**Physical Preparation for Crisis, Part I: Water**

Water is the **most basic of our physical need**s. We easily take for granted that we will always have easy access to fresh, pure water. The recent disasters in Tuscaloosa and Joplin highlight the fact **that the basic infrastructure of cities can be suddenly and devastatingly disrupted**. It is prudent, therefore, to consider how each one of us would be affected if access to pure water was suddenly cut off. It is wise to think through the potential problems and action to be taken **PRIOR to the calamity** rather than reacting to the problem ***AFTER*** the fact.

**I Consideration: Our need for water.** We have the need for water in the application of many of life’s activities. Just considering basic needs, the average person will require about 40 gallons of water per month. That allows ½ gallon per day for drinking, ½ gallon for hygiene, cooking and other needs.

1. **Dinking** to replenish bodily fluids
2. **Cooking** of food
3. **Personal hygiene**; i.e., bathing, brushing teeth, etc.
4. **Sanitation**; i.e., cleaning of dishes, washing of clothing, etc.
5. **Growing of food**

**II Consideration: Thinking through the potential problem of shortage of pure water.**

1. **Water sources**: What sources are available? Where will I be able to obtain water in the event of infrastructure collapse?
   1. Where is the nearest lake, stream, river, well, pond, etc., where you can obtain water?
   2. Have you prepositioned an emergency supply of fresh water in your home; i.e., food grade storage barrels, bottled water, etc.? 55 gallon food grade storage barrels are excellent for long term storage of water for emergency use.
   3. Cachement of water: Have you got anywhere where you can catch rainwater and store it; i.e., from your downspouts? Lowe’s is one place that carries barrels to catch and store rain water.

There are other ways to catch rain water, such as hanging a tarp with a hole in the middle of it and a container underneath the hole to catch the water.

1. **Transporting water:** How will you transport water from the collecting point to where you will be using it? What provision do you have to carry the water? There are 3to 7 gallon water containers specifically designed for that purpose.
2. **Purifying water:** How will you insure the purity of the water you collect? Contaminated water can carry bacteria, viruses, and amoebae. It can also contain harmful parasites, chemicals, pesticides and heavy metals. There are a variety of ways to purify water of bacterial contamination, chemical contamination (fertilizers and other chemicals) and elemental contamination (lead and other metals). Before treating water it is best to **remove as much sediment as possible first**. It can be done by straining the water through several layers of paper towels, cloths, or coffee filters.
   1. **Boiling**: Boiling water for at least 3 minutes will kill bacteria and other harmful organisms. Only volatile chemical contaminants will be removed. Other chemical contaminants and sediment are not removed, however.
   2. **Chemical Disinfection**: Positives: Most organisms can be killed by this method with the exception of some flukes. Negatives: There can be a strong chemical odor and taste.
      1. **Iodine**: Comes in various forms but tablet form is easiest simplest to work with. One tablet will treat one quart. Iodine kills the hardiest of organisms including bacteria, algae, viruses and amoeba. **People who are allergic to iodine cannot use this method of treating wate**r. It is sold under the names Potable Aqua, Globaline, and Coughlan’s. It has a shelf life of up to four years.
      2. **Chlorine** (Clorox, i.e. ***regular, unscented bleach***): Regular bleach has a 2 year shelf life. Use 8-16 drops to treat 1gallon of water depending on the cloudiness of it.( Use ***½ to one teaspoonful to treat 5 gallons***).Take note, however, chlorine loses its effectiveness in cold, alkaline water as well as water that is high in organic pollution.
   3. **Mechanical Filtering**: These units purify water by using various filters. **There are three types of filters to consider: ceramic, activated carbon, and combination ceramic and activated carbon.** The ***ceramic filters*** filter out most organisms but do not filter out chemicals or heavy metals. The ***activated carbon filters*** filter out chemicals and heavy metals but only filter out a few organisms; they must be changed frequently. The ***combination filters*** do it all but **must be replaced much more frequently** than the ceramic filters. Ceramic filters are probably preferable unless the water source is very cloudy and is known to be contaminated with chemicals.

Another consideration is the ***size unit that is needed***. **There are small units designed for portability and there are larger units for use at a stable base camp**.

* + 1. **Portable units:**
       1. Katadyn Pocket Filter: One ***ceramic filter*** can filter up to 13,000 gallons. Its output is up to 1 quart per minute.
       2. Katadyn Combi filter: Filters up to 1 quart per minute. Has a combination ***ceramic/activated carbon filter***. Ceramic filtering capacity is up to 13,000 gallons. The carbon elements must be replaced after 100 gallons are filtered.
       3. Lifesaver 4000/Lifesaver 6000: Can treat 12 gallons per hour. Filter capacity is 1000 gallons for the 4000 model and 1500 gallons for the 6000 model. The bottle capacity is .75 liters. The filters are replaced after capacity has been reached.
    2. **Base units:** 
       1. Katadyn TRK drip water filters (can get either ***ceramic filters*** or combination ***ceramic/activated carbon filters***): Filters up to 1 gallon per hour (if 3 filters are used). ***Ceramic filters*** can each filter up to 13,000 gallons of water. The ***combination*** filters have a 6 month lifespan. Has a 2.6 gallon capacity.
       2. Big Berkey (Can get either ***ceramic*** orcombination ***ceramic /activated carbon filters***): Filters up to 3.5 gallons per hour if configured with 2 filters. Storage capacity of up to 2.25 gallons. Each combination filter has a life of about 3000 gallons depending on level of water contamination.

1. **Storing water**: Store water in small or moderate sized containers for portability or large containers for fixed storage. The containers can be either plastic, glass, or fiberglass and should not have ever contained fuel, poisons or other toxic chemicals. ***Food grade*** buckets or barrels up to 55 gallons are excellent containers to store water in. **The following should be considered when storing water. .** 
   1. Water stored for any appreciable length of time should be **“conditioned” by adding ½ to 1 teaspoon full of regular clorox per 5 gallons.**
   2. Water should be stored so **that it will not freeze**.
   3. Water should be stored in an area with **as little light exposure as possible** to reduce the chance of algae growth.
   4. The water should be **sampled every 3-6 months** . If it looks dark, smells bad, tastes bad, or is cloudy it should be replaced with fresh water.
   5. An inexpensive **siphon pump** can be purchased and utilized to pump out water from the larger barrels
   6. Other areas where water may be stored: Hot water heaters, toilet tanks, bathtubs
2. **Having a mindset for conservation**: In emergency situations, where there is a compromise of the public water supply, the value of water stored for emergencies must be taken to heart. **It should not be carelessly used or wasted**, but, rather used with discipline; i.e. limiting its utilization when possible. Less frequent body washing would be one example of conserving water supply. The following questions should be considered:
   1. What uses of water **require** purified water? What uses do not require purified water?
   2. How can the use of pure water be **minimized** for:
      1. Cooking
      2. Personal hygiene
      3. Growing food
      4. Sanitation