

**Emergency Water Storage at Home:
Why, How,
How Much Water,
and At What Cost?**

A Special Report

By Zana Hart
of www.simplegreenliving.com

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About the Author

I'm Rosana "Zana" Hart, a librarian turned writer, publisher, and webmaster. I have several websites— including www.simplegreenliving.com, where free copies of this PDF file can be downloaded. I am not a water storage expert as such, but I have traveled all over the world and had to cope with many different kinds of water conditions. Recently my husband Kelly and I lived in central Mexico for five years, and water storage became an automatic way of life for us there. Now I am back in Colorado, writing about simple living and other topics. I can be reached via the contact page on my website.

My interest in preparedness may stem in part from my Mormon relatives. The LDS church has taught preparedness for a long time. I have never had any ties with that church, as my grandparents left it when they were young, and it seemed to me that all my mother got was a tendency to preparedness!

Clearly, we live in interesting times. I like the idea of being versatile and able to cope with things that might happen, without carrying that to expensive extremes. I wrote this ebook when I was invited to give a presentation on home water storage at a local event, the Energy Fair of Crestone, Colorado. I was going to sell this ebook online, as I do with some other ebooks I have created, but I decided that I would rather give it away to reach more people!

Why Store Any Water When You Probably Won't Need It?

Because it *could* save your life, or the lives of people you care about.

Most people who live in earthquake zones don't experience huge, disruptive quakes. Nor do people who live in the increasingly drought-prone West necessarily experience forest fires that disrupt their lives. The same is generally true for most people living in Tornado Alley and in hurricane zones; they may experience some storm activity, but it is rare that a killer tornado, raging floods, or something like Katrina comes along.

So most people don't do much about emergency preparedness. It is easy to be lulled into a false confidence or simply to be busy with other things.

But then, suddenly, major emergencies do happen. Power goes out; water gets contaminated; people have to leave their homes fast. We all know that; we can't help but hear the news. If we run to the grocery store at the last minute, we are competing with others for scarce and suddenly much-needed resources.

And we can only live about three to five days without liquids. It can be a shorter time for children. Then death comes by dehydration. I am not going to dwell on this fact, but it is a key reason for storing some water.

If you've thought much about water today, you're one of the few. Water is something that most of us just take for granted. We turn on a tap and there it is, clean and clear. Sure, we may filter the water to take out the taste of chlorine, but still, unless you have lived in third world countries (as I have), you likely take water for granted.

Until it isn't there anymore. Then we learn how critical water is to our very lives.

We humans can live without food for several weeks, though that might not be easy. If you really want to know how important it is to have a supply of good, potable water, ask people who have tried to survive without it. They'll tell you how desperate they were to get water. The cells of our bodies are a high percentage of water by weight and we need a fresh supply throughout every day for health. Even if you don't drink a lot of plain water, you get it in beverages, soups, and other liquids.

It doesn't take major violence from nature for your water supply to be cut off. Our national power grid is vulnerable. Small parts of it go out all the time, and sometimes large parts do. In many communities, the water systems depend on electricity to operate. Shortly after I wrote the first version of this ebook, 4 million people in the San Diego area south to Mexico were without power overnight or longer. While I didn't notice news stories about water being cut, the lack of electricity at wastewater pumps did result in over 2 million gallons of sewage pouring into the ocean.

In addition to hurricanes, floods, droughts, and storms, you can also lose your water supply to an outbreak of infections linked to contaminated water. The largest outbreak of one of these diseases occurred in 1993 when more than 400,000 people in Milwaukee, Wisconsin became ill with diarrhea when the parasite *Cryptosporidium* got in the city's drinking water supply. Over

100 people died as a result. Other such outbreaks can be caused by water that has become contaminated with pathogens, chemicals or toxins.

Also, people you care about—your neighbor, your children, or your parents—could suddenly be without water due to a serious plumbing problem or because the water supply has become contaminated. This is a case where your home stored water could be a real lifesaver.

So—with all that, it's a very good idea to store some clean drinking water. There's an old saying among backcountry hikers that being prepared makes big problems small. It's true for all of us.

If your water is out for a period of hours and you don't have enough, you will feel stress. When we are stressed, we do not think as clearly as we do in more normal times.

What This Little Book Covers

- Read about the importance of home water storage as a way to cope with a natural or manmade emergencies, even one as simple as a short power and water outage.
- Find out how much water to store in your home, including how much to store for pets.
- Learn simple ways to store water.
- Discover places around your home where you can store water that you might never have thought of. You will also learn how to store water outdoors when it isn't freezing outside at night.
- Find out how to keep water fresh, and what to do if you are concerned about its purity, as well as some inexpensive ways to filter any water.

In short, when you have finished reading this report, you will know the basics of emergency home water storage and how it can help you, your family, and maybe your neighbors get through some dry times.

What This Doesn't Cover Much: Extremely Long Term

There are certainly possible scenarios where enough water storage for a month or more would be a good choice. For example, a significant earthquake could do damage that would take weeks or months to repair. I don't really cover these situations in any detail. I am writing for short-term emergencies of a few days, and for medium-term situations of possibly up to a month.

But since your neighbors are not likely to have done much, a month's worth of water storage at your place may help them as well as you survive a brief crisis... and then if things go on as long as a month or more, you and they together can work on finding water. Very few households will have enough water stored for any long term emergency, but the filtering mechanisms I mention later on can be used for water that isn't clean, like from a hot tub or local stream.

How Much Money Will Storage Cost You?

How much money will it take to do an emergency home water storage system? It really depends on what you want to do, but it is so inexpensive, and the potential benefits so great, that just about anyone can afford it. For example, I bought one gallon of water at my chain grocery store for under a dollar. (All the prices in this section were as of August 2011.)

As far as water storage containers, I checked at a local Walmart and saw five gallon containers for about six dollars. They also had six and seven gallon containers for a few dollars more. I also quickly checked several sources on the internet, and there five gallon containers were a little more expensive—about \$10, mainly for the foldable kind, to about \$20 for the sturdiest.

A friend told me, " We can get 36 bottles of water at Sam's Club (a warehouse store) for about \$4. That's about 4.5 gallons, so the price is quite competitive with your study."

So using these approximate numbers, let's do the math (which I will explain in the next chapter) for two people for three days at three gallons per person a day. That would be a total of 18 gallons. If they just went to a store and bought water, it would cost them under \$18.

If they preferred to buy four five-gallon containers. and fill them with water from the tap, it would be six dollars per container for the ones I mentioned above, so that would be \$24.

So what about those same two people for two weeks? That would be 84 gallons, $2 \times 14 \times 3$. You could do that for under a hundred bucks.

So storing emergency water is quite inexpensive.

How Much Water Should You Store In Your Home?

How many gallons of water do you use every day?

How many gallons would you guess you use every day? Statistics show that the average American uses around 100 gallons of water a day. You certainly don't have to store anything like this much water because a good deal of the 100 gallons is used in baths, showers, and the yard. However, it is important to store some water. The U.S. Government has advised individuals and families to create disaster supply kits that include the appropriate amount of safe drinking water.

Here is another water usage statistic that I found interesting: the World Health Organization standard for potable water per person worldwide, adequate for basic needs in everyday living, is 26.5 gallons.

What the Experts Recommend You Store for Emergencies

Emergency preparedness advisors that I have read say you should store at least one gallon of water a day per person— just for drinking. This means that if there are four people in your home and you want to be prepared to get by for three days, you should store 12 gallons for drinking. If you live in a warm climate (say Arizona or Florida) or at altitude you may need more than a gallon of drinking water a day per person.

In addition, you should store at least a second gallon per person for bathing and hygiene, food preparation, and dish washing. It's important to keep your hands washed anytime but especially in a situation where medical help may be harder to get.

Add this up and for a family of four, you should store at least eight gallons a day times three days or a total of at least 24 gallons to get by on your own for 3 days.

You may need to store more if you have pets. Watch your dog water bowls to see how much water is consumed in an average day and then add that amount to the 24 gallons. That way, your furry friends won't get dehydrated either. If you just have a couple of cats, they probably don't drink enough to be included in the math.

What I Recommend You Store for Emergencies

Right off the bat, think about how much you have stored right now. Maybe nothing. If it's nothing or close to it, the next time you go to the grocery store, buy a few gallons of water in plastic jugs and put them somewhere in your home that doesn't freeze in the winter. That's a start, at least.

Now for more planning...

If you have to go from around 100 gallons a day during daily life down to next to nothing during the stressful time of an emergency, the more you have stored, the happier you will be.

If you have family, friends, or neighbors nearby, many of them may not have done anything by way of water storage, even if you have been nagging them. So my recommendations are larger than the basic official ones.

First, I think three gallons per day per person is good as a bare minimum. That's about 90 gallons for a month per person. Hey, let's round that up to 100, allowing for a few pets and solar showers. This gives you enough to be able to help other people during a short crisis without putting yourself at immediate risk.

If you have a vegetable garden you will want to keep alive, add more for that.

People don't always make much of a distinction between potable (drinkable) water and more dubious water that you can still flush the toilet or even do the dishes with. (When I lived in a small town in Mexico for several years recently, it was standard practice among the foreigners to use only bottled water for drinking and toothbrushing but to use the town's water for doing the dishes and showering. Some people did install whole-house filters, but most didn't go to the extra expense. We did always wait till the dishes had air dried to use them.)

Ideally, all the water you would store would be potable, but both kinds have their uses. And with filtering devices I'll cover later, non-potable water can be upgraded.

Now, in our small house with two people, two large dogs, and two cats, we don't at this writing have stored the 200 gallons of potable water that I recommend. But we have about 50 gallons of potable water plus a 200 gallon hot tub and a couple of excellent filters. So we're good, we figure. We are planning to create some sort of root cellar in the next year or so and that will give us more space for potable water.

If you start small and gradually increase your water supply, you will be ahead of most people. If you make a plan and get everything you need, you won't have to think about it till it's time to double-check your supplies six months later.

You Already Have Some Water Stored

You may have some water stored around your place that you've never thought of as stored water.

Do you have a hot tub, spa or swimming pool? You wouldn't want to drink water that people have played in but these things do store water. You could use the water from one of these sources for flushing your toilets and other domestic uses. And it could be filtered to become drinking water if you had one of the better water filters. More on them later.

Your hot water heater probably stores 40 or even 50 gallons of water (unless it's a tankless hot water heater). To use this water, you need to first turn off the gas or electricity to the tank and then open the drain at the bottom of the tank. You can then start the water flowing by turning off the water intake valve and then turning on a hot water faucet. However, you really need to filter this water, as it will most likely be full of sediments.

Also, if the water is turned off, a minimal amount of water could still be in your pipes. To use this water, let air into the plumbing by turning on the faucet that is located in the highest point in your house. A small amount of water should trickle out, so have a pan there to catch it. Then go to the faucet that is the lowest in your house and get water from it, also with something under this faucet. This works best if you have more than one floor to your home. I don't really know how much you might get, but it's going to be way easier to just store some water ahead of time!

In a pinch, you can use the water in your toilets' reservoir tanks – but obviously not the water in the bowl. And if you have used any kind of disinfectant or cleaner in that tank, then the water isn't potable. Personally, I would treat any water from that reservoir before drinking it. And if I had stored enough water that I could flush the toilet now and then, I would just leave that water in place.

By the way, I mention water to flush the toilet at various places. I am not talking about flushing after you pee, but about avoiding the unpleasant stink that can reach every room of your house if you can't flush after #2.

Simple Ways To Store Water In Your Home

You may be wondering how and where you will store water. This chapter will describe ways to buy water that is already packaged, things to put water in, and places in your home where you can put water.

Get Some Bottled Water

The simplest way for you to start your emergency home water storage is to just buy some cases of bottled water or one gallon bottles of water at your grocery store or big box store. They also typically have 2.5 gallon containers.

Don't open them, put them somewhere that doesn't freeze in the winter, and you are—sorry to say—ahead of most people. These containers may have a pull date on them.

You can also buy water that is meant for emergency storage, usually sold in boxes and with a shelf life that might be five years; it may vary from one brand to another. These are more costly and more long term. Camping or surplus stores might have them, and of course they are available online.

Things to Put Water In

Here are some things I recommend for indoor water storage. Be sure that everything you use has a tight-fitting lid. It's hard to know exactly which plastics are the best to use, but I have seen recommendations that you avoid plastic containers marked with the recycling symbol and 3 or 6 inside it. If there is a number 7 inside it, that is hard to know, as it is a catchall category. Numbers 1, 2, and 5 seem to be recommended, according to what I read online. But since storing water could save a life, I will do it even if I am not positive about what might be in the plastics!

- Handy, portable drinking water containers that hold a pint and up. These are usually made of plastic but can also be stainless steel or other metals. Using these on an everyday basis anyway is way better for the environment and your wallet than buying small individual bottles of drinking water like so many people do.
- Plastic containers meant for storing water or food, from one to five gallons. Be sure to choose “food grade” containers. They come in all sorts of shapes. It's best to get ones you can move; five gallons of water weighs 40 pounds. I have a few rectangular ones with spigots that I have used for years; you can see three of them in the picture of my kitchen closet further on. Get stackable containers, to conserve space; see the Resource Guide at the end of this ebook for some convenient stackables that hold 3.5 gallons and so are easier to move around than 5 gallon containers.
- Very large water containers, if you have a place for them. Fifty gallon drums specifically designed to store water can be useful but are difficult to move around. If you can handle one of these, make sure again that it's food grade plastic and that it hasn't stored something you can't get out.

- Canning jars with clean lids, provided you use them in places where the glass wouldn't be likely to break, like in a refrigerator. Live in earthquake country? Be very careful where you use glass.

It's useful to have various sizes of water containers for different purposes.

You can buy these sorts of things locally... that is, unless you wait till a water emergency seems about to happen. Then the stores may sell out fast.

I laughed hard over this, though it's only funny in a weird sort of way:

“They’re buying everything. Wine. Beer. Even water.”

— A retail clerk quoted in the *New York Times*,
the day before Hurricane Irene arrived

And of course, you can shop online. See the resource guide at the end of this ebook for links to some sites and things I have found.

If you aren't sure of the cleanliness of a plastic container you are using, you can rinse it out by mixing a few drops of unscented liquid household bleach (Clorox or any other brand) into a gallon of water and pouring that into the container. Swish it around, pour it out, and then rinse thoroughly before filling the container up for storage. NOTE: Use liquid household bleach that has 5.25% sodium hypochlorite and not bleaches with fresheners or scents, as they are not safe to consume.

Things NOT to Use for Storing Water

You can see all over the net where people are advising you to wash out milk cartons or juice drink containers and use them for water storage. The advice is well meant but you simply can't get them clean enough. Here is what FEMA recommends:

*If you choose to use your own storage containers, choose two-liter plastic soft drink bottles – **not plastic jugs or cardboard containers that have had milk or fruit juice in them.** Milk protein and fruit sugars cannot be adequately removed from these containers, and they provide an environment for bacterial growth when water is stored in them.*

Distilled water typically comes in the same kinds of containers as milk, and people who live off the grid or otherwise have a battery backup are always going through distilled water for their batteries. These would be excellent for water storage.

If you use the soft drink bottles, clean them thoroughly first. Use soap and hot water and then you could rinse them out with the solution of chlorine bleach in a gallon of water mentioned above. Leave the containers wet for a couple of minutes then rinse again... and again! Then fill them up and be sure the lids are on tightly.

Never use any container that had previously held any chemicals.

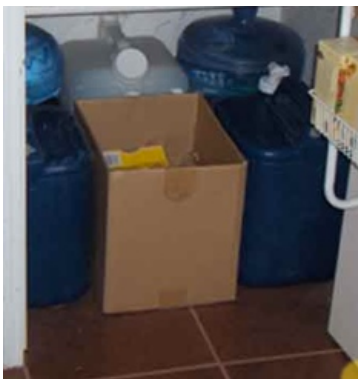
A friend of mine told me a not-so-funny story about using any old container for storing water. She had the job of cleaning out the home of a friend of hers who had died. There were a lot of containers of water in the house, lots of old juice bottles and what have you, and my friend said the water in them was horribly smelly. She called it "sewer quality." (There will be more

information further on about ways to process water you store and how often to refill the containers.)

Places in Your House or Apartment to Store Water

Finding a place to store water inside may be as simple as using a garage or a basement, if you have either one. If not, another more awkward choice might be a crawl space under your house, if it doesn't freeze there. We tested our crawl space on a few cold nights one winter here in Colorado. It was in the 40s when it was in the teens outside. However, we haven't used our crawl space for water, as it is hard to get into.

Don't store your emergency water in direct sunlight. Also, the plastic containers in which you probably store your water are slightly permeable to hydrocarbon vapors so keep them away from kerosene, gasoline, pesticides and similar substances. A good rule of thumb is: the darker, cooler, and dryer the locations you use, the better.



So your water storage project might require cleaning out some closets. We did this recently and found it quite satisfying to get rid of stuff we didn't need and to make room for what we did need. Here are some ideas for places we have used, with illustrations of how we did it.

Someplace in your kitchen. In the picture, you see the bottom of our kitchen closet, where we have five water containers surrounding a cardboard box we use for recycling.

Kitchen cabinets and shelves can also be useful, and they can be ones that are normally hard to reach. I wouldn't choose to store water close to my trash can under the sink, where we also have a compost bucket, because that area gets quite grungy when my aim is

bad.

If you can make some space in your freezer, fill large ziplock bags or clean canning jars with water, leaving plenty of room for expansion. Then if the power should go out, they will keep things cold longer and then if the power is out longer, they will provide you with potable water. Since water expands when frozen, I always leave about 20% of the space unfilled, though I think you could add more. I also don't use containers where the ice could crack a little handle or something of the sort.

We did a variation of this when we lived in Mexico, where the power went out frequently for hours at a time, and sometimes for days. We happened to have a large refrigerator, so we kept a lot of containers of potable water in it. They moderated the temperature and provided us with more emergency water.

In a coat closet. Here is a picture of the shelf of our coat closet. Most shelves of this sort were not designed to hold a lot of weight, so evaluate how much weight the shelf is meant to handle by looking at its bracing, what it is made of, etc.



If you are unsure how much weight it can take, don't put a whole lot there. Since "a pint's a pound the world around" a gallon of water weighs eight pounds. So this 2.5 gallon container that you see on the shelf would weigh 20 pounds. We only keep two of these on this shelf, one at each end, partly for the weight reason and also because we need the space for hats, etc.



The closet floor would work fine, if you made room. I am not prepared to keep my vacuum cleaner out in the living room to make room for water there, though! Work with what you have.

In your clothes closet. Here we use some food grade five gallon buckets. I wouldn't go out and buy these for emergency water storage, but we had them so we used them. Containers meant for storing water are usually easier to pour from than these things, and of course the round shape does waste some space. The back of a clothes closet is a good place as it stays quite a stable temperature and it's probably dark most of the time.

In a spare bathtub. I am sure a lot of people have filled up their tub—even the one they use for bathing—just before a hurricane or storm, and if the water wasn't drinkable without some filtering, at least it was there for flushing and for other household uses.

Also, I imagine many people with a spare tub have used it to store a bunch of jugs or other containers.

There are also products meant specifically to be placed in a tub and filled up. Depending on the size of your tub, they will hold a surprising amount. Here are two products. Neither of these bathtub products are advertised for long-term storage.

The WaterBOB is a water containment system that enables any standard bathtub to hold up to 100 gallons of fresh drinking water. It's made of heavy-duty, food grade plastic and will keep water fresh and clean for cooking, washing, drinking and flushing—they say for as much as four weeks.

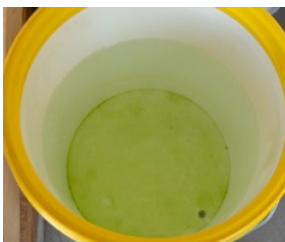
The WaterBOB simple to use. You lay the liner in any standard-sized bathtub, attach the fill sock to the faucet and fill the bladder to capacity. The WaterBOB comes with a siphon pump so you can dispense the water into pitchers or jugs. If a tropical storm or some other natural disaster hits you, the WaterBOB can keep you in water until the emergency has passed and you have regular water again.

A second product for using your bathtub for water storage is the AquaPod Kit Emergency Drinking Water Storage bag. Like the WaterBOB, this bag fits in your bathtub. It stores up to 65 gallons of water and comes with a siphon pump. Links to sources for both of these are in the Resource Guide.

We have a slightly different use for the bathtub in our second bathroom. it's a cat lounge! We keep all our extra blankets and pillows in it, with an easily washed one on the top. Here, Moonlight is getting up to greet me when I wanted a photo of him stretched out on the bedding. If we use a WaterBOB at some point, we could put quilts and covers over it and carry on with

the cat lounge. I think! Kelly joked that if we put the blankets back over the waterBOB, our kitties would have a waterbed!

In a greenhouse or sunroom. This is not ideal because the bright light or direct light can encourage the growth of algae. We recently learned this by experience. When our water company told us there were going to be some water outages one summer, we cleaned out and filled some empty five-gallon buckets we had previously used for food storage.



We weren't thinking of these as long-term storage, more just for using as needed while the outages occurred. Well, time passed and the water company finished its work in our area. Later I happened to open up one of the buckets and you can see the green at the bottom. (I would use this water for drinking after filtering it.)

Other places you might spot. Walk around your house or apartment and look at everything. Look at shelves everywhere. What about in your laundry room, under a desk, in the cabinet under a bathroom sink? What about under your bed? In that huge decorative basket? You get the idea. Where there is a will, there is a way! Having fresh, clean water in times of an emergency can sure make up for any inconvenience involved in storing it.

Dishpans, Solar Showers, and Makeshift Toilets

If you find yourself in a situation where you are using your stored water, here are some items that you might want to have. If you have one or two plastic dishpans, then you can reuse the water from doing your dishes to flush your toilet. I suggest two dishpans, one for washing, one for rinsing.

Also, there are black plastic solar showers that you can buy inexpensively... I saw them at Walmart for \$8. They hold up to about five gallons, though you can use them with less water. You let them lie on a flat surface in the sun, and within a few hours you have hot water. You do want to catch it before the water gets too hot. Kelly and I have used these quite a lot on camping trips. We found that with one five-gallon bag we could both have a quick shower (turning it off while we lathered up) and one of us could shampoo and rinse our hair. It took us a while to get that fast! We were hanging the shower on trees or on a hook off our van, but you could hang it in your bathtub.

There are other things you might want. Hand sanitizers, sturdy garbage bags, whatever... that's beyond the scope of this book but think about it. Hmm, you might want some paper plates on hand to cut down on the water use for dishwashing. And some way to create a makeshift toilet could be helpful.

Storing Water Outside

Storing water outside is a great idea particularly if you have a garden you want to keep growing or if you live in an area where there is significant fire danger. (A friend of mine who is involved in the local fire department told me that she knew of several small fires in our area that people had stopped by using water they had stored outside their houses, along with something to beat the fire down with. She recommended keeping a large old towel with your outdoor water storage.)

If you live in the Deep South or in a warmer part of the Southwest, you might plan to store water outside year round. If you live outside the south, you should plan to store some water outside in the summer.

If you have a swimming pool or hot tub, you have a built-in way to store water though you can't drink it. If you have a water feature or pond, you also have a built-in way to store water. The water from these things can't be used for drinking—unless you first process or filter it. But it can be used to keep that garden growing. A simple and inexpensive way to store water outside is in a kid's swimming pool. It will evaporate pretty fast, so do cover it.

There are also outside storage containers, available in various sizes and usually made from water resistant, UV stabilized polyethylene. (Polyethelene is a very common form of plastic.) You may be able to find these at your local home building supplies store or online.

Rain Barrels

Even in quite a dry climate, you can collect a good amount of water from rainstorms. For example, an inch of rain over the roof of a thousand-square-foot house could add up. I didn't figure out the math of converting cubic inches to gallons, and of course you wouldn't get it all. But you could certainly collect water for gardening that way.

You can buy rain barrels online. You need one with a good lid so you don't end up with little drowned critters in it. You use the gutters on your house to collect the water from the roof, and then you put a pipe to connect it down into the rain barrel. You would need to clean out your gutter from time to time, specially if it collected leaves in the fall. And if the gutter is arranged to tilt slightly downward toward the rain barrel, you will collect a lot more.

Cisterns

Building a cistern, or underground water tank, is far beyond my skill level, but they are great and my husband may do that for us eventually. We lived in Mexico, by Lake Chapala outside of Guadalajara, for about five years recently, and our yard already had a concrete *aljibe*, or cistern, which held two or three thousand gallons. The town we lived in had frequent water outages and we never knew about them unless our Mexican neighbors told us!

I found a book at Amazon which looks very useful. Kelly has met the author and says the guy knows a lot. See the Resource Guide for links to Amazon for this book.

Treating Stored Water

Much of the water that you might store could turn out to be dubious for drinking later on, such as that bucket of ours I showed with the green algae in the bottom. But there are ways to make it potable, ways that are relatively easy and inexpensive. These methods involve using some kind of water filter or boiling. I will explain how to purify water with liquid chlorine bleach too, but this method has fallen out of favor to a degree in recent years.

Any time you are going to prepare water for cooking and drinking, start with water that looks clear and clean. If you are using water from a creek or pond, for example, this might mean pouring the water from the container it's in, into a container you know is clean, through a fine-mesh kitchen strainer or some fabric (a clean t shirt, a sheet, something of the sort) to get out any mud or twigs or other small debris. Letting a bucket of muddy or cloudy water stand for some hours often leaves you with clearer water on top. Then you are ready for filtering.

1 - Water Filters

There are many water filters on the market. Numerous home filtration systems are available, ranging from those that fit on your faucet to pitchers and whole house systems. Unfortunately, the effectiveness of these varies widely. Many of them, like the Brita pitchers widely available, aren't designed for heavy duty work.

Others are astonishing in what they can do. Especially some of the filters meant for back country camping can make dangerous water pure. Travelers, missionaries, and the military have used these things for many years.

If you have a commercial or backpack-style filter that filters to 1 micron, these filters are good for eliminating parasites such as giardia and cryptosporidium but may not get rid of all bacteria and viruses.

Below are several recommended water filters, but there are other good ones as well.

The British Berkefeld

The British Berkefeld is a versatile water filter, widely used all over the world. It has a ceramic filter encased in a stainless steel two-part housing. You pour water into the top and after a while you can get the filtered water out via a spigot at the bottom.

We have had one of these for years. For a time, we used it to filter our drinking water. We would fill it up in the evening and sometimes once during the day as well. We still have it, with replacement filters, in case we need it again.

This is meant to be used in a stationary location, though when it's empty it doesn't weigh much and would be easy to move around. We have taken it in our small motorhome.

The rest of the filters are smaller and suitable for camping.

Katadyn Water Filters

Katadyn is a leading company in the water filter business. At their website you can choose between

- Endurance Series products, designed for ultimate reliability and durability.
- Backcountry Series products, for camping, and backpacking, all-around use. They are lightweight and easy to use.
- Ultralight Series products, the lightest water systems available on the market. They are designed for solo use in the outdoors or at hotels.

Some of the popular Katadyns are the 2.6 gallon Base Camp Water Filter and the ExStream XR Water Bottle Purifier. A more expensive but excellent item from them is the Katadyn Pocket Water Microfilter.

The SteriPEN

This high-tech little device does require four AA lithium (not alkaline) batteries so you would have to remember to store a bunch of them, but it also claims to destroy viruses, which are roughly 100 times smaller than bacteria. You put the pen-like thing into clear water, push, and stir till a little light turns great. Great for travel, also useful at home.

2- Boiling and Distilling

If you find yourself in an emergency situation and don't have a filter or any safe water, start with the cleanest water you have available and then boil it. How long you need to boil the water varies but about three to five minutes from the time the water reaches a full boil is an old rule of thumb I used to hear in third world countries. In books I've looked at recently on emergency preparedness, I have seen ten minutes of boiling recommended, and also only one minute. So take your pick. Once you've boiled the water and let it cool, you can store it in clean containers.

Distillation is carrying boiling to another level. If your water has become contaminated and you want to be super-safe, you can distill it. This involves boiling the water and then collecting the vapor that is produced and then condenses back into water. You can do this by filling a pot halfway with water. Next, tie a cup to the handle on the lid of the pot so that it will be right side up when the lid is upside down. Be sure the cup is not dangling down into the water. Boil the water for 20 minutes. The water that drops down from the lid into the cup will be distilled. You won't get very much, so this process isn't normally recommended. There are water distillers you can buy, but they run on electricity so might or might not be useful in a crisis.

3- Purifying with Liquid Chlorine Bleach

You may have heard of this method for killing microorganisms in water. It has been around a long time. People used to recommend putting chlorine bleach or iodine (a few drops of one or the other per gallon) into water to purify it, but both can be toxic so it is now recommended that you keep your consumption of these things to a minimum. However, there are times when a very little bleach is better than straight creek water! I am not going into how to use iodine, as it is more toxic and water treated with it tastes really bad... I still remember the awful taste from once long ago when I had to drink it or nothing for a day while traveling in Africa.

Use liquid household bleach that has 5.25% sodium hypochlorite and not bleaches with fresheners or scents, as they are not safe to consume. Bleach in non-liquid form like granules is toxic and shouldn't be used.

So let's say you have a five-gallon container of water that you are not sure about using for drinking, and you don't have a filter or an easy way of boiling it. But you do have some unscented bleach. You would use 1/2 teaspoon of bleach. Put it in and stir or shake the container well. (If you stir, use something clean, like a large kitchen spoon.) Then let it stand for at least half an hour, longer if the water is very cold.

When I gave a talk based on this ebook at the 2011 Crestone, CO, Energy Fair, people in the audience suggested adding a few drops of grapefruit seed extract to water when you store it, to lengthen the time that the water will remain fresh. Someone else suggested putting 5 drops of 3% hydrogen peroxide per gallon into the water containers. He was suggesting using regular hydrogen peroxide, but someone else pointed out that there is also a food grade version. I haven't researched these ideas further, but they would be worth exploring.

Maintaining Your Emergency Water Storage: A Few Minutes Twice a Year

You should rotate your stored water every now and then. How often depends on several factors: what kinds of water you started with, what containers you used, how dark your storage location is, and how cool it is.

For store-bought water in plastic containers, check for the pull date. It could last two or three years. For any containers that you filled with chlorinated tap water, about every six months would be a good time frame to pour out your containers and refill them.

When we had a short water outage one day, we got out one of the blue containers from our kitchen closet. We set it up on the counter, poured out some water, and I tasted it. YUCK! It had a very unpleasant taste. Luckily, we had enough in our teakettle to make our morning tea, and the water was back on soon after that. We estimated that the containers in the closet had been filled about a year before that. (If the water hadn't come back on, our next step would have been to go find our British Berkefeld filter and set it up.)

It turns out that water that is more alkaline stores longer. If you want to make the water that you are storing more alkaline, an easy and safe way to do it is to add a couple of teaspoons of baking soda per gallon of water that you are storing. Mix it up for best results. The taste of the water should be about the same. I am going to try this approach in the future.

You may run across a product called "water preserver" or something like that. It is typically a stabilized kind of the chemical that's in liquid household bleach—sodium hypochlorite—and is said to keep water free from microorganisms for something like five years. This could be useful for the larger storage containers that are difficult to pour out and refill.

Checklist

Here is a checklist of the basic projects in this ebook. You can print this page out now, put a few things on your grocery list or make an online purchase or two, and you will be on your way. Once you start any project, it's easier to continue...

Buy some bottled water next time you go grocery shopping, and store it in your home.

Decide how much water you want to store per person per day: _____

(Suggested range: two or three gallons)

For how many people? _____

For how many days? _____

(Suggested: minimum of three, up to two weeks or more)

Multiply those three numbers together for your emergency water storage goal: _____

If you have large pets or a garden, add what you want to for them: _____

Consider what you have on hand to store water in: _____

 Consider where you are going to store water. Closets, garage, etc.? _____

 Buy more water storage containers, either locally or online.

If needed, rinse out large containers with liquid chlorine bleach mixture described in the section on things to put water in.

Fill your water containers and put them where you want them. Add baking soda if desired.

Mark on your calendar or on the containers a date about 6 months away to check them.

Great! Now see if you can get family and friends to do at least the first step. (You can give them a copy of this ebook, either printed out or the PDF file.)

Resource Guide

If you are reading this on a computer or other online device, the blue links are clickable.

General Information on Water Storage

Basic information from FEMA: <http://www.fema.gov/plan/prepare/water.shtm>

Water, Water Storage, and Water Filters: Three Useful Sites

Below is a page that lists a variety of things for sale from a long-established preparedness company. They have water packaged for long-term storage, containers, filters, you name it.

[http://beprepared.com/
category.asp_Q_c_E_137_A_c2c_E_tn_A_name_E_WaterStorageandWaterFiltration](http://beprepared.com/category.asp_Q_c_E_137_A_c2c_E_tn_A_name_E_WaterStorageandWaterFiltration)

Here are useful articles from the same site:

http://beprepared.com/article.asp_Q_ai_E_16_A_c2a_E_mt_A_name_E_Water%20Storage%20Options

http://beprepared.com/article.asp_Q_ai_E_30_A_c2a_E_mt_A_name_E_Water%20Filtration%20And%20Purification

And here is a page on water storage from another preparedness site:

<http://www.survivalsolutions.com/store/emergencywaterstorage.html>

At a third site, I found some really nifty water storage "blocks." <http://www.thereadystore.com/water-storage/28-gallon-interlocking-waterbrick-storage-kit-8-qty?aid=4e4c207716552> (I liked the look of these so much that I signed up to be an affiliate of theirs, which means that if you click through and buy from this place, I make a small commission at no cost to you.) This website has a lot of other preparedness items too.

Katadyn makes a high quality line of water filters suitable for heavy duty use. Their website homepage is at <http://www.katadyn.com/usen/> — I would imagine that Amazon or camping stores like REI might have discounted prices.

Some Books

The Ultimate Suburban Survivalist Guide, by Sean Broderick, emphasizes money with its subtitle "The Smartest Money Moves to Prepare for Any Crisis" but is more general. I liked its water chapter. <http://www.amazon.com/Ultimate-Suburban-Survivalist-Guide-Smartest/dp/0470918195/> Comes in book and kindle formats.

Food Security for the Faint of Heart, <http://www.amazon.com/Food-Security-Faint-Heart-Keeping/dp/0865716242/> Canadian Robin Wheeler writes well and her emphasis is on simple methods. Mostly food, one chapter on water.

Earlier I mentioned this book on building cisterns and other larger outside water storage containers, *Water Storage: Tanks, Cisterns, Aquifers, and Ponds for Domestic Supply, Fire and Emergency Use--Includes How to Make Ferrocement Water Tanks*:

<http://www.amazon.com/Water-Storage-Emergency-Use---Ferrocement/dp/0964343363/>

It's by Art Ludwig, who has also written about greywater storage, I noticed just now when I was at Amazon.

So... that's it. And please store at least a few gallons!

Zana Hart, September 2011