

Oregon opens the tap wider for recycling gray water as demand grows, supplies wane

by Melissa Repko, *The Oregonian*

Oregonians have long recycled bottles, paper and cans.

But now water?

Yes, the estimated 40 gallons a day per person that drains from the shower, kitchen sink, washing machine. It is known as gray water, and all of it could water the lawn, the vegetable garden -- or go into the toilet tank for a "free" flush.

That's if Oregon, which faces a population surge in a time of uncertain water supplies, follows the example of water-starved cities such as Tucson, Ariz., which requires many new structures to be plumbed to make use of gray water.

Plumbers here have been able to install gray water systems for toilet flushing only since 2008 -- and it's hardly a common practice. But now Oregon has taken its first steps to expand gray water's reach in homes and businesses.

The Legislature this year passed a law that defines gray water for both indoor and outdoor uses -- a key move toward wider use of gray water. And the state's Department of Environmental Quality will form an advisory board to weigh public safety, and technical and environmental considerations as it relates to outdoor uses of gray water -- with the hope that a permit for such applications will be available in two years.

"You're seeing an increasing awareness of water conservation," says Andrea Simmons, acting deputy administrator of the Building Codes Division. "It is becoming more and more of a focus of discussion in Oregon."

But can we get past the "ick" factor? Gray water, it turns out, is neither all gray nor all dirty.

A mild filtration system sweeps out some dirt and contaminants from gray water before it is reused. And while filtration does not bring water up to drinking-water standards, gray water does not have a noticeably different effect on soil quality than potable water, according to studies by the Water Conservation Alliance of Southern Arizona (Water CASA) at the University of Arizona.

Many natural contaminants from animals, pollutants and insects can be found in soil, says Water CASA Director Val Little, minimizing the impact of particles that might be in gray water.

That means a tomato from a plant fed with gray water will be as succulent and nutritious as one from its tap-fed neighbor.

Cost will be a factor, however.

For the time being, Oregonians must jump a number of often pricey hurdles to tap into gray water. Indoor plumbing must meet state standards, but mass-produced, gray water-compatible plumbing systems can be hard to find. Outdoor gray-water use, even to just water tomato plants or flowers, remains illegal.

The exception to the rule is for residents who drain to a qualifying septic system. But very few, if any Oregonians, have such septic systems, according to the DEQ, but the new permit process will seek to address that limitation.

While a handful of states, including Arizona and New Mexico, have progressive gray-water regulations, most others are far behind. Gray water has already caught on in Australia and United Arab Emirates. But as climate change and population growth threaten the world's water supply, the U.S. -- especially water-starved states -- may be forced to play catch-up.

At least 36 states are expecting local, regional or statewide shortages by 2013, according to the U.S. Environmental Protection Agency, which will make water an increasingly expensive commodity.

California and Washington join Oregon in working to implement greater use of gray water.

So the change will be slow and hard, at first, to measure.

"We're talking a drop in the bucket in the foreseeable future," says Stephen Behrndt, waste-water operations group manager for Portland. "But it depends how far down the road we're looking."

Brenna Bell, an activist and leader of a gray-water advisory board that pushed for the recent legislation, says other states have had "more of an urgency" to solve water shortages. "Oregon is just on the cusp of starting to feel that urgency," she added.

Arizona has long been considered the trailblazer on gray water. Since 2001, Arizona residents have had an "implied permit" to use up to 400 gallons of gray water a day. In an arid state, gray water comes in handy for watering thirsty plants.

Mark Shaffer of the Arizona Department of Environmental Quality says gray-water use quickly picked up steam as water prices shot up -- especially in Tucson.

Now, gray-water use in Arizona is considered mainstream, says Little.

Arizona offers tax credits for gray-water construction projects and plumbing systems. Starting next year, all houses built in Tucson must have gray-water-friendly plumbing. Arizona homebuilders build with an anticipated home buyer question in mind: "Are you plumbed for gray water?"

With different soil types and water supply, Oregon may have fewer incentives. Yet Clark Brockman, an architect at the sustainability-driven firm SERA and former chair of the Cascadia Region Green Building Council Board of Directors, says it's not too late for Oregon to be a gray-water trendsetter.

"Whatever we do here that is a success story will get broad uptake because we're already under a microscope," he says. "Gray water is one way for us to continue our legacy of leadership in sustainability and conservation."

The Cascadia Region Green Building Council set a Living Building Challenge that would require a building to be net-zero in use of energy and water, and production of waste -- a rigorous standard that has yet to be met. A net-zero or water-independent building meets all water needs with rainwater and gray water, recycling all sewage and storm water through its own filters.

These incredibly high standards may provide a glimpse of where Portland, the state and the country may be heading -- if environmental advocates have anything to say about it.

Eli Spevak, the owner of Portland-based Earth-conscious house developer Orange Splot, is one such advocate. When building eco-friendly cottages, he sought a way to minimize water waste.

Spevak looked for a plumbing system that drained sink water into the toilet. After a fruitless search, he hired someone to build his own.

"I've always been around thrifty habits for water and energy use," he says, recalling his mother collecting water from the sink and shower to use in the garden.

Without competitively priced and readily accessible products on the market, though, Spevak says gray water may not catch on. He said the products need to be so mainstream that they are on the shelves at Home Depot.

Brockman predicted that water use will increasingly become a global concern, deeming it "the next oil."

"What we want to do is to have the whole world, but especially America, to see gray water as a unique resource," Brockman says. "We want to raise drinking water to a higher profile resource, as a precious resource."

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