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Home Water-Saving Methods

The earth's total water volume is constant—none is gained or lost. Water goes through a continuous, hydrologic cycle of precipitation, infiltration, runoff, evaporation, and transpiration by plants. However, unequal distribution of rain at any given time or location can create shortages. Surface water storage is usually uneconomical for extreme droughts. Variation in precipitation affects surface water supplies immediately. Groundwater is affected more slowly, but will be reduced by extended drought.

Average home water use varies from 50 to 100 gallons per person per day. The greatest water use is in the bathroom; laundry use ranks second. Water conservation is important during drought periods, or whenever use strains the supply in an overpopulated area.

Water-Saving Devices and Appliances

By selecting and installing water-saving devices and appliances, you can reduce water use in new homes. In existing homes you can modify the water fixtures in place to reduce water use. Following is a list of suggestions to reduce water use.

Faucets and showers—Most faucets and showerheads discharge more water than necessary under normal pressure. Adding a flow reducer in the water pipe, a low-flow fixture, or an attachment to the existing fixture reduces water use.

Toilets—Most older toilet tanks hold more water than necessary. Filling plastic bottles with water and placing them in the tank reduces volume of water while maintaining a depth necessary to provide proper flushing velocity. Do not use bricks, since they can crack the tank if dropped, or a brick may disintegrate and cause plumbing problems. Toilets are commercially available with modified bowls and traps that require less water. Current regulations require that new fixtures use 1.7 gallons per flush or less.

Pressure-reducing valves—Too much pressure causes high flow rates and wastes water. A pressure-reducing valve maintains an adequate water-supply pressure of 50 pounds per square inch. Older homes, where hard water has left mineral deposits in the pipes and reduced their diameters, may need higher pressure.

Hot water pipe insulation—Leaving a hot water faucet running to carry hot water to the tap wastes water and energy. Insulating hot water pipes reduces this waste.

Point-of-use water heaters (instantaneous)—Installing these separate units beneath the kitchen and bathroom sinks gives you instant hot water and also saves water and electricity. You don't have to run the tap to wait for the water to get warm. Sizes typically vary from 2 to 4 gallons. The heaters operate on normal house voltage (120V), propane, or natural gas.

Dishwashers and automatic clothes washers—Water-saving models substantially reduce water consumption. Modifying older appliances is usually not practical.

Water-Saving Tips

A water faucet left running can use 20 gallons of water while you shave, 10 gallons while you brush your teeth, and 2 gallons while you wash your hands. A continuous shower requires up to 12 gallons per minute, and a full bathtub uses 36 gallons. Wetting down, soaping up, and rinsing off rapidly uses only 4 gallons. Water at a minimum level in a bath uses only 10 to 12 gallons. Automatic dishwashers use up to 16 gallons of water; washing dishes by hand in a sink or dishpan requires only 5 gallons.

Read the meter on a day when water will not be used, and check it later to see if the dial has moved to detect leaks in the service pipe from water meter to the house. Put food coloring in the toilet tank and observe whether it appears in the bowl later to

detect leaks in the intake valve or plunger ball. Food coloring, however, can stain a chipped or badly worn bowl. Another method is to shut off water to the tank and note the water level in the tank. Several hours later, recheck for a lower water level.

Periods of critical water shortages demand better water-use management, perhaps even water rationing. Many water-use practices and habits reduce water consumption without threatening health, comfort, or productivity. In addition to the devices previously discussed, use the following methods of water conservation.

In the Home

- Take showers of 2 minutes or less. Run water only for wetting down and rinsing.
- Minimize rinsing before using dishwasher.
- Run only full loads in dishwasher and (clothes) washing machine.
- Use appropriate water-level setting on an automatic washer.
- Wash dishes by hand in a sink or a dishpan.
- Rinse or wash fruits and vegetables in sink water.
- Use the garbage disposal as efficiently as possible.
- Thaw frozen foods in the refrigerator.
- Loosen ice cubes by removing the trays a few minutes before they are needed.
- Keep a covered container for cool drinking water in the refrigerator.
- Repair faucets and toilets promptly.
- Clean sidewalk, driveway, and patio with a broom rather than by hosing off.
- Use a bucket for soapy wash water and rinse quickly with a hose when washing house windows or a car.
- Save bath, shower, and laundry water for toilet flushing if water is in extremely short supply.
- Prevent children from playing with water.

In the Garden

- Use a high-pressure, low-volume, pistol-grip hose nozzle.
- Plant hardy varieties of grass, trees, shrubs, and flowers that require minimum water. Native plants are best suited to our climate.
- Remove weeds and other moisture competitors.
- Sprinkle in calm, cool weather.

- Water early in the morning to reduce evaporation losses. An occasional, ample watering is more effective than numerous, superficial waterings.
 - Use trickle or drip irrigation systems for watering trees, shrubs, hilly areas, or widely spaced plants.
 - Before using “gray” water from tubs, basins, and laundry for lawns, call your health department or district for local restrictions. This use is not allowed in many areas of Washington state. If use is allowed, distribute uniformly. Use detergents and chemicals sparingly. Sprinkle lawn lightly with clean water to rinse soap film from leaves.
 - Collect runoff from roofs and paved areas for garden use.
 - Use surface mulch around trees, shrubs, flowers, and garden crops to reduce evaporation loss.
 - Replace some lawn with gravel, stone, bark, or paving.
- Common sense and an active concern to save water reduce consumption markedly without sacrificing cleanliness or interfering with your lifestyle.

WATER USE COMPARISON

Device	Standard	Improved Efficiency
Tank toilet	5-7 gallons (19-26 liters)/flush	1.6 gallons/flush
Shower	Up to 12 gallons (45 liters)/minute	2.5 gallons (11 liters)/minute
Kitchen and lavatory faucets	Up to 5 gallons (20 liters)/minute	1.5 gallons (5.7 liters)/minute
Pressure-reducing valve	80 pounds /square inch (550 kilopascals)	50 pounds /square inch (340 kilopascals)
Hot water pipe insulation	Not insulated	Insulated
Automatic clothes washer	27-54 gallons (100-200 liters)/load	16-20 gallons (60-75 liters)/load
Automatic dishwasher	7.5-16 gallons (28-60 liters)/load	7.5 gallons (28 liters)/load

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