

# The Water People Drink



U.S. Department of  
Health and Human Services  
Centers for Disease  
Control and Prevention

**F**or people who live in developed countries, safe drinking water is as close as the nearest tap. However, many people in developing countries are not so fortunate.







**T**he World Health Organization estimates that 780 million people depend on water from unsafe sources—rivers, lakes, and shallow wells—that have human or animal waste (like poop, or “feces”), chemicals, and other things that contaminate their water. About one billion more people use water from improved sources—like pipes, taps, or covered wells—that are not safe to drink without treatment. Because water sources may be far from home, many people must move water long distances and store it in their homes. Unclean hands or dirty containers have been shown to contaminate water during transport and storage.

Drinking unsafe water can lead to sickness and death. As of 2012, an estimated 801,000 children under 5 years old die of diarrhea each year—that’s more than 2,200 deaths a day.

These pictures show how people in the developing world get and handle water when there is no household tap.

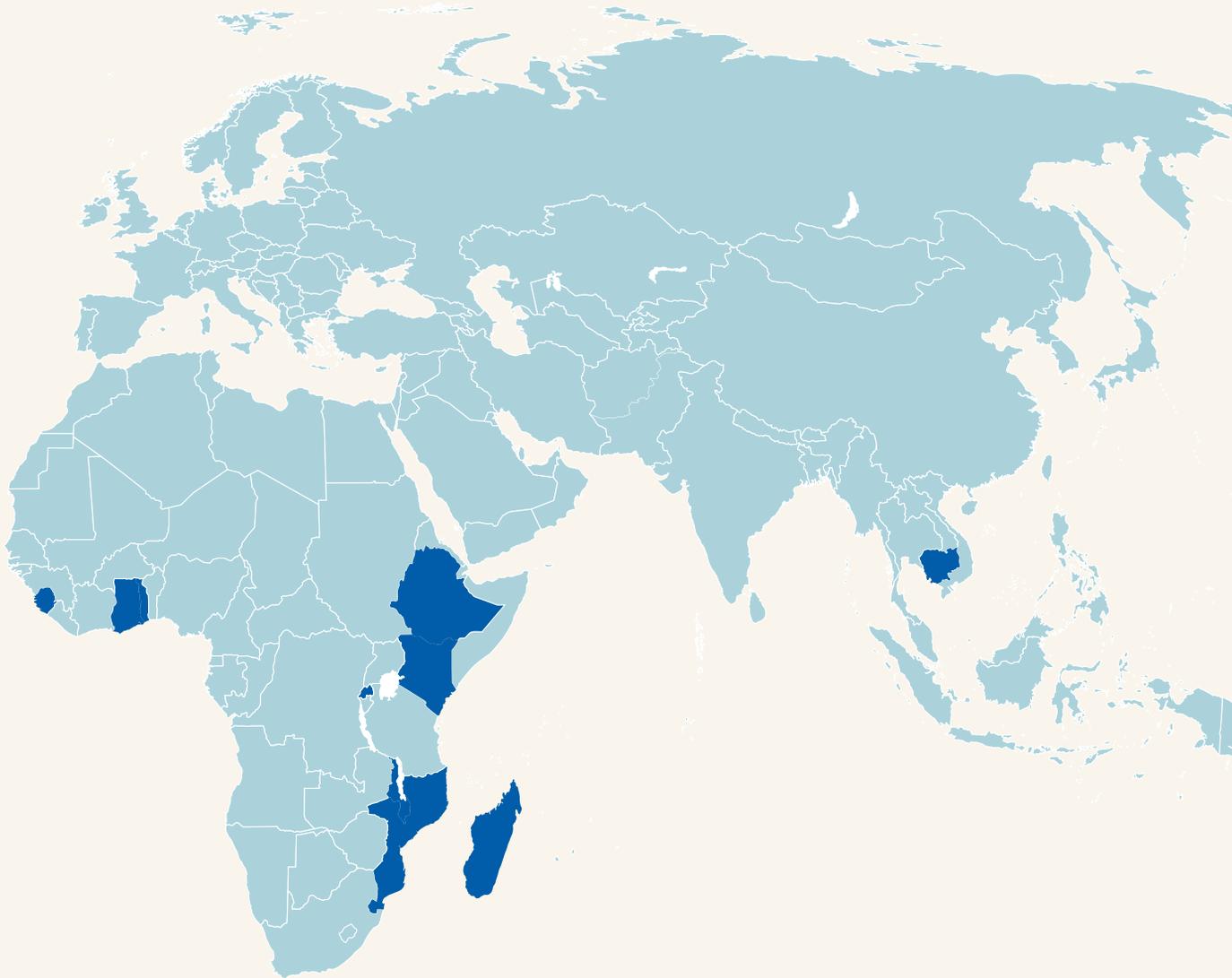
You will learn about:

- Sources of water
- Hauling water
- Treating water
- Storing water

Rwanda







**Y**ou will see where people in these countries may get their water, how they might carry it from the source to their homes, and some of the ways that people can store and treat it.



## Sources of Water

**M**any people in developing countries get water from streams, rivers, lakes, springs, and earthpans (shallow pools made by people). We call this surface water because it collects on the surface of the ground (instead of below it). Surface water sources can be contaminated directly by people and animals touching or putting waste into them. They can also be contaminated indirectly when rains wash human and animal waste into them.

Some people in developing countries get their water from underground sources by digging wells or drilling boreholes (a deep hole drilled into the ground). This water may be cleaner than surface water if the earth, sand, and rock around it provide adequate filtering. In many parts of the world, however, people have shallow wells that may easily become contaminated. These people have a higher risk of sickness and death from waterborne diseases.

Even high-quality water from piped systems or good wells can become contaminated if the water is not treated correctly with a filter or chemical product or if someone must transport it from the source to their home. In addition, people who don't have access to or cannot afford piped water sometimes make holes in water pipes to access water. When someone makes a hole in a pipe, contaminants can enter the water and cause anyone who gets water from the piped system to get sick.



Sierra Leone





Kenya



## Hauling Water

**M**any people in the developing world do not have water available in or near their homes. They must travel to a water source, like a stream or well, to collect water and carry it home. Often, women and girls must walk several miles to and from the water source—a process that may take several hours.

People use a variety of containers to carry water, like plastic buckets, clay pots, reused plastic jugs, and even hollowed-out bamboo poles. If the containers are dirty or the water is touched by unclean hands, the water may become contaminated.



Kenya





Ghana

Kenya







## Safe Water System

**C**DC and the Pan American Health Organization/World Health Organization developed a simple, inexpensive method of making water safe in the home. This method is called the Safe Water System.

The Safe Water System has three parts:

- Household water treatment — to make unsafe water safe to drink— with a variety of products and filters
- Safe water storage — to keep treated water safe from recontamination—in containers with narrow mouths, lids, and taps or spigots
- Behavior change activities to help people improve their hygiene and use the Safe Water System correctly

Many project partners use the Safe Water System approach in many countries.



Kenya

Haiti





Peru



## Treating Water

**M**any people in developing countries need to do something to their water before they drink it to make it safe. We call this water treatment. Different water treatments can remove germs, chemicals, and other contaminants from water.

People may add a liquid or powder to the water, they might use sunlight to heat the water through clear containers (like used plastic soda bottles), or they might use a water filter. The type of water treatment people choose depends on what is available in their communities, how much different options cost, and whether they know how to use them.



## Adding Bleach

**P**eople can treat water with a bleach solution made locally. To use this method, called “chlorination,” people add one full bottle cap of dilute bleach (1.25% sodium hypochlorite solution) to clear water—or 2 caps to cloudy water—in a standard-sized container, shake or stir, and wait 30 minutes before drinking.



Madagascar





## **Water Purification Packets**

**T**he Procter & Gamble Company developed P&G Purifier of Water™ together with CDC. To treat water with this product, people open the small packet of powder, add the contents to an open bucket containing 10 liters of water, stir for 5 minutes, let the solids settle to the bottom of the bucket, strain the water through a cotton cloth into a second container, and wait 20 minutes before drinking or using.



Cambodia

## Solar Disinfection

**S**olar disinfection uses the light and heat from the sun's rays to treat water. To use this method, people fill plastic soda bottles with water and place them on a roof or rack for 6 hours (if sunny) or 2 days (if cloudy) before drinking or using.



Togo



## Ceramic Filters

Ceramic filters made locally in communities have been used throughout the world to treat household drinking water. The most popular type looks like a large flower pot sitting inside a plastic bucket with a lid. To use the filters, people fill the top section or the filter itself with water, which flows through the filter into a storage container with a tap.



Kenya





## **Slow Sand Filters**

**S**low sand filters (also called biosand filters) are concrete or plastic containers with layers of sand and gravel. To use the filter, people pour water into the top, and treated water flows out of a pipe on the bottom and into a bucket for use.



Dominican Republic

## Storing Water

**A**fter a person collects water at the source, hauls it home, and treats it, he or she must store it until it is used. Like water transport containers, storage containers can look very different and be made from different materials.

The type of container matters. A container with a narrow mouth, a lid, and a tap for water to come out is best to protect the water. When water is stored in a container with a wide mouth, it is easy to scoop out a drink with a cup—but if either the hand or the cup is not clean, it may contaminate the water, putting the people drinking it at higher risk of getting sick.



Thailand





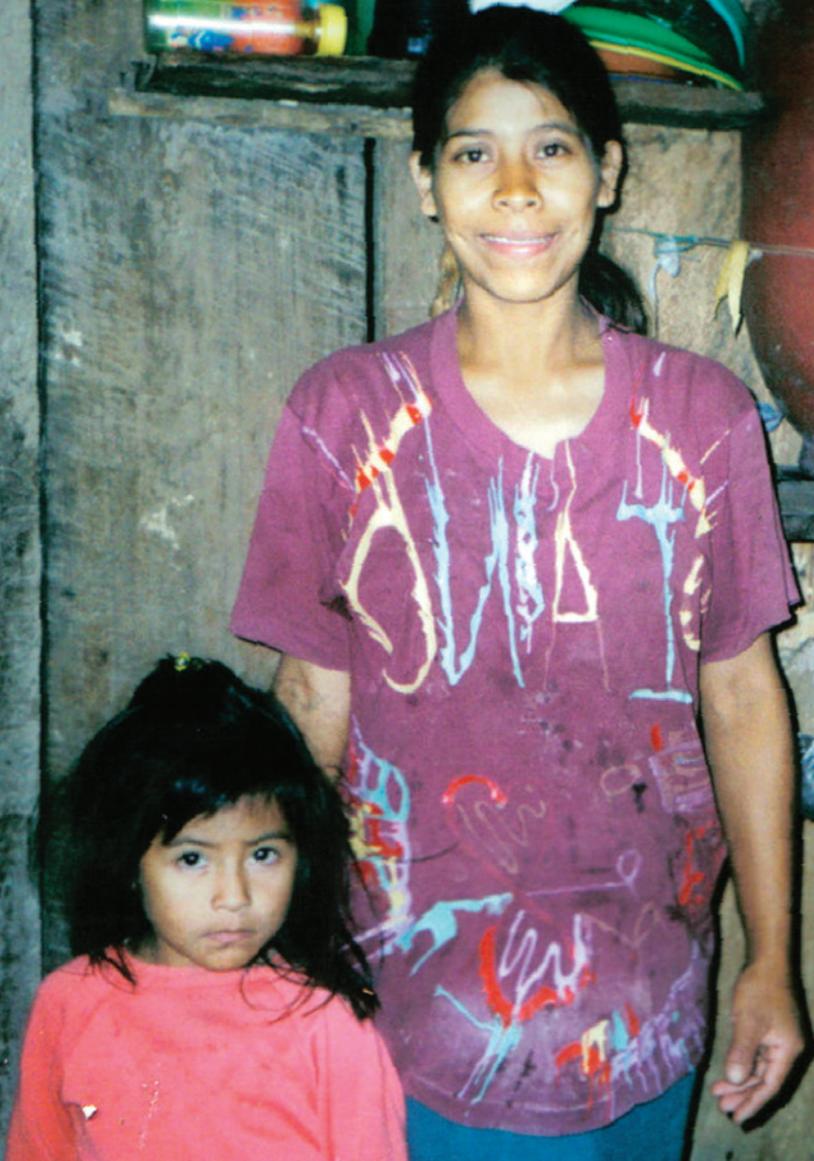
**T**he World Health Organization and UNICEF estimate that since 1990, 2.1 billion more people have access to improved water supplies, like pipes, taps, and covered wells. However, many of these people only have access to these sources sometimes, and 780 million people still have no access.

**The Safe Water System is one way to help close this gap.**

**Please visit [www.cdc.gov/safewater](http://www.cdc.gov/safewater) for more information on the Safe Water System.**

**Visit [www.cdcfoundation.org/gangarosa](http://www.cdcfoundation.org/gangarosa) to see how the Gangarosa Endowment for Safe Water serves as a catalyst for these activities.**

Nicaragua





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CDC works with many partners to improve the lives of people around the world by making clean, safe water available in places where no piped, treated water supply is available.

Some of our partners include:

Bill and Melinda Gates Foundation

CARE International

CDC Foundation

Clinton Health Access Initiative

Clorox Company

Deep Springs International

Gangarosa International Health Foundation

Lonza

Medentech Ltd.

Population Services International

Procter & Gamble Company

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Find out how you can help improve water quality around the world.

[www.cdc.gov/safewater](http://www.cdc.gov/safewater) | [healthywater@cdc.gov](mailto:healthywater@cdc.gov)

Learn more about how the CDC Foundation and partners support CDC's safe water work.

[www.cdcfoundation.org/safewater](http://www.cdcfoundation.org/safewater)