



GRAYWATER: AN UNDERUSED RESOURCE

Graywater is a “new” water resource that could provide a relatively quick, inexpensive and easy way to extend Texas water supplies. It is ready to use at our homes, where it is produced.

Graywater is water captured from the clothes washing machine, bathroom sink, shower and bathtub. According to the Uniform Plumbing Code, a typical household produces 100 gallons of usable graywater per day. Dr. Raul Cabrera of the Texas A&M AgriLife Research and Extension Center at Uvalde, in research funded by the Rio Grande Basin Initiative, has said that amount of water could replace 10 percent to 25 percent of the potable water used on a typical Texas landscape.

My calculations show that a statewide push to retrofit 3.9 million homes to use 33 gallons of graywater a day would produce around 390,000 acre-feet of water per year. That is an impressive amount of water.

Another impressive number — an impressively low one — is the cost of retrofitting a home for graywater use as demonstrated at the Mitchell Lake Audubon Center in San Antonio. The common perception is that retrofitting a home for graywater is expensive. But at the center, Mike Martin of the Texas Center for Applied Technology in the Texas A&M Engineering Experiment Station (TEES) has shown that a homeowner could perform a retrofit for between \$100 and \$500. That is a small expense to supply 100 percent of the water needed for a low-water-use landscape or 15 percent of the water needed for a typical lawn.

Despite a body of scientific evidence that says graywater is safe for landscape use, regulatory officials and the public still have questions about its safety. The Water Conservation and Technology Center and a team of TEES engineers and researchers are working on a graywater initiative to address these questions. They are reviewing available research and identifying gaps in confirming the safety of graywater use. In addition to filling gaps in the science, this team is working to enhance adoption by delivering timely, easy-to-understand materials to the public, policy makers, city officials and others. The graywater initiative will need a major education component to be successful.



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For example, water purveyors have questions about how a large-scale graywater program will affect sanitary sewer operations and existing recycled water (treated wastewater) programs. Homeowners and regulators also want more information on graywater retrofit and irrigation application options. Considerable research already exists on plant and soil responses to graywater, but it needs to be reviewed, organized and presented in an easy-to-use format for consumers. Finally, further research is needed on how graywater, air-conditioner condensate and harvested rainwater can be used together.

The lack of knowledge and the perceived issues that exist with graywater use are reflected in the attitudes of many local regulators and in the ordinances that govern graywater use in their cities.

In 2003, Robert Puente, then state representative from Bexar County, authored HB 2661. The bill was designed to liberalize the use of graywater and exploit its full potential. Unfortunately, the intent of HB 2661 was never communicated to homeowners who might consider using the resource. It is unclear whether communities’ regulations are much more limiting than needed or whether reasonable regulations are interpreted in ways that are not supportive of graywater use. The local ordinance and interpretation situation is an important factor that needs addressing if graywater use is to reach its full potential.

The average cost to build a reservoir is about \$500 per acre-foot, not including the first year the reservoir is online, which costs \$1,000 per acre-foot. If, as projected, a statewide graywater initiative could produce 390,000 acre-feet per year at an average of \$300 per acre-foot, then it should be pursued. 