Rainwater Harvesting for Landscape Irrigation

Dick Peterson
www.DickPeterson.com
Our Most Precious Resource
Supply & Demand
Supply & Demand

Water restrictions
Reduce your use!
Storm water Run-off
Just how much?

- 1” of rain on 1 acre generates 27,000 gal. of water
- 1” of rain on a 20 x 50 mile heavily urbanized city will generate 17.4 billion gal. of water!
- 1” of rain on a 1,000 sq. ft. roof can STORE 600 gal. of water!

This… or This?
The Perfect Marriage of Two Effective Strategies

Rain Barrels + Rain Gardens
Green Solutions for Stormwater Runoff
The Perfect Marriage of Two Effective Strategies

Rain Barrels + Ponds
Rainwater Through The Ages

Rainwater harvesting practiced for over 4,000 years in desert of southern Israel

Ancient Roman had cisterns and aqueducts

Early 1900’s farms and ranches had cisterns

Current resurgence of rainwater collection:
Lady Bird Johnson Wildflower Center

At one time, the U.S. largest
72,000 gallon capacity
Advanced Micro Devices
1,500,000 gallons!

Many Caribbean nations mandate rainwater harvesting
Ancient Concepts
Why Collect Rainwater?

- Rainwater pH is almost neutral
- Plants, Ponds and Pescados love it
- Rainwater does not have dissolved minerals from the soil
- Or chemicals from water treatment plants
- Harvesting reduces erosion
- Reduces water bill – you do not use as much expensive potable water on your landscape and water features
In Texas, rainwater harvesting systems are sales tax exempt

Tax Code Section 151.355(1) provides an exemption for the recycling system if purchased on or after September 1, 2001.

Sec. 151.355. WATER-RELATED EXEMPTIONS. The following are exempted from taxes imposed by this chapter:
(1) rainwater harvesting equipment or supplies, water recycling and reuse equipment or supplies, or other equipment, services, or supplies used to reduce or eliminate water use....
Recycled drums come in various shapes, sizes and materials
These IBC Totes are covered with landscape fabric and plastic fence.
Recycled drums come in various shapes, sizes and materials.
Tanks are available in many sizes and configurations.
## Components

### PVC Drain-Waste-Vent Fittings

<table>
<thead>
<tr>
<th>Adapter</th>
<th>Tee</th>
<th>Closet Bend</th>
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<tr>
<td><strong>Fitting Cleanout</strong>&lt;br&gt;SP x FPT (W/Plug)&lt;br&gt; <strong>90° Elbow</strong>&lt;br&gt;ALL HUB&lt;br&gt;(1/4 Bend)&lt;br&gt; <strong>221/2° Elbow</strong>&lt;br&gt;ALL HUB&lt;br&gt;(1/4 Bend)&lt;br&gt; <strong>45° Elbow</strong>&lt;br&gt;ALL HUB&lt;br&gt;(1/4 Bend)&lt;br&gt; <strong>PVC True Union</strong>&lt;br&gt;Threaded or Solvent</td>
<td><strong>Test W/Plug</strong>&lt;br&gt;H x H x FPT&lt;br&gt; <strong>Sanitary Street</strong>&lt;br&gt;SP x H x H&lt;br&gt; <strong>Low Heel Inlet</strong>&lt;br&gt;ALL HUB&lt;br&gt;(1/4 Bend)&lt;br&gt; <strong>Double</strong>&lt;br&gt;ALL HUB</td>
<td><strong>All Hub</strong>&lt;br&gt;(1/4 Bend)&lt;br&gt; <strong>Long Turn</strong>&lt;br&gt;ALL HUB&lt;br&gt; <strong>Pipe Increaser</strong>&lt;br&gt;ALL HUB&lt;br&gt; <strong>Cleanout 2-Way</strong>&lt;br&gt;ALL HUB</td>
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Components

First Flush “Poor Man’s Roof Washer”

- PVC pipe with fittings running to the ground with a screw on cap at the bottom for clean out
- First 8-10 gallons collects debris from roof and gutters -- diverted by first flush before tank inlet
Components

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Simple System Options

Download at www.DickPeterson.com
Simple System Diagram
How about a fishpond tank?
Components

Vortex Filter complements Joe Wheeler
Good source of tanks are “feed and ranch” stores
To reduce algae, tanks should be black, green, covered, or painted.
Our Other Containers
Zilker Botanical Garden
Master Gardener Greenhouse
A 10’ x 10’ garden shed can collect 60 gallons in just a 1” rain

750 gallon fiberglass tank
New Underground Systems

Rainwater harvesting with Aquascapes’ RainXchange™ Rainwater Harvest Systems

1. Rain Filter
   - Captures and removes pollutants flushed into the system during a rain event.
   - Coarse filter screen removes leaves, trash, and debris.
   - Smaller suspended particles are captured in a fine mesh which can easily be removed for cleaning.

2. Modular Storage Basin
   - Modular design can be configured to fit a wide variety of applications and settings.
   - The storage basin consists of modular plastic boxes that are assembled on-site.
   - EFCM: fiber reinforced membrane creates a watertight basin.

3. Connecting Pipe
   - Connects the water via gravity to the rain storage chamber (sold separately)

4. Aquatic Plants
   - Providing food and shelter for a great number of birds, insects and amphibians and the ecosystems that maintain our biodiversity.

5. Irrigation System
   - Natural water is backed with micronutrients and compounds that will nourish your plants.
   - A healthy garden consumes more greenhouse gases and properly irrigated soils allow for greater water infiltration and better overall soil profiles.

6. Biological Filter
   - Beneficial bacteria and enzymes reduce organic wastes and pollute to less toxic substances that can be absorbed by plants, thereby creating a perfect cycle of nutrient reuse.

7. Overflow Infiltration
   - Excess rainwater is sent to a storage area that facilitates the infiltration of water into deeper soils and aquifers.

8. Flexible PVC
   - Easy installation with minimal head pressures, which equates to overall efficiency.

9. Snorkel Vault & Centipede™ Module
   - Optimum water utilization within the system and a convenient access point for yearly maintenance and cleaning.

10. High Efficiency Pumps
    - Submersible circulation pumps function 24 hours a day, and can be utilized for the delivery of water to your landscape.
Design Options

Joe Wheeler
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“My Cistern. My plan is to mount a 55-gal barrel around 10-ft off the ground, and pedal if full every other day or so (I’m pretty sure I can pump that high at better than 2 gpm) – then have a drip irrigation system to allow it to seep out on the garden. I hooked a water pump to a bicycle trainer and use it to pump water out of my rainwater catchment’s cistern. It takes about 30 minutes to empty a COA rain barrel at a fairly leisurely pace.” Larry Gilig (gilg@dieproducts.org)
Bt-Biological Mosquito Control

Kills Mosquitoes Before They're Old Enough To Bite!

Place in Standing Water Wherever it Accumulates Near the Household.

Flower Pots, Tree Holes, Bird Baths, Rain Barrels, Roof Gutters, Unused Swimming Pools

Each Duck Kills Mosquito Larvae For 30 Days or More

MOSQUITO DUNKS

KEEP OUT OF REACH OF CHILDREN

CAUTION
Whisky is for drinkin’... Water is for fightin’ over!

Mark Twain

Water is a precious resource... Use it wisely...

Harvest rainwater!

Austin History Center, St. Edward’s cadet straddling Lake Austin
And remember, there’s ALWAYS room for a FISH POND!
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