Safe water transport

What is this Action Sheet about?
Transporting water from its source to where people need it is hard work. This Action Sheet is about ways to make is easier. Care must be taken to keep water uncontaminated while it is being transported, and when it is being stored before use.

What's the problem? The problem is that carrying water is hard work.
Carrying water is some of the hardest work done in any community — and it is often done by women and girls. Carrying heavy loads of water on the back or with a head strap can lead to frequent headaches, backache, malformation of the spine, and can cause a pregnant woman to lose her baby due to strain. Water improvement projects reduce this burden. Sometimes simple changes can make water carrying easier. Water systems can be built to eliminate the need to carry water long distances, or homes can be built closer to the water source. Encouraging men to share this important work will help improve community health.

What's the solution? Piped water is a solution.
There are many advantages to a piped water system. Piped water reduces the risk of contamination and reduces living places for snails and mosquitoes. A piped water system must be planned carefully, with an understanding of how much water is needed and available, and how much water may be needed in the future as the community grows. Water can be piped from almost any water source, but springs and reservoirs are most common. The least costly source is one that is uphill from the community, so that gravity will carry the water downhill.

Most piped water systems bring the water to a large storage tank. The tank may be treated with chlorine or have a filter attached to treat the water. Water is piped from the storage tank to tap stands in people's houses or to public water collection points around the community. A piped water system needs regular maintenance. Keeping records of where pipes are laid can prevent accidents and make it easier to find and repair broken pipes. Leaking pipes can waste a lot of water and draw in sewage and other contamination from the soil. If pipes have been fixed with jute, hemp, cotton or leather, germs may grow on these things and contaminate the water in the pipes.

An important part of any piped water system is to ensure that someone is responsible for fixing damage to the pipes.

What about water storage?
Water is easily contaminated while it is stored. To ensure that it is safe, water must be stored in vessels that protect it from further contamination. Water stored in uncovered tanks or tanks with cracked walls, or loose or poorly made covers, is easily contaminated by animal waste and germs. Planning and support of the whole community are necessary to keep water safe for everyone.

SAFE WATER COLLECTION AND STORAGE ACTIVITY

This activity helps people think about how water drawn from a well, spring, or tap can become contaminated before it is consumed at home. This activity can be done with any number of people.

Time: 1 hour

Materials: Sticky tape, three pictures showing:

1. Two people collecting water at a well, spring, or tap.
2. A child drinking a glass of muddy water.
3. Another child drinking a glass of clear water.

Step 1: The facilitator shares the picture of the people collecting water with the group. The group discusses what is happening, talking about the people as if they are from this community. What are their names? How often do they collect water? Is the water they are collecting safe? After the discussion, the picture is taped to the wall.

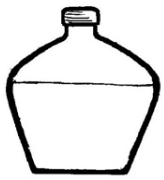
Step 2: The group looks at the picture of the child drinking muddy water. The facilitator explains that this is the child of one of the people from the first drawing, on the next day, drinking the water that was collected. The picture is taped to the wall below the first picture. The facilitator asks, “What happened between yesterday and today to cause the water to become contaminated?” The group discusses all the possible ways the water could have become contaminated.

Step 3: The facilitator shows the picture of the child drinking clear water and tapes it to the wall below the other pictures. She explains that this is the child of the second water collector, and asks, “What has this person done to keep the drinking water clean?” The group then discusses the things that must be done to keep drinking water uncontaminated and how these things can be done in their community and their homes.

Clean water vessels and keep them clean

Stored water can become unsafe when it is touched by people with dirty hands, when it is poured into a dirty vessel, when dirt or dust gets in the water, and when dirty cups are used. To prevent water from becoming unsafe at home:

- Wash hands before collecting and carrying water.
- Clean the vessel that is used to carry water.
- Carry water in a covered vessel. This will also prevent spilling.
- Regularly clean the container where water is stored in the house.
- Keep water vessels off the floor and away from animals.
- Pour water out without touching the mouth of the container, or use a clean, long-handled dipper to take water out of the container.
- Clean all cups that are used for drinking.
- Never store water in containers that have been used for pesticides or dangerous chemicals, even if they have been cleaned.
- If possible, do not treat more than you need for daily use, usually less than 5 litres per person per day for drinking and cooking.



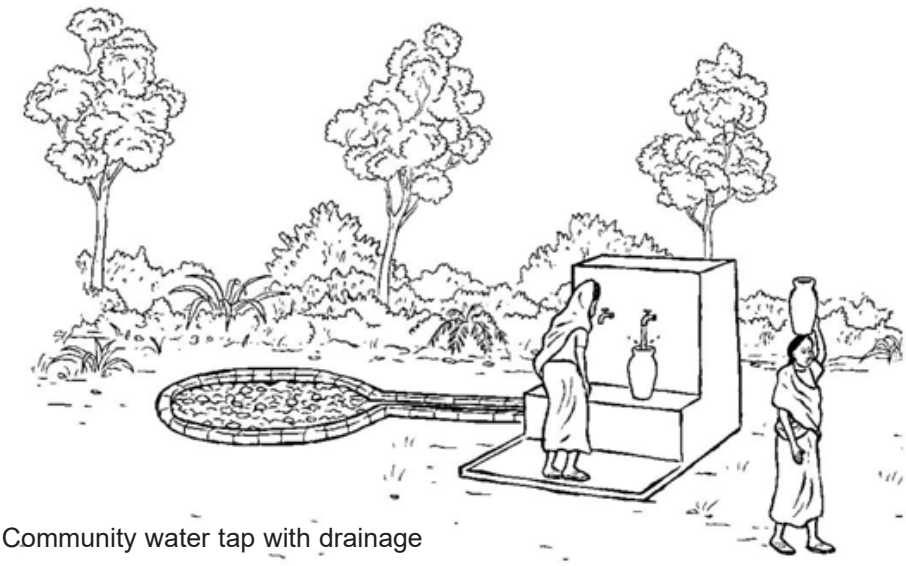
Narrow mouthed containers are safest for storing water.

Cover tanks and cisterns

Closed cisterns are safer for storing water than open ponds because mosquitoes and snails cannot live in closed tanks. Cisterns should be placed as close as possible to the point of use.

Ensure good drainage

Wherever people collect water, water spills. When water collects in puddles it becomes a breeding ground for mosquitoes that carry malaria and other illnesses. Wells, tap stands, outlets from storage tanks, and other water points should have good drainage that allows spilled water to flow away or to drain into the ground without causing puddles.



Community water tap with drainage

Prevent water loss

A large amount of water can be lost through leaks, *evaporation* (when water dries up into the air), and *seepage* (when water soaks into the ground). To conserve water, fix or replace broken or leaky taps, pipes, and tanks as soon as leaks are found. Leaks are also a sign of possible contamination, because germs and dirt enter the cracks in tanks and pipes.

Evaporation can be reduced by covering storage tanks. If water is stored in ponds or ditches, digging them deeper will expose less water to air and so reduce the amount lost to evaporation.

See also, Action Sheet 21: Ferrocement tanks and Action Sheet 22: Brick water tanks.

Acknowledgements
This Action Sheet is an edited excerpt from “Water for Life: Community Water Security”, created by the Hesperian Foundation for the UNDP, in cooperation with the Community Water Initiative partners, part of a larger book by the Hesperian Foundation.

More information
IRC - International Water and Sanitation Centre www.irc.nl

Practical Action (formerly known as ITDG) www.practicalaction.org

UNDP Community Water Initiative www.undp.org/water/

WaterAid www.wateraid.org

Developing Groundwater - A guide for rural water supply - by Alan MacDonald, Jeff Davies, Roger Calow and John Chilton, ITDG Publishing, (available from www.developmentbookshop.com) 2005.

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