

Fit to drink--and that's a problem!

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Water, water everywhere, and *all* of it fit to drink. And this is a problem—we're using too much fresh water, and at too high a social cost. This is especially so for Canadians who, after Americans, are global leaders in water consumption. But unlike so many environmental perils, this one has a simple and exciting solution. Best yet, it begins at home. This is the promise of “demand-side management” (DSM).

Historically, the quest has been for supply—more water brought to us from rivers and aquifers, dams and pipelines, engineers and mega projects. Big capacity was the goal. By shifting the focus on controlling demand, DSM presents a new way of thinking. It embodies techniques that decrease or change the timing and pattern of water use. It means using water appropriately and more efficiently, and holds the potential to change the very paradigm through which we view water management. DSM fosters innovation and, in a very positive way, helps re-connect us to our physical “place”.

DSM has long been associated with energy efficiency. Instead of new hydro-electric dams, BC Hydro was encouraged to support home insulation and better refrigerators. This was the genesis of the very successful BC “Power Smart”. What if we could take the fresh water in our shower, treat it to be recycled in the toilet, and that water treated again to a high standard to be used in irrigating lawns and hay fields. Reduced, recycled and re-used. Why not?

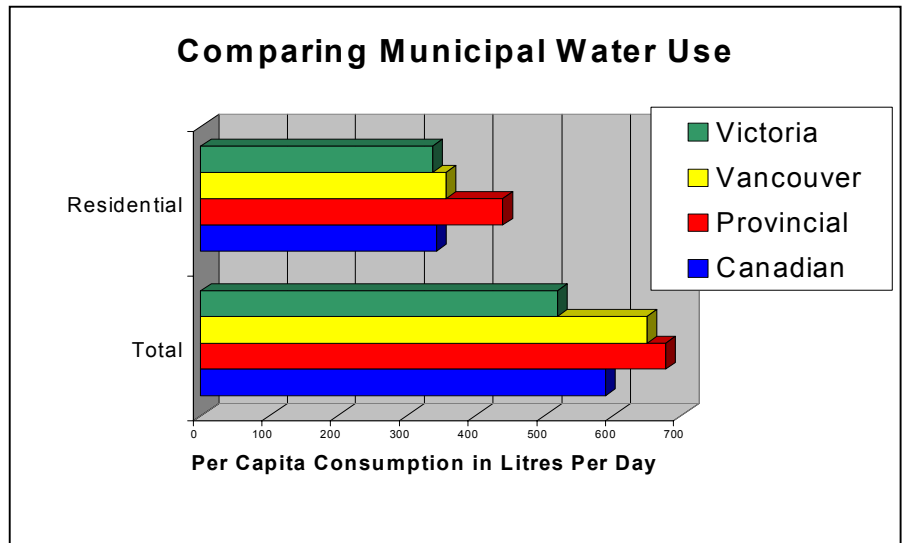


Figure 1: Comparing Municipal Water Use
(Source: Environment Canada MUD Database, 1999)

Let's call it a blue revolution.

Ironically, in Canada there really is no such thing as drinking water. All our city water is treated to drinking water standards, whether we flush it down the toilet, wash our cars with it, irrigate the lawn, or drink it. This is the same clean water that much of the world covets, and the absence of which leads to literally thousands of deaths worldwide per day.

In a landscape of countless lakes, towering glaciers, and endless rivers, Canadians assume abundance. Canada is a culture of the bottomless well, with a weak governance to match. As a result, we are a nation of water abusers and mis-users. Just look at our cities.

Municipal water use represents 12 percent of overall water use, ranking behind only thermal power plants and manufacturing. With a range of supply problems, many residents confront water shortages or use restrictions. Billions of dollars are needed to simply maintain water and wastewater systems. This estimate will only increase with the expected population growth and corresponding

increase in the diversity of urban water uses.¹

The average residential city dweller uses 590 litres per day -- 2360 coffee mugs worth -- more than double the per capita European average. This does not include the substantial quantities also used in urban energy production or manufacturing. All of this is fresh water, and treated to drinking water quality.

Locally, compare Vancouver and Victoria's profligate water use to national and provincial averages (see chart). The bad news is that our province and west coast centres lead the way in water wastage. The good news is the potential for improvement!

A huge portion of this water goes almost directly down the drain or onto our lawns. The largest single interior use of fresh water (about 40%) is the toilet. In the summer, watering lawns and gardens can

¹ Over half the water in municipal systems supplies residential consumption, which increased by nearly 23% between 1983 and 1994, despite an increase of less than 16% in municipal population served water. [Environment Canada – State of Canada's Environment 1996-Chapter 12 – Water use and Wastewater treatment]

triple residential use, right in the heart of the driest periods of the year (May to October). With the lower reservoir levels of recent years, water restrictions and prohibitions are common.

With all of this being fresh and clean water, clearly managing water *quantity* is linked to maintaining water *quality*. After Walkerton, everyone has been focused on quality. Treating large quantities of water *for all uses* to drinking water standards would seem to increase unnecessarily the costs of providing water for those limited uses (drinking, bathing, food preparation) where quality really counts.

Given the integrated nature of existing infrastructure, moving to distinguish between types of uses will not be easy. This is the crucial question—how can one lower the overall costs of water provision by reusing water that can be treated to a lower standard? Only by viewing the system as a whole—supply and demand, quality and quantity—can one begin to innovate.

A profligate water use mindset and its accompanying weak and fractured water governance regime have resulted in a looming crisis. Today, water in Canada is over-used, mismanaged and under-priced, and in desperate need of innovation. Much of our excessive water use can be attributed to the current pricing system, which is characterized by either low volume-based prices, or flat-rate pricing (one flat fee no matter the volume used). Canadian municipal water prices are currently among the lowest in the world. They averages less than half those of most OECD countries and does not cover the full cost of supplying water and treating wastewater.²

² Environment Canada, 2001. State of the Environment SOE Bulletin No.2001-1

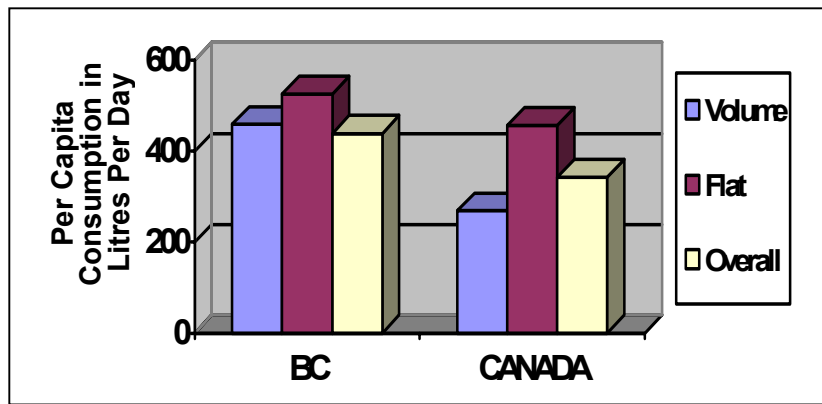


Figure 2: Residential Water Consumption by Pricing Method (Source: Environment Canada MUD Database. 1999)

Like most goods, water use responds closely to price. This relationship is clearly illustrated by comparing metered and flat rate water users (see Figure 2). In this example national flat rate users consumed about 70% more than metered users³, and provincially the difference is only about 15%, which can be partly attributed to the especially low cost of metered provincial water.

Canadian jurisdictions have been slow to explore, let alone incorporate, innovative solutions. A stagnant regulatory environment combines with political caution to leave this issue unaddressed. Our water governance systems fail to pursue and even resist such creative and proven concepts as water recycling for use in toilets or on lawns, inventive bylaws and regulations to ensure water efficiency in plumbing and land use, or the use of small localized water processing infrastructure for specific local needs.

Moving to innovation means understanding the potential of demand management (DSM) as an alternative to increasing supply. Demand-oriented alternatives can be found in many other jurisdictions, but to incorporate DSM leadership into the Canadian waterscape requires that people across the province and the

³<http://wlapwww.gov.bc.ca/soerpt/8surface/wateruse/waterusetecdoc.htm> - WLAP Environmental Trends in British Columbia 2002 pg 22 – Water Use in British Columbia document

country with diverse expertise but a collective vision come together to animate a national debate—and discover a national potential.

As consumption rises, and unsustainable practices persist, the effectiveness of water management policies lags badly behind the rest of the world. The Canadian water situation is getting more urgent.

The POLIS Project on Ecological Governance has commenced a two-year urban DSM project to analyze the structure and dynamics of urban water use in Canada, and provide regulatory and economic mechanisms to help reorient urban water management. One goal is to facilitate the creation of a national DSM network to focus on regulatory reforms and practical actions. The intent is not to promote a single model but to provide a range of alternatives that can be adapted and applied to individual local circumstances.