Rainwater Harvesting

An Overview for Hill Country Residents

Water: Yours, Mine, and Ours

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- Project Background
- Water Owner's Manual
- Video Series includes Rainwater Harvesting
- Power Point Presentations
- Literature Templates
- Public Outreach

Why Harvest Rainwater?

Our Water Is Fragile

- Hill Country water is finite
- Our population is growing
- Rainfall is unpredictable

Why Harvest Rainwater?

Control Your Water Future

- Become water self-sufficient
- Save money
- It's simple and flexible
- Modern treatment methods are safe and affordable
- The quality of rainwater is excellent

Why Harvest Rainwater?

Reap the Benefits

- Become more water conscious
- You always have a backup water supply
- Battery backups pump water in power outages
- Tax incentives encourage it

Why Harvest Rainwater?

It's how we originally adapted to the Hill Country

- It is not a new idea
- The third edition of the Texas Manual on Rainwater Harvesting (2005) can be found online at Texas Manual on Rainwater Harvesting (PDF File)

Getting Started:
Cisterns and Storage Tanks

System Pros and Cons
Rain Barrels

Pros

- Simple
- Least expensive

Cons

- Low water storage due to small size

System Pros and Cons
Ceramic Urns

Pros

- Attractive

Cons

- Heavier than plastic
- More expensive
- Susceptible to freeze damage

System Pros and Cons
Storage Tanks

Pros

- Made of durable UV resistant plastic
- Thinner models are less expensive and lighter weight

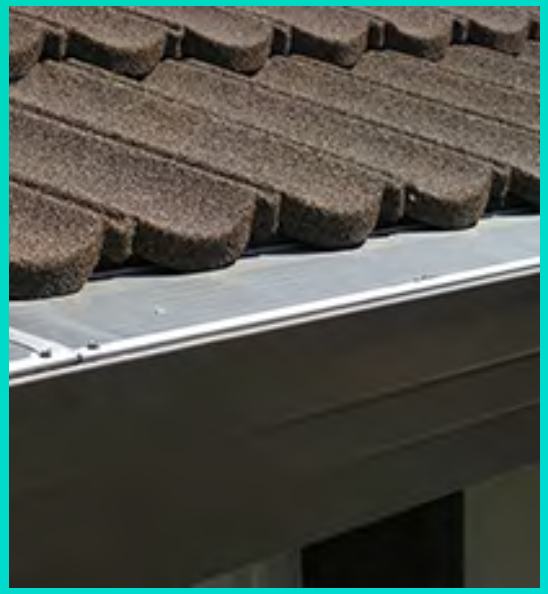
Cons

- Lighter tanks are not as durable

Planning Your System: Four Factors to Consider

- Water Use
- Money and Space
- HAO Considerations
- Storage Capacity

Building Blocks
For System Design



Four Building Blocks For Designing Your System

- Catchment Area
- Gutters and Pipes
- Filters and Screens
- Plan for Easy Maintenance

Design Checklist

- Install screens to protect tanks and stored water
- Install a first flush device
- Secure a level site for tanks
- Plan strategically for overflow
- Use smooth not flexible pipe
- Prevent mosquito infestations

A Rainwater Harvester's Story

"When you look to the sky for your water supply, what you can capture is limited only by your imagination."

- Milan J. Michalec

A Rainwater Harvester's Story

Milan J. Michalec

CCGCD Board of Directors

- Catchment area is 200 sq.ft. gazebo
- Started with a 55 gallon barrel and increased to 12 barrels
- Added AC condensate
- Added greywater

System Performance

- Total Cost- less that $1,200
- Half the cost was for the main storage tank
- In use since 2008
- Has not dropped below 25% capacity even in time of drought

System Planning

- Interested in water for outdoor plants
- Chose to build a system for non-potable water
- Cost of potable system was too high

The Design Process

- Catchment Surface
- Gutters, downspouts, and screens
- First flush device
- Storage tanks
- Delivery system

Infrastructure

- Tank Size
  - Dictated by landscaping and irrigation needs
- http://rainwaterharvesting.tamu.edu/calculators/
- Gutters and Spouts
  - Purchased off the shelf at local box stores

Filters and Screens

- Purchased at the same location at gutter
- Leaf screen before down spout
- Filter below leaf screen

Filters and Screens

- Mesh installed at tank water entry

First Flush Device

- Built in the downspout leading to the storage tank
- 18” section of 4” pipe holds 1 gallon @ 6 ft of pipe.
- Drained after the rain

Water Access And Distribution

- Small amounts can be accessed by gravity
- Larger storage used 1/3 HP pump
- Adequate pressure to 100ft.
- Water pumped to smaller tanks for irrigation

Additional Uses

In drought water is used on the vegetable garden

Additional Information

Texas Rainwater Harvesting Manual

http://www.twdb.state.tx.us/publications/reports/rainwaterharvestingmanual_3rdedition.pdf