

WATER CANADA

CONDITIONS UNKNOWN

Capital planning
in an era of
climate change



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Go Blue**

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FEATURE CONTRIBUTORS



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PG 14



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PG 20

ABOUT THE COVER

Water infrastructure operates in a dynamic environment. Therefore, asset management and capital planning must consider estimates of short, medium, and long-term variability that can be expected over the life of an asset. Engineers and asset managers use design codes and studies to estimate the magnitude and likelihood of extreme weather events, those codes and studies are based on historical data. What municipalities are finding is that these historical precedents are not reflective of the new norm resulting from climate change. Thus is the challenge facing public sector asset management: designing and budgeting for the unknown.

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FRONT



Foreign Affairs Minister Chrystia Freeland talks to the media after day one of the NAFTA talks in Washington, D.C., Wednesday, Aug. 16, 2017.

Water at the NAFTA Table

BY TODD WESTCOTT

AS THE FIRST ROUND of NAFTA negotiations wrap-up, there have been no signs that water is on Minister Chrystia Freeland's agenda. Ralph Pentland shared his perspectives on how we might expect water to come to the table.

Currently a member of the Forum for Leadership on Water (FLOW), Ralph Pentland was the director of the Water Planning and Management branch of Environment Canada from 1978 to 1991. Since then, Pentland has had ongoing involvement in efforts to manage transboundary waters. Water Canada asked him how Canada's water might come to the NAFTA trade table.

"During the free trade debates of 1987-88, the Mulroney government tried to separate the water export controversy from free trade more generally by introducing an Act prohibiting water export," said Pentland. He helped the Department of Justice draft said Act, but it was never passed.

In the first round of NAFTA negotiations, the primary focus was on auto parts, pharmaceuticals, and labour. As negotiations progressed, "officials from all three countries continued to engage a wide range of stakeholders, including representatives of the private sector; industry associations; civil society, including labor groups; legislative representatives; and state/provincial officials," said a statement released by Global Affairs Canada.

"NAFTA does prevent restrictions on the exportation of goods (like bottled water.) But, it does not prevent restrictions on the exportation of water in its natural state," said Pentland. In addition, NAFTA does explicitly restrict any actions that could harm the integrity of the environment. "The current federal legislation does

not focus on water export per se, but instead prohibits the diversion of water into any stream crossing the border. The primary purpose is to protect the ecological integrity of watersheds, but it incidentally prevents any significant water export." Consequently, NAFTA would not supersede federal law preventing bulk water diversion.

"Looking ahead to embryonic NAFTA negotiations, it will be important to avoid one: water in its natural state somehow being redefined as a good; and two: any change that would limit the ability of individual nations from protecting their aquatic environments," said Pentland.

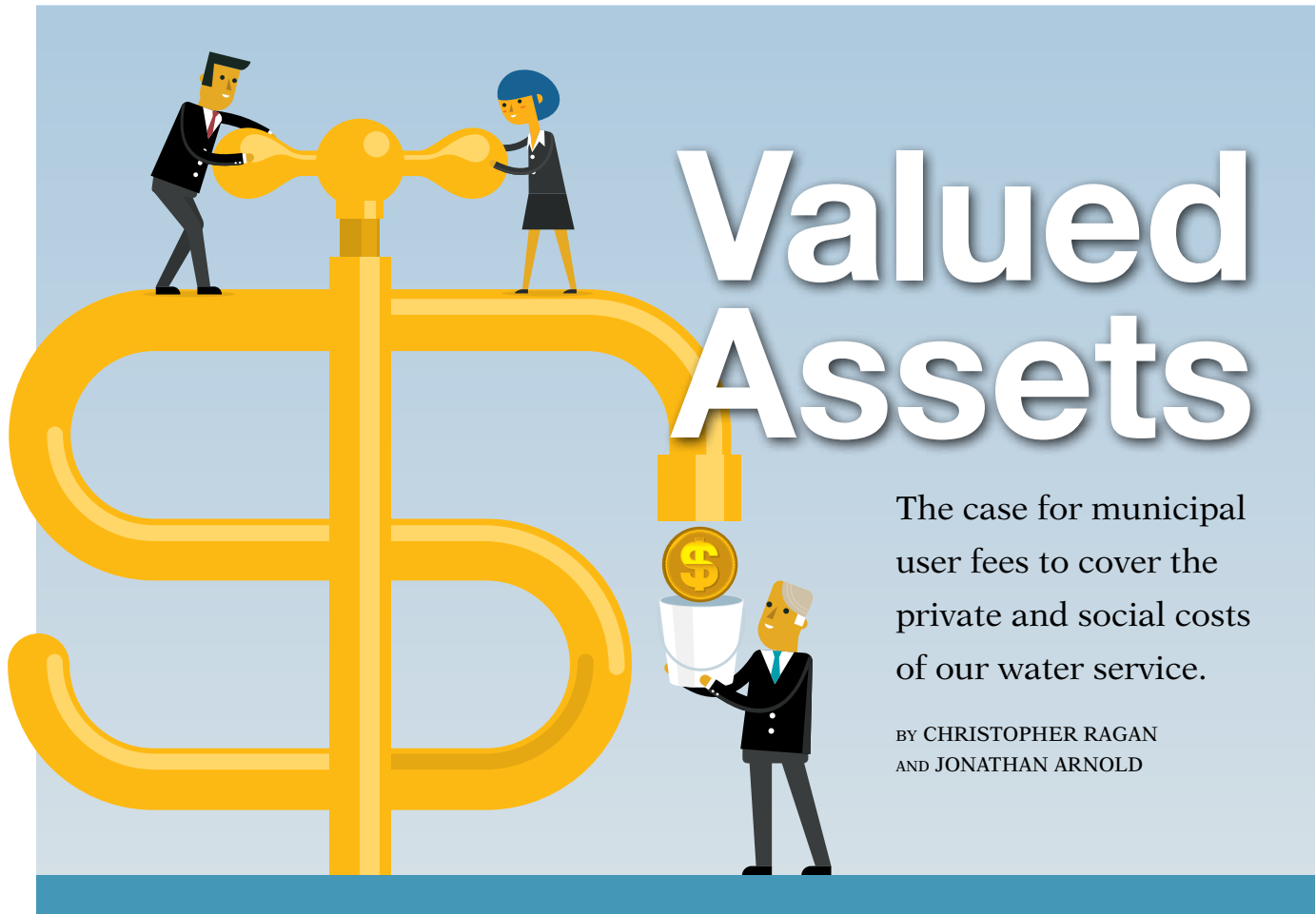
In 2010, Pentland chaired the Canadian Water Issues Council at the University of Toronto, "which proposed model legislation to prevent exports from Canada by banning transfers between major river basins." Thereafter, he worked with government officials to promote legislation that would reflect this type of ban.

There's an urgency behind stronger regulation to prevent large groundwater removals. "In many regions, Canada's waters are already under severe stress, and several of those stresses are escalating quickly with climate change. Removal of significant amounts of water from natural basins would reduce the resilience of those systems and their capacity to cope with future, unpredictable stresses."

The next round of negotiations is scheduled for September 1-5 in Mexico City. **wc**



Todd Westcott is Water Canada's content and marketing manager.



Valued Assets

The case for municipal user fees to cover the private and social costs of our water service.

BY CHRISTOPHER RAGAN
AND JONATHAN ARNOLD

BY INTERNATIONAL STANDARDS, Canadians pay very low prices for water services. This encourages wasteful consumption and leaves water utilities with insufficient revenue to keep infrastructure in good repair. These challenges also pose a direct threat to our water quality. Getting the prices right—through well-designed user fees—is critical to ensuring that our municipal water and wastewater systems are financially and environmentally sustainable.

An entire spectrum of costs

Charging the right price for water starts with aiming for full-cost recovery. Although the concept of full-cost recovery appears straightforward, it's not always clear which costs are being considered. Due to evolving service needs of municipalities, improved accounting methods, and a growing awareness of environmental impacts, the definition of full-cost

recovery has broadened over time.

It is useful to think of full-cost recovery along a spectrum, separated into two major buckets: private costs and social costs. Private costs are those paid directly by the water utility, such as day-to-day expenditures for operations and maintenance. Private costs also include longer-term capital costs associated with building and upgrading infrastructure. Importantly, these capital costs include deferred projects, typically known today as the infrastructure gap. Private capital costs also include future projects required to accommodate growing demands on the water system.

Social costs are broader in scope and are borne by society. They include the costs associated with sustainably maintaining and protecting our natural freshwater assets, which provide significant value to our water and wastewater systems. Social costs also include the economic value of water as a resource: as the local supply of water

becomes scarcer, our uses of water become increasingly limited.

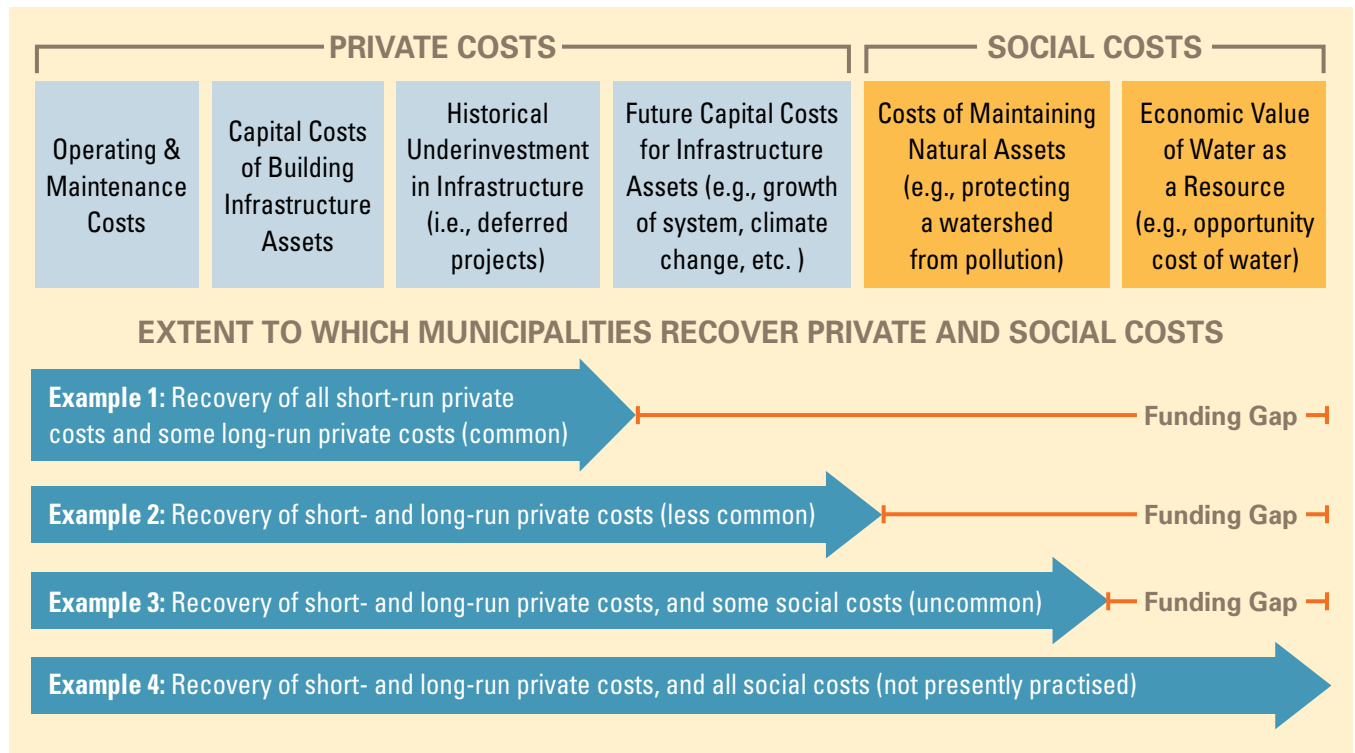
The extent to which Canadian municipalities recover the entire spectrum of costs vary widely. Most municipalities recover a large portion of private costs, such as operating and maintenance costs and existing capital outlays. Deferred and future capital costs, however, are less commonly recovered, which is why the existing infrastructure gap for Canadian municipalities is so large.

In addition, virtually no municipalities recover social costs. The full funding gap is therefore the difference between the total (private plus social) costs of providing the service and the total revenues generated, and differs across municipalities.

The case for multi-rate user fees

Recovering all private and social costs is necessary for genuine full-cost recovery. But how municipalities recover these

Figure 1: Spectrum of Costs for Municipal Water and Wastewater Systems



This figure shows the spectrum of costs associated with municipal water and wastewater systems. Private costs refer to the costs incurred directly by the municipal water utility, such as the costs associated with building, maintaining, and operating the water and wastewater infrastructure. Social costs are those associated with managing the natural ecosystems that provide critical services, such as lakes, rivers, and aquifers. Full-cost recovery is only possible when water utilities generate enough revenue to cover each of these cost components; otherwise, funding gaps will exist.

costs is also important. Municipalities can use several revenue tools, such as property taxes, user fees, and provincial and federal grants. Our research shows that well-designed user fees are the best way to pay for water and wastewater systems.

First, user fees can both generate revenue and act as an important price signal. These two functions of user fees can help water utilities recover costs, encourage water conservation, and maintain clean and safe water.

A multi-rate user fee—with both fixed and volumetric components—is also the most effective way to meet these objectives. The fixed portion ensures predictable revenues for utilities, even in the face of ongoing gains in water conservation. The volumetric component sends a price signal to users that incentivizes further conservation and encourages system efficiencies.

Third, user fees are also fair, because water users pay for the amount of the valuable resource they use. The fees

can also be designed to ensure that water remains affordable for low-income households. And with sufficient conservation deferring or eliminating the need to expand capacity, the cost of the overall system can decrease.

Closing the gaps

Canadian municipalities will be able to keep providing high-quality drinking water to their residents if they adequately maintain their systems. Some cities are further ahead than others. Thanks to the use of asset management plans, municipalities have a better handle on reducing their infrastructure gaps. And thanks to multi-rate user fees, many municipalities are now financially self-sufficient and thus no longer reliant on government grants. For smaller municipalities, closing the funding gap often means using several revenue sources; here, government grants can play an important role.

While user fees alone are not a panacea in covering all private and social costs,

they should certainly play a leading role in the way we manage our water and wastewater systems. **WC**

Christopher Ragan is an associate professor of economics at McGill University, Chair of Canada's Ecofiscal Commission, and a member of the federal government's Advisory Council on Economic Growth. Jonathan Arnold is a research associate with Canada's Ecofiscal Commission.



The Ecofiscal Commission will publish its new report on municipal water and wastewater pricing at the end of September. The report highlights ten best practices for pricing and protecting municipal water and wastewater services, drawing on examples from small, medium, and large municipalities across the country. To learn more, visit ecofiscal.ca/water.