



UNIVERSITY OF
FLORIDA

FCS3233

EXTENSION

Institute of Food and Agricultural Sciences

The Conservation Balancing Act: Part II. In the Bathroom¹

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The Situation

Conservation is everybody's business. The big questions are: When? How much? What do I have to give up? The answer may be to get into **The Conservation Balancing Act**. Learn what waste is and you may be able to conserve more water and the energy required to heat water than you think without sacrificing the benefits.

It may be no surprise, but: *Most of the water used in the home is used in the bathroom*. Because a lot of warm and hot water is used, a lot of energy is used as well. Let's take a good look at this use of water and energy as we consider how we can conserve, but still get the benefits we need.

The modern bathroom is about aesthetics and personal hygiene. Millions of people alive today owe their sight, their health, their very lives to such trivial things as soap, laundry detergent, plumbing and plenty of water in their bathrooms. We can see people in television news dying of plagues and contagion because they are driven from their homes and the ability to protect themselves with cleanliness.

In the United States today, clean people and clean surroundings are so well accepted that it is hard to

imagine an era when this was not the case. Access to clean air and water are assumed to be inalienable rights. Litter-free streets and public garbage disposal are accepted as responsibilities of local governments. Showers, toilets, baths, detergents, soap, laundries, dishwashers, and vacuum cleaners are indispensable features of our lives. We associate them with good health, good manners, good rearing, good housekeeping, and civilization.

But Consider: The processes we use to achieve personal hygiene and cleanliness require a lot of water and heat energy. Our water and energy use are becoming costly to our environment as well as to our pocketbooks. We need to capture an informed conservation conscience that will master our use of water and energy.

Water and Energy Facts for the Bathroom

Certainly our personal hygiene and health are worth protecting from disease, uncontrollable plagues and contagion. We are going to identify the waste and misuse we can reduce. That will be of great importance. We will identify bathroom water use that can provide the most savings for our pocketbooks and the environment.

1. This document is FCS 3233, one of a series of the Department of Family, Youth and Community Sciences, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Publication date: January 2001. First published: September 1994. Reviewed: January 2001. Please visit the EDIS Web site at <http://edis.ifas.ufl.edu>

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Table 1 **provides some estimates of the cost of water use and the cost of energy to heat water.**

Consulting the Table, we learn that a family of four can spend over \$400 for showering annually for water, wastewater, and the electricity to heat the water in their bathrooms (\$58 with a gas water heater) -- or they can spend as little as \$243 using a low-flow showerhead to get the same results (\$32 if gas water heater).

First notice how much more it costs to heat water if you have an electric water heater. If you have an electric water heater saving on your electricity bill is very important. But even with a gas water heater, it is possible to save more than \$35 a year by cutting down on water use.

As you look further you can see some interesting things you may never have considered: If your bill for water and treating wastewater are in the same bill, the wastewater costs can be almost double the cost of water alone. And you often must pay for treating all water you buy, even if it doesn't go into your drain. So for all uses of water, even water for watering your lawn, a cost will be charged for wastewater treatment.

Shower heads installed several years ago may use as much as 6 gallons of water a minute. Studies show water and water heating costs for families with teens are often much higher than for other families. Teens can spend a lot of time showering, washing hair and grooming. They are also more environmentally conscious than a generation ago. With sound information, they are likely to be strong proponents of water and energy conservation. Educating the family is an important step in conserving water and energy. Everyone can form the habit of using less water and energy when showering, bathing, and shampooing.

Your Conservation Balancing Act

When Building or Remodeling

- Buy new water-conserving toilets. With them each person can save up to 7500 gallons/year. (A family of four can save 30,000 gallons/year.)

- Buy new water-conserving shower heads. One person can save 1,000 gallons/year. (A family of four can save 4,000 gallons/year.)

When Showering

Consider annual water use and cost. If anyone in your family indulges in 10 minute showers, have them consider alternatives: A shorter shower. A Navy shower where you wet down, turn off water to suds, then rinse off. Consider getting a low-flow shower head. Cold showers are great in Florida in the summer.

- Take cooler showers. Save water and time. No running water to get it hot -- no waiting. One person can save 3 million BTUs/year. (A family of four can save 12 million BTUs/year -- a lot of gas or electricity.)
- Install a low-flow shower head. It will provide water at a slower rate. (A family of four can save 30,000 gallons of water a year)
- Take a "Navy" shower. A 10-minute shower uses as much as 60 gallons. A "Navy" shower (get wet, turn off shower, suds up, then turn on shower just to rinse off) uses as little as 3 gallons. One person can save 15,000 gallons/year. (A family of four can save 60,000 gallons/year.)
- Take cold showers. In the summer in Florida water is refreshing -- not too cold. (Save all the heating costs.)

The Bathtub

You can get clean in a half-filled bathtub. There is a time for a comforting, soaking warm bath, but for a daily bath, make it short. (One person in a family can save up to 4500 gallons a year.)

At the Sink

- Low-volume faucet aerators mix water and air and cut consumption in half. They are easy to install, cost about \$2 and cut out splashes. (A way for a family of 4 to save on water at the sink.)

- For shaving, partially fill the sink basin, clean your razor by dunking.
- Don't let the water run while brushing your teeth. Rinse it with bursts of water or in water in a glass. (A family of 4 can save 3000 gallons of water a year.)

The Toilet

- Put a water-filled one-gallon plastic bottle in your toilet reservoir where it will not interfere with the moving parts of the flushing mechanism. When flushing, the bottle holds back the water it displaces. Plastic milk bottles are free and unlike bricks, will not disintegrate in water and will not break the toilet reservoir if accidentally dropped. Or use a toilet dam. One person can save 2500 gallons of water. (A family of four can save 10,000 gallons/year.)
- Don't use the toilet as a trash can. Doing this once a week can use more than 2000 gallons of water.
- Check and correct toilet leaks. A hissing sound in the toilet usually means a leak. A running toilet can waste as much as 6,000 gallons of water monthly. An easy way to find out is to put a little food coloring in the tank. If the color appears in the toilet bowl before you flush, your toilet has a leak that needs repairing.
- All new toilets will be designed to use less water. Check carefully to get a water conserving toilet when building or remodeling.

Remember: When you save water, you are saving the energy to produce that water. When you save energy, you are saving the water required to produce that energy.

THINK EFFICIENCY -- Say YES to personal hygiene and cleanliness, but save water and energy. You will save money, too.

Table 1.

Avoiding Bathroom Water and Energy Waste						
	For One Person		Family of Four		Cost Per Year -- \$	
	Times Per Day	Gallons Per Year	Water	Waste Water	Energy w/ Elec. Water Heater	Energy w/ Gas Water Heater
Flushing						
6 gal	7	15,330	\$61.32	\$116.51		
3 gal	7	7,665	\$30.66	\$58.25		
Showering Warm -- Normal Shower -- 5 Gal/Min						
10 min	1	18,250	\$73.00	\$138.70	\$405.38	\$53.59
3 min	1	5,475	\$21.90	\$41.61	\$121.61	\$16.08
Navy (3 gal)	1	1,095	\$4.38	\$8.32	\$24.32	\$3.22
Showering Warm -- Low-Flow Shower -- 3 Gal/Min						
10 min	1	10,950	\$43.80	\$83.22	\$243.23	\$32.15
3 min	1	3,285	\$13.14	\$24.97	\$72.97	\$9.65
Showering Cold -- 3 Gal/Min						
10 min	1	10,950	\$43.80	\$83.22		
3 min	1	3,285	\$13.14	\$24.97		
Bathing Warm						
Full Tub -- 30 gal	1	10,950	\$43.80	\$83.22	\$243.23	\$32.15
Half-full Tub -- 15 gal	1	5,475	\$21.90	\$41.61	\$121.61	\$16.08
Brushing Teeth						
5 gal	2	3,650	\$14.60	\$27.74		
2 gal	2	1,460	\$5.84	\$11.10		
Shaving (One Person)						
5 gal	1	1,825	\$1.83	\$3.74	\$10.13	\$1.34
2 gal	1	730	\$0.73	\$1.39	\$4.05	\$0.54
Washing Hair						
10 gal	2 times/wk	1,040	\$4.16	\$7.90	\$23.10	\$3.05
5 gal	2 times/wk	520	\$2.08	\$3.95	\$11.55	\$1.53