



The benefits of greywater recycling

What is greywater?

Any washwater that has been used in the home, except water from toilets, is called greywater. Dish, shower, sink, and laundry water comprise 50-80% of residential "waste" water. This may be reused for other purposes, especially landscape irrigation.

(This is the definition common in Europe and Australia. Some jurisdictions in the US exclude kitchen sink water and diaper wash water from their definition of greywater. These are most accurately defined as "dark greywater")

Why use greywater?

It's a waste to irrigate with great quantities of drinking water when plants thrive on used water containing small bits of compost. Unlike a lot of ecological stopgap measures, greywater reuse is a part of the fundamental solution to many ecological problems and will probably remain essentially unchanged in the distant future. The benefits of grey water recycling include:

- Lower fresh water use
- Less strain on failing septic tank or treatment plant
- Better treatment (topsoil is many times more effective than subsoil or treatment plant)
- Less energy and chemical use
- Groundwater recharge
- Plant growth
- Reclamation of otherwise wasted nutrients
- Increased awareness of and sensitivity to natural cycles

Why does greywater matter?

Viewed narrowly, greywater systems don't look that important. A low flow showerhead can save water with less effort. A septic system can treat greywater almost as well.

But when you look at the whole picture—how everything connects—the keystone importance of greywater is revealed.

- Ecological systems design is about context, and integration between systems. The entirety of integrated, ecological design can be reduced to one sentence: *do what's appropriate for the context*.
- Ecological systems—rainwater harvesting, runoff management, passive solar, composting toilets, edible landscaping—all of these are more context sensitive than their counterparts in conventional practice; that's most of what makes them more ecological.
- Greywater systems are more context sensitive than any other manmade ecological system, and more connected to more other systems.
- Get the greywater just right, and you've got the whole package right—and that matters.

Many people and organizations instinctively recognize that greywater is the ideal test case for the transition to a new way of regulating and building that is appropriate to a post-peak resource, mature civilization.

The US Green Building Council, the City of Santa Barbara, CA, Oregon ReCode, and SLO Green Build are among those organizations which independently chose greywater standards as the technology with which to launch their programs of regulatory reform.

Is greywater reuse safe?

Yes. There are eight million greywater systems in the US with 22 million users. In 60 years, there has been one billion system user-years of exposure, yet there has not been one documented case of greywater transmitted illness. (In contrast, 400 Americans get hit by lightning each year. More details, calculations and references).

Is greywater legal?

In practice, greywater legality is virtually never an issue for residential retrofit systems—everyone just bootlegs them. However, grey water legality is almost always an issue for permitted new construction and remodeling, unless you're in a visionary state such as Arizona, New Mexico, Texas (and soon, NV, MT, OR, and CA). For details see our greywater policy center and Builder's greywater Guide (book).

The benefits of greywater recycling (in detail)

Lower fresh water use

Grey water can replace fresh water in many instances, saving money and increasing the effective water supply in regions where irrigation is needed. Residential water use is almost evenly split between indoor and outdoor. All except toilet water could be recycled outdoors, achieving the same result with significantly less water diverted from nature.

Less strain on septic tank or treatment plant

Grey water use greatly extends the useful life and capacity of septic systems. For municipal treatment systems, decreased wastewater flow means higher treatment effectiveness and lower costs.

Highly effective purification

Grey water is purified to a spectacularly high degree in the upper, most biologically active region of the soil. This protects the quality of natural surface and ground waters.

Site unsuitable for a septic tank

For sites with slow soil percolation or other problems, a grey water system can be a partial or complete substitute for a very costly, over-engineered system.

Less energy and chemical use

Less energy and chemicals are used due to the reduced amount of both freshwater and wastewater that needs pumping and treatment. For those providing their own water or electricity, the advantage of a reduced burden on the infrastructure is felt directly. Also, treating your wastewater in the soil under your own fruit trees definitely encourages you to dump fewer toxic chemicals down the drain.

Groundwater recharge

Grey water application in excess of plant needs recharges groundwater.

Plant growth

Grey water enables a landscape to flourish where water may not otherwise be available to support much plant growth.

Reclamation of otherwise wasted nutrients

Loss of nutrients through wastewater disposal in rivers or oceans is a subtle, but highly significant form of erosion. Reclaiming nutrients in grey water helps to maintain the fertility of the land.

Increased awareness of and sensitivity to natural cycles

Greywater use yields the satisfaction of taking responsibility for the wise husbandry of an important resource.