Emergency Storage

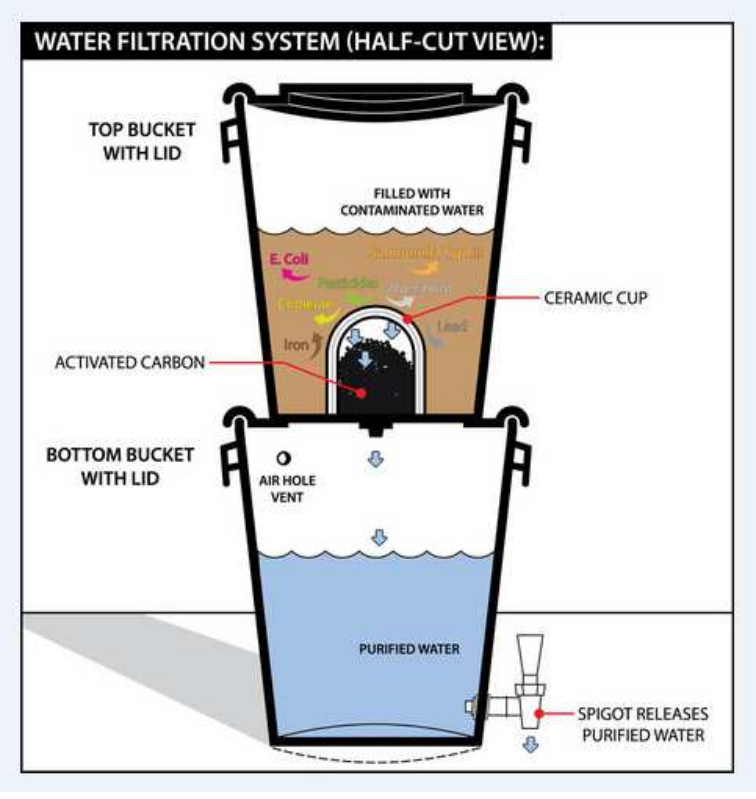
Water Filtration Set Ups—Two per Barrel

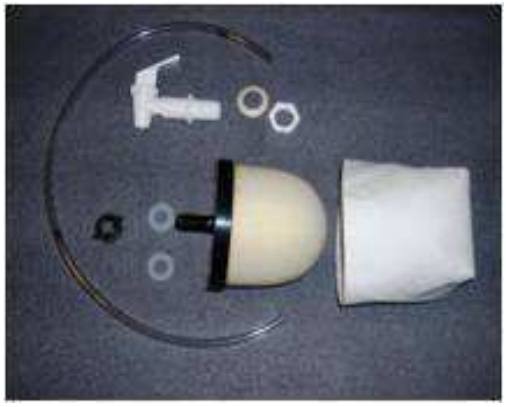
This paper introduces ceramic water filter cartridges, which provide a low-cost, low-tech, well proven solution that enables clean water to be produced from just about any fresh water source.

What is a ceramic water filter? The filter consists of a ceramic shell which usually contains activated carbon. The ceramic shell has sub-micron sized pores which filter out small contaminants such as bacteria and particulates while the carbon inside treats the water by removing a wide spectrum of chemicals. Specialized filters that remove particular chemicals such as fluoride or arsenic can also be manufactured by using other media in place of the carbon.

These filters are fairly low cost but are often bundled with fancy containers and big brand names that can add hundreds of dollars to the price. In reality though, you can make your own water filter systems at a much lower cost. This has been proven by missionary groups and NGOs in disaster situations all around the world.

Two pictures are presented below (in lieu of a few more pages of text) to explain how these systems can be made and used. The picture on the left is made from a couple of 5 gallon buckets with the filter in the middle. Though you can use any type of containers when building your system, the basic design is almost always the same: A top container holding the unfiltered water and the filter, and a bottom container to catch the clean water that drips from the filter spout. The picture on the right shows the parts that make up an 'emergency kit' which is used to create the system at left.





These systems are portable, require no power, are very simple to create and maintain, and are low cost. They can be used with just about any freshwater source as has been proven throughout the world for the last couple of decades by a multitude of refugees.

How much water and how fast? One of the first questions most people have is "How much water are these filters good for?" There are two answers for this question. The filter will remove bacteria and particulates for as long as the ceramic shell is intact. The pores in the ceramic can get clogged over time, but it is easy to unclog them by using a slight abrasive to remove the outermost (clogged) layer of shell.

Chemicals are treated by the activated carbon inside which is used up after 6 to 8 months of 'normal' use. 'Normal' assumes 12 to 15 gallons per day from a natural water source. This implies the carbon will last for 3000 to 4000 gallons. The carbon's lifespan will be shortened if the water contains a lot of chemicals, such as chlorine. The filters can be stored indefinitely and used intermittently provided they are dried out well inbetween uses.

The amount of clean water a system can produce in a day is another question most people have. The water flow of a filter dripping out of the spout depends on the water level in the upper container, so as the water level decreases the flow rate slows. For a standard 5 gallon bucket the flow rate is 12 to 15 gallons per day assuming the bucket is refilled a few times. This is plenty of water for drinking and basic needs for a family.

Information from www.homespunenvironmental.com