

## Water, Water Use & Water Pricing Around the World

### Introduction

When discussing Canada's water supply and usage patterns, it is important to place Canada in a global context. Does Canada use more or less water per capita than other industrialized nations? Where does Canada sit in terms of water prices? By highlighting the similarities and differences between Canada and other OECD nations, it is possible to paint a more complete picture of the Canadian waterscape.

### Canada's Freshwater Resources

It is well known that Canada is a relatively water-rich country. But just how water-rich is Canada comparatively speaking? When examining total renewable freshwater resources, Canada places second among the OECD with 85,516 cubic meters (m<sup>3</sup>) of water per capita, following Iceland (Figure 1). Following closely behind Canada are Norway and New Zealand. Together, these four nations stand out as having the largest supply of renewable freshwater per capita in the world. Most OECD nations have much less renewable freshwater supplies—well under 10,000 m<sup>3</sup> per capita and often less than 5,000 m<sup>3</sup> per capita. Using this measure, Canada is certainly water-rich compared with most other OECD nations.

However, much of Canada's water flows northward and is unavailable to the majority of the population, which lives in the southern part of the country. About 60% of Canada's water is unavailable to the majority (85%) of the population. In per capita terms, then, the vast majority of Canadians have access to only about 34,200 m<sup>3</sup> of renewable freshwater. Although in this context Canada would place fourth behind Iceland, Norway and New Zealand, it still ranks well ahead of other OECD nations.

FIGURE 1: Estimates of Total Renewable Freshwater Resources (Long-Term Annual Average as of 2006)

OECD Nation	Freshwater (Millions of m <sup>3</sup> )	Total Population	Per Capita (m <sup>3</sup> )
Australia	387,000	20,698,000	18,697
Austria	84,000	8,282,000	10,142
Belgium	21,000	10,548,000	1,991
Canada	2,792,000	32,649,000	85,516
Czech Republic	16,000	10,267,000	1,558
Denmark	16,000	5,435,000	2,944
Finland	110,000	5,266,000	20,889
France	185,000	61,353,000	3,015
Germany	188,000	82,376,000	2,282
Greece	72,000	11,149,000	6,458
Hungary	120,000	10,071,000	11,915
Iceland	170,000	304,000	559,211
Ireland	50,000	4,240,000	11,792
Italy	95,000	58,931,000	1,612
Japan	424,000	127,770,000	3,318
Korea	72,000	48,297,000	1,491
Luxembourg	1,800	473,000	3,805
Mexico	473,000	104,874,000	4,510
Netherlands	90,000	16,346,000	5,506
New Zealand	327,000	4,185,000	78,136
Norway	391,000	4,661,000	83,888
Poland	63,000	38,132,000	1,652
Portugal	74,000	10,584,000	6,992
Slovakia	80,000	5,391,000	14,840
Spain	111,000	44,068,000	2,519
Sweden	181,000	9,081,000	19,932
Switzerland	53,000	7,484,000	7,082
Turkey	234,000	72,971,000	3,207
United Kingdom	175,000	60,587,000	2,888
United States	2,478,000	298,442,000	8,303

Source: Derived by Canada West Foundation from the OECD Statistical Database (Historical Population Database and the Environmental Database, Inland Waters, Estimates of Renewable Freshwater Resources).

Note: Excludes Chile, Estonia, Israel and Slovenia. Renewable freshwater is the average annual precipitation less evapotranspiration plus inflows of water into the jurisdiction.

### Canada's Water Abstractions

Not only is Canada water-rich compared with most other OECD nations, Canada is also a comparatively heavy water user. With 42 billion m<sup>3</sup> of water abstractions each year, Canada ranks as the OECD's fifth largest water user behind the US, Japan, Mexico and Turkey (Figure 2). The majority of OECD countries abstract well below 10 billion m<sup>3</sup> annually. However, when looking at water abstractions per capita, Canada is the second largest water user in the OECD with 1,441 m<sup>3</sup> abstracted per capita. This is just behind the US, which abstracts 1,690 m<sup>3</sup> per capita annually. Per capita water abstractions in the US and Canada are significantly greater than other OECD nations, most of which abstract less than 1,000 m<sup>3</sup> each year.

Despite Canada's heavy water use, water use intensity is low (Figure 3). Water use intensity measures the percentage of renewable supply that a country abstracts on an annual basis. Although Canada has relatively large freshwater resources and abstracts a large amount of water per capita, Canada has one of the lowest rates of water use intensity in the OECD. Only 2% of Canada's total renewable freshwater supplies are abstracted annually. This stands in sharp contrast to nations such as Italy, where almost half (44%) of renewable freshwater resources are abstracted annually. Other OECD nations with high water use intensity include Korea (41%), Spain (34%) and Belgium (32%).

Almost every OECD country relies more heavily on surface water than groundwater, with the majority obtaining between 60% to 80% of its water from surface sources and 20% to 40% from groundwater sources (Figure 4). Only Iceland, Denmark and Luxembourg use more groundwater than surface water, with the two former nations being almost exclusively reliant on groundwater sources. The majority of water abstracted in Canada—96%—comes from surface water sources such as lakes and rivers as opposed to groundwater sources. Canada's reliance on surface water abstractions is the highest in the OECD.

FIGURE 2: Estimates of Gross Water Abstractions (Latest Estimates as of 2006)

OECD Nation	Year of Estimate	Withdrawals (Millions of m <sup>3</sup> )	Total Population	Per Capita m <sup>3</sup> Withdrawn
Australia	2004	18,767	20,127,000	932
Austria	2002	3,816	8,084,000	472
Belgium	2003	6,654	10,376,000	641
Canada	1995	42,215	29,302,000	1,441
Czech Republic	2006	1,936	10,267,000	189
Denmark	2004	680	5,401,000	126
Finland	2001	2,319	5,188,000	447
France	2004	33,715	60,643,000	556
Germany	2004	35,557	82,516,000	431
Greece	1995	8,695	10,634,000	818
Hungary	2004	5,818	10,107,000	576
Iceland	2005	165	296,000	557
Ireland	1995	1,175	3,601,000	326
Italy	2000	41,980	56,937,000	737
Japan	2004	83,538	127,687,000	654
Korea	2003	29,163	47,859,000	609
Luxembourg	1999	60	430,000	140
Mexico	2006	77,322	104,874,000	737
Netherlands	2005	10,325	16,320,000	633
New Zealand	2006	3,926	4,185,000	938
Norway	2003	2,476	4,565,000	542
Poland	2005	11,522	38,161,000	302
Portugal	2000	8,808	10,226,000	861
Slovakia	2006	763	5,391,000	142
Spain	2004	38,158	42,692,000	894
Sweden	2004	2,676	8,994,000	298
Switzerland	2005	2,507	7,437,000	337
Turkey	2005	44,849	72,065,000	622
United Kingdom	2005	12,990	60,238,000	216
United States	2000	476,800	282,158,000	1,690

Source: Derived by Canada West Foundation from the OECD Statistical Database (Historical Population Database, OECD Factbook 2010, and the Environmental Database, Inland Waters, Intensity of Use of Freshwater).

Note: Excludes Chile, Estonia, Israel and Slovenia. Data reflect estimates of total water withdrawn or abstracted, but not necessarily consumed.

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Figure 3: Estimates of Water Use Intensity  
(Latest Estimates as of 2006)

OECD Nation	Year of Estimate	Withdrawals (Millions of m <sup>3</sup> )	Renewable Supply (Millions of m <sup>3</sup> )	% of Renewable Supply Withdrawn
Australia	2004	18,767	387,000	5
Austria	2002	3,816	84,000	5
Belgium	2003	6,654	21,000	32
Canada	1995	42,215	2,792,000	2
Czech Republic	2006	1,936	16,000	12
Denmark	2004	680	16,000	4
Finland	2001	2,319	110,000	2
France	2004	33,715	185,000	18
Germany	2004	35,557	188,000	19
Greece	1995	8,695	72,000	12
Hungary	2004	5,818	120,000	5
Iceland	2005	165	170,000	0
Ireland	1995	1,175	50,000	2
Italy	2000	41,980	95,000	44
Japan	2004	83,538	424,000	20
Korea	2003	29,163	72,000	41
Luxembourg	1999	60	1,800	3
Mexico	2006	77,322	473,000	16
Netherlands	2005	10,325	90,000	11
New Zealand	2006	3,926	327,000	1
Norway	2003	2,476	391,000	1
Poland	2005	11,522	63,000	18
Portugal	2000	8,808	74,000	12
Slovakia	2006	763	80,000	1
Spain	2004	38,158	111,000	34
Sweden	2004	2,676	181,000	1
Switzerland	2005	2,507	53,000	5
Turkey	2005	44,849	234,000	19
United Kingdom	2005	12,990	175,000	7
United States	2000	476,800	2,478,000	19

Source: Derived by Canada West Foundation from the OECD Statistical Database (OECD Factbook 2010, the Environmental Database, Inland Waters, Intensity of Use of Freshwater, and Estimates of Renewable Freshwater Resources).

Note: Excludes Chile, Estonia, Israel and Slovenia. Renewable freshwater is the average annual precipitation less evapotranspiration plus inflows of water into the jurisdiction. Data reflect estimates of total water withdrawn or abstracted, but not necessarily consumed.

## Growth in Water Use

Water abstractions can increase or decrease due to a wide variety of factors including population growth and economic expansion, as well as drought. Over the past ten years, no consistent trends appear to emerge from the data on changes in water abstractions across the OECD (Figure 5). For example, abstraction rates have increased in half of OECD nations and declined in the other half. Nations with the largest increases include the Netherlands (59%), Greece (58%) and New Zealand (56%). Nations with the largest decreases include Slovakia (45%), the Czech Republic (29%) and Denmark (23%). Nations with little to no change in total gross water abstraction rates include Austria, Iceland, Finland, Luxembourg, Sweden, and the US. Canada is also included in this group—Canada's water abstractions remained relatively unchanged between 1985 and 1995. More recent numbers are needed to see if this is still the case.

## Canada's Water Usage

Data produced by the OECD categorizes water use around three purposes—domestic or household use, industrial and commercial use, and irrigation and agricultural use (see Figure 6). Almost 70% of the water used in Canada is for industrial and commercial purposes. Other countries with a similar share of water use in the industrial and commercial sectors include Belgium (85%), Finland (84%), Poland (79%) and the United Kingdom (75%). OECD countries where the bulk of water use is for irrigation and agriculture include Greece (81%), Portugal (78%), Mexico (77%) and Australia (75%). Other nations have very unique water use profiles. For example, in the US, industrial and commercial use is comparable to irrigation and agricultural use (46% and 41%, respectively), and domestic use is quite low as a proportion of the total (13%). New Zealand is also unique as domestic use (48%) is almost the same as agricultural use (42%), with little water used for industry (9%).

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Figure 4: Estimates of Freshwater Abstractions by Source (Latest Estimates as of 2006)

OECD Nation	Year of Estimate	Surface (Millions of m <sup>3</sup> )	Groundwater (Millions of m <sup>3</sup> )	Total Withdrawals (Millions of m <sup>3</sup> )	% Surface	% Groundwater
Australia	2004	14,901	3,866	18,767	79	21
Austria	2002	2,737	1,079	3,816	72	28
Belgium	2003	6,007	647	6,654	90	10
Canada	1995	40,442	1,773	42,215	96	4
Czech Republic	2006	1,557	379	1,936	80	20
Denmark	2004	21	659	680	3	97
Finland	2001	2,034	285	2,319	88	12
France	2004	27,290	6,425	33,715	81	19
Germany	2004	29,524	6,033	35,557	83	17
Greece	1995	4,939	3,756	8,695	57	43
Hungary	2004	5,110	708	5,818	88	12
Iceland	2005	5	160	165	3	97
Ireland	1995	905	270	1,175	77	23
Italy	2000	28,085	13,895	41,980	67	33
Japan	2004	73,120	10,418	83,538	88	12
Korea	2003	25,481	3,682	29,163	87	13
Luxembourg	1999	28	32	60	47	53
Mexico	2006	49,000	28,322	77,322	63	37
Netherlands	2005	9,300	1,025	10,325	90	10
New Zealand	2006	2,809	1,117	3,926	72	28
Norway	2003	1,981	495	2,476	80	20
Poland	2005	8,889	2,633	11,522	77	23
Portugal	2000	7,134	1,674	8,808	81	19
Slovakia	2006	395	368	763	52	48
Spain	2004	31,963	6,195	38,158	84	16
Sweden	2004	2,048	628	2,676	77	23
Switzerland	2005	1,696	811	2,507	68	32
Turkey	2005	33,227	11,622	44,849	74	26
United Kingdom	2005	10,832	2,158	12,990	83	17
United States	2000	361,796	115,004	476,800	76	24

Source: Derived by Canada West Foundation from the OECD Statistical Database (OECD Factbook 2010, the Environmental Database, Inland Waters, Freshwater Abstractions by Source), the European Academies Science Advisory Council (EASAC), the Commission of the European Communities, and Susan Rutherford, 2004, *Groundwater Use in Canada*.

Note: Excludes Chile, Estonia, Israel and Slovenia. Data reflect estimates of total water withdrawn or abstracted, but not necessarily consumed. Percentages for Australia are based on the share of surface and groundwater in 1995, Norway in 1985, and Portugal in 1980. Data for Greece and Italy are from EASAC. Data for Ireland are from the Commission of the European Communities. Data for Canada are estimates based on data in Rutherford.

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Figure 5: Estimates of Changes in Gross Water Abstractions (Latest Estimates of Water Abstractions Compared to Approximately 10 Years Previous)

OECD Nation	Current Date	Prior Date	Current (Millions of m <sup>3</sup> )	10 Years Ago (Millions of m <sup>3</sup> )	% Change in Abstractions
Australia	2004	1995	18,767	24,071	- 22.0
Austria	2002	1990	3,816	3,807	+ 0.2
Belgium	2003	1995	6,654	8,221	- 19.1
Canada	1995	1985	42,215	42,385	- 0.4
Czech Republic	2006	1995	1,936	2,743	- 29.4
Denmark	2004	1995	680	887	- 23.3
Finland	2001	1990	2,319	2,347	- 1.2
France	2004	1995	33,715	40,671	- 17.1
Germany	2004	1995	35,557	43,374	- 18.0
Greece	1995	1985	8,695	5,495	+ 58.2
Hungary	2004	1995	5,818	5,976	- 2.6
Iceland	2005	1995	165	165	0.0
Ireland	1995	1980	1,175	1,070	+ 9.8
Italy	2000	1990	41,980	40,496	+ 3.7
Japan	2004	1995	83,538	88,881	- 6.0
Korea	2003	1995	29,163	23,670	+ 23.2
Luxembourg	1999	1990	60	59	+ 1.7
Mexico	2006	1995	77,322	73,672	+ 5.0
Netherlands	2005	1995	10,325	6,507	+ 58.7
New Zealand	2006	2000	3,926	2,512	+ 56.3
Norway	2003	1995	2,476	2,420	+ 2.3
Poland	2005	1995	11,522	12,924	- 10.8
Portugal	2000	1990	8,808	8,600	+ 2.4
Slovakia	2006	1995	763	1,386	- 44.9
Spain	2004	1995	38,158	33,288	+ 14.6
Sweden	2004	1995	2,676	2,725	- 1.8
Switzerland	2005	1995	2,507	2,571	- 2.5
Turkey	2005	1995	44,849	33,482	+ 33.9
United Kingdom	2005	1995	12,990	12,117	+ 7.2
United States	2000	1990	476,800	468,620	+ 1.7

Source: Derived by Canada West Foundation from the OECD Statistical Database (Environmental Database, Inland Waters, Intensity of Use of Freshwater, and OECD 2010 Factbook).

Note: Excludes Chile, Estonia, Israel and Slovenia. Data reflect estimates of total water withdrawn or abstracted, but not necessarily consumed. The latest estimate of total gross abstractions is compared to an estimate approximately 10 years previous.

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Figure 6: Estimates of Water Abstractions by Major Use (Percentage of Gross Water Abstractions, Various Years)

OECD Nation	Year of Estimate	Domestic & Household	Industrial & Commercial	Irrigation & Agricultural
Australia	2000	15	10	75
Austria	1999	35	64	1
Belgium	1998	13	85	1
Canada	1996	20	69	12
Czech Republic	2002	41	57	2
Denmark	2002	32	26	42
Finland	1999	14	84	3
France	2000	16	74	10
Germany	2001	12	68	20
Greece	1997	16	3	81
Hungary	2001	9	59	32
Iceland	2003	34	66	0
Ireland	1994	23	77	0
Italy	1998	18	37	45
Japan	2000	20	18	62
Korea	2000	36	16	48
Luxembourg	1999	42	45	13
Mexico	2000	17	5	77
Netherlands	2001	6	60	34
New Zealand	2000	48	9	42
Norway	1996	23	67	10
Poland	2002	13	79	8
Portugal	1998	10	12	78
Slovakia	2006	45	3	52
Spain	2002	13	19	68
Sweden	2002	37	54	9
Switzerland	2002	24	74	2
Turkey	2001	15	11	74
United Kingdom	1994	22	75	3
United States	2000	13	46	41

Source: Derived by Canada West Foundation from the Pacific Institute and the OECD Statistical Database (Environmental Database, Inland Waters, Freshwater Abstractions by Major Use).

Note: Excludes Chile, Estonia, Israel and Slovenia. Data reflect estimates of total water withdrawn or abstracted, but not necessarily consumed. Numbers may not add to 100 due to rounding.

## Water Prices

The prices charged for water and wastewater services vary greatly among OECD nations. On a national level, the OECD nations with the lowest charges for water and wastewater supplied are Mexico (\$0.49), Ireland (\$0.65), and Korea (\$0.77). OECD nations with the most expensive water and wastewater are Denmark (\$6.70), the United Kingdom (\$4.77), and Belgium (\$4.03). At \$1.50 per m<sup>3</sup> of water and wastewater, Canada certainly trends toward the lower end, as does the US at \$1.25 per m<sup>3</sup> (Figure 7). Few OECD nations have lower prices than those charged in North America.

Figure 7: OECD Estimates of Prices for Water Supply and Sanitation to Households (Price Charged in \$US per m<sup>3</sup>)

OECD Nation	Water & Sanitary
Australia	\$ 2.44
Austria	\$ 1.05
Belgium	\$ 4.03
Canada	\$ 1.50
Czech Republic	\$ 2.43
Denmark	\$ 6.70
Finland	\$ 4.41
France	\$ 3.74
Germany	\$ 2.15
Greece	\$ 1.40
Hungary	\$ 2.02
Iceland	–
Ireland	\$ 0.65
Italy	\$ 1.45
Japan	\$ 1.85
Korea	\$ 0.77
Luxembourg	–
Mexico	\$ 0.49
Netherlands	\$ 3.16
New Zealand	\$ 1.98
Norway	–
Poland	\$ 2.12
Portugal	\$ 1.23
Slovakia	–
Spain	\$ 1.92
Sweden	\$ 3.59
Switzerland	–
Turkey	\$ 1.51
United Kingdom	\$ 4.77
United States	\$ 1.25

Source: Derived by Canada West Foundation from the OECD.

Note: Data not available for all OECD member nations. Prices are in \$US per cubic meter of water and wastewater services provided by various cities.

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Figure 8: Municipal Survey of Prices for Water Supply and Sanitation to Households (Price Charged in \$US per m<sup>3</sup>)

OECD Nation	Date of Estimate	Lowest Cost City	Highest Cost City	Average of All Cities Surveyed
Australia	2008	\$ 2.61	\$ 3.58	\$ 3.05
Austria	2008	\$ 3.28	\$ 4.62	\$ 3.93
Belgium	2008	\$ 4.18	\$ 5.49	\$ 4.67
Canada	2008	\$ 0.42	\$ 3.23	\$ 1.99
Czech Republic	2008	\$ 2.22	\$ 2.55	\$ 2.40
Denmark	2008	\$ 7.58	\$ 7.71	\$ 7.65
Finland	2008	\$ 2.99	\$ 4.48	\$ 3.74
France	2008	\$ 3.72	\$ 4.73	\$ 3.99
Germany	2008	\$ 2.96	\$ 7.49	\$ 5.09
Greece	2008	\$ 1.34	\$ 1.34	\$ 1.34
Hungary	2008	\$ 1.71	\$ 2.49	\$ 2.19
Iceland	2008	\$ 1.95	\$ 1.95	\$ 1.95
Ireland	2008	\$ 0.00	\$ 0.00	\$ 0.00
Italy	2008	\$ 0.75	\$ 1.63	\$ 1.12
Japan	2008	\$ 1.35	\$ 2.31	\$ 1.81
Korea	2008	\$ 0.75	\$ 1.45	\$ 0.93
Luxembourg	2008	\$ 4.64	\$ 4.64	\$ 4.64
Mexico	2008	\$ 0.15	\$ 0.87	\$ 0.47
Netherlands	2008	\$ 1.67	\$ 3.15	\$ 2.49
New Zealand	2008	\$ 0.98	\$ 4.13	\$ 2.56
Norway	2008	\$ 2.79	\$ 3.49	\$ 3.14
Poland	2008	\$ 1.86	\$ 2.64	\$ 2.15
Portugal	2008	\$ 1.49	\$ 2.14	\$ 1.88
Slovakia	2008	\$ 2.02	\$ 2.36	\$ 2.19
Spain	2008	\$ 0.75	\$ 2.52	\$ 1.70
Sweden	2008	\$ 1.54	\$ 2.80	\$ 2.33
Switzerland	2008	\$ 5.16	\$ 5.21	\$ 5.19
Turkey	2008	\$ 0.47	\$ 2.10	\$ 1.37
United Kingdom	2008	\$ 4.31	\$ 7.57	\$ 5.66
United States	2008	\$ 0.74	\$ 4.13	\$ 2.19

Source: Derived by Canada West Foundation from the Global Water Tariff Survey, 2008. Survey conducted by Global Water Intelligence (GWI) and the Organisation for Economic Cooperation and Development (OECD).

Note: Excludes Chile, Estonia, Israel and Slovenia. Prices are in \$US per cubic meter of water and wastewater services provided by various cities.

Some surveys have examined average water and wastewater prices prevailing in the largest cities (Figure 8). OECD countries with the highest prices, averaged across all cities surveyed, include Denmark (\$7.65), the United Kingdom (\$5.66), Switzerland (\$5.19), Germany (\$5.09) and Belgium (\$4.67). OECD countries with the lowest prices, averaged across all cities surveyed, include Mexico (\$0.47), Korea (\$0.93), Italy (\$1.12), Greece (\$1.34) and Turkey (\$1.37). Again, Canada tends to levy relatively low charges for household water and wastewater services. The lowest price in Canada was \$0.42 per m<sup>3</sup> and the highest was \$3.23 per m<sup>3</sup>. The average of all Canadian cities that were surveyed was \$1.99 m<sup>3</sup>. Only 10 out of 30 OECD countries have an average price across all cities surveyed at less than \$2.00 per cubic meter (m<sup>3</sup>).

But domestic and household water use is only half of the picture. Additionally, the OECD has collected data on prices charged for other water sectors (note: data are available for less than half of all OECD nations and it excludes prices for wastewater as well as any applicable taxes). A number of trends are evident (Figure 9). First, prices for domestic and household water are typically higher than prices for either the industrial and commercial sector, as well as the irrigation and agricultural sector. The differences here can be very wide. For example, households in France are charged, on average, \$3.11 for each m<sup>3</sup> of water used while the agricultural sector is charged only \$0.08 per m<sup>3</sup>. This pattern is reflected across all nations.

Second, while industrial and commercial users tend to be charged a lower price, this does not hold consistently across all OECD nations. For example, industrial and commercial water prices are slightly higher than domestic water in Spain, Hungary, Portugal and Turkey.

Third, there is wide variation when it comes to prices, but Canada again emerges with some of the lowest prices in the OECD. At \$0.70 per m<sup>3</sup> for domestic use and \$0.01 per m<sup>3</sup> for irrigation and agricultural use, Canada has some of the lowest water prices. However, water prices for industrial and commercial water appear to be average.

Figure 9: OECD Estimates of Prices for Water by Broad Sector Usage (Price Charged in \$US per m<sup>3</sup>)

OECD Nation	Household Water Supply	Industrial & Commercial	Irrigation & Agriculture	Average Price of Water Supply
Netherlands	\$ 3.16	\$ 1.08	\$ 1.44	\$ 1.89
Austria	\$ 1.05	\$ 1.05	\$ 1.01	\$ 1.04
France	\$ 3.11	\$ 0.95	\$ 0.08	\$ 1.38
Greece	\$ 1.14	\$ 1.14	\$ 0.05	\$ 0.78
Spain	\$ 1.07	\$ 1.08	\$ 0.05	\$ 0.73
United States	\$ 1.25	\$ 0.51	\$ 0.05	\$ 0.60
Hungary	\$ 0.45	\$ 1.54	\$ 0.03	\$ 0.67
United Kingdom	\$ 2.28	\$ 1.68	\$ 0.02	\$ 1.33
Australia	\$ 1.64	\$ 1.64	\$ 0.02	\$ 1.10
Portugal	\$ 1.00	\$ 1.26	\$ 0.02	\$ 0.76
Turkey	\$ 1.51	\$ 1.68	\$ 0.01	\$ 1.07
Canada	\$ 0.70	\$ 1.59	\$ 0.01	\$ 0.77

Source: Derived by Canada West Foundation from the OECD.

Note: Data not available for all OECD member nations. Prices are in \$US per cubic meter of water. Includes water supply only and excludes wastewater charges and taxes.

Figure 10: International Water Prices and Consumption (Prices in \$US per m<sup>3</sup> and Adjusted for Purchasing Power Parity, 1999)

OECD Nation	Water Price (Purchasing Power Parity)	Water Consumption (Litres per Person per Day)
Germany	\$ 2.15	115
Belgium	\$ 1.55	120
France	\$ 1.35	135
Netherlands	\$ 1.30	130
United Kingdom	\$ 1.25	140
Finland	\$ 0.75	145
Italy	\$ 0.70	215
Sweden	\$ 0.65	190
Ireland	\$ 0.60	145
Spain	\$ 0.47	210
United States	\$ 0.40	305
Canada	\$ 0.30	335

Source: Expert Panel on Groundwater, as found in Steven Renzetti, 2009, *Wave of the Future*.

Note: Data not available for all OECD member nations. Data reflect prices for water supply only and exclude sanitation charges and taxes.

It should be noted that the costs in \$US per m<sup>3</sup> of water and wastewater service is not always an accurate comparison since it fails to relate the cost to either disposable incomes, GDP or purchasing power parity. For example, the average cost of household water and sanitary service in Mexico is \$0.49 per m<sup>3</sup> while in Denmark it is \$6.70. Is water in Mexico less expensive? Not relative to incomes. Cost of water and sanitary service in Mexico consumes 4.2% of the average household's disposable income compared to 2.5% in Denmark.

A comparison of water prices using the concept of "purchasing power parity" in \$US shows that Canada has some of the lowest water prices in the OECD on this measure as well (Figure 10). What is more, there is a clear correlation between the amount of water used and the price charged for water. Countries with the highest water prices (e.g., Germany and Belgium) also have the lowest personal water consumption rates. Countries with the lowest water prices (e.g., Canada, the US, and Spain) have some of the highest personal water consumption rates. The data indicate a clear inverse relationship, where countries with the highest water prices have the lowest water consumption, and countries with the lowest water prices have the highest water consumption. For example, both Canada and the US have some of the lowest prices for water, and the highest rates of water usage. To be sure, prices certainly play a role in this. But the extent to which prices drive such usage is not clear. One cannot forget that another important factor is the relative size of renewable freshwater supplies. Canada has a very large supply of renewable freshwater, which likely plays a role in high water consumption as well. The same applies to the US, which also has significant freshwater resources.

## Conclusion

Canada is relatively water-rich compared to most other OECD nations. Canada's per capita renewable freshwater supplies are second only to that of Iceland. While Canada does not abstract the largest amount of water as a nation, its per capita water abstraction rate is very high, second only to the US. However, because Canada also has the second largest renewable freshwater supply, Canada uses only 2% of its total renewable freshwater annually. This is among the lowest water use intensity rates in the OECD.



# WATER PRICING

Seizing a Public Policy Dilemma by the Horns

CANADIAN  
WATER POLICY  
BACKGROUND

8

SEPTEMBER 2011

Canada's primary source of water is also unique. Over 95% of all water used in Canada is from surface water. This rate is much higher than most other OECD nations. However, Canada appears to fit the average OECD nation when it comes to water use patterns. Most of Canada's water use relates to the industrial and commercial sector, followed by domestic use, and finally, agriculture. However, there are significant regional differences within Canada. In British Columbia and Alberta, for example, irrigation and agriculture consume much more water than the national average.

Canada tends to charge some of the lowest prices for water use in the OECD, particularly when compared to developed nations. This is not, however, a uniquely Canadian phenomenon. Among the OECD, Canada, the US and Mexico also have some of the lowest prices for water. In some respects, then, a low price for water is a unique North American phenomenon. Canada's waterscape and water usage patterns are unique. Canada is a vast country with an enormous supply of water on a per capita basis, where a large amount of water is consumed for very little cost. Most other OECD countries do not have this luxury of abundance, and their water prices reflect this more obvious scarcity.

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For more information and to access the Canada West Foundation's water policy research visit: [www.cwf.ca](http://www.cwf.ca)