

Water Harvesting

by Candace Mullen, Bell County Master Gardener

One of the things the pioneers of the state of Texas did a whole lot better than we modern settlers do is the collecting of and the using of water! We have become greatly spoiled as states, communities, and individuals because we think nothing about turning the tap on and watching the clear water run down the drain. We run the taps while we brush our teeth, wash dishes, take lengthy showers, and often water our lawns while it is raining! Should we be concerned about these habits? Yes, we should. It is commonly believed that the shortage of water in the not so distant future will result in "water wars."

Today's consumers can do something about the future of our water. The early pioneers used collection systems to capture the rainwater and used it when the rain did not fall. We can do the same thing now and it is relatively inexpensive and easy to do. If you are building a new home or commercial building or remodeling, put a catchment system in the plan. In established homes or buildings, you can also add a system that will allow you to use the water that Nature sends free of charge.

Before large, centralized water supply systems were developed, rainwater was collected from a variety of surfaces - most commonly roofs - and stored on site in tanks known as cisterns. Because rainwater is a prime source for pure, soft, low sodium water, a renewed interest in water harvesting is occurring. This is primarily due to three things.

The escalating environmental and economic costs of providing water by centralized water systems or by well drilling.

Health concerns regarding the source and treatment of polluted waters.

A perception that there are cost efficiencies associated with reliance on rainwater.

The never-ending exchange of water from the atmosphere to the oceans and back again is known as the hydrologic cycle. This is where we get all of our water no matter what form it takes. Because 75 to 80% of our state's conventional water supplies are developed and in use, we MUST make the most efficient use of our limited resources. We must be conscious of using appliances and plumbing fixtures that conserve water, not wasting water, and take advantage of alternative sources such as grey water reuse and rainwater harvesting.

There are many advantages to using rainwater. It is pure, its quality almost always exceeds that of groundwater, it is soft, deposits in pipes are eliminated, water softeners are eliminated, and washing is easier. It is also energy conserving, lessens local erosion and flooding caused by runoff from concrete and pavements, and encourages self sufficiency. And of course, for us gardeners, the plants and grass love it best of all!

The question becomes how can we get on this bandwagon? There is a wonderful free handbook that will answer all your questions. Just download and print the excellent and easy to understand Texas Guide to Rainwater Harvesting. Another resource is a website describing the actual installation and usage of an entire system on a private home located at the Experiments in Sustainable Urban Living web site. Other organizations to research are the Lower Colorado River Authority (LCRA); Texas Water Development Board (TWDB); Interface Engineering, Inc; American Rainwater Catchment Systems Association (ARCSA); Save the Rain, Inc (email: saverain@gvvc.com); and U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED). Also check out the Texas Legislature's Senate Bill 2, passed in 2001. It tells you about the tax exemptions available to you for putting in water systems, equipment, and supplies.

Is your building a candidate for a collection system? Actually, all you need is a roof! The simplest and most common point of collection is the roof, and the larger the roof footprint, the more rainwater that can be collected. This includes the private residence, commercial buildings, dormitories, high-rises, and apartments. The cost of rainwater harvesting systems varies with the applications but generally runs about \$1 per gallon of storage capacity. Make sure you have researched the local regulations and rules for water harvesting before you proceed.

What are the components of a harvesting system? There are six basic components whether you plan a large or small system.

Catchment Area/Roof, the surface upon which the rain falls;

Gutters and Downspouts, the transport channels from catchment surface to storage;
Leaf Screens and Roofwashers, the systems that remove contaminants and debris;
Cisterns or Storage Tanks, where collected rainwater is stored;
Conveying, the delivery system for the treated rainwater, either by gravity or pump;
Water treatment, filters and equipment, and additives to settle, filter, and disinfect.
The elaborateness of all these components will be determined by what you plan to do with the captured rainwater and how long you plan to store it. Using the water for only irrigation needs a less elaborate system than using the water for drinking (potable). As with all decisions that concern money, it is important to research both long and short-term costs and benefits. But we also need to consider, in this case, the environmental concerns and future usage demands on the existing resources of our state. The decision can actually become a win/win solution for all of us!

So the next time you hear that delightful song, Raindrops Keep Falling on My Head, think about all that free, pure water we could be using in our gardens and houses with a little investment in the future.