

## **Rainwater Harvesting – American Rainwater Catchment Systems Association**

The American Rainwater Catchment Systems Association is a national organization dedicated to promoting the use and benefits of rainwater catchment through education and outreach programs. Rainwater catchment primarily involves catching rain from an impervious surface and transferring it to a storage unit to hold the water for use at a later date. Collecting rainwater not only provides a decentralized system that gives independence to the user, but also helps the community by decreasing the demand from centralized water supply systems, which aids in recharging aquifers. As an easily maintainable way to retain and detain water at a low cost, rainwater catchment can be a valuable tool to supplement landscape irrigation during seasonal and drought-related water restrictions. It can also be utilized for storm water management when creating a Low Impact Design (LID). Today, many irrigation professionals are incorporating rainwater system installations into their range of services.

Rainwater harvesting has a long history and collecting rainwater in cisterns was a common method of providing water for many of the first settlers in Texas. Much has changed in the last century since cities sprang up, wells dug, lakes built and municipal water supplies were established. Springs have reduced their flow or dried up, rivers are more polluted and base flow has decreased in Texas rivers due to population growth, water and food demands. Texas lands are now more dominated by houses, streets and impervious cover due to population growth and urban sprawl. Rangeland too is more dominated by woody plants and shorter grasses due to the absence of fire and heavy grazing pressure by livestock for the last 125 years. This increases water runoff and decreases water infiltration. All of this impacts the issue of water quantity and quality facing our state today. Today, there is new interest in rainwater harvesting.

### **The Renewed Interest in This Time-Honored Water Resource Is Due To:**

- \* concern of having enough high quality water available now and the future,
- \* rising environmental and economic costs of providing water by centralized water systems or by well drilling;
- \* health concerns linked to the source and treatment of water;
- \* cost efficiencies associated with rainwater harvesting; and,
- \* rainwater's purity;

### **COLLECTING WATER FOR LANDSCAPE PETS, LIVESTOCK, WILDLIFE AND IN-HOME POTABLE AND NON-POTABLE USES**

Captured rainwater can be used for watering landscape, gardens and to provide water for pets, wildlife and livestock. Additionally, rainwater can be filtered, sanitized and used for non-potable

and potable water uses in homes, and businesses instead of other sources of water. The process is simple and often less expensive than drilling a well.

### **HOW MUCH RAINWATER CAN YOU COLLECT?**

You can estimate the amount of rainwater that can be harvested from a catchment surface (defined as any surface used to collect rainwater such as a roof) with the following calculation:

***There is approximately 0.6 gallons of water that falls on each 1 square foot of roof area in a 1 inch rain.*** A 1000 square foot roof could yield (1000 x .6 =) 600 gallons of water for each inch of rainfall.

### **WATER USES**

***Landscape Usage:*** Drip irrigation is most practical when using rainwater for landscape irrigation. It can often be applied by gravity pressure alone or used in combination with mechanical equipment.

***Wildlife Watering:*** Water guzzlers are rainwater collection systems built in remote areas to water wildlife. A roof, storage tank and watering device are all that are needed. Rainfall could also be collected off existing barns, deer blinds or other structures and used to water wildlife.

***Water for Livestock and Pets:*** Livestock require great quantities of water on a daily basis. A horse or cow can consume 7 to 18 gallons of water a day and a large herd would demand hundreds or more daily. Smaller herds or individual animals or pet water demands can be met with collected rainwater.

***Water for the Home:*** Rainwater currently supplies many homes worldwide with an abundant supply of good, soft, safe water to drink and use. Storage capacity needs to be sufficient to provide several months supply of water. A good filtering and sanitizing system needs to be installed and maintained to provide high quality potable water for the home. Non-potable uses inside the home include commodes, and clothes washers. Rainwater can meet this demand and reduce your municipal water requirements.

### **ARCSEA “Accredited Professional”**

ARCSEA began an “Accredited professional” (AP) program in the summer of 2007. The program consists of an approved application, passing a 100 question test, ARCSEA membership and attending a 2 day workshop. Once approved, APs are listed on the ARCSEA website and are allowed to promote themselves as APs. The workshop has been approved by a number of organizations for Continuing Education Units (CEUs) as well. Plans are to add a more advanced

level in 2010 with additional, training, more difficult test and proof of installing a certain number of acceptable installations. There have been over 900 individuals trained since the program began and there have been 10 workshops held in 2009 from the Florida Keys to Bellingham Washington and places in between. ARCSA is also working with various state and national agencies in developing acceptable wording in the inclusion of rainwater harvesting in codes, regulations and guidelines.

## **CONCLUSION**

Captured rainwater has a tremendous amount of potential outside and inside the home. With creative landscaping that is both beautiful and functional, a tremendous amount of water can be saved. Our water is precious and we can capture rainfall when and where it lands and apply it during those times when it does not rain or use it in a totally new way. As Texas' population grows we will have to become more conscious of ways to conserve water. Capturing rainwater is one tool in this process.

## **INCENTIVES**

The State of Texas encourages rainwater harvesting by eliminating the sales tax on collection system supplies. Also a number of counties and cities have either waved permitting fees, offered rebates on tanks, waived property taxes, provided rain barrels, irrigation audits, low flow toilets and/or set up demonstration sites to help encourage and educate the public on the need to conserve this precious commodity. Check with your local governing bodies for more information and check out these websites for contact information and upcoming activities.

## **SOURCES OF INFORMATION**

### **Websites**

*American Rainwater Catchment Systems Association* <http://arcsa.com>

*Texas AgriLife Extension Service Rainwater Harvesting* <http://rainwaterharvesting.tamu.edu/>

*The Texas Water Development Board* <http://www.twdb.state.tx.us>

*Texas Commission on Environmental Quality* <http://www.tceq.state.tx.us>