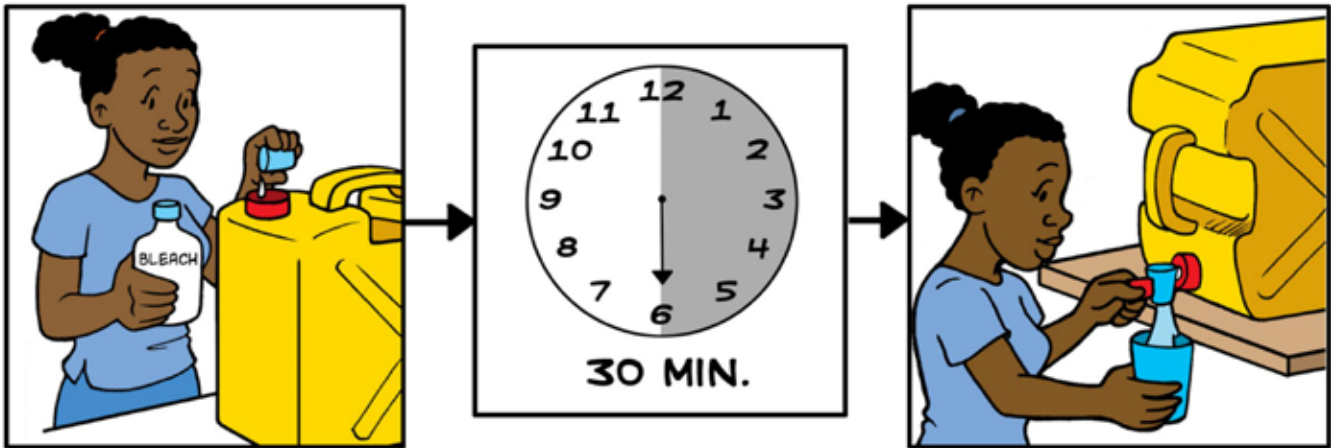
Hydrair Biosable Filter

The **Organic Layer** (Schmutzdecke) grows on its own, with useful microbes that **kill harmful microbes!**

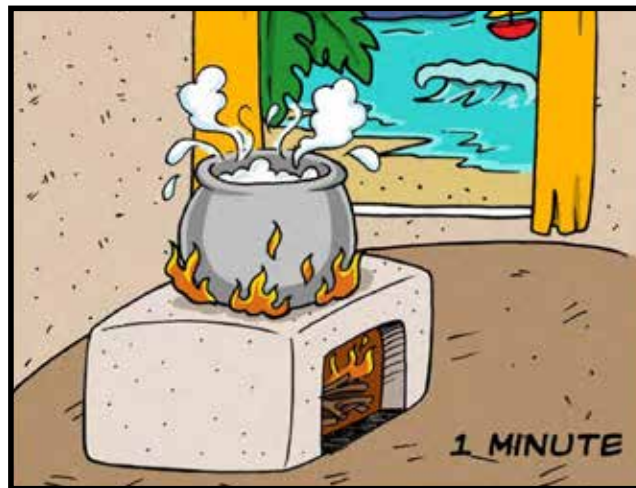


A **slow sand filter** can purify the water of an entire village.

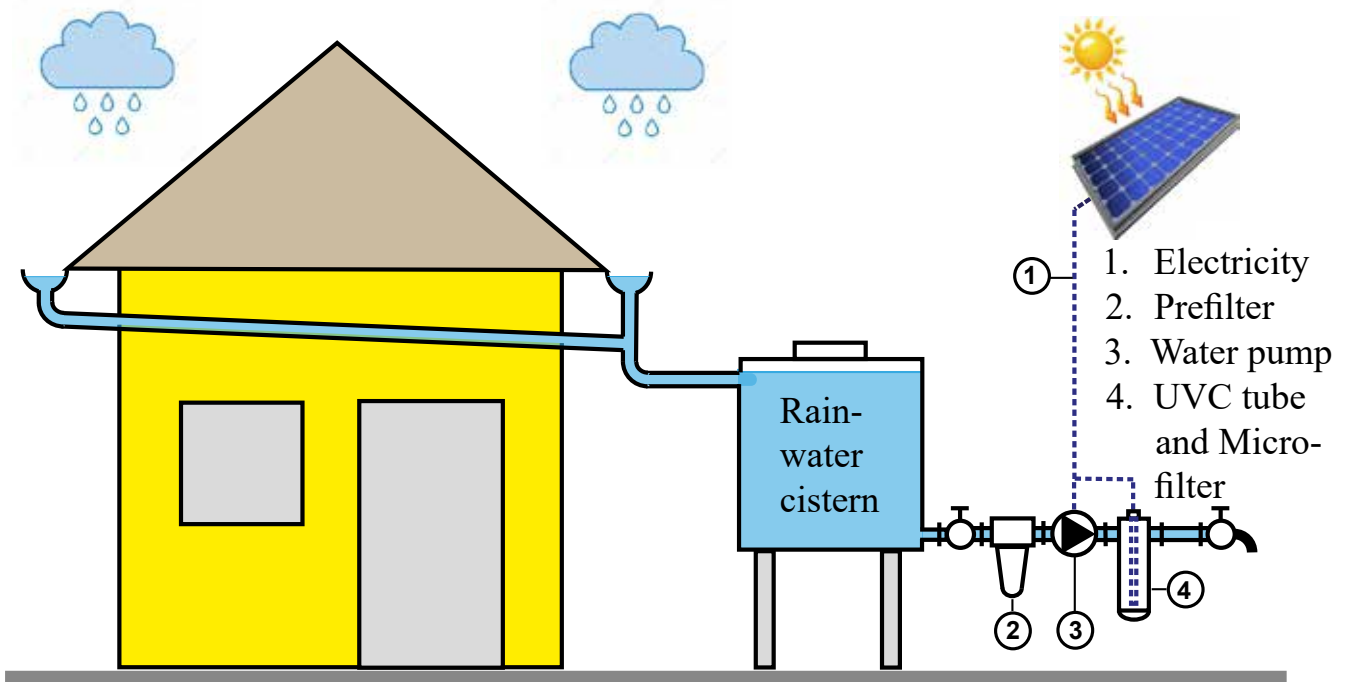
Stop the MICROBES, disinfect your water!



Disinfect your water with a suitable, available and reliable chemical agent.

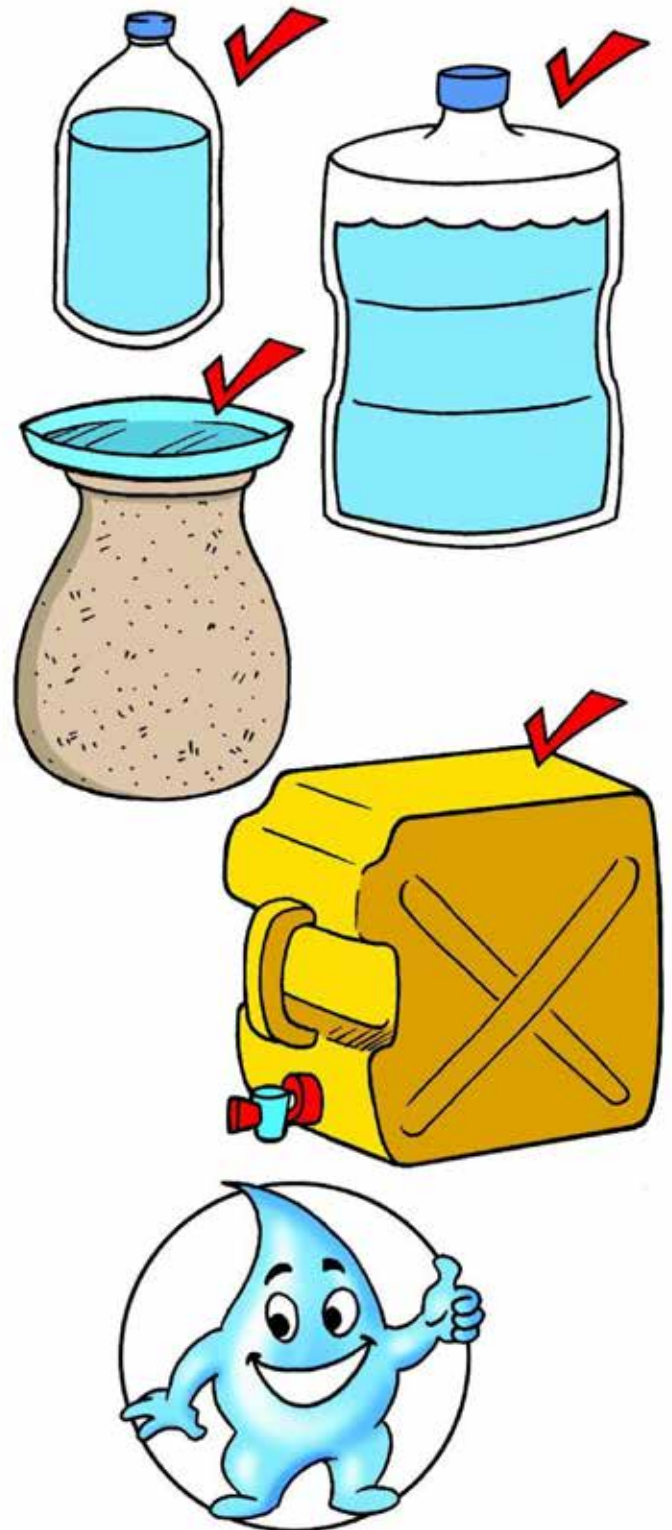
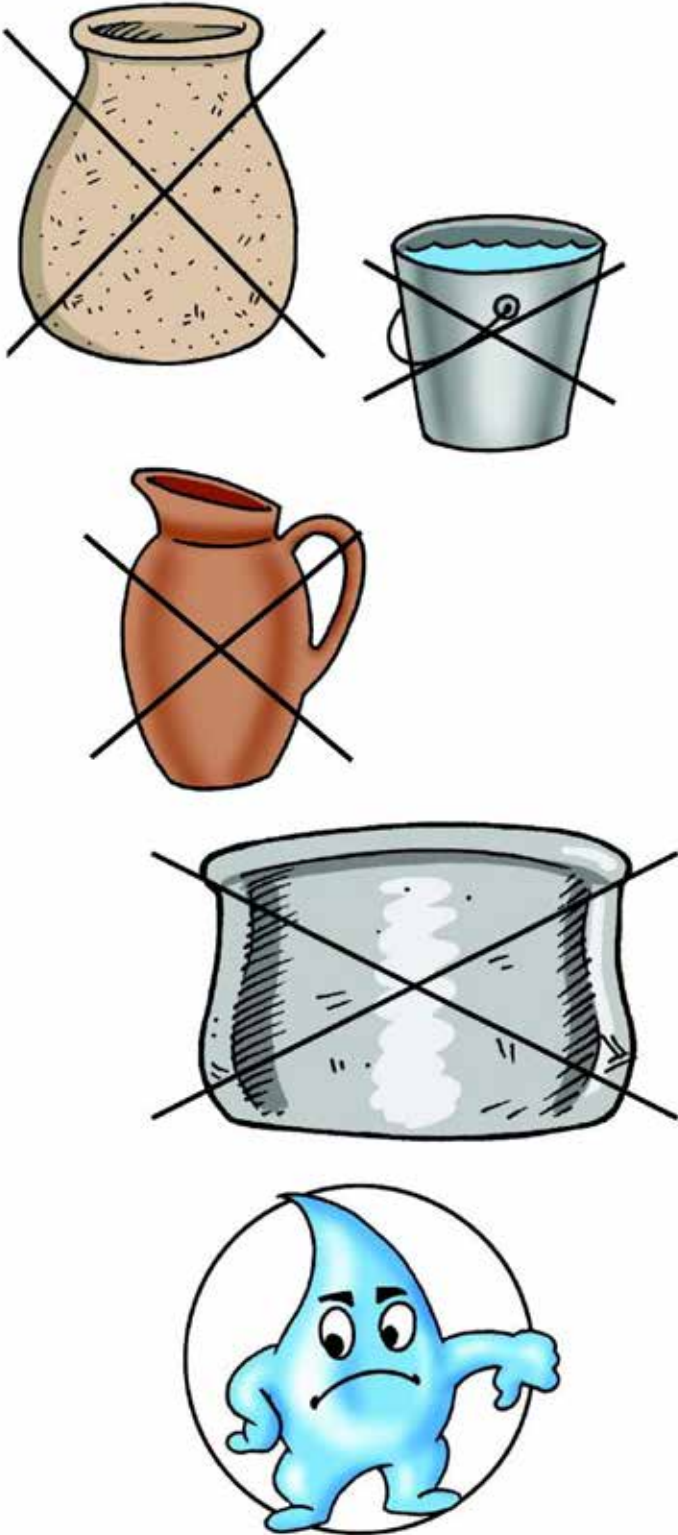


Boil your water

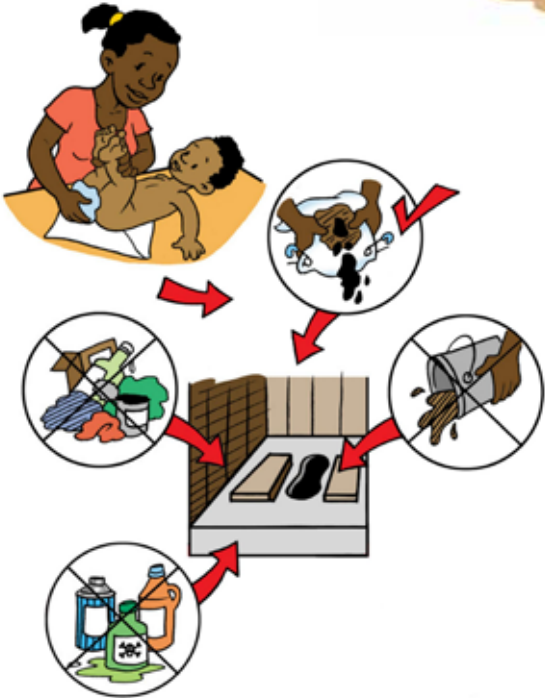
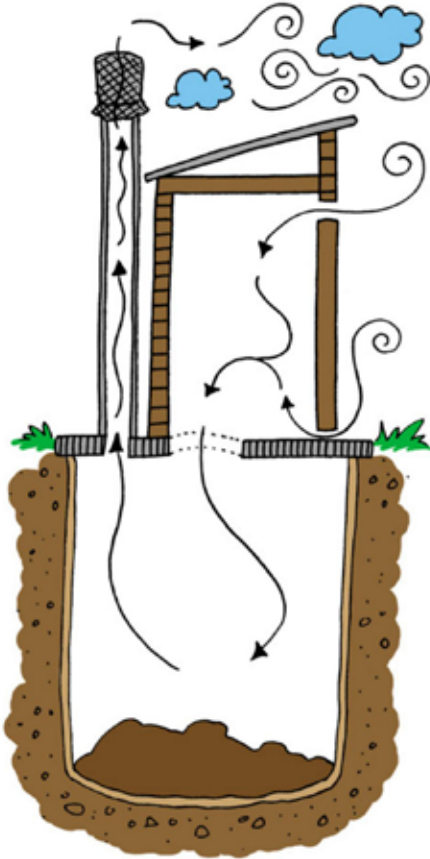


Disinfect your water by UVC irradiation (www.aqua-pura.org).

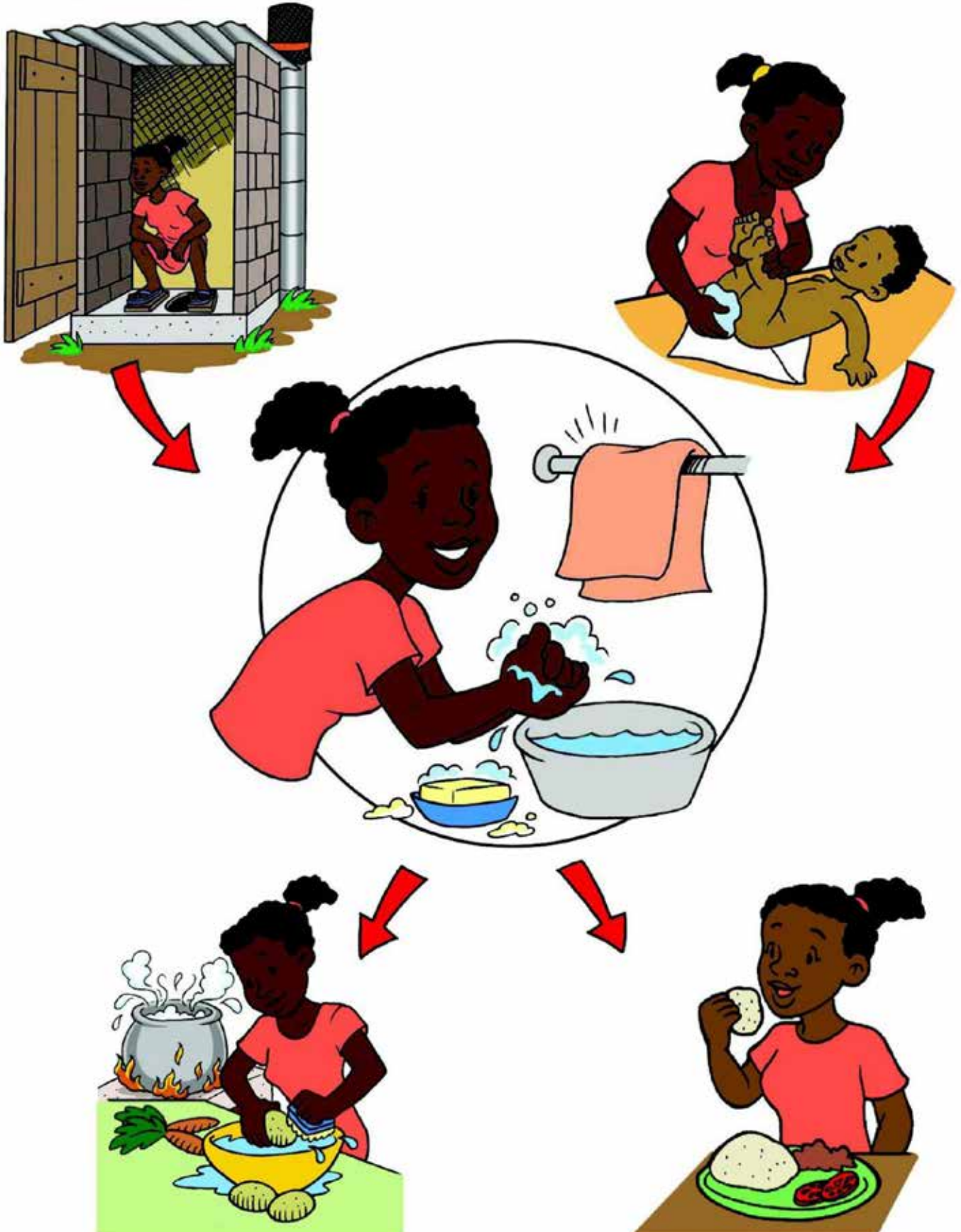
Store water in clean containers



Clean and maintain your toilet on a regular basis!



**Wash your hands with soap;
after you have gone to the toilet /
before cooking / before eating!**



Dispose of your waste and waste water in a sustainable way!



Make sure your toilet does not contaminate the groundwater!

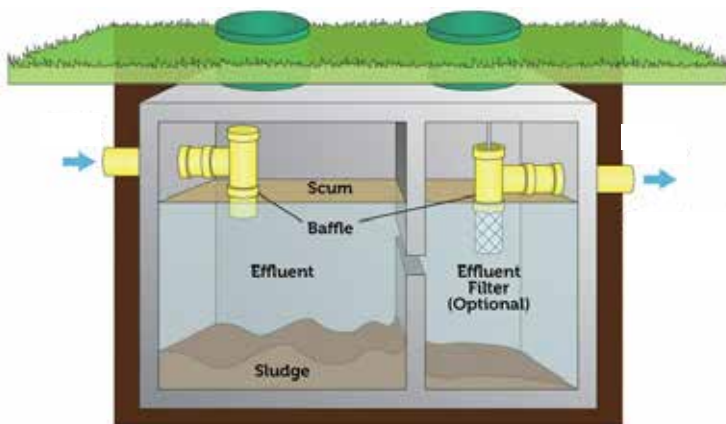
In densely populated towns and villages, you need to make sure, that excreta of your toilet do not contaminate the groundwater. The following solutions are possible:

1. Build a watertight pit and empty it periodically



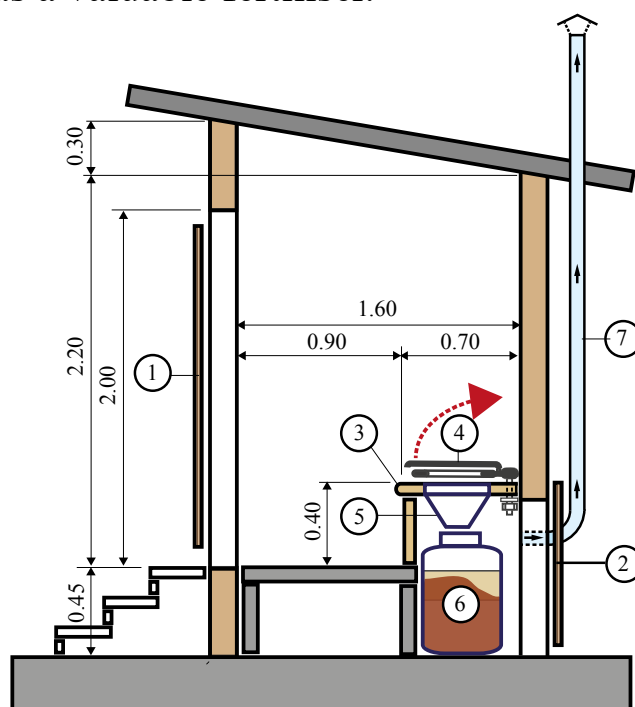
A building with 6 toilets will be built above the pit

2. Build a Septic Tank to separate the excrements from the liquid part



3. Build an ecological toilet

Collect the excrement from your toilet in a container under the toilet. Empty the container when it is full into a secure landfill for composting. The resulting compost can be used as a valuable fertiliser.



1. Entry Door
2. Container access
3. Hardwood or plastic board
4. Toilet seat with cover
5. Transition funnel
6. 60-litre plastic drum
7. Exhaust air duct

4. Connect your toilets to a public sewer system

Image source: CAWST, Calgary, CA
Design, photos and drawings: Preisig AG