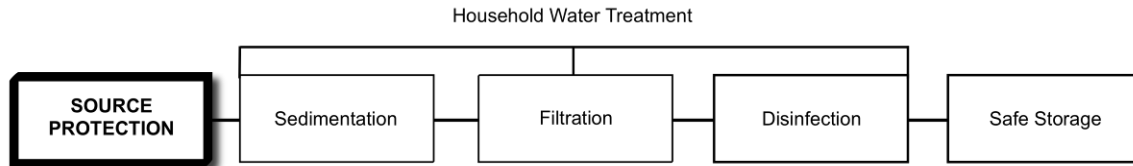


Household Water Treatment and Safe Storage Factsheet: Source Protection

The Treatment Process



Potential Treatment Capacity

Very Effective For:	Somewhat Effective For:	Not Effective For:
<ul style="list-style-type: none"> Local contamination of the water source 		<ul style="list-style-type: none"> Naturally occurring contamination Contaminants introduced upstream of the water source

What is Source Protection?

There are many pollution problems which may threaten drinking water quality at the source, point of collection, or during transport. Source protection can reduce or eliminate the risk of contamination, resulting in improved water quality and reduced risk of disease. Source protection should always be practiced as the first step in the multi-barrier approach to safe drinking water.

What Causes Contamination?

The main risk factors for contamination at the water source, collection point and during transport are:

- Poor site selection of the water source
- Poor protection of the water source against pollution (e.g. agricultural runoff contaminated with manure and fertilizers)
- Poor structure design or construction (e.g. lack of a well lining and/or cover, tank sealing, poor pipe connections)
- Deterioration or damage to structures (e.g. cracks can be entry points for contaminants)
- Lack of hygiene and sanitation knowledge and practice in the community

Source Protection Practices

The following provides suggestions on several things that can be done to protect different water sources from contamination and improve the quality.

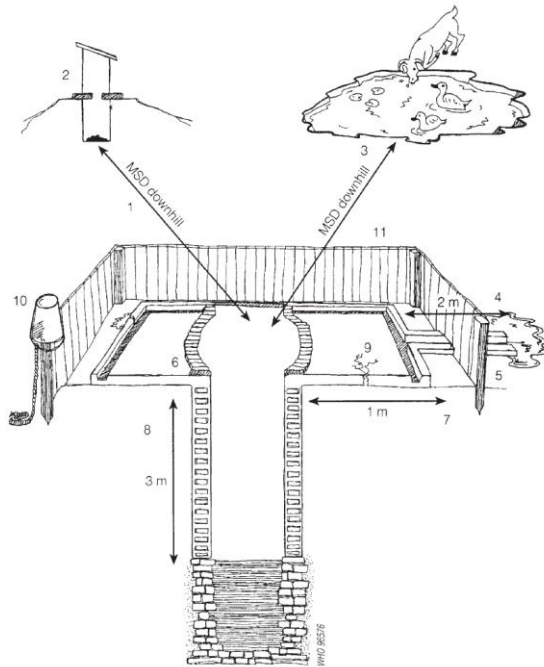
For all Water Sources and Points of Use (where the water is stored or used):

- Locate latrines down hill and at least 30 meters away from water sources.
- Keep animals away by using fences around the water source
- Maintain separate area for washing clothes and watering animals
- Keep the general environment around the water source and points of use clean and free from excreta and garbage
- Plant trees along creeks and rivers and maintain a well forested area above your water source, to trap contaminants and prevent erosion
- Provide adequate drainage to prevent wastewater from pooling and becoming stagnant, which provides an ideal breeding ground for insect vectors

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- Maintain and repair all constructed elements and ensure water source and structures are physically sealed from contaminant inflow (e.g. surface run-off)
- Ensure watershed use is non-polluting



Maintain separation distances between source/collection points and latrines, washing and animal watering points

Wells, Tubewells and Boreholes:

- Line wells and boreholes (provide a sanitary seal in the top 2 to 3 meters)
- Keep protected and covered, and construct a parapet wall around open wells
- Use a separately designated, clean rope and bucket, a windlass or a hand pump to pull water out of the well. Store the bucket in its own covered clean platform.
- Build a platform with adequate drainage at the collection point to prevent mud and wastewater from pooling

Springs and Gravity Fed Piped Systems:

- Stabilize springs by building retaining walls and collector boxes with screened intakes

- Dig a surface water diversion channel, ditch or bund above and around the spring development
- Seal the top of the source with a sanitary cap when possible to prevent infiltration of surface run-off
- Plant vegetation around the catchment area but ensure roots will not crack the any structures
- Fence off the spring and the catchment area directly above it to prevent contamination from livestock or people
- For gravity fed systems, protect and maintain collection and storage tanks, lay piping 50cm below ground or deeper were possible

Rivers and Lakes:

- Mark separate zones for washing and watering animals downstream and away from water collection areas

Rainwater Harvesting:

- Cut back any trees or vegetation overhanging the catchment surface
- Collect and store rainwater in covered tanks which are periodically cleaned
- Clean catchment surface, gutters and screens prior to first rain of the season
- Divert and do not consume water from the first rain
- Use a first-flush system to divert first few millimetres of each rainfall event as it contains dust accumulated on the roof or catchment area

Water Collection and Transport

It is vital that people collect water in clean containers and keep them covered while transporting water from the source to the point of use, to prevent contamination of the water after collection.

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Further Information

Davison et al. (2005) Water Safety Plans: Managing Drinking-water Quality from Catchment to Consumer. World Health Organization, Geneva, Switzerland. Available at: www.who.int/water_sanitation_health/dwq/wsp0506/en/index.html

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Last Update: June 2011