

PLACING WATER USE IN CONTEXT

Across the globe, about 70% of all surface and groundwater use is dedicated to agriculture, primarily for purposes of crop watering and irrigation. All other forms of industry and commerce use 20%. About 10% of the globe's water is used for household, residential, or domestic purposes (Brown 2002). Of course, these are simply averages. Across developed countries, up to 65% of all water can be used for irrigation, but that rises to 90% in some of the drier developing countries (Nicol 2005).

This pattern of global water use tells us that any current or future shortage of water has the very real potential to hit hard on the global food supply. If the amount of water is relatively fixed at any one place at any given time, ensuring enough water for growing urban populations and industrial development without short-changing the water needs of the global environment implies that any substantial sources of "new" water will have to come through increasing the efficiency and productive use of water in agriculture. The sheer volume of water dedicated to agriculture is no small matter. A 10% increase in agricultural water efficiency conserves the same amount of water as a 70% increase in domestic efficiency.

Canada's water usage pattern does diverge from the larger global pattern, and Alberta's usage pattern also diverges from the Canadian one. Across Canada, agriculture constitutes about 10% of all water withdrawals. Industrial, utility, and manufacturing constitute 80% and municipal and domestic use another 10% (Agriculture and Agri-Food Canada 2000). In Alberta, allocations of water are about 50% agricultural, 40% industrial and commercial, and 10% municipal (Alberta Economic Development Authority 2008; Alberta Environment 2008.)

Canadians are also heavy users of water. The OECD ranks Canada second in terms of its total per capita water consumption. While the US uses more water per capita, water use in Canada is growing at a faster rate than the US. Since 1980, water use in Canada has increased by 25.7%, which is five times the OECD average of 4.5% (McFarlane and Nilson 2003). Household use of water in Canada in 1999 averaged 343 liters per capita per day, and when all uses of water are considered, that rises to 4,400 liters per day (Roach *et al.* 2004).

This backgrounder is part of "From H₂O: Turning Alberta's Water Headache to Opportunity," a forthcoming research paper by Casey Vander Ploeg identifying Alberta's water challenges and opening discussion on possible solutions.

Canada West Foundation is the only think tank dedicated to being the objective, nonpartisan voice for issues of vital concern to Western Canadians.

Visit us on-line at www.cwf.ca.

Head Office:
 900 – 1202 Centre Street SE
 Calgary, AB Canada T2G 5A5
 ph: 403-264-9535
 fax: 403-269-4776
 toll-free: 1-888-825-5293
 email: cwf@cwf.ca
 website: www.cwf.ca

British Columbia Office:
 810 – 1050 West Pender St.
 Vancouver, BC V6E 3S7
 ph: 604-646-4625
 fax: 604-684-7957
 email: kunin@cwf.ca

Saskatchewan Office:
 KW Nasser Centre
 256 – 3 Avenue South
 Saskatoon, SK S7K 1L9
 ph: 306-966-1251
 fax: 306-966-8812
 email: vicq@cwf.ca

Manitoba Office:
 900 – One Lombard Place
 Winnipeg, MB R3B 0X3
 Phone: 204-947-3958
 Fax: 204-942-3563
 email: carson@cwf.ca

Head Office:

900 – 1202 Centre Street SE
 Calgary, AB Canada T2G 5A5
 ph: 403-264-9535
 fax: 403-269-4776
 toll-free: 1-888-825-5293
 email: cwf@cwf.ca
 website: www.cwf.ca

British Columbia Office:

810 – 1050 West Pender St.
 Vancouver, BC V6E 3S7
 ph: 604-646-4625
 fax: 604-684-7957
 email: kunin@cwf.ca

Saskatchewan Office:

KW Nasser Centre
 256 – 3 Avenue South
 Saskatoon, SK S7K 1L9
 ph: 306-966-1251
 fax: 306-966-8812
 email: vicq@cwf.ca

Manitoba Office:

900 – One Lombard Place
 Winnipeg, MB R3B 0X3
 Phone: 204-947-3958
 Fax: 204-942-3563
 email: carson@cwf.ca

Across the Canadian water policy community, cheap water has been fingered as a significant contributor to Canada's heavy use of water. In terms of residential use, this may indeed be the case given the large number of Canadian homes that remain unmetered, and for those that are metered, municipal water rate structures that do little to promote efficient use or conservation.

But again, municipal water use is only about 10% of the total water withdrawn, and residential use itself is only about half of that 10%. What is more important—and often overlooked—is Canada's role as a global exporter of "virtual" water embedded in the production of goods and services exported internationally, whether that be grain and other agricultural produce, manufactured goods, auto parts, and even oil or natural gas.

There are few if any products and services that do not require water as an essential input in the production process, and with 80% of Canada's GDP resulting from international exports, it is clear that a lot of the water "used" in Canada is water actually "used" by foreign consumers of Canadian exports. The same applies to Alberta. Agriculture in Alberta currently uses about 35 km³ of water per year. But 27 km³ of that water—over 75%—is exported abroad as "virtual" water (Zehnder 2008.) Of course, Canada and Alberta imports a lot of "virtual" water as well.

The point here is not to defend the profligate use of water by Canadians, argue against the merits of water conservation, or forestall ways to improve water resources management practices. Far from it. In fact, all of these goals are of paramount importance. If the world is indeed to become more water-short in the future, then Canada's role as virtual exporter of water—one of the world's few remaining "lifeboats" for water—will only grow in importance. Given the role played by Alberta within the larger Canadian export economy, this fact is as relevant here as anywhere else. ■

Sources:

Brown, Lester R. 2002. *Water Deficits Growing in Many Countries.*

Nicol, Lorraine. 2005. *Irrigation Water Markets in Southern Alberta.*

Agriculture and Agri-Food Canada. 2000. *The Health of our Water: Toward Sustainable Agriculture in Canada.*

AEDA. 2008. *Sustainable Water Management and Economic Development in Alberta.*

Alberta Environment. 2008. *Water For Life: Current and Future Water Use in Alberta.*

McFarlane, Susan and Nilson, Erik. 2003. *On Tap: Urban Water Issues in Canada.*

Roach, Robert; Huynh, Vien; and Dobson, Sarah. 2004. *Drop by Drop.*

Zehnder, Alexander. 2008. *Global Water Issues: Trends and Challenges for Alberta.*