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Rainwater Harvesting | Landscape Methods

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Efficient water use is increasing in importance. With the state's growing population and limited supply of groundwater and surface water, Texans must use water wisely. Rainwater harvesting can help them as an innovative approach that anyone can use to capture rainfall.

The easiest way to use stored rainwater is for landscaping. In many Texas communities, 40-60 percent of the total water use during peak summer months is for landscape irrigation. If that demand for a limited natural resource can be reduced, everyone benefits.

Rainwater harvesting utilizes water management strategies to capture a greater quantity of the rain falling on a site. Typically, people envision a rainwater harvesting system as a container holding water. While container systems are popular methods for harvesting water, some landscaping practices also can increase the volume of rain held on the site.

Benefits of Rainwater Harvesting

The following are ways that rainwater harvesting can help:

• **Saves you money.** Rainwater can reduce the quantity of water you purchase to meet your water needs. The money saved from not purchasing water can offset the cost of implementing a rainwater harvesting system.

• **Reduces potable water demand.** Municipal systems provide potable water for residential use. Harvesting rainwater can reduce the quantity of water used from the municipal supplier. As a result, this reduces the demand for potable water and the need to develop additional water infrastructure.

• **Uses a valuable resource efficiently.** Rainwater is high quality water that can be captured for direct use in the landscape. Stormwater leaving your site enters the surface water system that goes downstream in a river or lake, where it can enter a water supply system. Holding the water on the site uses the water directly or can assist in recharging local groundwater supplies.

• **Reduces flooding, erosion and surface water contamination.** As land is developed for new houses and businesses, more land is covered with impervious surfaces like parking lots, buildings and roads that cannot absorb water. Instead, rainwater runs off into storm drains, streams and rivers. Impervious surfaces increase the rate and volume of stormwater runoff which increases urban flooding, and erodes

the banks of rivers and streams. Urban runoff also carries many pollutants, including sediments, fertilizers, pesticides and fecal coliform bacteria into streams and rivers.

Harvesting Methods

Rainwater capture and storage systems, raingardens, and soil storage and infiltration systems are three approaches to rainwater harvesting that can prevent flooding and erosion. They also turn stormwater problems into water supply assets by slowing runoff and allowing it to soak into the ground.

Rainwater Capture and Storage Tank Systems

Rainwater capture and storage tank systems collect rainfall from roofs and other impervious surfaces, storing it for later use. Storage tanks range in capacity from 5 gallons to 50,000 gallons, depending on water needs. Their main function is to store water for use during periods of limited rainfall. This stored water helps balance the supply-demand equation.

A typical rainwater capture and storage system consists of a catchment surface, gutters, downspouts and piping, filtration, a storage tank, and a distribution method. The catchment surface sheds rainwater, while the gutters, downspouts and piping divert the rainwater to the storage tank. Many home systems use existing gutters and downspouts, requiring minimal tools and equipment for installation.

Systems intended solely for surface landscape use will typically only require a roof washer and filter basket to keep leaves and debris clear of the tank. They also need to have screens over any other opening to prevent mosquitoes from entering the system. Garden hoses, pipes or drip irrigation systems are commonly used to move the water from the storage tanks to where it is needed.

Raingardens

A raingarden is an artificial depression in the landscape that collects and stores stormwater runoff until it can infiltrate the soil. The soil stores the water for use by vegetation. The water may also move through the soil, recharging groundwater or surface water systems.

Raingardens are not ponds. When correctly designed, water should not stand for more than a few hours after most storms. They are usually planted with native vegetation that is hardy and attractive.

Besides being functional, a raingarden can be a beautiful and creative addition to a new or existing landscape. Plants in a raingarden can give color to the landscape throughout the year. Raingardens can be designed for an individual yard or a neighborhood, providing a habitat for birds, butterflies and other insects, for example.

A 2,500 gallon collection tank.

A recently constructed raingarden.

Soil Storage and Infiltration Systems

A soil storage and infiltration system collects rainfall runoff from the roofs of buildings. It then directs runoff underground, where it infiltrates into the soil. This system, which also provides water for vegetation and recharge, consists of the following: gutters and downspouts to collect roof runoff, a catch basin to capture trash and fine particles, underground trenches that store the water while it soaks slowly into the soil, and an observation port to aid in maintenance.

When the trench is filled with water during a storm, excess water flows from the gutter and onto the ground surface. A soil storage and infiltration system decreases the volume of runoff, contains potential pollutants and increases the amount of water entering the ground to recharge our groundwater systems.

A soil storage and infiltration system can be installed fairly easily at numerous homes and businesses. Most buildings already have gutters and downspouts. At many sites the storage and infiltration trench can be located relatively close to buildings. This system is typically not used in areas with expansive soils due to soil saturation and soil shifting issues.

Installation of a soil storage and infiltration system.

Final landscaping over a soil storage and infiltration system.

Resources

Rainwater Harvesting (*http://rainwaterharvesting.tamu.edu/*)

Texas AgriLife Extension Service Bookstore (*http://agrilifebookstore.org*)

- *Rainwater Harvesting* (B-6153)
- *Harvesting Rainwater for Wildlife* (B-6182)
- *Rainwater Harvesting: Raingardens* (L-5482)
- *Rainwater Harvesting: Soil Storage and Infiltrations System* (B-6195)

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