

CE 474/574 Water & Wastewater Treatment

Water Use

On average, our society uses almost 100 gallons of drinking water per person per day. Traditionally, water use rates are described in units of gallons per capita per day (gpcd), gallons used by one person in one day. Of the "drinking water" supplied by public water systems, only a small portion is actually used for drinking. As residential water consumers, we use most water for other purposes, such as toilet flushing, bathing, cooking, cleaning, and lawn watering. The amount of water we use in our homes varies during the day:

Lowest rate of use - 11:30 p.m. to 5:00 a.m.

Sharp rise/high use - 5:00 a.m. to noon. (Peak hourly use from 7:00 a.m. to 8:00 a.m.)

Moderate use - noon to 5:00 p.m. (Lull around 3:00 p.m.)

Increasing evening use - 5:00 to 11:00 p.m. (Second minor peak, 6:00 to 8:00 p.m.)

The United States uses more water than other countries, even those that are equally well developed. In the United States significant amounts of water are used for lawn and garden irrigation, automobile washing, and kitchen and laundry appliances, such as garbage disposals, clothes washers, and automatic dish washers.

Water Use In Different Countries

Country	Annual Water Use (gal/capita)	%-age of Total Water Use by Category: <u>Residential</u>	<u>Industry/Agriculture*</u>
United States	525,000	10	90
Canada	310,000	13	87
Belgium	221,000	6	94
India	132,000	3	97
China	122,000	6	94
Poland	112,000	14	86
Nicaragua	72,000	18	82
Malta	16,000	100	0

* Includes water used for electrical power and for cooling. Source: Van Der Leeden, F., F.L. Troise, and D.K. Todd. *The Water Encyclopedia*, Lewis Publishers, Inc., Second Edition, 1990.

We use tap water for various purposes. A typical family of four on a public water supply uses about 350 gallons per day at home. In contrast, a typical household that gets its water from a private well or cistern uses about 200 gallons for a family of four. In our communities an additional 35 gallons of water per person are used for public activities such as fire fighting, street washing, and park maintenance.

Commercial and industrial businesses may also place heavy demands on public water supplies in developed countries. In most water supply systems, the predominant number of user connections are residences, but the few connections to nonresidential customers may account for a significant portion of the system-wide water use.