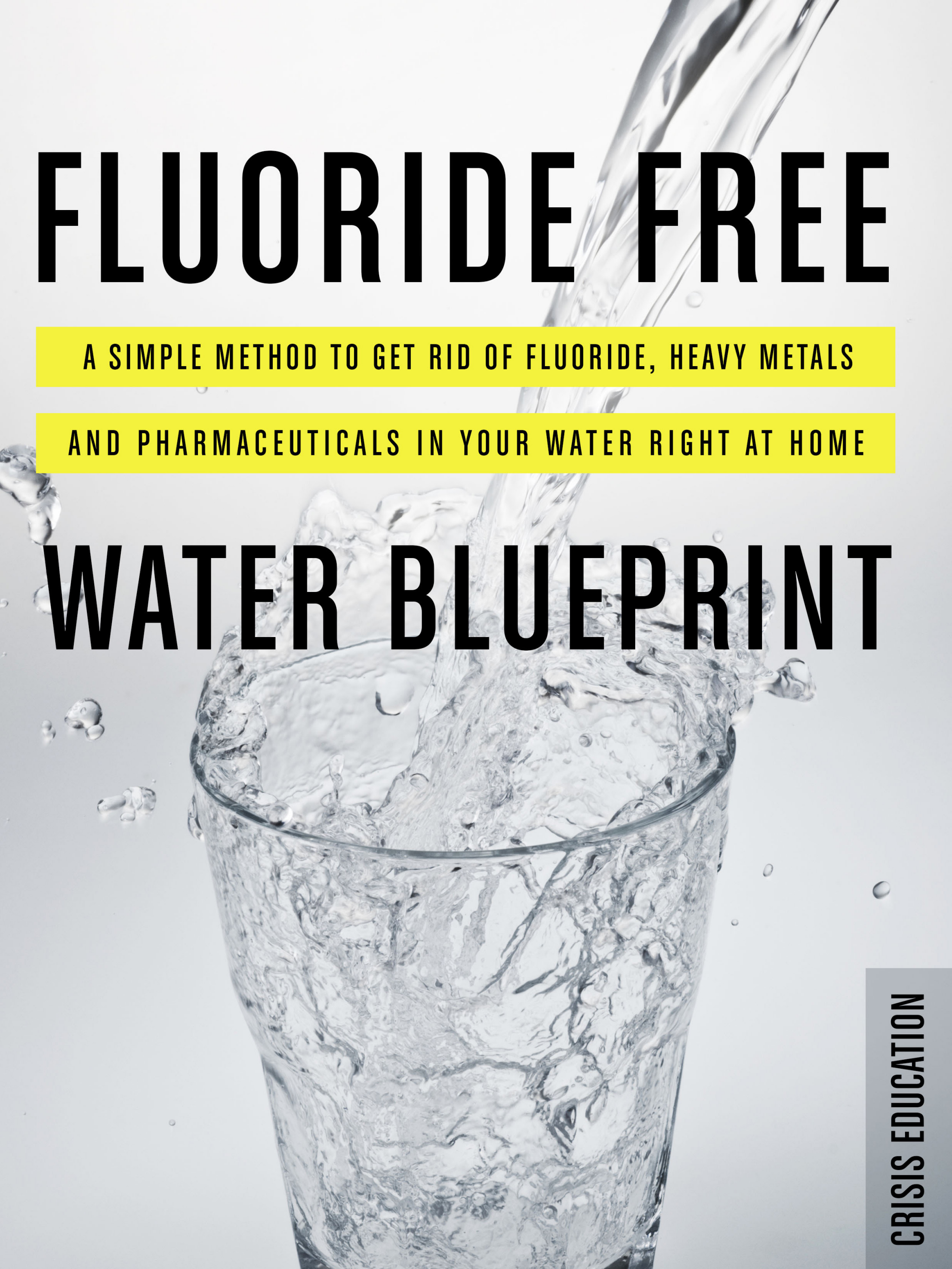
FLUORIDE FREE

A SIMPLE METHOD TO GET RID OF FLUORIDE, HEAVY METALS AND PHARMACEUTICALS IN YOUR WATER RIGHT AT HOME

WATER BLUEPRINT



CRISIS EDUCATION

FLUORIDE FREE WATER BLUEPRINT

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A Simple Method To Get Rid Of Fluoride, Heavy Metals & Pharmaceuticals In Your Water Right At Home

Water is the most important resource known to man. Water is life, it makes up not only the majority of our bodies but the majority of the planet. Water is precious to our own health and to our continued survival. Civilizations have been built around their access to water.

However, the big problem with society is that it is very hard to get clean water. This is due to many companies dumping chemicals into water supplies. From fluoride to pharmaceutical products, these components can plague our water supplies. What's more is that heavy metals from different items in landfills can get in the way of our water supplies.

In addition, if a water system fails in a SHTF situation then it will become contaminated rather quickly. It will develop loads of heavy metals, fluoride and other risky materials that can be dangerous to your overall health.

That's why it is so important for you to think about how you are going to take care of your water. There are many options that you can consider when managing your water needs in such an emergency.

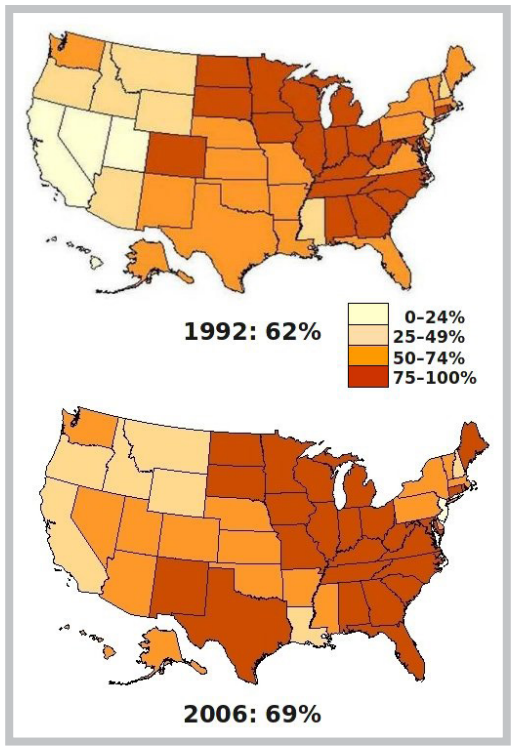
This guide is all about many points that relate to managing water. Fluoride, pharmaceuticals and other chemicals can be removed from your water if you understand what you have to do.

This guide also takes a look at the practice of harvesting water, a process that is often used in order to control the development of heavy metals and other items in water. This is a practice that has been around since before any of us ever walked on this earth. Water Harvesting dates all the way back to ancient times. People have looked to the sky for the source of water, and therefore their source of life as early as 850 B.C.

You will learn about many techniques that can work when it comes to getting water from anything. These techniques have been proven as dependable and worthwhile for the survival of entire cities. These techniques are simplified when you apply the modern plastics, metals, and technology we have at hand. Using a little brain power and some common enough items we can even make an irrigation system for a personal vegetable garden.

From harvesting to distillation and many more points, getting clean water is not all that hard to do. Read on to see what you can get out of any cleaning process.

THE DANGERS OF FLUORIDE



The first thing to talk about with regards to cleaning water involves fluoride. Fluoride is a very dangerous component that can easily harm the quality of your water.

Fluoride is a chemical that is often added in water supplies as a means of promoting healthy teeth. That's because fluoride is a component used for preventing tooth decay. If you've ever been to the dentist's office in the last few years then the odds are you might have gotten a fluoride treatment.

Fluoride is actually being added into water supplies in many communities on purpose. This is especially prevalent in the Midwestern and Southeastern parts of the United States. The chart you see on the side shows that the percentage of communities in the United States that have fluoride in their water is increasing.

This practice is being utilized heavily in the United Kingdom, Canada and Australia as well. However, it has been heavily criticized by many people over the years. For instance, Americans have argued that water fluoridization is a form of mass medication that should be avoided.

This is a very dangerous practice that can actually do more to hurt people. There are many reasons why fluoride is bad in drinking water.

FLUORIDE WILL BUILD UP IN YOUR BODY

One huge risk associated with fluoride is that it will progressively build itself up within your body. Only about half of the fluoride that you consume in a day is excreted by your kidneys. The rest of the fluoride will build up within your body and will replace calcium deposits in your bones over time. As a result, your bones will start to become weak over time.

A person who does not drink water that contains fluoride and instead drinks purified water will be more likely to excrete a better amount of fluoride. The kidneys will not be at risk of being harmed in any way either.

This is especially important to consider if you are older in age. The kidneys will not function as well when they age.

IT IS DANGEROUS TO CHILDREN

Children can particularly be hurt by fluoride in water. This is due to a condition known as dental fluorosis. This is where the tooth enamel weakens and becomes discolored due to an excess amount of fluoride. This can be rather dangerous to children as their teeth have to grow properly; however, it only takes a few deposits of fluoride to hurt a child's teeth. They are much more sensitive to it than adults are.

IT IS ALREADY AVAILABLE ELSEWHERE

People can already get fluoride from toothpaste that they can use each day. Simply put, the fluoride that you may get from toothpaste each day is good enough and that you don't need more than what you are asking for.

THE EFFECTS ARE DANGEROUS

There are many harmful effects that will also come out of consuming fluoride in water. Fluoride primarily causes skeletal fluorosis; as mentioned just a bit ago, fluoride will get into the bones and cause them to become weak. However, that is just the tip of the proverbial iceberg. There are many other problems that will accompany it:

- Burning sensations in the body
- Weak muscles
- Weight loss and a reduced appetite
- Pains in the joints
- Anemia
- An increased potential to develop bone spurs

Those who have the following risk factors could be significantly threatened by skeletal fluorosis:

- Those who are older in age could be harmed.
- People who do not have enough calcium, vitamin C or magnesium in their diets can also be hurt.
- Anyone who has a weak heart or kidneys that struggle can be hurt too.

CUTTING BACK

The first thing you have to do in order to avoid these risks is to take a look at your fluoride consumption rate.

1. Avoid drinking water that has been fluoridated.
2. Control the way how you use fluoride toothpaste. Make sure you rinse your mouth off completely. Also, don't let your children swallow fluoride toothpaste; observe them as they brush.
3. Avoid gel fluoride treatments when at the dentist's office. These are only for those who have very high cavity risks.
4. Focus on fresh foods for a diet; processed foods are likely to have fluoride.
5. Organic grape juice and wine should be consumed instead of inorganic products. These will not contain cryolilte, a fluoride-based pesticide that is often used in grape fields.
6. Drink tea that contains younger leaves instead of green or black tea. Tea leaves can develop fluoride deposits as they age.
7. Do not use non-stick cooking materials. Teflon, a non-stick agent, can cause foods to contain more fluoride. In fact, stainless steel cooking materials are the best things to use.

8. If you take medications then make sure you avoid ones that can break down into fluoride like Cipro.
9. If you eat chicken then eat it from the bone. Mechanically-deboned chicken tends to have more fluoride in it.
10. Watch for the salt you consume. Do not consume any salt that has been fluoridated. You can easily find different salts that you do not contain fluoride in most grocery stores. Just be sure that you look at the labels for whatever you are interested in getting.

If you use these tips and avoid all of the products that contain fluoride in your life then you will certainly protect yourself. However, there are many other things that you have to explore with regards to what you must avoid – and there are four particular foods that you have to avoid.

4 FORBIDDEN FOODS

There are four foods that contain fluoride and should always be avoided if possible:

1. White Wine
2. White Grape Juice
3. Red Wine
4. Raisins

Why are these foods dangerous? They are all foods that contain cryolite, a fluoride-based pesticide that is often used on many grapes and raisin. These include the grapes responsible for preparing wines. It is used particularly to protect these foods as they are being grown in a spot.

Fluoride levels in these four products can be rather high. Raisins typically contain about 2.34 ppm (parts per million) of fluoride in a typical serving. Meanwhile, white grape juice will contain 2.13 ppm of fluoride and white wine is listed with 2.02 ppm of this compound. Red wine is at 1.05 ppm but that's still a high number.

Your main key is to avoid these foods these contain fluoride as they can be rather dangerous. The best alternative to stick with is organic versions of these foods. Organic grape products are better as they will not be impacted by any pesticides.

DISTILLATION

There is one good consideration that may be used as you are trying to control fluoride in your water. The easiest way to make your water free of fluoride is one that involves nothing but the stuff you have in your

kitchen cupboard.

This procedure is known as distillation. Distillation occurs when materials are separated through vaporization or condensation.

This is a convenient process but what makes it even better is that you can use one of three methods to make it work.

Using a Bowl

You can first choose to use a glass bowl to distill water:

1. Fill a stainless steel pot about halfway full with the water you are trying to distill.
2. Put a glass bowl into the water; keep it light so it will float. You may want to use a baking rack that can fit into the pot if it cannot float. This is to keep it from going too deep.
3. Heat up the water; do not set it to the point where it will boil.
4. Watch for how water adds up in the bowl.
5. Flip the lid for the pot over, place it on the pot and add ice. The hot steam from the water will create condensation at this point.
6. Boil the water; steam will rise up and condensation will come from the lid. This will eventually drip its way into the bowl.
7. Turn off the heat and remove the lid.
8. Take the bowl out of the pot and let the water cool. This fully distilled water will not have any fluoride in it and can be stored as needed. Again, do not try storing it the water is hot.

Using Glass Bottles

The second option that you can use for the distillation process is to use glass bottles. To do this you will have to follow these steps.

1. Use two glass bottles with one bottle curving out from its neck if possible.
2. Fill a bottle with tap water and stop when you are about five inches from its top.

3. Link the two bottles together by their openings and use duct tape to keep them stuck together.
4. Boil a five gallon pot of boiling water.
5. Put the bottles in at a 30-degree angle with the empty bottle on the inside of the rim on the pot.
6. Place an ice pack on the bottle on top. This will create a barrier of heat and cool, thus causing water to evaporate in the filled bottle, thus letting it condense into the other bottle.
7. Keep doing this until you have enough distilled water in your bottle.

Rain Catching

The best way to get water without fluoride is to use a rain catcher. This can collect water from nature; you can use a catcher as many times as you want. The distillation process for a rain catcher works like this:

1. Place a clean container outside your home to gather rain water.
2. Let the container stay outside for two days. This is to allow minerals to disperse after a while.
3. Store your water in protected jugs.

Remember, fluoride can be a risky thing to have in your water. If you understand what you can do in order to prevent fluoride from being a threat then you should have an easy time with taking care of your water and making it free from this dangerous component.

HARVESTING WATER THE RIGHT WAY

The next process to use for getting clean water is to get it from nature. That is, get rid of dirty water by taking it in from a source where the water will not be dirty in the first place. It's a preventative measure that can work in spades.

The reason why harvesting water is important with regards to clearing out old toxins and components is because water can be dirty if you do not take care of it the right way. The problem with dirty water is that it can be rather bothersome and hard to drink. This water often comes from sources that have been around for a while.

Getting water as it has dropped is a good idea to consider. It makes it easier for you to benefit from water because the process of cleaning it off is not going to be as much of a challenge as you might think it could be.

Be aware that the water that you take in is going to be cleaner than the water you might get from your local supply but you will still have to purify it. You will learn more about this in the next chapter.

The most important thing about this is that it will help you to reduce your potential to consume heavy metals, fluoride and other components. Rainwater contains fewer outside components than other forms of water so it only makes sense for you to consider using rain barrels and other items to collect water. Believe it or not, this can really be an efficient procedure to get into.

The materials for this good solution are inexpensive and easy to find. The construction of each different setup is fairly easy, without too many complicated steps. Also the maintenance is easy and relatively low. This also keeps the water closer, collecting lake water and transporting it long distances is difficult and back breaking.

This is ideal for when you are trying to get water in your life. It not only provides you with clean water but can also work in the event that civilization goes awry and clean water comes at a premium.

THE PROFESSIONAL SETUP

Now how do we harvest this kind of water? Well first you're going to need a tank to hold it in. These tanks run in every size imaginable, up to a couple thousands of gallons. A massive tank can work for your needs with one having hundreds of gallons of storage space. You can stick with options like the Norwesco 600 Gallon Plastic Water Storage Tank. You can go smaller, but around 600 gallons is a good balance between price and size. The Norwesco 600 Gallon Plastic Water Storage Tank costs around three hundred and fifty dollars. It has inlet fittings and outlets for use.

Finally, the 2825 gallon Bushman water tank can work for your goals. This is for high-end water usage needs. The price also sits at around $1600 plus the shipping and handling cost of moving a 357-pound tank.

Now if you are going to harvest water from your gutters you are going to have a few problems that you can easily

avoid. First off you have to have a way to get it from your gutters to your tanks. Make sure everything is measured the right way.

You must also clear out any debris that comes in your space. These are going to clog your outlet and turn your water disgusting. If you have any aspirations of ever drinking this water you want to keep leaves and debris out. A proper cover must be used on your storage spots to ensure that such compounds will not get in your way.

DOWNSPOUT REPLACEMENT

You will have to make sure your downspouts are replaced as needed. This is for cases where the water may not flow properly. In addition, a good replacement will be cleaner and safer to use.

A company called Oatey has a quick and cheap fix to this issue. Their Mystic line of rain diverters will be life savers. They cost less than 20 dollars and anyone can install one. First off I'm going to let you know you are not going to capture all of the water going down your down spout. The diverter works to capture about half of the water, the other half continuing down the downspout, clearing out trash. When the tank is full, the water will just go down the downspout like it would without the diverter. Installation is very simple; you cut a section out of the downspout and replace it with the diverter. Make sure below whatever point you cut the diverter you secure with a mounting bracket of some sort.

After it's installed connect an appropriate sized pipe and run it straight to your water tank. Voila, simple as that. Now keep an eye on your rain tank it will become fuller faster than you think. You really never realize how many gallons of water actually come down during a rain storm. This is an example of a simple active system to collect water.

DIY WATER TANK

For those on a very tight budget, or if you are going to wait for a SHTF situation and don't need a big tank lying around, there is a simple DIY method that one can invest in. You make need just fifty dollars or so to get this to work.

1. Get a barrel.

   Your still going to need a barrel, and it's you want to drink this water it needs to be food grade. Anything not food grade and you run the risk of ingesting chemicals from the barrel. Make sure it is also tight.

2. Create a drainage hole. You can always create a second hole if desired.

   This is ensure the overflow has a way out. The hole should be placed near the very top of the barrel. Use a drill with a spade bit to cut out that perfect hole. The hole needs to be the same size of your faucet assemblies to insure a proper fit.

3. Get a faucet assembly to 'plug' into the hole. Use one for each hole.

   The faucet assembly is inserted from the inside of the barrel with a rubber washer to ensure a water-tight seal. The fixtures can be threaded on, and now you have a drain point. Using a faucet for your drainage works well best because it allows nothing to get in your rain barrel, but allows the water escape with ease.

4. Repeat the same process for the bottom faucet fixture.

   This one will remain closed until you need access to the water. It is much more important to seal it properly to keep a problem from developing.

5. Cut a hole on the top of the barrel and insert the filter as needed.

   You can use a knife and make a ragged hole, or a jigsaw to make a smoother hole. The hole needs to be the appropriate fit for your filter. Commercial filters are available in hardware stores and online; Amazon.com has some very highly quality models to choose from. These filters are already cut for your downspout. Now the barrel will drain much easier if it's slightly

elevated. A few bricks underneath the barrel will insure strong flow.

6. Cut the downpour at a good height and add the downspout elbow to fit.

   Because of the width of the barrel, you can't run the downpour directly to the filter and barrel. You need to modify the downpour at the appropriate to fit to the filter and rain barrel.

7. Attach the plastic extender pipe to the downspout elbow and run the plastic extender pipe to the filter.

DOWN AND DIRTY WATER BARREL

If you don't have enough resources for getting such a barrel ready to get purified water then you will have to acquire a few items from a hardware store then we are going to get really down and dirty. You're still going to need a food grade barrel, but if you don't then it's up to you to run the risk of drinking the water. By all means if you have better tools than I'm mentioning use them; I'm trying to give examples on how to use the bare minimum.

You still need to follow the basic tenets I explained the previous section.

1. Drainage holes need to be cut into the barrel.

   By simply using a knife, stab the barrel in the upper side. Twist your knife to allow the hole to become wider. Do this at least four times, each hole opposite from each other.

2. Use a cover for the barrel.

   Utilize a form of mesh, like a window screen, or even a pair of panty hose.

3. Duct tape the screen over the holes.

   Don't go cheap on the duct tape either.

   Now we need to construct your bottom drain.

4. Carve another hole into the bottom of the barrel; you can use the same knife technique you utilized in your overflow drainage.

5. Add a 90-degree pipe to the drain hole.

   If one side is threaded, a coupling can hold it in place. The idea is that when you need water you spin the opening of the 90 degree pipe downwards gravity will do its job and allow the water to flow. You should keep a cap on the end to protect it from anything trying to get in. You can cut a variety of items to work as a cap. Utilize some imagination.

   An even simpler method is a straight pipe you just plug into the side, and cap it off. When you remove the cap, you have water.

6. For the top, use a sharp knife to carve a small rectangle opening. The opening should be slightly larger than your downspout.

7. A window screen should be put in place over the hole to filter debris out of the water.

8. You need to have something to run from the downpour to the barrel. You can chop up a water hose into six foot lengths and tape or tie them together.

Take as many hose lengths as you can and fit them into the downpour, applying liberal amount of tape to hold them in place. This is far from perfect, but it works.

PVC can be cemented and run to the water collection barrel or a run off can be made with wood. A board with sides built onto it can act as a run off to the barrel as well. Anything you can use to get the water for the downpour to the barrel will help.

PASSIVE WATER HARVESTING

Passive water harvesting involves the use of very few materials and uses the manipulation of the ground to help collect water. The water does not flow to a container, but to a natural reservoir. These reservoirs have been

often called micro basins. The subtle manipulation of the ground can deliver a large amount of rain water to your natural reservoir. Passive water harvesting has been used for hundreds of years in arid regions to water crops. This is an incredibly low tech way to gather water.

Passive water harvesting does not always deliver the same results as active harvesting. However it is a very efficient method used for ages, especially for agricultural uses. Passive water harvesting is requires minimal supplies and financial investment, but it is a labor.

A simple **micro basin** can be built by digging a hole with gently sloping sides. Using the dirt you removed, continue to build on the gently sloping sides. You can set a tarp in the hole, pinned and held in place by large rocks. This tarp will keep a majority of dirt out of the water, making it easier to purify. The water gathered in the micro basin should be used quickly or moved to a traditional container. If not it could evaporate, become a haven for mosquitoes and generally become unusable.

Water from downspouts can be funneled directly into these micro basins quite easily. Either the hole can be dug right underneath it, or a trench can be dug to the micro basin. The micro basin will more than likely fill quite quickly, it all depends on the size of the micro basin you've dug it. Tarps only come in so many sizes, but you can connect multiple micro basins together easily enough.

A simple design you can utilize starts with the trench going from the downspout to the first micro basin, this one will be your middle basin. Now you can build a second or even a third basin, the second should be to the left or right. If building a total of three basins one should be on the left and one on the right. The first basin should always be in the middle. Connect the basins by a shallow trench coming from the middle basin.

As the first basin becomes full the overflow should travel through the trenches to the second and third basin. Building even more additional basin can be done by building behind the original three, starting in the middle again, then left and right, so on and so forth.

Another micro basin you can build is a **trench**. The trench should be around three feet wide and two feet deep and stretch as long as you want it to. A trench can be dug in at the bottom of a hill and collect the rainwater than will flow down the hill. Passive water harvesting can be employed at any area rain water tends to flow into.

It's important to remember that this water needs to be moved and used quickly or it will become quite disgusting. The water can be moved to another container to await purification or used to water gardens and even livestock. Passive water harvesting is perfect if you can't find the means to form an active water harvesting catchment. The only thing you need is a shovel and a tarp can be nice, but not necessary.

Passive and active water harvesting can be used in combination to yield a larger amount of water than a single method. The more water a person can store the better. You can never say you have too much water if you get it from a clean spot that isn't going to be impacted by outside forces throwing in lots of chemicals and other stuff.

PURIFICATION

When you get water, you will need to purify it to make it safe to drink. While harvesting water is a good idea to consider when getting it for your use, you need to make sure you purify it before consuming it. It may be safer than other forms of water but it still has to be cleaned. Then again, it will be rather easy for you to get it cleaned when compared with something else.

Purification is done to help clear out heavy metals and other items that might be stuck in your water. This can really work well if you understand what you are going to get out of the treatment process.

Each method listed here has its own strengths and weaknesses and work well in conjunction with each other. Let's take a look at some of these options.

ARE PILLS AND DROPS REALLY USEFUL?

The first form of commercial methods includes many safe chemical compounds often in the form of liquid drops or dissolvable pills. These methods are quite effective, and very easy to do. The amount of purified water delivered by the amount of chemical varies, but a small bottle of drops can usually purify at least fifty gallons in some cases.

This is technically a good and easy to use process. However, pills can still add some other components to the water even if they are safer. Also, the aftertaste that will come out of consuming these pills will be rather bothersome.

PORTABLE PUMPS

Manual and electric pumps filter water quite fast and can deliver fresh drinking water from some pretty question-able sources. These pumps range in size; the larger models will give you more output. The smaller models weigh considerably less but can take forever to purify a large amount of water.

These purifiers are usually tough, but like anything made by man, they can and will break. They also require cartridges or some form of salt or chemical to purify water.

PURIFICATION STRAWS

In recent time, purification straws have become popular in bug out bags and survival kits. These straws are typi-cally good for ten gallons of water each and come in a pack of ten for around twenty dollars. Another form of purification is an attachment on the popular Camelbak Nalgene bottles. These attach to the straw and filter up to 60 waters of water for around 10 bucks. The downside is it only works with a Nalgene bottle. Like all commercial methods, these too will eventually run out.

BOILING WATER

Boiling water is the world's oldest method for purifying water and is quite simple to do. Boiling water for 20 minutes can deliver purified water without all that disgusting bacteria. The obvious cons are having to wait for the water to boil, then 20 minutes of boiling, and then time for the water to cool. You also lose a minimal amount of water in the process. Any time fire is involved, you run the risk of injury as well. The amount you can purify at a time is really only decided by the size of your container and your fire plus how patient or thirsty you are.

Before any water is boiled and purified it should be filtered; filtering and purifying go hand in hand. Filters may be considered when getting rid of all that junk from your water.

BIO FILTERS

Bio filters will help you to control your water and clear out old contaminants. These are useful materials that work well but you need to be aware of what you have to do to make them work.

Different methods of building bio filters have been around for years and years. I have two methods I use. One is easier, and one is more effective. Both will give you clean and potable water though. These bio filters have been used in third world nations for easy and efficiently clean drinking water. These bio filters were being used by Americans in the early part of the 1900s to filter rain water.

These bio filters do not purify water; only boiling water or chemical does that. **These only filter the water and remove some nasty materials.** I recommend you always boil your water after it's been filtered and that you always filter water before it is boiled. Now if you can only filter the water then it's better than nothing. Drinking filtered water will be much healthier than drinking it straight, but not as healthy as purified water.

The modern materials you'll need include:

- A bucket or barrel
- Cloth or mesh as a filter
- Large cotton towels; the first towel needs to be large enough to be cut into the diameter of the middle of the barrel or bucket and the second towel needs to be cut into large enough to cover the top of the bucket with about 6 inches of material hanging over the edge

Also the size of the bio filter is dependent on how much water you want to filter at a time. A five gallon bucket should be the minimum. Remember, it's also better to cut larger than smaller for this project. You'll need a barrel and the two towels for both of these bio filters. We will start with the easier filter; it's a sand filtration system.

THE SAND FILTRATION SOLUTION

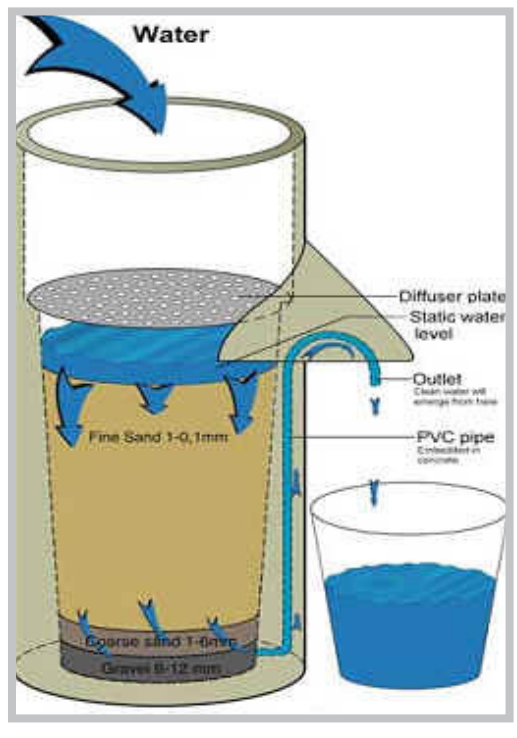
Here's what this step entails:

1. Clean a bucket as well as possible.
2. Boil some water and let it cool. There's no point in using dirty water to clean a filter. Also, soap and warm water are preferred but a disinfectant can be used in small quantities.

   I would say a tablespoon of bleach mixed with a gallon of warm water cam work. Be sure to rinse the bucket or barrel out with warm water as well. Also, never use a bucket or barrel used to store toxic chemicals such as oil.
3. We then need to install a faucet fixture of some kind into the bottom.

   Use any of the methods we went over earlier, as long as you can drain water you'll be fine.
4. Prepare a separating material to form a six-inch buffer over the faucet.

   This material needs to be made of solid rocks such as pebbles, marbles and even fish gravel if you have it. Seashells can work well for you who live close to a coast. Using something made of limestone will be a failure as a rock like limestone will erode and the material will enter your water.
5. The barrel needs to be cleaned before you add the material to it.

   Take your time; again, what's the point of a filter built with dirty materials. Rinse the materials off first, remove all the big particles, set them in a pot and allow them to boil for 10 or so minutes. Now add them to the bottom of the bucket; remember to form a six inch buffer above the faucet.
6. Get the cloth or mesh material. This is going form a barrier between the sand and pebble that will still

allow water to flow through.

The mesh material can be made from any fine plastic or metal. The benefit of a plastic and mesh material is that it needs to be changed less often because it is more resistant to mold. The mesh needs to be very fine, as its goal is to keep sand out of the pebble layer.

This material should be large enough to completely cover the pebbles. This is why it's always better to cut your material bigger than necessary. It is much easier to trim the material down than it is to realize your material won't work. As with everything else so far, this material should be cleaned prior to being added to the filter.

7. Prepare the sand.

   Clean sand may sound like an oxymoron but I'll go over that. By clean sand I mean sand that has not been exposed to highly toxic chemicals. For example, sand in the vicinity of a gas station or sand that a vehicle has been parked on regularly are dangerous to use. It's best to avoid any sand near urban spots and find sand in more rural environments. You never know what has been spilled or sprayed in an urban environment.

   Optimistically you will want two types of sand, coarse sand, and softer sugar sand, also known as 'moon dust.' If you can't acquire both, coarser sand is much more common and will work fine.

   Now we are actually going to wash the sand. To 'wash' sand you are going to place it in a clean container with the cleanest water you have. Now stir it around for a minute or so, then let it settle. The lighter materials will rise and the sand will settle.

8. Empty the water from the bucket and add clean water once more.

   Repeat the process until the lighter material no longer appears in the water after the sand has been stirred and has resettled at the bottom. Now your sand is washed.

   Next, the size of your container will dictate the amount of sand you are going to need. You need enough sand to form a minimum of six inches above the pebble layer. This is the absolute minimum; the more sand, the more filtered your water will be. Leave at least 6 to 8 inches of top space.

9. Add another layer of pebbles when the bucket or barrel is full of sand. It only needs to be 1 or 2 inches high.

10. Add the second piece of cloth.

    Lay this over the top of the sand, the extra material hanging over the top can be secured with tape, nails or staples, whatever is at hand.

11. Back wash the filter to clean the sand once more.

    To begin the cleansing, we need to boil some water. I know, by now you are probably thinking 'jeez with all the water I've boiled to make this thing I might as well just purify water by boiling it.' If you are in a situation where you can't boil water for whatever reason then it's not completely necessary. Boiling water is best when cleaning the materials needed. If it's not available then clean the materials the best you can.

    Now take this boiled water and slowly and carefully pour it over the top material. It will flow from the top through the first layer of pebbles, which grab larger materials, then through the sand which grab the smaller materials and then sit with the pebbles until you open the faucet. This method is called back washing; the purified boiled water will remove many of the impurities in the sand.

    Now when it comes time to actually filter water you're basically doing the same thing.

12. Slowly poor the water, allowing it to be absorbed by the sand and filtered; if your poor too fast it will overflow.

    Before you pour the water, open the faucet and place a clean container underneath to catch the filtered water. Run the water through as many times as necessary until it is clear.

Maintenance on these filters is simple. The cloth and mesh need to be replaced occasionally. If water is constantly

moving through this system then mold is unlikely to develop. If it sits without fresh water being cycled through then mold will develop on the cloth.

Changing out the sand and cleaning the containers and pebbles should be done once a month to remove the impurities they have absorbed. Using the same sand and pebbles forever is like a house sponge, eventually it is so disgusting it will just make everything else not work.

Now it will be filtered and ready to be purified. If you drink water that has yet to be purified then you're taking a risk. This water can be considered potable though and it's unlikely you will get sick, but why take the risk if you can purify it after you filter it anyway.

AN ALTERNATE OPTION (PART 1)

The next bio filter was in use for countless years before someone finally put it in print. A book published in 1909 called Household Discoveries published a method specifically for filtering rain water. The method was largely lost after frontier living was replaced by cities, towns, and technology. The book has now entered public domain and is available for free online.

These methods involves some old school skills, and let's face it, old school is the best school when it comes to getting stuff done. You are still going to need to a bucket or barrel. The original called for a new vinegar barrel. This would be a wood barrel back in the day, a modern plastic barrel will work fine. I'm taking the original design and adapting it a bit for our use.

1. First, set your barrel on something like a brick or pieces of wood to elevate it.
2. Install a faucet system on the bottom using any method you choose; again it just needs to be able to drain water. Hell, drill a hole and put a cork in it if you choose to do so.
3. Make a tight false bottom 3 to 4 inches from the bottom.

   I believe it would work fine if we used the previous design of cloth or mesh over a layer of rocks. Making a false bottom though is going to require a few tools and a little know how. I think the best method would be to start with a lid that goes on the identical bucket or barrel since it already has the base shape to the container you are using. Trim it with whatever tools you have, be it a hack saw or a jig saw, or a sharp nice.

"A Cheap and Easy Way to Make a Filter."

Exercise caution as you are trimming away slowly until it is a tight fit in the bottom. Your standard five gallon bucket is widest at the top and gently narrow towards the bottom. Barrels are typically the smallest at the top and bottom.

I suggest putting two square rocks in the bottom of the bucket to ensure the weight of the materials above the false bottom do not collapse that false bottom. Not necessary just a little insurance.

4. Now after we've tested it's fit we are going to drill (or stab) small holes all over it. A couple dozen holes with a similar diameter to a pencil should work.
5. Install the false bottom and cover it with a piece of cloth, making sure it is fully covered.
6. Install a layer of pebbles 3 to 4 inches tall over the cloth material.
7. On top of that layer we are going to add a layer of clean washed sand and gravel. This sand and gravel will be the same height as the pebbles.
8. For the next part, we are going to add a layer of pure charcoal. Store bought charcoal used for grilling will not work due to chemicals added.

We are going to have to make charcoal, which is a reasonably easy thing to do. The best wood to use according to Household Discoveries is hard maple wood, I think any hard wood would make a suitable charcoal.

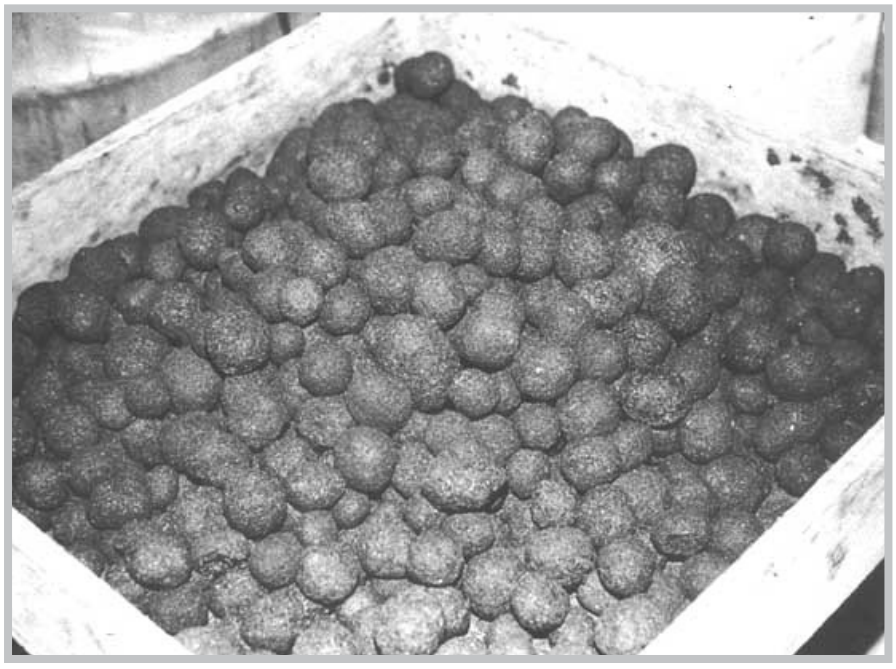
This takes a bit and deserves its own section.

THE CHARCOAL SIDE-NOTE

I have a simple, effective method for making charcoal that can be tailored to different sizes. The process involves a metal container with a small hole, a hardwood fire, and your chosen charcoal wood.

For simplicity of logistics, space, and fire permits I use a small stainless steel pot without any kind of plastic handles.

1. First, poke a hole in the metal top using a nail and a tap from a hammer.
2. Cut your wood into inch blocks; they don't have to be exact inches, just be approximate.
3. Shove as much wood as you can into the pot and put the lid on.
4. Build a nice hardwood fire, you can start this fire before you do anything else if you choose.
5. You will need something to secure the lid, as pressure will build underneath and potentially throw it off.



I used to place two heavy pieces of scrap metal across the top of my pot. This kept the lid in place once pressure started building up inside the pot. Ned Gorski, a very intelligent pyro technician, used numerous c-clamps to hold his lid in place, a much less crude practice than my scrap metal. I adopted this method as well, and have had great results and zero issues.

6. Next, lower the pot into the middle of the fire. Take caution while doing this, and make you wear some thick, fire retardant gloves.
7. Start building the fire up a little more around the pot. Stack the wood around and up the side of the pot. Soon you will see steam coming out of the hole in the lid, this will increase and increase, and it smells terrible.

   Usually after about forty minutes of this, the steam will become almost invisible and then catch fire. It's pretty neat to see, like a blow torch spewing from your pot. Once this torch burns out your wood is now charcoal.
8. While practicing extreme caution, remove the pot from the fire; if necessary let the fire die down, don't rush yourself to a burn ward.
9. After you remove it from the fire, set the pot down and let it cool. This will be an overnight affair.

   I always cover the little hole in the lid with something, be it a piece of wood, or plugging it with a nail. This is to prevent too much oxygen from getting in the pot and cause the charcoal to ignite. Some people say this is not necessary; I don't take the risk of waking up to ash instead of charcoal though.
10. 1After it is done cooling overnight you can remove the charcoal and crush it to dust.

    To crush the charcoal to a fine powder, I use the tip of a baseball bat and a plastic bucket as a giant mortar and pestle. To be clear, I'm not using baseball swings to crush the charcoal, but crushing it using the fat tip of the bat.
11. Throw a few piece of charcoal in the bucket at a time. This will be pretty messy, so do it outdoors and wear clothes you don't mind potentially ruining.

    Also, I covered my mouth with a bandana to avoid getting the charcoal dust in there. Either put a lid

on the bucket when you're done or transfer it to a sealable container.

This is a way to make very high quality charcoal. I have an easier method to make more basic charcoal, but if you have the time and equipment I suggest using the highest quality charcoal possible.

BACK TO THE FILTER

That was a bit longer for a side note than I wanted, but I felt it was necessary. This mixture or charcoal can be used to make fires and even gun powder when mixed with a few other ingredients. According to *Household discoveries*, you need roughly **half a bushel, which is about 18 liters of charcoal**. Add the charcoal and pound it down firmly.

The half bushel measurement was made for a barrel so it needs to adjust for a smaller bucket. I would say for a five gallon bucket, 6-8 inches of hard packed charcoal will work.

Now add another 3 inch layer of clean pebbles over the top of the charcoal. Next add a layer of cloth over the top in the same manner we used for the previous filter This filter would do an excellent job at controlling water and is well worth the work.

The multiple layers ensure a large amount of contaminates will be caught before it reaches the bottom of your filter. If you do get black water then run water through the filter a few more times; often the charcoal will need to be cleansed. The likelihood of this happening is small since the layer of sand and pebbles should catch the charcoal.

Household Discoveries says you should scrap and replace everything in the filter once a year. The barrel can be reused but cleaned at least once a year. Cleanliness is next to godliness, it's incredibly important to keep your filter materials fresh and clean.

15 SAFE WATER SOURCES

You may have an easier time with getting your water cleaned if you can fine it from pure sources. These are places that are less likely to have unhealthy compounds in them.

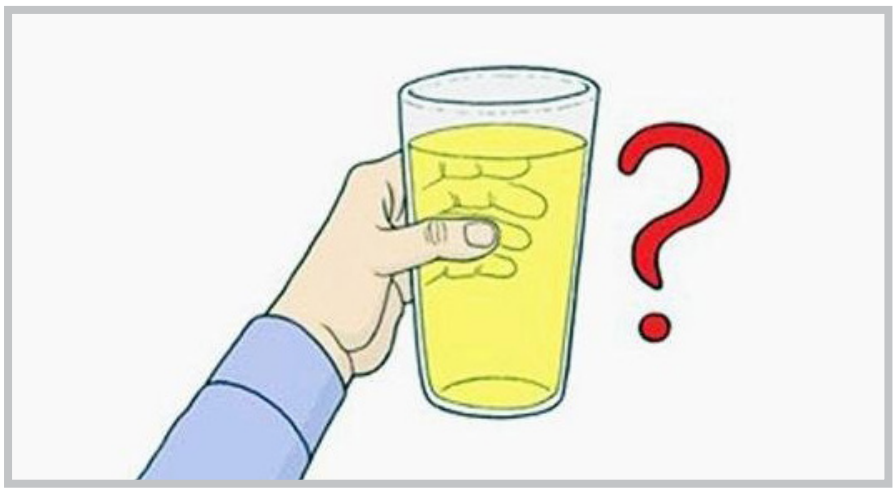
1. **HEAVY DEW IN TUFTS OF FINE GRASS** - ring out the grass and the water will slip into a container
2. **LOOK FOR BEES OR ANTS ACCESSING TREE HOLES** - there may be water, you can siphon out or absorb into a cloth.
3. **WATER GATHERS IN ROCK CREVICES**
4. **WATER COLLECTORS INTRIGUE CRUTCHES.**
5. **LOOK FOR BIRD DROPPINGS AROUND CRACKS IN ROCK** - this may indicate water near the crack
6. **GREEN BAMBOO** - then the stalk, cut off the top and water will slowly driven out
7. **BANANA AND PLANTAIN TREES** - cut to a one foot stump. Scoop out the middle to a bolshie and water from the roots will fill a hollow
8. **TROPICAL VINES** - cut a vine close to the ground and catch the drops
9. **GREEN COCONUTS** - cut open and drink the milk
10. **PLANTS WITH MOIST, PALTRY CENTERS** - smash or squeeze the pulp and the moisture will drop out
11. **PLANTS ROOTS** - smash the pulp and watch the moisture run out
12. **SNOW** - warm, fresh and pure white snow
13. **FOG** - hang a sheet between trees and the water will drip down
14. **TREE SAP** - drill a hole into the trunk of the tree and water will drip out
15. **SALT WATER** - purify by using the urine method in a bit

ALTERNATE WATER SOURCES AND CLEANING OPTIONS

This chapter is about some interesting cleaning processes and water sources to look for. You may be surprised at what you can find out there. Many of these are all rather easy for you to consume.

DRINKING PURIFIED URINE

When you have no access to any possible sources of water, you'll have to consider the water that you carry with you; in your body. Obviously you can't drink urine directly from the source because it is full of the impurities that your body is trying to dispose of; you have to filter out all of the impurity. This may provide you with an adequate supply of water to get you through to finding a better source soon.



You will need to choose two containers, one smaller than the other, so that one fits inside the other, with space between the two. Your large container choice may be a bucket or bowl and the small container could be a soda can without the top, or a cup.

You target the urine into the larger containers, making sure it can't pass into the smaller container, which is inside the larger one. The next stage of your plan is to set the containers out in the full sun. Next, you add a waterproof sheet over the containers, stretching it tight across the largest container so the moisture and the heat are being held inside. Use a rock or something heavy enough to make sure the centre dips down.

The sun heats your source of water, which evaporates and condenses on the waterproof cover. It runs down to the centre-point and drips into the smaller container. Provided your containers and sheet are clean, you now have purified water that is safe to drink.

DRINKING SAFELY FROM YOUR TOILET

Believe it or not, you can use water from your toilet and purify it as desired.

By boiling the water from the flush tank, especially if it is free of chemicals, you will have access to reasonable water, but never use the water on the bowl of your toilet, as this is likely to contain harmful bacteria.

ANIMALS CAN SHOW YOU THE WAY

Animals need water, just as humans do, and they have found many ingenious ways to track water. Follow the signs that animals give and this may lead you to water.

- Bees always live close to water. Where you find beehives, water is never far away.

- A trial of ants climbing a tree is often the source of water is stored inside. These are common in dry areas.
- Many birds will eat and collect food by day, will be looking for water at dusk. By observing where they are flying to as the light fades, you will find out where they are drinking.

- Grazing animals prefer to drink at dawn or dusk. They can travel long distances between each drink, so, remember not to follow them during the heat of the day.
- Reptiles will probably not help direct you to water because they drink mostly from due from their prey.

CONSIDER THE LIFE STRAW

The Life Straw is a personal water filter good for one person across one full year. The Life Straw removes parasites and bacteria. You can literally suck any source of water through the straw, which filters 99.9% of waterborne problems to provide you with clear drinkable water, instantly.

Some people claim that they are expensive and occasionally difficult to use, but pills designed to complete the same process often leave an aftertaste. The Life Straw is not designed to desalinate salt water or remove chemicals or minerals and viruses; you will need to choose your murky water, very carefully.

DON'T FORGET THE SUN AND A PLASTIC BOTTLE – THE SODIS METHOD

Save some PET bottles; you're going to need them!

This is one of the simplest methods of purifying water and has been field tested by tens of thousands of people in desperate situations. Unfortunately, this method is often ignored by most individuals.

How does it work? You wash a transparent and colorless (without scratches) plastic PET bottle with soap and then fill the bottle with clear water and replace the lid. Expose the bottle to direct sunlight for at least six hours and the water will be ready for to be consumed. If it's a partly cloudy day, you will need to leave the water out into the sun for further day, before it is ready to be drunk.

A FREE FIVE LAYER WATER FILTER

You can make a crude five layer filter that fits inside a soda bottle and costs almost nothing to make. This could become your lifesaver in dire circumstances.

Cut the bottom out of the 2L PET bottle and tie several layers of a T-shirt, then over the mouth bottle. This class will filter out fine carbon particles is the last stage of this filtration process.

Inside, firstly, at a thick layer of powdered charcoal and packing down. You can find this from the wood in an old campfire. Make sure you remove any gaps or air in material.

Add a thick layer of washed and fine sand, desert or fine beach sand works best. On top of this, add a layer of coarse sand.

Passing the water through this five layer filter can provide you with a clean and drinkable water.

THE MARINE CORPS PULL WATER OUT OF THIN AIR

The Marine Corps is taught to create water when none can be found. Effectively, this is a way of pulling water out of thin air.

Begin by tying a plastic bag around leafy green tree or shrub, or just a branch. During the course of the day, the sun will help produce moisture in the bag. Carefully pierce the plastic bag and collect the water container drink direct from the source. It may not taste great, but it's better than no water at all.

MOTHER NATURE'S METHOD

Scientists at MIT developed the Xylem Filter for water filtration. This discovery is a method from Mother Nature and comes highly recommended. The natural filters won't work against chemical pollution or viruses, but it's great at halting the progress of bacteria and protozoa.

It's not hand held; it's twelve foot long and works under pressure by forcing a piece of a sapwood branch, with the bark removed, into the tube. Once the tube is full of water and hung from a tree, the water is filtered through the sapwood and collected underneath.

CRITICAL BACK-UP CHEMICALS

There are a range of chemicals that are critical backup requirements that should always be kept in your house for high-volume sterilization; should survival from a disaster be required.

Iodine works well against bacteria and viruses and you can purchase it in tablet form. You will need to read the instructions carefully, because too much iodine can kill you.

Chlorine bleach can be added to water in very small amounts to clear your water of bacteria and viruses. For example, 40 drops of bleach for each US gallon of water (different gallon sizes are used around the world; make sure you get the ratio correct) will provide you with an equivalent of 1 to 3% of chlorine. The bleach and water will have to stand for 30 minutes before it can be used and longer if it's colder (less than 50F) outside.

TURNING SEA WATER INTO DRINKING WATER

See water is very dangerous for you to drink, not just because of the excess salt, but the minerals contained in the water can do you a great deal of harm if you drink too much. Fortunately, there are ways that you can turn 100% nasty seawater into a water fountain of clean and drinkable H2O.

It's the same method that you read earlier, as long as you didn't skip over the section on purifying urine. By forcing the water to evaporate, by the use of heat, you can collect the evaporated water and safely drink it.

BASIC SURVIVAL FILTER

So the filtering methods I've gone over so far take time, materials, and work to build and use. One can never predict when and where or how bad the contamination of water in your area may be so knowing multiple ways to filter water, from the complicated to the remarkably simple, is important.

Can you ever plan too much? Knowledge is like water, you can never have enough of it. Knowledge has the added plus of being weightless. So now we will focus on making a bare bones filter than requires damn near nothing. I will also show a much easier process to make charcoal, remember this will not be the highest quality charcoal but it will suffice.

Building this filter is so simple you can get a good idea of what we are building with just the list of materials need. I learned this one from some French Marines I had met in Africa. This filter build is also featured on a number of survival sites as well as being featured in a Army training manual. I can't seem to find the original designer to give them credit though.

- 2 plastic soda bottles, matching sizes
- Knife
- Small piece of fabric 2 inches by 2 inch approximate
- Sand
- Charcoal

EASY TO DO CHARCOAL

First you need to be able to harvest water to filter in the first place. The good thing is this may be pretty easy after a fire. The government happens to use a form of passive water harvesting on the sides of the roads, those ditches gather water off the road and are perfect micro basins. So you can start here, or maybe you have a basic water harvesting system. By basic I mean a bucket or two sitting in the rain. Either way you gotta have water first.

Next you need to make a camp fire. Keep the fire relatively small and simple, feeding it slowly, allowing a hot pile of coals to build in the center. This can take several hours, but that is okay; enjoy the fire. You want to feed the fire a nice hard wood, oak will work well. Oak is slow burning, so patience is a virtue.

Now you do not want the fire to burn itself to ashes, so once a nice pile of hot coals has assembled it's time to extinguish the fire. You don't want to use water for this, but dirt. Pile dirt on top of the fire, especially the coals.

Now you might as well go to sleep. The coals need to sit and cool overnight, to make them both safe to handle and to allow them to turn to charcoal. Unroll your bed roll and be thankful you packed it.

Good morning, hope you slept well, because now we need to start constructing our filter. Using anything besides your hands to uncover the coals you buried last night. Do not use your hand because these coals will more than likely being very hot. Uncovering them will expose them to air, and allow them to cool fully.

Go on about your day with all the other work that probably needs to be done, occasionally checking the temperature of your coals. While you're waiting we can do a little prep work.

Grab your two bottles and your knife. We are going to carefully cut the top off of one bottle and the bottom off the other. Now when we cut the top off the first bottle we are not doing it at the very top due to the fact bottles are smaller in diameter at the top. Go down about a third of the bottle or whenever the bottle stops sloping and reaches its largest diameter. This is where you will cut.

Now we can put these away and check the coals. Once they have sufficiently cooled and are safe to handle, we can really start. Now you're doing to need to find something heavy, a rock a little bigger than your fist, or maybe a thick stick.

You are also going to need a work area. A stump works

well, so does a log. Basically any flat and hard surface you can lay your coal on. Next take your rock or stick or whatever and crush the charcoal into finer smaller pieces. The finer the charcoal the better it will work, but it doesn't need to be a powder. Once the charcoal is approximately dime sized you should be good.

Now back to the bottles we chopped up. Take the bottle we cut the bottom off of and tightly pack your fabric in the opening. If you still have the cap this is even better; poke a hole in the cap and shove your fabric against it. Now we add the charcoal, you want to pack it in tight as possible. Really get in there, get your hands dirty, if it's too loose it won't filter.

Once your charcoal is packed tight and your hands are filthy, don't worry about washing them yet. Next we are going to add sand. A layer of sand should be packed on top of the charcoal; pack it tight as well. Sand is much easier to pack down than charcoal though.

Now once this bottle is complete we are going to set it with the cap end facing down into the other bottle. Now you can see why we cut the top off the bottle the way we did.

Now pour your water into the sand and charcoal filter and wait patiently as it drips into the other bottle. Once the water has completed running through the filter you will more than likely have to run it again, and maybe even a third and fourth time. This is a basic filter, but it does work.

WATER IS WORTH MORE THAN GOLD

Water is critical for life and being able to get water that doesn't have heavy metals or chemicals in it is important. If you use the tips listed in this book then you will have a full understanding of what you need to do in order to protect your water consumption and to have only the right amount of water for your needs.

This guide was all about the was how you can manage processes to get rid of fluoride and other components. This includes not only removing old materials and items but also with finding certain sources that are safer to work with and are rather easy for you to purify.

As always, use your imagination and I'm sure you can discover ways that work even better than I have written. Use this as a building block to a system that works for you. Just think of the filters and rain catchments you can make knowing just the basics.

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