EPCOR

5 STEPS TO WATER HARVESTING

HOW TO MAKE YOUR WATER USE MORE EFFICIENT

WHAT IS WATER HARVESTING?

Water harvesting is the process of capturing rainwater and gently used water for beneficial purposes. When it comes to rainwater, the goal is to **slow it**, **spread it** across your yard and allow it to **sink** down into your landscape.

Gently used water, referred to as greywater, is captured from showers, tubs and washing machines. This harvested water is suitable for non-potable water needs such as watering landscape plants and trees.*

The harvesting of both rainwater and greywater can reduce your community's reliance on groundwater sources, enhance your landscaping and decrease your water bill.

SLOW IT, SPREAD IT, SINK IT

*Greywater is not suitable for food plants and trees, with the exception of nut and fruit trees.

TYPES OF WATER HARVESTING

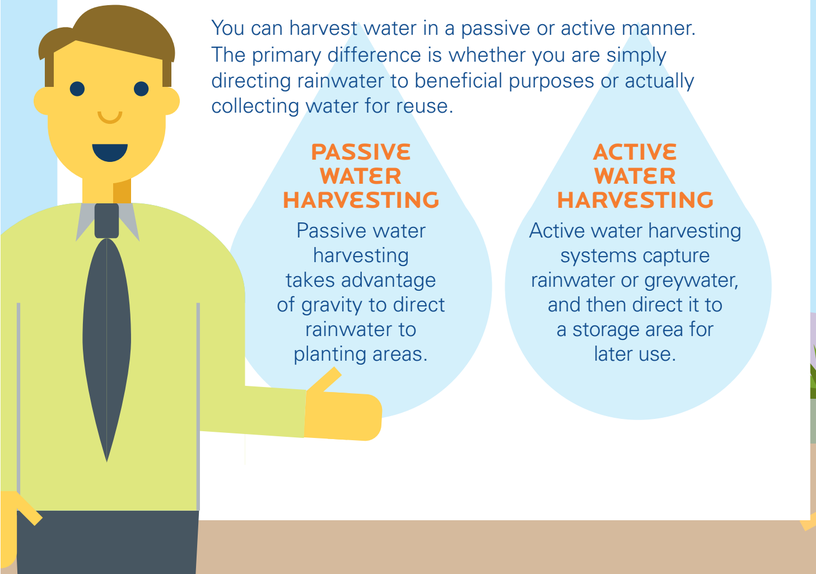
You can harvest water in a passive or active manner. The primary difference is whether you are simply directing rainwater to beneficial purposes or actually collecting water for reuse.

PASSIVE WATER HARVESTING

Passive water harvesting takes advantage of gravity to direct rainwater to planting areas.

ACTIVE WATER HARVESTING

Active water harvesting systems capture rainwater or greywater, and then direct it to a storage area for later use.



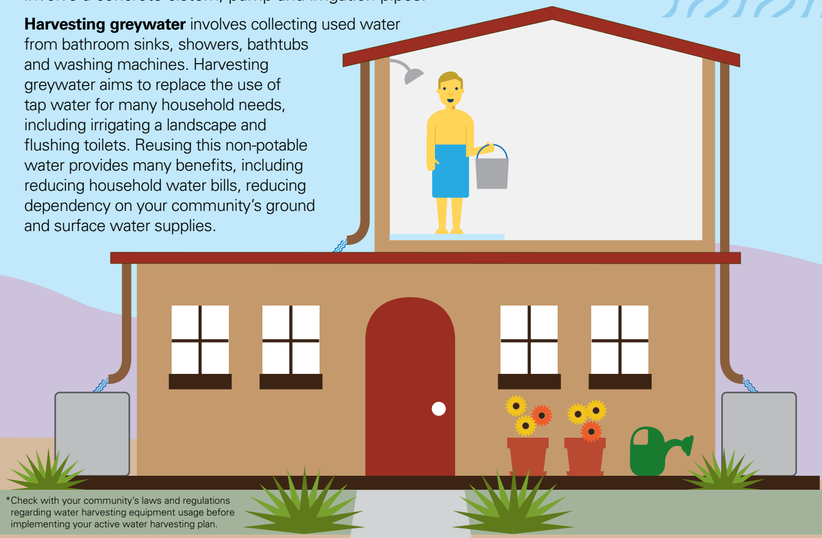
PASSIVE WATER HARVESTING

In **passive rainwater harvesting**, water that would simply run downhill is repurposed for landscape irrigation. Changing the slope of your landscape can **slow** the movement of stormwater to prevent erosion and off-site flooding, and **distribute** the water where it is needed. This process allows water to **sink** into the ground, where it nourishes plants and recharges the aquifer. Keep in mind that rainwater contains naturally occurring nitrogen which all plants love.

ACTIVE WATER HARVESTING

Active water harvesting involves installing infrastructure to direct or hold harvested water.* In its simplest form, think of water captured by a roof and directed through downspouts into a barrel for filling a watering can. A more complex system might involve a concrete cistern, pump and irrigation pipes.

Harvesting greywater involves collecting used water from bathroom sinks, showers, bathtubs and washing machines. Harvesting greywater aims to replace the use of tap water for many household needs, including irrigating a landscape and flushing toilets. Reusing this non-potable water provides many benefits, including reducing household water bills, reducing dependency on your community's ground and surface water supplies.



*Check with your community's laws and regulations regarding water harvesting equipment usage before implementing your active water harvesting plan.

GET STARTED!

Continue learning with this 5-step guide and begin enjoying the benefits of water harvesting.

STEP ONE

OBSERVE YOUR YARD

The easiest way to start harvesting water is to collect rainwater from your yard. To get started, observe your yard from the top down.

Ask yourself these questions:

- What happens to your yard when it rains?
- Does water run off your house, garage, gazebo or shed?
- Does water pool in specific areas? Does it run down slopes?
- How much water does your landscaping require?
- Where are the plants in relation to water-collection areas?

Observing what naturally happens will uncover the rainwater harvesting potential of your yard. Maybe rainwater tends to pool about 10 feet away from your fruit trees or rainwater from your drainpipes is running straight down the street. You've spotted two opportunities to capture water! Take an inventory of all the structures, plants and landscaping features of your yard—keeping in mind any future landscaping plans and desires.

STEP TWO

MAP YOUR YARD

As we all know, water always runs downhill. Once you observe your yard to identify water collection opportunities and water needs, you can create a map that shows how gravity works in your favor. To get started:

- Sketch your yard, roughly to proportion and scale
- Mark the high points—house, garage, gazebo, shed, etc.—that create water runoff
- Mark the low points where water tends to collect
- Identify potential holding areas

The map will reveal the water harvesting potential of your yard and help point you in the right direction to get started.

STEP THREE

DECIDE WHERE TO START

When it comes to water harvesting, remember that it's OK to start small! Any effort is better than no effort, even if that means pouring the leftovers from your water glass on a houseplant. Whether you decide to harvest rainwater, greywater or both depends on your yard, house and water needs.

Rainwater Harvesting

Once you map your yard, consider planting a garden next to a shed that produces roof runoff or modifying your landscaping with swales and berms to direct rainwater to plants. You can also direct water from a downspout into a plastic rain barrel. If you see great potential for harvesting rainwater, you might install a system that involves a larger cistern, pump and irrigation pipes.

Greywater Harvesting

To get started, collect shower water in a bucket—keeping in mind that water is heavy. Use the collected water for your landscape plants and trees, or even to fill the toilet. Later, you can look into diverting water from your washing machine or creating a more complex system.

Consider these safety issues:

- Do not harvest water from the kitchen sink, dishwasher, toilet or garbage disposal. This is considered blackwater because of the amount of waste.
- It is best to use greywater within a few hours as its quality may degrade over time. This might include pumping greywater directly into an irrigation system.
- Use organic and salt-free cleaning products to ensure that greywater doesn't damage plant life and leech chemicals into the ground.

STEP FOUR

DISCOVER YOUR POTENTIAL

Following these **easy steps** will help you **calculate** how many gallons of rainwater you can capture each year.

1. Measure the collection area by finding the length and width then multiplying. For example, your roof might be 40 feet long by 50 feet wide. When multiplied, this equals 2,000 square feet of collection area.

2. Next, multiply that number by 0.623 gallons*. This tells you how much water can be collected during a 1-inch rain event.

   2,000 X 0.623 = 1,246 gallons can be collected from my roof if it rains 1-inch.

3. Then, multiply by the average yearly amount of rain in inches for your area. Here's an example.

   2,000 X 0.623 X 8 (average yearly inches of rain in my area)
   = 9,968 gallons of water that I can capture from my roof in one year.

   That's almost 10,000 gallons per year just from rain!

Shower to flower

Think about your family's potential to harvest gently used water from around your home. If you take a 10 minute shower 5 times a week with a shower head that uses 2 gallons a minute, that's 100 extra gallons of potential greywater you can use on your flower bed every week.

Installing native and low water-using plants will maximize your water harvesting potential.

*0.623 gallons is the amount of water that can cover one square foot, one inch deep.

STEP FIVE

DESIGN YOUR SYSTEM

A well-designed rainwater harvesting system could likely make rainwater your primary source of irrigation for landscape. Rainwater can be supplemented with greywater before using tap water. While you're making your plan consider existing features such as a fire pit, outdoor kitchen, fountain or dog pen. Do your research to design a system that blends into your yard and provides the maximum benefit.

Keep the following in mind:

- Start small, learn from your experiments, then adjust and expand as necessary
- When harvesting rainwater, consider any potential risks: flooding, mosquitoes, soil oversaturation and erosion
- Desert rains tend to be heavy but short lived—perfect conditions for flooding. Make sure to size your rainwater harvesting systems accordingly. You should plan for extreme rain events and potential overflow.
- **Before you start digging, dial 811** to find out where the utility lines are located.
- Maintain your water harvesting system on a regular basis. Observe your landscape during a rain event to determine what works and what improvements might be needed.

Remember:

Planning ahead is essential to creating a successful water harvesting system that suits your lifestyle, climate, and landscape.

Key Terms in Water Harvesting

Rainwater harvesting, active. Water is captured and stored for later use.

Rainwater harvesting, passive. Water is stored where it falls and infiltrates into the ground.

Catchment. An area for collecting or holding water, such as a roof, storage container or pond.

Berm. An elevated path or mound of soil that slows, directs and/or collects water..

Basin. A depression dug to collect rainwater. Basins are also referred to as rain gardens.

Swale. A dirt channel for directing rainwater.

French drain. A hole or trench filled with gravel that distributes water in the ground.

Cistern. A water storage tank.

Greywater. Gently used water captured from bathroom sinks, showers, and washing machines. Greywater is suitable for non-potable water uses such as landscape irrigation.

Distribution system. A simple or complex system that directs the flow of harvested water.

Filter. A porous material that removes impurities as water moves through it.

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