

# Regina's Water Conservation Program

## Demand management of scarce resources can be critical in enhancing climate resilience



Regina, Saskatchewan, is a city of 200 000 situated in the middle of the vast southern prairies, the driest major region of Canada. The city has very little local access to water. The only body of water running through the city is Wascana Creek, a formerly ephemeral stream that was dammed in 1883 to create an artificial lake that today acts as a downtown landmark.

To meet local demand, Regina draws its potable water from Buffalo Pound Lake (57 kilometres [km] northwest of the city), which itself is fed from Lake Diefenbaker, a large reservoir formed in 1967 by damming the South Saskatchewan and Qu'Appelle rivers.

In the early 1980s, Regina was struggling to meet demand with its existing water supply system. Per capita water usage was increasing annually, and if unchecked, the City would have had to undertake costly infrastructure upgrades to increase potable water and wastewater supply capacity. Although water conservation was a fairly new concept in the 1980s, the City thoroughly explored its options and in 1985 implemented a Water Conservation Program. While not designed as a climate change adaptation measure,

### ENHANCED WATER CONSERVATION PROGRAM GOALS

In 1991, Regina City Council implemented strict new targets and expanded the water consumption program to delay infrastructure expansion costs. Since 1991, the program's goals have been to

- reduce the average day and peak day water consumption per capita by 15 percent by 2011
- continue to encourage the wise use of water by customers
- inform the public of the City's plan for water conservation

### WATER SCARCITY AND CLIMATE CHANGE

For the Canadian prairies, increases in water scarcity and drought are the most serious risks presented by future climate changes. These impacts will be particularly significant for Regina because much of its water supply comes from the South Saskatchewan River. For this river, rising demand for water by industrial, agricultural and community users in southern Alberta and southwest Saskatchewan will need to be reconciled with projected decreases in mean annual flows due to climate variability and change. Demand management will be a critical tool in addressing water scarcity challenges.

the program has had a profound impact on enhancing the city's climate resilience.

The program involves several components that have been developed incrementally over the last 25 years. These include

- **a pricing structure to encourage water conservation**  
Prior to implementing its conservation program, Regina operated a full-cost recovery, user pay system that charged a fixed price for the first 28 cubic metres of water consumed per household, plus a metered charge for any use above that amount. In 1985, the City replaced the fixed price with a fee for each cubic metre of water consumed. The underlying concept was that by paying for all water

consumed, customers would limit water consumption. This, in turn, would delay the need for system-wide infrastructure upgrades and allow costs to be spread over a greater time period.

- **communication**

Communication has been a central component of Regina’s water conservation efforts. The City has disseminated information and advice – that emphasize the message “save water, save money” – through brochures, Web sites, school visits, local trade shows, xeriscape landscaping workshops, as well as through advertising campaigns using local radio, television, newspapers and billboards.

- **water meter replacement**

In 2002, the City began replacing the approximately 50 000 meters installed before 1992 with the goal of improving metering accuracy – the old meters typically undermeasured water consumption. The new meters have radio transmitters that relay consumption data to a city-operated vehicle each month. Accurate registration of water flows on a monthly basis promotes conservation because customers can quickly and accurately make the connection between changing water conservation habits and their bill.



### XERISCAPE

Xeriscape is an alternate form of landscaping that relies on drought-tolerant plants to reduce outdoor watering requirements during the summer. In 1993, the City produced a xeriscape workbook that it distributes annually at free workshops in the spring and fall and on the City’s Web site. In the late 1990s, the City partnered with a local school (collaboration between city staff, teachers, parents and school children) to create a xeriscape educational and demonstration site. The garden features 45 plant types, a false creek and an amphitheatre with a teacher’s rock for outdoor classes and lessons.

### UPPER QU’APPELLE RIVER AND WASCANA CREEK WATERSHED PLANNING

The City of Regina has provided strong support to community-based planning in the Upper Qu’Appelle River and Wascana Creek watersheds. In 2002, the newly created Saskatchewan Watershed Authority invited local people to participate in watershed and aquifer planning with the goal of protecting water quality and quantity. A diverse group of stakeholders that included farmers, rural and urban municipalities, environmental organizations and industry oversaw the creation of comprehensive plan. The final plan included 82 initiatives within 10 broad categories. Many proposed actions dealt with climate change adaptation. For example, Action 61 states that “all stakeholders . . . consider climate change an integral part of source water protection decisions.”

Regina’s Water Conservation Program has been extremely successful. The city’s annual water consumption decreased from a high of 39 billion litres (L) in 1988 to 28.5 billion L in 2007. This enabled the City to delay the upgrade to the water supply system.

In 2005, Regina completed construction of a second 57-km pipe from the Buffalo Pound Water Treatment Plant, with the primary goal of improving supply security. The redundancy offered by the second pipe, wherein disruption of one does not impact the entire water supply to the city, is a good example of a measure that enhances resilience in the face of climate change.

Regina has significantly reduced per capita water consumption through a series of incremental changes. In recent years, water consumption for the city as a whole has remained stable despite modest population growth. The modification to the pricing structure, which charges users for every cubic metre of water used, is the flagship feature of this successful program. It demonstrates that financial incentives, in conjunction with effective communication, can help manage demand for scarce resources. While not initially designed as a climate change adaptation measure, improved water management has helped increase the city’s resilience to climate impacts. Recognizing its role as a key water user, the City is lending its experience and support to broader watershed planning initiatives that are addressing water supplies and climate change impacts.

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