

Rainwater harvesting and automatic irrigation

What is it?

Rainwater harvesting is the process of collecting, storing and reusing rainwater for applications that do not require drinking water (treated water which is fit for consumption). Collected rainwater can be used for watering gardens. This can be done automatically using sensors / a timer, porous pipes or both, reducing the work needed to keep the garden healthy.

How would it work?

Rainwater can be collected using the existing roof drainage system. The water is diverted from the downpipe through a filter to remove large leaves and other debris, and then stored in a tank (on the ground or underground).

The stored water is pumped out of the tank for non-drinking uses, including flushing toilets, washing vehicles, gardening and washing clothes. If the tank is above ground, the water can also drip out of porous pipes to keep the ground moist.

What are the costs and benefits?

The cost for domestic rainwater varies depending on the design and scale.

A simple system can cost as little as £25 (for a 200L water butt). A readymade harvesting system for a single house with roof area of 100m² can cost around £2000 and £3000¹.

A simple automatic watering system with timers (for up to 20 pot plants) costs about £100².

Rainwater harvesting can help conserve water and reduce the use of tap water. Tap water is treated to drinking standard which needs chemicals, water and energy. Replacing tap water with rainwater can reduce the environmental impacts of water suppliers.

Source:

1. <https://www.renewableenergyhub.co.uk/rainwater-collection-cost.html>

2. <http://www.homebase.co.uk/en/homebaseuk/hozelock-20-pot-automatic-garden-watering-kit-100939>



Addressing worries

There is an overflow facility that will divert the rainwater to the drain if the tank is full. A well designed rainwater system will divert the overflow to the drain hence not causing flooding.

The water can then be distributed as needed around the garden, usually to an irrigation system and to garden taps. The tank can be fitted with a mains water back-up to ensure there is always adequate water for irrigation.

Wider impacts

Rainwater harvesting can reduce river pollution. Rainwater is collected with other wastewater (from kitchen and bathroom) and transported to the sewage plant for treatment. If it rains a lot, the sewage system can overflow into the river. Harvesting rainwater at a local level reduces the chance of sewage overflow.

