

## CANADA'S WATER

*This backgrounder is part of "From H<sub>2</sub>O: 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.*

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Canada is a country whose history and development is closely intertwined with water. This comes as no real surprise, given that Canada lays claim to 20% of all the world's freshwater (McFarlane and Nilson 2003). Equally impressive is the fact that Canada has more lake area than any other country in the world. The Great Lakes, shared with the US, hold about 18% of all of the world's surface fresh water, and Canada itself is home to more than a million lakes that together cover almost 7.6% of the country's total area. In fact, nearly 15% of all the world's lakes with a surface area over 500 square kilometers are located in Canada (National Water Research Institute 2004). When rivers, wetlands, and other freshwater areas are added, 8.9% of Canada's total area is covered by surface freshwater.

But like so many things with water, reality is not always as simple or clear cut. First, much of Canada's water is locked up in polar ice, mountain glaciers, and deep underground aquifers that are not readily accessible. When this is taken into account, Canada has about 6.5% of the world's renewable freshwater supply—water that circulates freely through the hydrological cycle (Sandford 2010). Canada is the second largest country in the world with a total area of almost 10 million square kilometers. This translates into 6.8% of the globe's total land and freshwater surface area. In short, Canada's renewable supply of freshwater is roughly proportionate to its land base. Canada has as much water as it should based on geographical size.

Second, it is important to note that the great majority of Canada's water lies in the north, or flows to the north draining into Hudson Bay and the Arctic Ocean. In fact, 60% of Canada's water is unavailable for use by 85% of the population, which lives in the extreme south of the country along the Canada-US border (Wilkie 2005). The reality is that most Canadians live quite far from the majority of the country's freshwater.

Third, it is very important to understand the extreme variability in how water is distributed across the various regions and provinces of Canada. The distribution of water across Canada varies widely. For example, the province of Quebec has 19.9% of Canada's surface freshwater supplies while Alberta has only 2.2%.

Finally, not all water in Canada is equally suitable for its intended purpose, including human consumption. Water quality is just as important a consideration

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as water quantity. For example, Canadian groundwater supplies vary in quality, with some of them being poor quality brackish water.

So while it may indeed be true that Canada has the largest surface area of freshwater of any country, that statement—left standing on its own—is somewhat misleading. The real question is not how much water there is in Canada. The more relevant question is whether there is enough water where it is needed, whether that water is readily accessible, and whether that water is of sufficient quality. For all the reasons above, securing adequate supplies of quality water for Canadians has required the investment of considerable financial resources and the application of expensive technology and infrastructure to harness water, treat it, move and distribute it, and protect it.

In many ways, Canada can only be considered *relatively* water rich. With 6.5% of the world's renewable freshwater and less than 0.5% of the world's global population, Canada does have more water than most countries and can be considered generously supplied comparatively speaking (McFarlane and Nilson 2005). But this does not mean that Canada is water-rich in an *absolute* sense, particularly when considering certain provinces and certain localized areas within those provinces. And, Alberta is a case in point. ■

**Sources:**

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