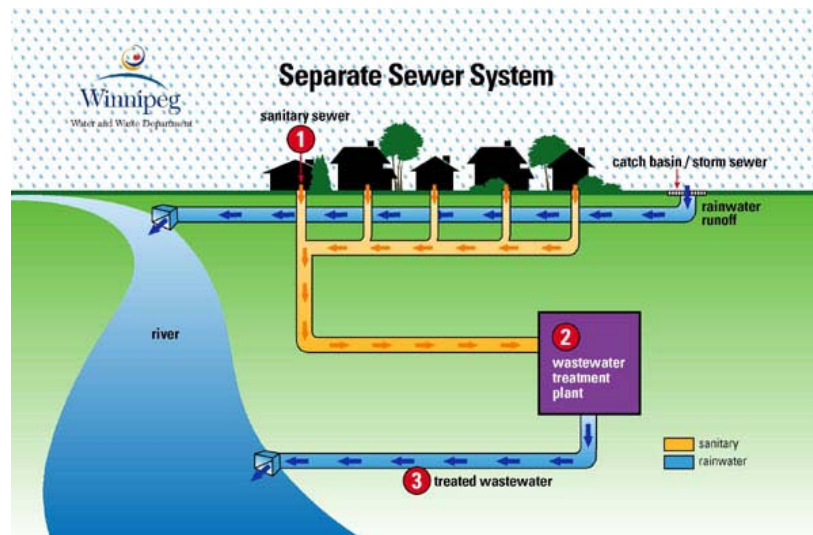




No. 27

FREQUENTLY ASKED QUESTIONS ABOUT WATER/WASTEWATER PRIVATIZATION



May 2006

By Geoffrey Segal and Adrian Moore

ISSN 1491-7874

FREQUENTLY ASKED QUESTIONS ABOUT WATER/WASTEWATER PRIVATIZATION

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Date of Issue: May 2006

ISSN 1491-7874

A joint project of:



The Frontier Centre for Public Policy is an independent, non-profit organization that undertakes research and education in support of economic growth and social outcomes which will enhance the quality of life in our communities. Through a variety of publications and public forums, the Centre explores policy innovations required to make the eastern prairies region a winner in the new economy. It also provides new insights into solving important issues facing our cities, towns and provinces. These include improving the performance of public expenditures in important areas like local government, education, health and social policy. It is located at Suite 25 Lombard Concourse, One Lombard Place, Winnipeg, Manitoba CANADA R3B 0X3. For more information visit www.fcpp.org.



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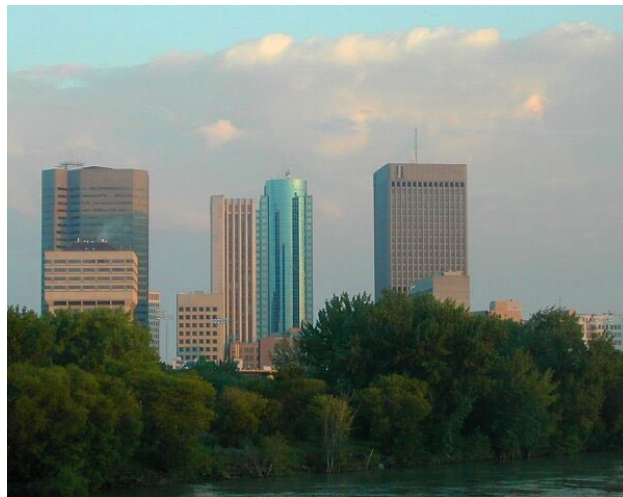
A highly skilled policy analyst with a strong, diversified background in policy research and project analysis focusing on public-private partnerships, competition, government efficiency, government spending and waste, transparency, accountability, and government performance, Segal has worked closely with legislators in California, New York, Florida, Virginia, Pennsylvania, Oregon, Kentucky, Indiana, Ohio, Washington D.C., Colorado, Minnesota, Maryland, Maine, North and South Carolina, Hawaii, Arizona, and Texas in efforts to reduce government spending, improve government performance, and enhance accountability in government programs.

Segal has testified to the United States Senate and numerous state legislatures and agencies. He has written dozens of articles for leading publications including *Investor's Business Daily*, *Atlanta Journal-Constitution*, *Indianapolis Star*, *Orange County Register*, *Los Angeles Daily News*, and *New York Sun*. Segal is also a contributing editor to *Budget & Tax News*. He earned a B.A. in Political Science at Arizona State University and a Master of Public Policy from Pepperdine University.

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POLICY SERIES NO. 27

FREQUENTLY ASKED QUESTIONS ABOUT WATER/WASTEWATER PRIVATIZATION?

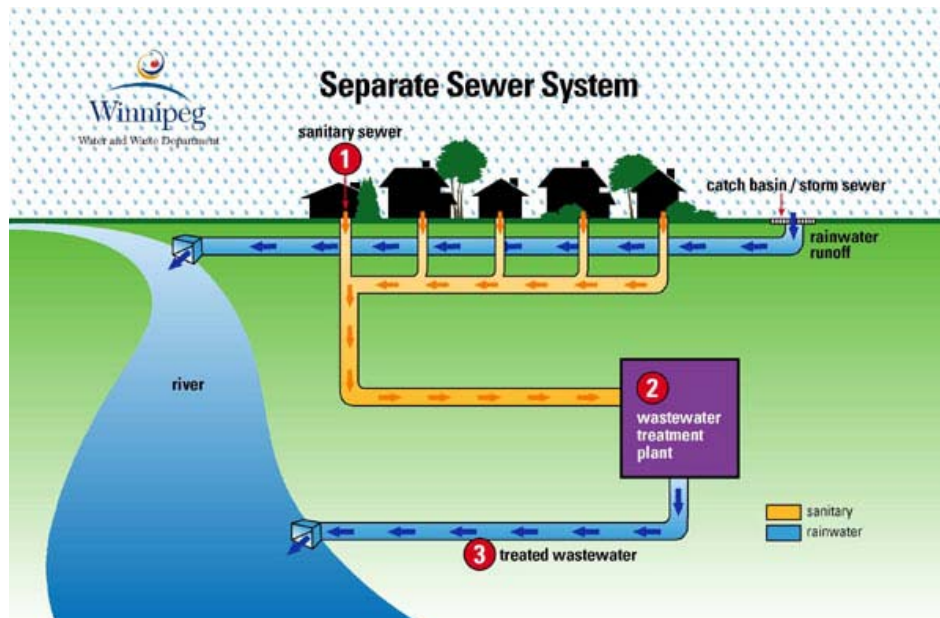


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The authors of this study have worked independently and the opinion expressed, is therefore their own, and does not necessarily reflect the opinions of the board of the Frontier Centre for Public Policy.

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www.fcpp.org
Date of Issue: May 2006
ISSN 1491-7874

FREQUENTLY ASKED QUESTIONS ABOUT WATER/WASTEWATER PRIVATIZATION



Executive Summary

- The City of Winnipeg is facing a significant challenge, the cost of renewing its water and wastewater systems.
- If it followed a widely established trend by privatizing these facilities, the City could save an estimated \$225 million.
- Established techniques for privatization include service shedding, asset sales or leases, merchant projects and outsourcing or contracting operations.
- Thousands of other municipalities have embraced these tools to contain costs and meet mandates from other levels of government.
- Privatized water and wastewater systems have excellent track records for maintaining environmental and health standards.
- Studies confirm that existing municipal employees have little to fear from privatization.
- Local governments that privatize experience little or no disruption in service.
- Markets, even ones with foreign participants, can successfully deliver vital services.
- Privatization of water and wastewater systems has saved municipalities a lot of money, and after the fact they tend to be highly satisfied with such decisions.
- The pitfalls of privatization are well-known and understood, and can easily be avoided.

Introduction and Background

On September 16, 2002, a valve in the influent pumping system at the City of Winnipeg’s North End Water Pollution Control Centre failed. Over the next two days, while City workers made repairs, 427 million litres of untreated wastewater, most of it raw sewage, flowed into the Red River.ⁱ Although the City had technically broken the law and charges were laid, Environment Canada did not pursue the case and the charges were eventually dropped. According to an official at the agency, its initial investigation confirmed that the disaster was accidental, and that prosecution of the case would not likely succeed in the courts.ⁱⁱ

The incident did, however, renew discussion among City officials and politicians about the need for a significant re-investment in Winnipeg’s water and wastewater systems. A new water treatment plant had already been in the works, partly in response to federal and provincial mandates that require much more thorough attention to existing and potential contamination of the City’s water supply. The sewage spill also focused attention on a chronic problem, the inability of the City’s wastewater systems to handle runoff during rain events.

The City of Winnipeg began to accumulate the funds for a new water treatment plant, designed to meet anticipated increases in demand and upgrade the quality of tap water, in 1993. It increased rates substantially, and eventually decided that 16.5% of the revenue be collected in a special fund called the Water Treatment Plant Reserve Fund. Last estimated at \$204 million, half of the cost of the new plant will be paid through the Reserve Fund and half through long-term debt.ⁱⁱⁱ

Sewage upgrades are another matter. In areas of Winnipeg where sewer infrastructure had been constructed before the 1960s, combined pipes carry both sewage and water from land drainage. During heavy rainstorms, they cannot handle all the runoff, and diluted wastewater overflows into river systems. That occurs an average of 18 times every year, mostly between May 1 and September 30. According to Gordon Steeves, the Councillor who chairs the Standing Policy Committee on Public Works, “We could be investing up to \$392 million over the next 25 years to reduce the number of combined sewer overflows from our current average of 18 to a target of 4 during the recreation season. We could also spend an additional \$359 million on other wastewater system improvements, such as reducing nutrients in effluent, and disinfecting effluent.”^{iv}

Estimates released by Steeves in 2004 breakdown the projected liabilities:^v

Anticipated Capital Costs

Reducing combined sewer overflows	\$392 million
Reducing nutrients in effluent	273 million
Disinfecting effluent	18 million
Biosolids management	63 million
Other	5 million
Total	\$751 million

These costs for sewer upgrades, when combined with the cost of a new water treatment plant, mean that Winnipeg ratepayers face a total infrastructure bill for water and wastewater that approaches one billion dollars. That figure does not include

the cost of renewing the aging pipe infrastructure in Winnipeg's older sections, a program that is notoriously behind schedule.

Is there a way to reduce these imminent costs? One proven method, which has saved municipalities between 10 and 40 percent of the costs of providing water and wastewater systems, is the privatization of the facilities themselves and/or of the responsibility for their management and operation them. The trend in outsourcing government services—once regarded as the exclusive purview of in-house providers—is growing, and research indicates that municipalities adopting that method of containing costs report high levels of satisfaction with the decision to outsource.

Indeed, according to writer Tom Blackwell, “for many small municipalities private operators are now seen as a safe alternative to in-house water management as new regulations make the crucial services more difficult and complex to run.”^{vi} He states that “communities contracting out their drinking water to the private sector range from Moncton, N.B., and London, Ont., to much of smaller places such as Moosonee in northern Ontario.”

Blackwell states that even the Ontario town of Walkerton, the site of Canada's most notorious case of municipal water contamination, “is turning to the private sector to run its revamped waterworks, part of a growing national trend.”^{vii} The area's Mayor, Blackwell reports, “listed half a dozen private companies—and a corporation owned by the city of Edmonton—already operating municipal waterworks in the province and elsewhere in Canada. . . . ‘More and more municipalities are turning their systems over to private operators on a contract basis,’” Blackwell quotes Glenn Powell of the Ontario Water Works Association.^{viii}

Is this the answer for Winnipeg? According to Geoffrey Segal of the Reason Foundation, one of the authors of the study presented here, the City could save \$225 million by contracting its water and wastewater systems.^{ix} That possibility alone should lead the City of Winnipeg to consider that alternative in a serious manner.

That said, old ideas die hard in Winnipeg. Despite the reality of substantial savings—which could, for instance, be diverted into repairing the city's inadequate road infrastructure—the suggestion alone will provoke a hot debate about losing control of an important public good, losing jobs and so on. As Segal and Moore's paper outlines, these concerns are highly overblown. If the policy were properly implemented, the city could maintain control while saving millions for other important uses. The experience has been overwhelmingly positive in the United States.

Should such fears be overcome and Winnipeg's water and wastewater systems be contracted, it would eliminate the natural conflict of interest that occurs when government owns a resource that they also regulate. From a “smart green” perspective, it is clearly superior environmental policy to separate the regulator and the operator of water facilities, a key argument made in the last Frontier Centre policy paper^x (See “Smart and Green” – An Environmental Policy for the 21st Century – FCPP Policy Series No. 25).

No more instructive example of that conflict of interest could be provided than the disastrous 2002 incident that spilled millions of litres of toxic effluent into the Red River. Ultimately the City paid no penalty for its environmental crime. It is not unreasonable to

posit that both reaction times and sanctions—not to mention prior investment in order to prevent such an occurrence—would have been much different had a private wastewater operator been responsible, or if people upstream had the opportunity to protect their property rights and sue for damages.

There is no question that the federal regulator would have “thrown the book” at an incompetent private contractor. In order to become responsible stewards of the environment, governments must separate themselves from such conflicts of interest. They can do that by separating the ownership or commercial activities and resources from their regulatory functions.

In that vein, we are pleased to present the Reason Foundation’s stellar overview of frequently asked questions about water and wastewater contracting.

Peter Holle

President

Frontier Centre for Public Policy

What is privatization?

Privatization is a very broad term describing many policy tools for shifting some degree of responsibility for services to the private sector. Privatization techniques include:

Service shedding—where governments cease to deliver services and leave them to the market, such as with most commercial solid waste collection.

Asset sales or leases—where governments sell or lease facilities to the private sector, often in order to provide public services. In the United States a number of water and wastewater facilities have been sold or leased, as have hospitals, landfills, and other facilities. This is the most common form of privatization internationally.

Merchant projects—where governments authorize private firms to build and own facilities with which to provide public services, such as privately owned treatment plants, landfills, hospitals, prisons, toll roads, etc.

Outsourcing or contract operations—where governments hire private firms to provide services in place of government agencies and/or operate government-owned facilities. This is the most common method of privatization used in water and wastewater services in the United States.



With few exceptions, privatization of water and wastewater facilities has not meant asset sales or leases. Almost all privatizations are contracts for operation and maintenance (O&M) of facilities. Now and then some small systems are sold or leased. For example, Fairbanks, Alaska, sold both utilities in 1997. With contract O&M, the government still owns the facility, and a private firm operates, manages, and maintains it. Many contracts also require the private firm to upgrade or expand facilities and handle customer and other related services.

How common is privatization of water and wastewater services?

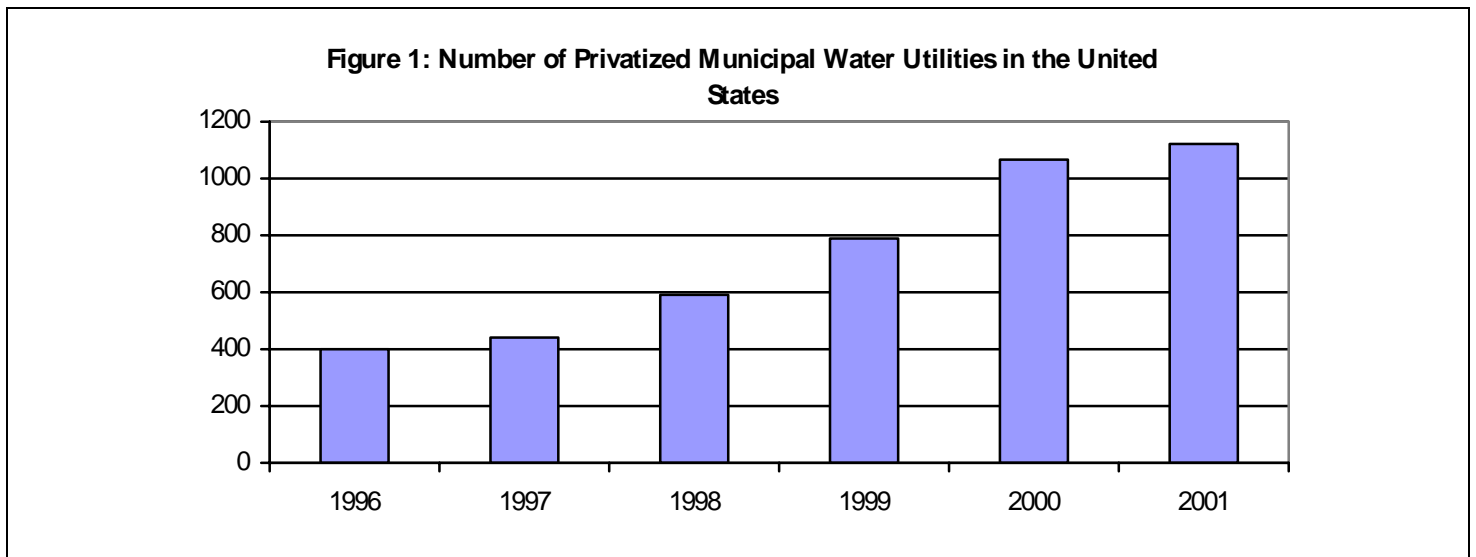
Privatization of water and wastewater facilities in the United States is not a new phenomenon. Converting government-owned facilities to private ownership or management goes back at least three decades.^{xi}

The larger context of privatization is significant. Surveys in recent years by the National League of Cities, U.S. Conference of Mayors, and the International City/County Management Association among other organizations find:^{xii}

- Most local governments have been increasing their use of privatization in recent years, and plan to further increase privatization in coming years;
- Privatization grows the fastest in communities that have already made the most use of privatization; and

- Local governments are focusing more on competition than on privatization for their own sake, using outsourcing, insourcing, intergovernmental contracts, etc., as needed to get the service and cost results they want.

Water and wastewater service privatization follows these broader trends. More than 40 percent of drinking water systems in the United States are private, regulated utility systems. Of the 60 percent of systems owned by local governments, privatization by contracting for operations and management has grown rapidly in recent years. In 2001, nationwide privatization of water and wastewater services grew by 13 percent, after growing by 84 percent over the decade of the 1990s.^{xiii} At the end of 2001, nearly 1300 local governments have privatized operation of wastewater systems, and over 1100 have privatized operations of water systems.



Source: *Public Works Financing*

Why are local governments privatizing water and wastewater services?

Local government surveys have found that public officials turn to privatization in response to fiscal crisis and/or when privatization has been shown to work in other jurisdictions. According to the U.S. Conference of Mayors, four out of ten cities are actively considering privatization in order to reduce costs and attract private capital investment.^{xiv}

Infrastructure concerns are embedded in broader issues. A 1998 survey found that public officials' greatest operational concern is meeting environmental regulations and that capital improvements are driven by:^{xv}

- Growth 40%
- Age 30%
- Regulations 27%
- Other 3%

These top concerns are embedded in a context of change.

Growth. This is a fairly self-evident challenge. Extending systems either to cover more area or to handle increased demand is costly and complicated. Local governments must be proactive in anticipating stresses that growth places on systems rather than waiting for them to break.

Decaying Infrastructures. Many water and wastewater systems include water and sewer infrastructures that date back to the early 1900s. The most recent systems were built with federal funds during the 1970s, and even these now need upgrading or replacing. The EPA recently estimated that the nation's 76,000 drinking water systems alone will require \$150 billion in investments over the next 20 years.^{xvi} Wastewater systems will require a similar level of investment.

Regulations. Over the last two decades, through the Clean Water Act and the Safe Drinking Water Act and their subsequent amendments, standards governing the quality of drinking water and cleanliness of effluent discharged into waterways have become ever more stringent. To meet these increasing standards, many local water and wastewater systems require improved technologies and upgraded infrastructure.

Other—Mandates. The federal government has reduced its contributions to local water systems over the past 30 years, while at the same time imposing stricter water quality and effluent standards under the *Clean Water Act* and *Safe Drinking Water Act*. Unfunded mandates are forcing municipal systems to meet federal regulations through local sources of revenues or state revolving loan funds.

Other—Structure of Local Financing. It's often difficult for local officials to commit to making the necessary investments in community water systems. Water pipes and sewer mains are not visible and not perceived as immediately critical for adequate funding. It is easier for elected officials to ignore them in favour of expenditures for more visible services, such as police and fire. Additionally, water and sewer rates do not adequately cover the actual cost of providing services in many municipalities, but raising water and sewer rates to cover operations and maintenance as well as capital replacement is an unpopular move for elected officials.



These combined factors have led to a capital-funding crisis for water and wastewater facilities. In the face of such a crisis, surveys show that privatization is a policy tool public officials often turn to.

How does privatization affect environmental and health standards?

In the United States, privatization has bipartisan support as a means of improving the environment and the health of citizens.^{xvii} President Clinton's EPA endorsed privatization as a means by which local governments could meet environmental

standards. Indeed the EPA wrote, “[Privatization case studies] provide concrete examples to local officials of how successful partnerships and other models can be used by communities to provide needed environmental services more efficiently. They also show how public-private partnerships can be used as a way to provide substantial benefits to both the public and private sectors, creating the classic “win-win” situation.”^{xviii}

At the same time, a 1999 survey found that privatizing water and wastewater services can improve compliance with environmental standards. Prior to privatization, 41 percent (12) of the facilities surveyed were not in full compliance with the federal Safe Drinking Water Act. One year after entering into a public-private partnership, all were in compliance with federal water standards.^{xix}

For example, after a 1993 outbreak of cryptosporidium parasites, Milwaukee had to spend over \$90 million in a new water purification system. That forced the city to look for substantial savings in other parts of the budget while ensuring environmental protection.



The result was in 1999 the city entered into a long-term contract with United Water to operate the city's wastewater system. The contract was stringently performance based, leading to effluent discharge that has each year exceeded state and federal standards and considerable cost savings to the city.

Is privatization an attack on public employees?

Privatization often focuses on increasing the productivity of the workforce, and employees often fear outright layoffs or lower wages and benefits. There are several items to examine in evaluating this concern:

- Every comprehensive study of the effects of privatization on employees in the United States has found layoffs to be minimal—typically around 7 percent of the workforce. Most employees are hired by the firm taking over operation of water or wastewater facilities;^{xx}
- Typically wages and benefits go up for some employees and go down for others, and natural attrition accounts for most of the reduction in workforce;^{xxi}
- Long-term O&M contracts often include a requirement to hire all existing employees who meet minimal criteria;
- Upward mobility and job opportunities expand if privatization moves employees to a firm managing a larger network of facilities; and

- Techniques have emerged for involving employees in the planning process and investing some initial savings in transition programs for employees that do not go to work for the contractor.^{xxii}

The outcome for employees depends on the goals of the local government. If it seeks privatization in order to cut costs and/or improve services, there are sufficient examples to show that with appropriate attention to how the privatization and contract are structured, employees need not be harmed.

Does privatization and loss of staff leave local government vulnerable?

Some local governments fear that after privatization shifts employees to a private firm, they will lose their ability to take back operating the facilities if the contract is terminated, and to handle emergencies and strikes by private contractor workers. Local governments remain accountable to citizens for water and wastewater services even after contracting with private firms for O&M, so these concerns are justified. However, in light of the evidence, the degree of concern should not be very great. Privatization of water and wastewater services has extended over three decades in thousands of communities during which



time emergencies, strikes, and contract terminations have simply not been important problems. In fact, nine out of ten water and wastewater privatization contracts are renewed when their term expires, indicating that that local governments have not found themselves vulnerable or suffered service disruptions due to privatization.

Water is vital, so can we trust it to the market?

This is a conceptual rather than a research question, but grounded in basic facts about our lives. Yes, water is vital, and along with most other vital things, the market has proved exceptional at providing it. The closest analog is food, which the market provides, as it does medicines and healthcare. Government hires contractors to maintain the airplanes that that transport public officials, to guard nuclear power plants, and to build, maintain, and often operate submarines, fighter jets and other high-tech weapons systems.

The sheer track record of water and wastewater privatization, with thousands of satisfied communities, reveals this concern to be mainly rhetorical, rather than factual. Government remains responsible for establishing and enforcing quality and reliability standards, while contractors have every incentive to ensure the same. Just as with government-run facilities, employees and managers, and their families, live in the community and are customers of the services they provide. And companies that consistently fail to deliver expected service will soon find no more willing customers.

Is foreign ownership of some water companies cause for concern?

Local control and accountability matter. The question is what form they must take. We trust foreign-made cars with our lives—and they are far more likely to be the cause of our death than our water is. We ingest foreign-made pharmaceuticals, we eat imported foods, we strap our children into foreign-made car seats, all without really worrying about where they are made. Why? Because there is a system for ensuring they are safe products.

Privatization of water and wastewater services does not change the system for ensuring the water is safe and reliable. The same regulations apply, indeed, often more stringent ones do. Many American communities have privatized because they could not meet EPA health and safety standards. They brought in private contractors as a means of achieving health and safety. Indeed, some communities have required contractors to substantially exceed EPA standards.

Again, employees and managers with contract firms, and their families, live in the community and are customers of the services they provide. Foreign-owned companies in the water industry are more closely scrutinized by communities and will quickly run out of customers if they establish a record of bad service. They also sport the advantage of objective monitoring. Government provision of a service puts compliance monitoring on the provider, creating a conflict of interest that does not exist in private contracting

Does privatization save local governments money?

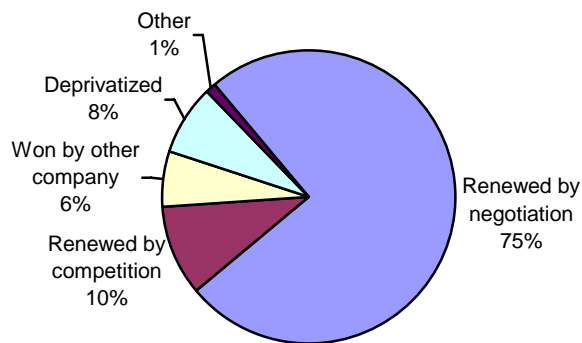
A 1999 study examined public-private partnerships in water and wastewater systems in 29 cities serving over three million customers throughout the United States. It found that all of the privatizations resulted in lower rate increases than were planned prior to privatization, and at 17 percent (five) of the facilities, public-private partnering brought cost savings of between 10 percent and 40 percent, allowing local governments to avoid large increases in water rates.^{xxiii}

Case studies of savings abound. The EPA has collected a set of case studies where cities were able to meet water quality standards more efficiently thanks to privatization.^{xxiv} Contract renewal rates are also indicative, since privatization is primarily motivated by communities seeking cost savings. That 17 out of 20 privatization contracts are renewed at the end of their term indicates that communities are satisfied with the savings being achieved.

How satisfied are local governments with the privatization of water and wastewater services?

As the figure at the top of the next page shows, satisfaction with privatization is very high, with over 90 percent of communities choosing to continue privatization at renewal time.

Figure 2: Outcome of Water/Wastewater Privatization Contract Renewals 1998-2001*



Another survey found that 94 percent of communities that have privatized their water or wastewater services would recommend their contractor to other communities.^{xxv} Indeed as the public debate over privatizing water and wastewater services has expanded, and the information about it has become more available, many cities have chosen privatization as an appropriate option. Cities that privatized in recent years include Augusta, Georgia, Chicago, Illinois, Dayton, Ohio, Houston, Texas and Richmond, East Palo Alto and Frazier Park, all in California.

*A total of 489 privatization contracts were up for renewal during this period. Source: *Public Works Financing*.

Does privatization by long-term contracts make sense?

That depends on the needs of each community. Long-term contracts offer less frequent competition and require cities to capitalize competition more intensely in one round. At the same time, companies can only afford to hire all existing workers and to invest private capital in facilities if they have a long term over which to stabilize rates and recoup their investment.^{xxvi} Many communities facing this choice are opting for long-term contracts.^{xxvii}

What are some of the pitfalls of privatization and how do we avoid them?

1. *It is possible a winning bidder could turn out to be incapable or goes out of business.*

To avoid this, local governments must ask for qualifications and references from potential contractors and then spend the time checking them out. Customer references are most important (for similar type work), but ask for credit, financial and supplier references, resumés of key personnel, and question legal problems also.

A reasonable performance bond can help assure that the contractor will perform the contract and cover transition costs in case it does not. However, care must be taken that performance bonds do not drive off smaller, but good and qualified companies, or drive up the cost of services. References and qualifications are typically a better indicator of contract performance than performance bonds.

2. *Sometimes a lack of understanding or agreement about performance expectations can lead to disputes and even termination.*

Establishing a trusting relationship requires structuring the right risks, rewards, benefits and opportunities early in the contract negotiation stage. Also, the more that the expectations of the contract are based on measurable outcomes and outputs (like costs, quality, reliability, etc.), rather than inputs (like work levels, hours, personnel, etc.) the

less subjective everyone's assessment will be and the less likely it is that conflicts will arise.

3. One pitfall may be cost overruns caused by low-ball bids or by failure to accurately assess the existing conditions and limitations of facilities.

One way to avoid this is to use contracts that fix costs and risks up front. "Cost-plus" contracts provide little incentive for contractors to hold down their costs. The result is often escalating costs that the government as customer has no ability to control. Cost-plus contracts also require substantial government auditing because all the contractor's charges, invoices and reimbursement requests must be approved by the government agency.

On the other hand, fixed-price performance contracts shift the financial risk from the public agency to the contractor, who, in order to keep costs down and increase profits, has incentives to improve performance and increase productivity.

Also, competition at contract renewal, unless you have clear information that the service was performed well under the last contract, will promote good service at a competitive price. Remember that companies are interested in profits, and it is up to government to harness that drive and the competitive forces of the market to get citizens the best deal possible.

4. Sometimes local governments don't do their homework, don't learn from best practices, or fail to conduct a proper analysis.

Such oversights can lead to inappropriate privatizations or cripple a privatization's success. Local governments need to invest some staff time in understanding privatization and be willing to bring in specialized help when appropriate.

ⁱ <http://www.ae.ca/aetoday/030102.html>

ⁱⁱ Telephone conversation with Environment Canada, November, 2005.

ⁱⁱⁱ <http://www.winnipeg.ca/waterandwaste>

^{iv} Ibid.

^v Ibid.

^{vi} "Towns Turn To Private Sector To Run Their Waterworks," by Tom Blackwell, *National Post*, December 21, 2005.

^{vii} Ibid. Blackwell quotes Charlie Bagnato, Mayor of Brockton, the amalgamated municipality that includes Walkerton.

^{viii} Ibid

^{ix} See video of Segal's October 27, 2005, presentation to the Frontier Centre at <http://www.fcpp.org>.

^x "Smart and Green" – An Environmental Policy for the 21st Century – FCPP Policy Series NO. 25, October 2005, at http://www.fcpp.org/main/publication_detail.php?PubID=1165

^{xiii} "Regulatory Implications of Water and Wastewater Utility Privatization," by Janice Beecher et. al., National Regulatory Research Institute, 1995.

^{xii} These and other relevant surveys are discussed in Reason Foundation's *Annual Privatization Reports, 1997-2003*, <http://www.reason.org/privaper.html>.

^{xiii} Data for 2001 from "6th Annual Outsourcing Survey," by William Reinhardt, *Public Works Financing*, March 2002, p.1; Data for 1990s from Reason Foundation analysis of ICMA's periodic survey of alternate service delivery.

^{xiv} See "In Latest Cost-cutting Trend, Cities Turn to Private Sector for Wastewater Treatment," by John Holusha, *New York Times*, May 5, 1996, p. A14, and "Cities Move to Shed Water," by Dick Larson, *Utility Business*, 2(5), May 1999, p. 45. During its 1998 annual meeting, the U.S. Conference of Mayors endorsed a resolution supporting the use of public/private partnerships. In part, the resolution reads, "The U.S. Conference of Mayors continues to support the use of public/private partnerships as one option for a) improving efficiency in operation and maintenance of public water and wastewater infrastructure, b) bringing existing facilities into compliance with environmental regulations, c) stabilizing rates, d) attracting private capital investment for improving, expanding and developing clean water and drinking water

infrastructure, and e) assisting in meeting existing and future federal and state environmental mandates.” See www.usmayors.org/USCM/home.html.

^{xv} 1998 *Water Resources National Competitiveness Survey*, by R.W. Beck, Inc., Seattle, 1998.

^{xvi} *Drinking Water Infrastructure Needs Survey, 2001*, U.S. Environmental Protection Agency, available at www.epa.gov/safewater/needs.htm.

^{xvii} “Securing Improvements in Water Quality: EPA and Water Infrastructure Financing,” by Michael Cook and Kevin Rosseel, the *Journal of Project Finance*, Fall 1997, pp.29-36.

^{xviii} *A Guidebook of Financial Tools Section 4B. Public-Private Partnerships and Optimization Case Studies*, U.S. Environmental Protection Agency, Environmental Finance Program, 1999, at www.epa.gov/efinpage/guidbk98/gbk4b.htm.

^{xix} *A Survey of the Use of Public-Private Partnerships in the Drinking Water Utility Sector*, Hudson Institute (Washington, D.C.: National Association of Water Companies, 1999), p.39.

^{xx} The literature on the effects of privatization on employees is reviewed in *Privatization and Layoffs: The Real Story*, by Robin Johnson, Reason Public Policy Institute E-brief No.112, 2001, at www.rppi.org/ebrief112.html. Also see “Local Public Services in Wisconsin: Alternatives for Municipalities with a Focus on Privatization,” by Steven C. Deller and David G. Hinds, University of Wisconsin, June 2001, at www.uwex.edu/lgc/program/pdf/privpaper.pdf.

^{xxi} See Deller and Hinds, op. cit., p.18, and *Competition for City Services: Has The Time Arrived?* by Robin A. Johnson and Norman Walzer, Office of the Comptroller, Springfield, Illinois, 1996.

^{xxii} *Privatization and Public Employees: Guidelines for Fair Treatment*, by John O’Leary and William D. Eggers, Reason Foundation How-to Guide No. 9, Los Angeles, 1993.

^{xxiii} *NAWC Privatization Study: A Survey of the Use of Public-Private Partnerships in the Drinking Water Utility Sector*, National Association of Water Companies, Washington, D.C., 1999, pp.41-43.

^{xxiv} *A Guidebook of Financial Tools Section 4.B. Public-Private Partnerships*, U.S. Environmental Protection Agency, Washington, D.C. April 1999.

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