

Make Every Drop Count In The Home

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Introduction

This program focuses on how water is used in homes, why efficient use is needed, and ways to use water more efficiently. Efficient water use can help preserve the quality and quantity of available water, may reduce energy and water use and reduce or slow household increases in utility costs. This program focuses on in-house use.

Other resources for your use in addition to the participants' publication:

- *Make Every Drop Count In The Home* PowerPoint available at: <http://communityprograms.unl.edu/programs.html>
- Evaluation instrument. Also available at: <http://communityprograms.unl.edu/programs.html>

Activity 1: Questions to start the discussion

- What is the source of the water used in your home?
- What happens to the water used in your home? Where does it drain?
- How does water and wastewater reduction impact the community? The environment?
- What are ways to reduce water use?
- If you have water-saving equipment, does the equipment work well?

Water use

Water is a finite resource. Only about 1 percent of the world's water is available for human use. A recent U.S. Government survey of water managers indicated that 36 states anticipate local, regional or statewide water shortages by 2013. Many areas already face water shortages according to the Environmental Protection Agency (EPA, 2006).

In some communities, household water use is increasing due to increasing population, increased showering, yard maintenance, and wasteful or inefficient practices. Total water use from the public supply has tripled since 1950, from 14 billion gallons per day (gpd) in 1950 to 43 billion gpd in 2000 (US Geological Survey, 2000). Although estimates vary, each person uses about 80-100 gpd and spends about \$500/year on water and sewer bills (EPA, 2007a). Costs have been low. Water availability, upgrading the aging water and wastewater infrastructure, and adopting new

technology to ensure quality water will increase rates, which are expected to double in some communities.

Average U.S. household spending for water and wastewater compared to other spending

<i>Water and wastewater</i> ¹	<i>Soft drinks/ beverages</i> ²	<i>Bottled water</i> ³
\$474/yr.	\$707/yr.	\$564/yr.

¹Holly Stallworth, Ph.D., EPA Office of Water economist. Raftelis Financial Consulting *2002 Water and Wastewater Rate Survey*.

²Holly Stallworth, Ph.D., EPA Office of Water, from *Beverage Digest Fact Book*, 2002. Available at www.beverage-digest.com

³Chermak, J. M., & Hansen, 2005, Oct. *Water Rates and Affordability*.

Similar water use patterns are reported for individuals with private water supplies. Managing and operating the drinking water and onsite wastewater systems, upgrading older systems, voluntary testing of water quality and possible water treatment contribute to the cost.

Activity 2: Nebraska Household Case Study

The Smith's two-person household lives in a community of 2,000 people. Their water bill, including the base and use rate for June 2007, was \$75.50 for wastewater treatment and \$31.75 for water use plus tax for a total of \$124.49. Recently, the aging wastewater treatment system was replaced to comply with increased demand and to meet guidelines for water protection and treatment. Another water tower was added to provide for the additional growth that has occurred. The total costs were about \$6 million.

If this is a typical monthly bill in this community, what is the yearly cost? Discuss how the overall water use could be reduced, and thus the wastewater amounts, if this was your situation in your community. Water rates also are affected by a community's ability to qualify for grants and low-interest loans for infrastructure. Efficient water use practices can help hold rates down.

What can we do?

Water use can be reduced by increasing the efficiency of our appliances and equipment and changing our practices. A study by the Center for Ecology and Hydrology in the United Kingdom ranked the U.S. last out of 147 countries in efficient water use. The American Council for an Energy-



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Efficient Economy (ACEEE) indicates switching to water-efficient toilets, showers and clothes washers could result in a household water savings of about 30 percent. If you treat water, consider systems that treat water on-demand rather than on scheduled timed settings to save water.

Toilet — Using low-flow toilets could cut the U.S. total 4.8 billion gpd for flushing to about 1.5 billion gpd. Replacing standard 3.5 gallon toilets with 1.6 gallon toilets would save an average household 12,000 gallons of water per year. Older, conventional toilets use about 33 percent to 44 percent of the total household water consumed while more efficient toilets can reduce the amount to about 18 percent of the total household water used.

Washing Machines — Most EnergyStar-rated clothes washers use about 18 to 25 gal./load compared to the normal 40 gal./load. Although front loaders generally use less water (and energy), newer top-loading washers reduce water use through high-pressure sprays, sprays from above and changes in the way water moves through the clothes.

Activity 3: Could we do better?

Calculate the number of wash loads per week done in your household assuming all loads are full loads. Take the full loads number times the average 40 gallons used per load to obtain gallons per week. Multiply the total gal./week by 52 weeks to obtain the total gal./year. Do the same for a high-efficiency washer that uses about 20 gal./load. Compare the difference.

<i>Normal Clothes Washer</i>	<i>More Water-Efficient Clothes Washer</i>
# ____ loads/wk. x 40 gal./load	# ____ loads/wk. x 20 gal./load
= ____ total gal./wk.	load = ____ total gal./wk.
Total gal./wk. x 52 weeks =	Total gal./wk. x 52 weeks =
____ gal./yr.	____ gal./yr.

As of 2000, there were 666,184 households in Nebraska. If everyone reduced their use by 20 gal./week resulting in 1,040 gal./year saved, how many total gallons of water would be saved in Nebraska? How many households are there in your community? How many total gallons would be saved if everyone in your community reduced water consumption by 20 gal./week?

Nebraska households: 666,184 x 1,040 = _____ gallons of water reduced per year if each household reduced by 20 gal./week.

Number of households in your community: _____ x 1,040 gal./year = _____ total gal./year saved in your community.

Washing machine efficiency is also important for rural residents. Reducing the amount of water used for wash loads, and distributing the flow to a septic tank over an extended period of time will extend the life of a system.

Shower/Bath — A five-minute shower uses about 10 to 25 gallons. Some showerheads use less than 2 gallons per minute. According to the ACEEE, conserving water while showering can reduce use by about 14,000 gallons a year per household.

Faucets — New faucets are required to not exceed 2.2 gal-

lons per minute (gpm) water flow. If all the U.S. households used water-efficient faucets or faucet aerators, the savings would be about 60 billion gallons of water per year (EPA, 2007c).

Activity 4: Drips lose gallons

To calculate gallons lost per year by leaking faucets, go to the U.S. Geological Survey Drip Accumulator Web site at <http://ga.water.usgs.gov/edu/sc4.html> and insert the number of faucets that are leaking and number of drips/minute.



Water Sense Certification

— The new EPA-sponsored voluntary program uses the WaterSense label to indicate that a product or service is about 20 percent more water-efficient than its counterparts. The purpose is to help consumers decrease water use, make decisions about products, and encourage innovation by manufacturers.

Standards are developed for high-efficiency bathroom sink faucets, faucet aerators, and for showerheads. As more standards are approved, more products will have the WaterSense certification label.

Activity 5: Go surfing

Go to www.h2ouse.org/ for a home tour and for ideas of ways to use water more efficiently, new developments and selecting equipment

Resources

- American Water Works Association, (2007). Water Wiser Water Efficiency Clearinghouse. Available at www.waterwiser.org
- EPA, (2006). Varney, R. EPA's New Program to Sustain Water Resources: WaterSense Seeks to Enhance Consumer Market for Water Efficiency. Available at http://www.epa.gov/region01/ra/column/archive/2006/watersense_20060919.html
- EPA, (2007a). Water Sense: Benefits of Water Efficiency. Available at www.epa.gov/watersense/water/benefits.htm
- EPA, (2007b). Simple Steps to Save Water. Available at www.epa.gov/watersense/water/simple.htm
- EPA, (2007c) Water Sense: High-Efficiency Bathroom Sink Faucet Specification. www.epa.gov/watersense/docs/faucet_suppstat508.pdf
- USGS, (2000). Water Use in Nebraska. Available at <http://ne.water.usgs.gov/wudatacat.html>

Reviewers

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Make Every Drop Count In The Home

Personal Commitment and Program Impact Evaluation

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As a result of participating in the program “Make Every Drop Count In Your Home,” you may have identified one or more changes you would like to make in how you manage water. If so, make a personal commitment with yourself to make those changes. To do so, *complete the first column only* of the form below. *Two months from now*, complete the second and third columns and mail the form to your local Extension Educator or to:

Shirley Niemeyer, Extension Specialist
P.O. Box 830804, University of Nebraska–Lincoln,
Lincoln, NE 68583-0804

Practice	As a result of participating in Make Every Drop Count In Your Home, I will do the following (check all that apply):	Two months after participating in the program, I DID the following (check all that apply):	Two months after participating in the program, I still plan TO DO the following (check all that apply):
Install low-flush toilets.			
Displace some water in toilet tank with plastic container or toilet dam.			
Check toilets for leaks, replace flapper if necessary.			
Install high-efficiency clothes washer.			
Wash only full loads of laundry.			
Adjust water level when washing small loads.			
Install low-flow showerheads.			
Take quick showers.			
Shut off water flow in shower while soaping or shampooing.			
Use lower water level in bathtub.			
Install efficient faucets or aerators.			
Shut off flow to faucets while lathering, brushing teeth, and shaving.			

Practice	As a result of participating in Make Every Drop Count In Your Home, I will do the following (check all that apply):	Two months after participating in the program, I DID the following (check all that apply):	Two months after participating in the program, I still plan TO DO the following (check all that apply):
Keep water in refrigerator for cold drinks.			
Check faucets for leaks, replace washers as needed.			
Use garbage disposal sparingly.			
Install water-efficient dishwasher.			
Wash only full loads in the dishwasher.			
Adjust soil level setting when washing small loads of dishes.			
Scrap soil off dishes instead of rinsing before putting them in the dishwasher.			
Rinse with spray attachment as needed when washing dishes by hand.			
Other:			

THANK YOU!

Please fill this form out at the end of the program and keep it. Then, one to two months later, use the form again and check off what you have actually done or still plan to do. Return the form to your local extension educator or to Shirley Niemeyer, Extension Specialist, P.O. Box 830804, University of Nebraska–Lincoln, Lincoln NE 68583-0804.

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