

Module 4

Household Water Budget Assignment

For one week, monitor your household water usage. You first need to list all of your water-using activities inside and outside your home, including bathroom faucets, showers, toilet flushing, kitchen faucet, dishwasher, laundry, all located in the house, plus outside irrigation of landscaping.

The next step will be to determine the flow rates, or other unit usage for each activity (such as gallons per minute for faucets, gallons per flush, and gallons per washer load). The easiest way is to measure the flow rate from the faucets and shower heads by running the flow at the rate you normally use into a small container that you can measure the volume for a short time (a few seconds, depending on the rate). As an example, if a shower fills a one quart container in 5 seconds, the flow rate is 3 gallons per minute: one quart is 0.25 gal and there are twelve 5 sec time periods in a minute, and 0.25 of 12 is 3 gal/min. For batch processes (toilet flushing, laundry or dishwasher), you need to determine the amount used from the manufacture's supplied information (users manual, calling the manufacture, looking at their web site), or to estimate it based on typical lists. As an example, new low flush toilets typically use about 3.5 gallons per flush, while older toilets use 5 to 7 gallons per flush. Laundry wash machines use about 25 gallons on low-level settings, and up to 50 or 60 gallons on the high water level setting. Dishwashers use from 5 to 20 gallons per use, again depending on settings.

The final step (and main part of the assignment) is to keep track of your water use for every day for one week. The most straight-forward way to do this is to list the separate points of use downward on a table and each day as a separate column. Then mark the minutes, or number of uses, in the table.

I would like a simple summary of your use, especially the total water use, in gallons per day per person, and a description of your household (at least describing the participants in the assignment). Also identify the most important uses, and how your water use varies for different days of the week, and how your household compares to typical US household water use. Finally, what can be done to reduce your water use, and how much water (and utility bill savings) would be possible with more careful use of your household water, and the use of conservation aids (as an example, residential water costs from your water bill may be \$1.02 per 100 ft³ of water, or 748 gallons; this is equivalent to \$1.36 per 1,000 gallons; there is also a set "meter" fee per month, and the unit cost of the water actually increases slightly with increasing use). By the way, average residential water use in the area is about 1300 ft³ per month, or 9700 gallons per month, per household.