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# **Water and Wastewater Treatment in Canada**

## **Tapping into Private-Sector Capital, Expertise, and Efficiencies**

*Elizabeth Brubaker*

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## Executive summary

Canada's water and wastewater utilities are facing severe challenges. Hundreds of systems threaten human health and the environment. Boil-water advisories are common in small communities. Wastewater treatment is frequently substandard. The federal government has identified wastewater effluents as one of the largest threats to the quality of Canadian waters.

The failures of water and wastewater utilities result from several factors. Many systems are old, nearing the end of their useful lives. Many are too small, unable to meet the needs of growing populations. Many are underfunded, starved for both capital and operating funds by politicians unwilling to raise water prices to sustainable levels. Many are badly managed or are operated by ill-trained staff. Many are laxly regulated.

The vast majority of Canada's troubled water and wastewater utilities are publicly owned, publicly operated, publicly financed, and publicly regulated. Canada's limited experience with public-private partnerships, along with the more extensive experience of other jurisdictions, suggests that private investment, private expertise, and private efficiencies can and should play an important role in solving the problems besetting the country's public systems.

The private sector can provide desperately needed capital. As much as \$90 billion in investment may be required to maintain, refurbish, and expand water and wastewater infrastructure in the coming decades. Private capital can help meet those needs. It offers several advantages over public capital: it frees up public funds for other purposes; its use transfers financial risks from the public to the private sector; and it is likely to be used more efficiently than public capital.

Private firms can bring to water utilities a great deal of expertise. Several large international water companies have more than a century of experience. They invest hundreds of millions a year in research and development. They have thousands of specialized employees, whose skills can be harnessed to solve local problems.

Private service providers have numerous incentives to construct and operate systems effectively and efficiently. Facility owners can build incentives into operating agreements, structuring contracts to reward good performance and to penalize bad performance. Competition for contracts and their renewal also motivates bidders and operators to perform well and to continually discover and implement cost-effective alternatives. In the United States, competition has prompted efficiencies in both the construction and operation of facilities, often resulting in savings of between 20% and 50%.

Private operators are inherently more accountable than public operators. Governments that finance, operate, and regulate systems are often paralysed by conflicts of interest that prevent effective regulation. Distancing the operator from the regulator enables governments to focus on regulation. Furthermore, the legal liability of private operators makes them accountable to the public, and enforceable contracts with specific performance criteria make them accountable to municipalities. The market itself also provides accountability: a poorly performing company cannot increase its shareholder returns or its market share and risks being put out of business.

Despite its many advantages, partnering with a private firm will not automatically solve a community's water problems. Municipalities may obtain the best results by entering into long-term concessions that assign to the contractor responsibility for both operations and capital investment, creating incentives to reduce total costs over the long term and enhancing accountability.

The federal government can do much to facilitate private-sector involvement. It can encourage private operation or oversight of Canada's worst run facilities—those on reserves. Across Canada, it can educate decision-makers and the public about the benefits of private involvement. It can guide municipalities through the bidding process with model documents and advice. It can help ensure the success of partnerships by drafting model contracts that protect the long-term interests of municipalities, workers, consumers, and investors and by developing models for economic regulation. It can promote economically sustainable systems by reducing water and wastewater subsidies. Finally, it can enforce existing health and environmental standards, prompting municipalities to seek assistance from those with greater expertise and ensuring that those providing that expertise perform satisfactorily.

# **Water and wastewater treatment in Canada**

## **Tapping into private-sector capital, expertise, and efficiencies**

*Elizabeth Brubaker*

Walkerton. North Battleford. Kashechewan. Such communities have come to symbolize the breakdown of Canadian water and wastewater utilities. Across Canada, hundreds of communities provide unsafe drinking water or inadequate wastewater treatment, threatening human health and the environment. The vast majority of the troubled systems are publicly owned, publicly operated, publicly financed, and publicly regulated. Canada's limited experience with public-private partnerships, along with the more extensive experience of other jurisdictions, suggests that private investment, private expertise, and private efficiencies can and should play an important role in solving the problems besetting the country's public systems.

The precise number of substandard water systems in Canada is unknown. There is no single source of comprehensive data on utility performance. Although Environment Canada periodically surveys municipalities, many fail to provide the requested information. Only 312 municipalities, representing 9.7 million Canadians, responded to questions about the quality and quantity of drinking water in Environment Canada's 2001 survey of municipal water use. The results, while not necessarily representative of Canada

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at large, were troubling: municipalities representing 25% of the population of the responding municipalities had experienced water-quality problems that year and municipalities accounting for more than 22% had issued boil-water advisories. Furthermore, those accounting for almost 25% had suffered water shortages (Environment Canada, 2004). Boil-water advisories are common in small and remote communities across Canada (Health Canada, 2006). One estimate puts the number of current advisories at more than 1,000 (New Democratic Party of Canada, 2006). Even large cities are not exempt, as illustrated by the boil-water advisory issued in Vancouver in November 2006.

Problems with drinking water are particularly severe in aboriginal communities, 85 of which were under drinking-water advisories in October 2006 (Health Canada, 2006). Indian and Northern Affairs Canada (INAC) reported in 2003 that 30% of the 740 community water systems it assessed failed to meet federal *Guidelines for Canadian Drinking Water Quality*, and that 39% exceeded aesthetic objectives, such as those for iron, sodium, or turbidity. It determined that 29% of the systems posed high risks and that another 46% posed medium risks. INAC also assessed 462 wastewater systems, finding that 22% failed to meet *Canadian Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments*. It classified 16% of the systems as high risk and 44% as medium risk (Indian and Northern Affairs Canada, 2003: 17–20).

Inadequate wastewater treatment is also common in non-native communities. The Treasury Board has called municipal wastewater effluents “one of the largest threats to the quality of Canadian waters” (Treasury Board of Canada Secretariat, 2004). The warning echoed one issued by Environment Canada. Based on a 1999 survey of 1,285 municipalities with a total population of 25.4 million people, Environment Canada determined that almost 47% of municipal wastewater in Atlantic Canada was discharged into receiving waters without any treatment. On the Pacific coast, almost 85% of municipal wastewater was discharged after receiving only primary treatment or, in some cases, after merely being screened (Environment Canada, 2003). The untreated or inadequately treated sewage threatens not only the environment but also human health, shellfish harvesting, recreation, and tourism, with attendant economic costs (Environment Canada, 2001).

The failures of water and wastewater utilities result from several factors. Many systems are old, nearing the end of their useful lives. Many are too small, unable to meet the needs of growing populations. Many are underfunded, starved for both capital and operating funds by politicians unwilling to raise water prices to sustainable levels. Many are badly managed or are operated by ill-trained staff. Many are laxly regulated. For all of these reasons, Canada

is facing, in the words of a study prepared for Infrastructure Canada, “an infrastructure crisis of frightening proportions” (Mirza and Haider, 2003: 3). The crisis may well intensify as populations grow, infrastructure ages, and municipalities face more stringent standards.

The status quo cannot be counted on to meet these challenges. Canada's utilities can benefit in several ways from greater private-sector involvement. Given political realities, few local or central governments are likely to experiment with private ownership. Within the context of public ownership, however, the private sector has much to offer: it can provide capital; it can bring to water utilities a great deal of expertise; it has myriad incentives to construct and operate systems effectively and efficiently. Furthermore, it can be held accountable more easily than the public sector. Each of these benefits is discussed in greater detail below.

## Capital investment

Canada's water and wastewater systems are in desperate need of investment. Estimates vary, in part because many municipalities lack accurate assessments of their infrastructure's condition. It is widely accepted that many tens of billions of dollars are required. The National Round Table on the Environment and the Economy suggested in 1996 that, over the following 20 years, Canada would need to invest between \$38 billion and \$49 billion to maintain and refurbish existing water and sewage infrastructure. In addition, it estimated, it would need to invest \$41 billion in new stock (National Round Table on the Environment and the Economy, 1996: 10, 35). The Canadian Water and Wastewater Association roughly echoed the Round Table's projections, estimating that, between 1997 and 2012, \$27.6 billion would be required to renew water treatment and distribution and \$61.4 billion would be needed to upgrade sewers and wastewater treatment (Canadian Water and Wastewater Association, 1998: iv).

The public sector has been unable or unwilling to provide the necessary investment. Federal and provincial subsidies have declined in recent decades, further stressing municipal capacity. Governments and industry consultants have recognized for more than 15 years that the private sector can and should help meet investment needs (Price Waterhouse, 1991; MISA Advisory Committee, 1991; Interministry Committee on Local Government, 1994; Thompson Gow, 1995; Delta Partners, 1997). The Bank of Canada points out that, although the market for financing of infrastructure through public-private partnerships is in its infancy in Canada, many of the conditions

required to support its development are in place (Woodman, 2006). Financing partnerships are gaining momentum. Several provinces have established agencies dedicated to partnerships. Institutions are increasingly interested in investing in infrastructure. Indeed, in October 2006, the Canada Pension Plan Investment Board, attracted by the prospect of stable cash flows, made a \$1.05-billion offer for a portion of a British water utility.

Although Canada has limited experience with privately funded water infrastructure—one important exception being Moncton, which in 1998 contracted USF Canada to finance, design, build, and operate a state-of-the-art water filtration plant—private investment is commonplace elsewhere. Most often, private investment has occurred in privately owned utilities. In England and Wales, where water and wastewater systems were privatized in 1989, the private companies' investment in infrastructure has averaged more than £3 billion a year and shows no signs of letting up (Ofwat, 2006). Private water companies in the United States have likewise invested considerable sums in infrastructure. A survey by the National Association of Water Companies of 84 investor-owned water utilities serving 5.7 million households and businesses found that the firms had invested almost US\$983 million in 1998 and planned further capital expenditures of almost US\$4.2 billion in the following five years (National Association of Water Companies, 1999). While less common, some operations and maintenance contracts have also involved large investments. United Water, for example, invested almost US\$10 million in advanced technologies for Atlanta's drinking-water system. The firm and at least one rival have stressed that they have the resources to meet the capital needs of any Canadian municipality (Brubaker, 2002: 82).

Availability aside, private capital has several advantages over public capital. It frees up public funds for other purposes. Its use transfers financial risks from the public to the private sector.<sup>1</sup> Furthermore, it is likely to be used more efficiently than public capital (Poole, 1996: 14–15; Levac and Wooldridge, 1997: 32–38). Private firms' incentives and abilities to reduce capital costs were illustrated in Moncton, where USF Canada built the water plant for at least 25% less than the city was planning to spend (Brubaker, 2002: 88).

1 The private sector's borrowing costs may appear to be higher than governments' borrowing costs because taxpayers do not guarantee the former. As one economist explained, if the costs of the credit insurance that taxpayers provide for free were taken into account, "it would no longer be clear that government credit is cheaper" (Klein, 2000: 25; also see Levac and Wooldridge, 1997; Prokopec, 1997). The use of private capital reallocates risks from taxpayers to shareholders. Furthermore, reducing governments' financial liabilities may strengthen their credit ratings and reduce borrowing costs for other projects.

## Expertise and effective, efficient performance

Another argument for involving the private sector in Canada's water and wastewater operations is that doing so will inject expertise into the systems.<sup>2</sup> Large international water companies, several of which have been in the business for more than a century, have developed considerable expertise. They invest hundreds of millions a year in research and development. They have thousands of specialized employees, whose skills can be harnessed to solve local problems. As the director of public works said of Indianapolis's decision to hire a private firm to operate its sewage system: "These guys have resources our guys could only dream of." The city's mayor added that the arrangement "brought us some of the best technical experience in the world—the companies comprising the partnership employ more Ph.D. civil engineers than the city of Indianapolis has employees. They literally wrote the book on water treatment" (Brubaker, 2002: 37).

A desire to share in water companies' expertise contributed to the decision to engage a private operator for the systems in Walkerton and the nearby communities that make up the municipality of Brockton. Keenly aware of the deficiencies in the public utility commission that operated the systems when tainted water killed seven people and sickened 2,300, and fearing that it could not afford to keep specialized expertise in house, the municipality turned to private professionals. The mayor explained: "In the name of safety, and to keep everyone happy, we have to get someone we can rely on" (Brubaker, 2006: 17). The municipality concluded a service agreement with Veolia Water Canada in June 2006. The fixed-fee contract, renewable after five years at the municipality's discretion, includes operations, maintenance, and management of the municipality's three drinking-water systems and its wastewater treatment plant.

Although Brockton has partnered with a water giant, small specialized firms can also bring expertise to many communities. When *E. coli* contaminated Kashechewan's water, prompting the airlift from the reserve of more

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- 2 Many small systems are overseen or operated by poorly trained staff who are ill-equipped to meet the challenges they may face. Although several provinces have required increased training and certification for operators of municipal water plants in recent years, Newfoundland, New Brunswick, the Northwest Territories, and Nunavut still have no requirements for training or certifying operators (Christensen, 2006: 25, 55). The lack of operator expertise is especially acute in aboriginal communities. An INAC assessment revealed that just 10% of the 1,200 people working in First Nations water and wastewater facilities met industry certification requirements and that just 65% had received some form of training to operate the systems (Indian and Northern Affairs Canada, 2003: 16).

than 1,100 residents, the federal government called in Northern Waterworks, a firm that operates 11 plants in northwestern Ontario. The firm's technician flew into the community and repaired the malfunctioning chlorination system in less than six hours. The firm now operates the system.

Private firms have a variety of incentives to put their expertise to use, ensuring that plants perform effectively and efficiently. Municipalities and other facility owners can build incentives into operating agreements with private service providers, structuring contracts to reward good performance and to penalize bad performance. Milwaukee established a system of performance payments and penalties related to the quality of effluents from its two wastewater treatment plants. For example, it rewards the contractor for reductions in annual average biochemical oxygen demand, adding US\$100,000 to the contractor's service fee for every milligram per litre of improvement. For its first year of operations, the contractor earned a US\$50,000 bonus along with kudos for consistently meeting national permit requirements for the first time in five years. It repeated this performance the following years (Brubaker, 2002: 28). Even without contractual incentives, competition for contracts and their renewal motivates bidders and operators to perform well and to continually discover and implement cost-effective alternatives.

In the United States—where, in 2002, more than 2,400 publicly owned water and wastewater systems were privately operated (Reinhardt, 2003)—competition has prompted efficiencies in both the construction and operation of facilities. By streamlining finance, design and engineering, procurement, and construction practices, private firms have reduced construction times and costs. Free from political constraints, they have cut staffing levels. They have invested in costly equipment promising long-term savings. They have developed innovative management information systems and data processing technologies to improve cash flows, accounting, metering, billing, and debt collection. Large firms have taken advantage of bulk prices for chemicals and other supplies and have benefited from economies of scale in design, expertise, and equipment. The savings resulting from various efficiencies have been impressive. The Reason Foundation has repeatedly found private operators to be between 20% and 50% more efficient than their public counterparts. *Public Works Financing's* estimates of the operating savings resulting from out-sourcing, based on 45 operations and maintenance contracts with terms of over ten years, have fallen in roughly the same range: 20% to 45% (Brubaker, 2002: 25–26).<sup>3</sup>

3 It appears that competition rather than ownership is key to reducing costs (Kitchen, 1993: 22). A study prepared jointly by the American Enterprise Institute and the Brookings Institution noted that most comparisons of operating efficiency in publicly and privately owned water

As long as the quality of service is regulated, efficiencies do not come at the expense of good performance. Indeed, as a rule, private firms are less likely than their public counterparts to violate safe drinking water standards (Moore, 2004: 6). A survey by the Water Partnership Council of officials in 31 American communities engaged in public-private partnerships found that regulatory compliance improved under 74% of the partnerships (Reason Foundation, 2006: 177).

Given the performance of private water operators in the United States, it is unsurprising that municipalities seem to be pleased with their water and wastewater partnerships. *Public Works Financing* reports that since 2000, more than 94% of the water and wastewater contracts that have come up for renewal have been renewed either with the incumbent or, occasionally, with a competitor. Fewer than 6% have reverted to municipal operations. The Water Partnership Council's survey likewise found community representatives to be very satisfied—or, at the worst, satisfied—with their new arrangements (Reason Foundation, 2006: 177).

## Accountability

A private owner or operator is inherently more accountable—to provincial regulators, the public, municipal governments, and the market—than a public owner or operator. Governments that finance water and wastewater infrastructure understand that if they enforce the law they may have to help pay for necessary upgrades. Likewise, governments that own or operate plants understand that prosecuting poor performance may require them to prosecute themselves. Such conflicts often result in regulatory paralysis (Davies and Probst, 2001; Christensen, 2006: 44–45).

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utilities in industrialized countries have used fairly small datasets and have been inconclusive. The authors, analyzing data for every community water system in the United States, found that households served by privately owned systems pay, on average, \$14 a year less than those served by publicly owned systems and that benchmark competition among private utilities yields annual household savings of up to \$33. Such modest savings are consistent with the understanding that “Competition drives innovation and efficiency improvements, but in the water sector is not nearly as robust as in other industries” (Wallsten and Kosec, 2005: 28). Dramatic savings in the United States have resulted not from private ownership but from private firms competing to operate publicly owned systems. Where competition is absent, regulation may achieve similar results. In England, for example, incentive regulation promotes efficiency improvements (Brubaker, 2002: 150–53).

Although people often associate privatization with deregulation, or a loss of control, the privatization of water utilities does not in any way imply deregulation. On the contrary, it goes hand-in-hand with a new focus on regulation. As explained in a review conducted by the federal Policy Research Initiative: “Privatization is not a simple retreat of the state, but rather a redefinition of its role as a regulator in a market-oriented economy” (Ouyahia, 2006: 17). Ontario’s limited experience with privatization confirms this. Enforcement improved dramatically during Hamilton’s ten-year experiment with private operations; although the city’s sewage-treatment facilities exceeded provincial pollution limits for many years, not until after privatization did the environment ministry lay charges and seek fines against the operator. The same thing has happened in other jurisdictions, most notably in England and Wales. Before privatization, the government’s conflicting roles as (in its words) “poacher” and “gamekeeper” constrained enforcement. Privatization separated the operator from the regulator, producing what one regulator identified as the most significant gain of privatization. Since privatization, the system of water regulation in the United Kingdom has become one of the toughest in the world, with impressive results (Brubaker, 2002).

Of course, privatization will not solve all regulatory problems. Governments tolerate private pollution as well as public pollution. For this reason, it is useful to create another level of accountability: accountability to the public through legal liability. Legal liability differs for those who work in private and public systems. Governments are often immune from tort liability for the consequences of policy and budget decisions—a protection without parallel in the private sector. The consequences of liability also differ. They tend to be more serious in the private sector, threatening not only the jobs of those responsible but also the firm’s profits. Because private decision-makers will bear the costs of their decisions, liability has a great deterrent value.

Privatization creates other forms of accountability as well. Enforceable contracts with specific performance criteria provide municipalities with powerful tools to compel compliance. Contracts can guarantee water quality, maintenance levels, or capital expenditures and can include financial penalties for non-compliance. A Moncton representative described the protection built into his city’s deal with a private water firm: “If they don’t meet the specs, then they ain’t getting paid” (Brubaker, 2002: 89). In a privatized system, the market itself also provides accountability (Spulber and Sabbaghi, 1998: 194, 234). A poorly performing water company will be unable to increase its shareholder returns or its market share. As investors hold the firm accountable for bad performance, stock prices will fall. Clients and potential clients will refuse to work with an irresponsible firm. In the prescient words of then

president and CEO of Azurix North America, “If you are negligent, you are history” (Brubaker, 2002: 136). In contrast, public service providers rarely face the threat of being put out of business. Lacking a “financial survival imperative” (Alesch, 1997: 13–14) makes them less accountable.

## Avoiding pitfalls

An increasing number of municipalities, understanding that competitive contracting often offers a “good solution” to a variety of problems, are contracting out plant operations (Expert Panel on Water and Wastewater Strategy, 2005: 20, 35). The extent of private operations can only be estimated, since no publicly accessible database of private operations is maintained and some private firms are reluctant to share information on their operations for fear of exposing themselves to unwanted competition. Whatever the exact number, it is growing in several provinces. In Ontario, the number of water or wastewater facilities operated by private firms increased from 26 in 1998 to 42 in 2001. By 2006, one service provider estimated that between 50 and 75 Ontario systems were privately operated (Brubaker, 2006: 15).

Despite its distinct advantages and its increasing popularity, partnering with a private firm will not automatically solve a community’s water problems. Although there have been many successful contracts in recent years, there have also been a number of failures (Brubaker, 2003). Some contracts have failed because of inadequate baseline information. A lack of comprehensive data about the state of the infrastructure, the costs of providing services, the quality of influents and effluents, or work pending has led to expensive surprises and disputes over who should pay. Failures have also resulted from flaws in the contracting process, such as an absence of competition when contracts have been sole-sourced. In other cases, the contracts themselves have been flawed, perhaps because the parties had insufficient expertise to draft or assess them, or perhaps because they evaded difficult issues rather than forcing resolutions. Some contracts have lacked clarity about which party is responsible for what or have failed to spell out contingencies. Inadequate government regulation and insufficient public oversight stemming from limited access to information have also contributed to failures. Some failures have been more political, reflecting labour conflicts, public opposition, or a loss of support on municipal councils.

Most contracts have been structured with two core imperfections: they have been short-term contracts and have assigned responsibility for operations and maintenance to the private firm, while leaving responsibility

for capital improvements with the municipality. Dividing responsibility for maintenance and capital improvements has led to disputes about the category in which various expenditures should be placed. It has created incentives to put off small repairs until they have grown large enough to qualify as capital investments. More generally, it has created incentives to reduce operating costs at the expense of capital costs. Furthermore, by enabling the operator to blame poor performance on the municipality's lack of investment, it has made it difficult to enforce performance requirements.

Municipalities may avoid both problems by entering into long-term concessions that assign to the contractor responsibility for all aspects of the system. When a single party is responsible for both operations and capital investment, it has an incentive to reduce total costs over the long term. Moreover, it is far more difficult for the operator to pass the buck or point the finger when something goes wrong. It can only look to itself to correct the problem.

## **A role for the federal government**

The provinces bear primary responsibility for drinking water and sewage treatment and have generally delegated all but their regulatory responsibilities to municipalities. Although the federal government funds and oversees water utilities in aboriginal communities and in other areas under its jurisdiction, such as military bases and national parks, its role in the rest of Canada is more "strategic" (Infrastructure Canada, 2004: 1). In the past, it has influenced provincial and municipal policies and practices through environmental and health regulations, subsidies to infrastructure, and the funding and coordination of research and policy development, some of which has promoted greater private-sector involvement.

Although the federal government cannot dictate policies on the financing and operations of water utilities to the provinces or municipalities, it can lead by example. Most obviously, it can encourage private operation or oversight of Canada's worst-run water and wastewater facilities, those on reserves. The government is sensitive to native communities' desires to determine for themselves how best to solve their widespread water and wastewater problems. However, discretion in moving towards locally appropriate solutions must not come at the expense of health and safety. When health and safety are at immediate risk and when a community is unable to address that risk, the federal government should be prepared to intervene and to appoint an expert operator to provide safe water until the community is able to do so itself. In some cases, it may be appropriate for the government

to engage a professional water-services provider to monitor, supervise, and otherwise support (through training, troubleshooting, and emergency assistance) locally run plants.

The federal government can do much else to encourage private-sector participation in the provision of water services in non-native communities. It can educate both decision-makers and the public about the potential benefits and risks of private involvement. The public is understandably confused about these issues.<sup>4</sup> By providing unbiased information about partnerships and the partnering process, peer-reviewed research papers, and case studies of privatization's successes and failures, the federal government can get the facts out, demystify the privatization process, and counter the misinformation often offered by privatization's critics. For several years, Industry Canada's Public-Private Partnership Office played such a role, albeit modestly, posting on its web site a wide selection of resources on privatization. With one exception, Industry Canada stopped updating the site in early 2004. That year, it also discontinued its *P3 Media Scan*—an email service that, in providing a continuous stream of articles about private-sector involvement, not only supplied invaluable current information but also created a sense of momentum. Such services may now be best provided by Infrastructure Canada, whose mandate includes building and sharing research and knowledge about infrastructure issues and working with provincial and municipal governments.

Furthermore, the federal government can help ensure the success of privatizations that do occur. Many municipal governments, especially smaller ones, lack the knowledge or skills required to negotiate and oversee complex contracts. The federal government can help prevent municipalities from bungling the process—it can help ensure that contracts are drafted and implemented in ways that protect the long-term interests of municipalities, workers, consumers, and investors. It can help municipalities navigate the privatization process. It can prepare model Requests for Expressions of Interest and Requests for Proposals, along with information to guide municipalities through the bidding process. It can distribute model contracts that create incentives for adept and efficient performance and include effective monitoring and enforcement mechanisms.

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4 According to the Canadian Union of Public Employees, one of the country's harshest critics of privatization, polls show that a majority of Canadians opposes the private provision of public services. And yet, the public places considerable confidence in private water providers: in 2003, the average Canadian, often citing concerns about the safety of tap water, consumed 47 litres of bottled water (Christensen, 2006: 36). The widespread use of home filtration systems also suggests suspicion of municipal water and trust in private alternatives.

The federal government can also help develop models for the effective economic regulation of public-private partnerships. Municipalities have failed as regulators. Canadian water rates—among the world's lowest—are generally well below the full costs of providing services.<sup>5</sup> Municipal governments tend to ignore the long-term needs of water infrastructure, divert to other uses funds earmarked for water systems, and focus on social or political concerns rather than the business-like operation of water services (Expert Panel on Water and Wastewater Strategy, 2005: 31, 37). These deficiencies in municipal governance prompted Ontario's Expert Panel on Water and Wastewater Strategy to propose the establishment of an impartial economic regulator to oversee business planning, rate setting, and service quality for all water service providers, public and private (Expert Panel on Water and Wastewater Strategy, 2005: 11, 37–42). Such a regulator could also oversee contracts between municipalities and private providers. Few models for the economic regulation of water utilities—or, more generally, for the oversight of public-private partnerships—exist in Canada. The federal government would do well to commission and disseminate research into the regulation of water utilities and other public-private partnerships in other jurisdictions, such as the United States and England, and the regulation of other utilities, such as those supplying and distributing natural gas, here in Canada.

The federal government can also promote economically sustainable systems—and encourage greater private-sector involvement—by reducing water and wastewater subsidies. The government recognized the hazards of subsidies as early as 1987, when it noted in the *Federal Water Policy*—which has yet to be updated or replaced—that subsidies, in making possible low prices, had fostered the overuse of water and created an artificial need for costly treatment infrastructure (Environment Canada, 1987: 5). In the intervening decades, other adverse effects of subsidies on municipalities have emerged: while the expectation of grants has encouraged municipalities to delay necessary work, once they have materialized grants have encouraged municipalities to undertake unnecessary work, resulting in excess capacity and higher upkeep and operating costs (Expert Panel on Water and Wastewater Strategy, 2005: 50–51, 54). Furthermore, the availability of grants and low-cost loans has left municipalities with few incentives to seek private capital. Thus, the federal government, by reducing subsidies, can motivate consumers to use water more efficiently, prompt municipalities to make more timely and efficient infrastructure choices, and encourage municipalities to seek investment by the private sector.

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5 The water revenues of Ontario's municipalities provided just 64% of the full costs of providing services in 2003 (Expert Panel on Water and Wastewater Strategy, 2005: 53).

Finally, the federal government can create a regulatory environment that both encourages private-sector participation and ensures that it is successful. Although regulations that could be effective are currently in place, the government rarely enforces them. It rarely requires municipal sewage plants, for example, to comply with the federal *Fisheries Act*, which forbids the deposit of deleterious substances into water frequented by fish. Enforcing existing health and environmental standards will prompt many municipalities to seek assistance from those with greater expertise and will ensure that those providing that expertise perform satisfactorily.

Water infrastructure, the federal government understands, is not only a key determinant of public health and quality of life but is also key to economic growth and prosperity (Infrastructure Canada, 2004: 3–4). When successfully implemented, it further understands, public-private partnerships “are an innovative approach to enabling governments to carry out projects unlikely to proceed without private assistance, and are a useful tool to assist in working towards meeting infrastructure needs” (Infrastructure Canada, 2004: 13). Such understanding is not enough. It is time for action.

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