

## Active Water Harvesting

Many practitioners separate water harvesting into two major categories—passive water harvesting and active water harvesting. Sometimes these two groups are called simple (passive) and complex (active) water harvesting. Very simply, passive water harvesting works by shaping the earth to slow the velocity of runoff, infiltrate it into the soil, and direct it to where it can be beneficially used by vegetation. Active water harvesting, in contrast, uses rain barrels, cisterns, and other types of containers to store rainwater for later distribution. The stored water can be used outdoors to irrigate vegetation or indoors for non-potable (toilet flushing, laundry washing) and potable (with extensive filtration and disinfection) uses. Active water harvesting systems can “extend” the rainfall season and maximize the use of collected water, but are also significantly more expensive than passive systems. The payback period for active systems can be quite long, especially in areas with low costs for water.

There are several components of an active water harvesting system. The first is the catchment system, usually a roof, from which runoff is collected. Second, active water harvesting requires a conveyance system to move water from the catchment into the storage container. In most residential and commercial applications, the conveyance system consists of gutters and downspouts. If the water storage is underground, the conveyance system would also include piping. The third component is the storage container itself. These can range from small, relatively inexpensive 50-gallon rain barrels to huge metal or concrete cisterns that can store thousands of gallons of water and that cost thousands of dollars. Lastly, active water harvesting requires a distribution system to move the stored water either to the landscape or indoor uses. The distribution system

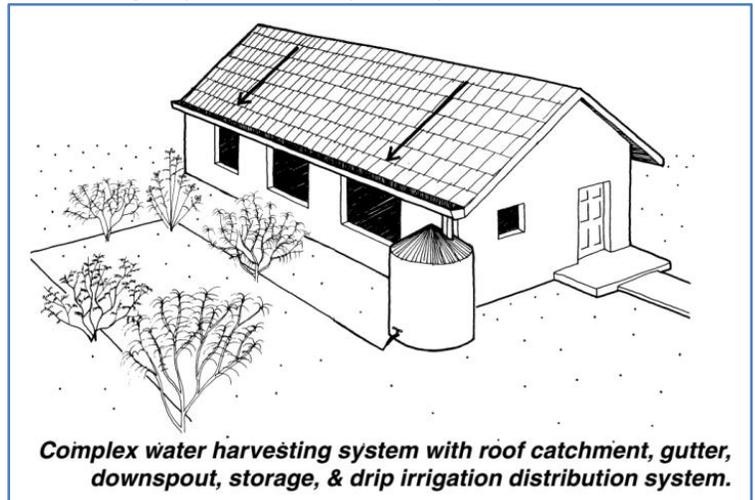


Figure 1: Image courtesy of "Harvesting Rainwater for Landscape Use" by Patricia Waterfall

can range from a gravity-powered hose to a more intricate setup involving pumps. Leaf screens and first-flush devices are strongly recommended. These types of devices help keep large debris and the most polluted first flush of rain from the storage tank. Optional system components include additional storage containers linked together, filtering mechanisms of various complexity, and automatic refill valves and other connections to a potable water supply.

### Further reading and resources:

- <http://wrrc.arizona.edu/publications/water-harvesting/harvesting-rainwater-landscape-use>
- <http://wrrc.arizona.edu/publications/water-harvesting/basic-components-rainwater-storage-system>
- <http://www.harvestingrainwater.com/rainwater-harvesting-inforesources/>