



FACTSHEET: WATER USE & CONSUMPTION IN CANADA

Water is used for a number of different purposes depending on whether the water is withdrawn from its source or whether it is used instream. The main uses associated with water withdrawals are drinking, irrigation, manufacturing, mining, generating thermal electricity and diluting waste. Instream uses include: transportation, recreation, tourism, fish and wildlife. The following facts paint a picture of water use in Canada.

How much water do we use?

Canadians rank second only to the United States in terms of highest per capita water use in the developed world. A "general lack of awareness" about the pressures placed on Canadian water supplies, combined with a "lack of strong water conservation ethic, which is encouraged by the myth of water abundance" helps to explain this poor standing.

- To support their current lifestyle, Canadians consume about 1.5 million cubic metres (MCM) or approximately 4,400 litres-per-capita-per-day (lcd), making Canada one of the highest per capita users in the world. (Based on total withdrawals divided by population).
- Municipal per capita use across Canada averaged 638 litres/day in 1999. The municipal usage includes water for residences, small commercial and industrial buildings, any water lost to leaks, and water used to fight fires. There are dramatic differences between municipalities usage figures, Charlottetown, PEI being the lowest user at 156 litres/day, and St. John's, NL being the highest user at 659 litres/day.

Household Water Use

- The amount of fresh water needed for human survival is approximately 5 litres-per-capita-per-day (lcd).
- To meet sanitation, food preparation, and bathing needs requires a minimum of 50 lcd, preferably 60-80 lcd.
- In 1999, the average Canadian used 343 litres a day in domestic water use alone, ranking second only to the average American who used 382 litres a day in terms of most consumption in a selection of developed countries with comparable living standards. In 2001, this average residential water use dropped to 335 litres per day. Nonetheless, Canadians still rank as one of the world's most profligate people in terms of water consumption.

Water Use and Consumption by Sector

- *Gross water use* is the "total amount of water used (intake + recirculation) to carry out an activity." The 1996 ranking of industrial gross water use: #1 Thermal power (40,405 million cubic metres), #2 Manufacturing (12,996 MCM), #3 Municipal (5,314 MCM), #4 Agriculture (4,098 MCM), #5 Mining (1,715 MCM). The gross usage amount includes water that is recycled. The amount of water recycled by these

sectors: Thermal power (11,655 MCM), Manufacturing (6,958 MCM), and Mining (1,197 MCM).

- *Water Consumption* is the amount of water removed from its source and no longer available for use (water intake minus water discharge). The 1996 ranking of water consumption tells a different story from the gross water use: #1 Agriculture (3,036 MCM), #2 Manufacturing (552 MCM), #3 Thermal power (508 MCM), #4 Municipal (119 MCM), #5 Mining (46 MCM).

Water for Power

- Thermal power generation (including fossil fuels and nuclear stations) accounted for 64% of Canada's total water intake (the total amount withdrawn from ground and surface sources) in 1996.
- Ontario leads in thermal energy production (and therefore in water use) for this industry, producing 23,000 of Canada's 28,750 kwh.
- Typical fossil fuel plants use 140 litres of water to generate 1 kilowatt of energy.
- Nuclear power generation typically requires 205 litres to produce 1 kilowatt.
- Most water used in thermal power production is used for cooling, and often returns to the water source at a higher temperature, creating what is called 'thermal pollution'.

Water for Food

- Agriculture is the #1 consumer of water, with only 25% of the water it withdraws being returned to its source.
- 85% of agricultural withdrawals of water are for irrigation, and 15% are for watering livestock.
- Alberta has approximately 60% of the irrigated cropland in Canada.
- Much of Alberta's irrigated land lies in the Saskatchewan River Basin. Agriculture in this region consumes roughly 2,200 MCM a year from the river, removing about 28% of the total annual flow of the river.

Water's contribution to the economy

- 1992 estimates of water's annual contribution to the Canadian economy ranged from \$7.5 to \$23 billion.
- In 2000, \$1.4 billion was earned by Canadian businesses from water related goods and services.

Water Pressures & Water Stress

- Between 1994 and 1999 one out of every four "municipalities experienced water shortages due to increased consumption, drought, or infrastructure constraints".
- In 2001, the federal Commissioner of the Environment and Sustainable Development declared fresh water in southern Canada to be heavily used and overly stressed. Evidence of this stress comes in the form of falling water tables, lowered water quality, and water transfers out of many hydrological systems.

Rising costs

- Canada's aging water and wastewater infrastructure is in need of serious investment to upgrade it to continue meeting the water use needs of Canadians. In 1996 Canada's water infrastructure deficit was estimated at between \$38 and \$49 billion, and the projected cost to meet futures needs until 2016 was \$70 to \$90 billion.