



## **Benefits of Water Service Public-Private Partnerships**

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The Canadian Council for Public Private Partnerships

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## 1. Introduction

The dominant model for providing water service in Ontario is public, with water systems owned and operated by local governments through their public works departments and public utility commissions (“PUCs”). Alternative models that include the participation of the private sector are used world-wide, and have proven effective in addressing challenges similar to those now being faced in Ontario.

This paper describes Public-Private Partnerships (“PPPs”) and how they can be of benefit to water delivery in Ontario. A companion publication of this paper, *Overview of Successful Public-Private Partnerships in the Water Sector*, describes a sample of successful PPPs that have improved water service delivery in Canada and the United States. The companion publication will be submitted to the Walkerton Commission, and is available through The Canadian Council of Public-Private Partnerships.

### ***Water Service in Ontario***

Among many other local services and infrastructures, Ontario’s municipal governments are responsible for making water service<sup>1</sup> available within their jurisdiction. Assets owned and operated include intakes and wells, water treatment plants, pumping and distribution systems, sewer collection and pumping systems, wastewater treatment plants, and effluent outfalls.

Provincial responsibility for water is regulatory in nature, with the mandates of several ministries covering water delivery in one way or another. These include the Ministry of Environment (water and effluent standards, resource stewardship), Ministry of Natural Resources (resource management), Ministry of Health and Long Term Care (public health), and Ministry of Municipal Affairs and Housing (municipal service delivery). Municipalities must meet various requirements of these ministries in their execution of water service delivery.

In addition to its regulatory role, the provincial government (“the Province”) continues to have an operations role through the Ontario Clean Water Agency (“OCWA”), a Schedule 4 agency of the Province formed in 1993. OCWA operates water and wastewater treatment infrastructure for approximately 200 municipalities on a contract basis.

As enumerated by the Walkerton Commission, there are many challenges facing the water industry in Ontario in the areas of resource management,

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<sup>1</sup> In this paper, “water” refers both to water services and wastewater services. They are both typically provided by the same public sector provider in Ontario municipalities, and are analogous in their physical and operational characteristics, consisting of expansive underground pipe networks (water distribution and sewer collection) and centralized treatment plants.

capital investment, cost recovery, technology, monitoring, training, reporting, and accountability. Responsibility falls both to municipalities (as service providers) and the Province (as regulator, a source of capital funds, and in the case of OCWA, as operator as well).

### ***Public-Private Partnerships are a Proven Alternative***

Throughout the world the private sector is involved in many aspects of water and wastewater service delivery through arrangements known as Public-Private Partnerships. Both developed and undeveloped countries are using PPPs in water delivery to exploit the knowledge and financial capital of the private sector with the objective of improving value and accountability to taxpayers and water users.

While PPPs are not a panacea, when effectively structured and employed they can contribute solutions to some of the issues facing water delivery in Ontario. PPPs can offer:

- additional sources of capital;
- operational efficiencies and cost savings; and
- clear paths of accountability and remedy.

This paper explains the various common forms of water service PPPs, the underlying factors that make PPPs a different and advantageous way to deliver water services, and the benefits that water service PPPs offer.

### ***About the Canadian Council for Public-Private Partnerships***

The Canadian Council for Public-Private Partnerships (“CCPPP”) was founded on the belief that there are many benefits to be gained when the spheres of government and business interact. The CCPPP was established in 1993 as a non-partisan, non-profit body. National in scope, membership is drawn from the public and private sectors in almost equal numbers. As proponents of PPPs, CCPPP conducts research to gain a greater understanding of how to capitalize on the strengths of these two sectors to serve the public interest. This paper was prepared for submission to the Walkerton Commission by PricewaterhouseCoopers LLP, as commissioned by CCPPP, and reviewed by members of CCPPP.

## **2. Public-Private Partnerships in Water Services**

The term “public-private partnership” applies where private sector businesses participate with government in the delivery of infrastructure or services that have traditionally been provided by governments alone. Under PPPs, the particular strengths of the private and public sectors are combined to maximize value to the public on a project or program basis.

PPPs can be implemented in virtually any part of the water service delivery chain, bringing commercial discipline and resources to design and construction, financing, operations, management, maintenance, marketing and retailing, billing, and communications. Examples of water service PPPs include:

- service or management contracts for short term operation and maintenance of facilities and networks;
- leases and concessions for long term management, operation, and upgrading of facilities and networks;
- build-operate-transfer and similar hybrids such as design-build-operate of new infrastructure with or without interim or long term private financing; and
- full privatization of facilities and networks.

Each of these arrangements involves the private sector in areas that have traditionally been the domain of the public sector in Ontario.

### ***Traditional Private Sector Participation in Ontario’s Water Industry***

The private sector has traditionally been involved in many non-operational aspects of Ontario’s water industry. Municipalities have typically utilized the private sector to provide some or all of the following:

- consulting engineering services (e.g. process selection, infrastructure design, system planning, operational audits);
- construction services (e.g. pipeline, treatment plant, and building construction and rehabilitation);
- material supply (e.g. equipment, construction materials, treatment chemicals);
- repair services (e.g. electrical, mechanical);
- testing and laboratory services (e.g. materials, effluent); and
- field services (e.g. pipe inspection and cleaning, hydrant maintenance, flow monitoring).

These goods and services are crucial components of the water service delivery chain, but are not generally considered PPPs. They do however illustrate that

the private sector is currently extensively involved in the non-operational areas of water service delivery.

### ***Private Sector Participation in Other Essential Services***

The private sector has long been involved in the provision of essential services analogous to water services in both operating and non-operating roles. Natural gas and telecommunications are analogous in terms of physical infrastructure. Food supply is analogous in terms of the use of the product and its correlation with human health. In each of these cases, the role of government is that of a regulator, rather than a direct service provider. While Ontario has not traditionally involved the private sector in water and sewer service delivery, these examples illustrate the effectiveness of the private sector in delivering similar services.

### ***Spectrum of Water Service PPPs***

A wide spectrum of water service PPP arrangements is possible, with the allotment of responsibility between the private and public sectors varying considerably. For water and wastewater service delivery, the alternative forms include:

PPP Type	Asset Ownership	Operations & Maintenance	Capital Investment	Commercial Risk Inputs Outputs		Typical Duration
Service contract	Public	Public and private	Public	Public	Public	1-2 years
Management contract	Public	Private	Public	Shared	Public	3-5 years
Lease	Public	Private	Public	Shared	Private	8-15 years
Concession	Public	Private	Private	Private	Private	25-30 years
Build-Operate-Transfer	Shared	Private	Private	Private	Private	20-30 years
Full Privatization	Private or Shared	Private	Private	Private	Private	Indefinite

Source: World Bank, PricewaterhouseCoopers

*Commercial risk* refers to risk caused by changes in the market for business inputs (costs) and outputs (revenues). For water services, input risks could stem from changes in the cost of power, materials, outside services, and construction. Output risks might be variation in water demand or wastewater volumes, or consumer response to price changes.

Countries that have formed PPPs to help meet these types of demands include:

PPP Type	Examples where Water Services PPPs In Place
Service contract or Management Contract	Canada, Columbia, Gaza, Malaysia, Mexico, Puerto Rico, Trinidad and Tobago, Turkey, United States
Lease	Czech Republic, France, Guinea, Italy, Poland, Senegal, Spain, United States
Concession	Bulgaria, France, Macao, Malaysia, Spain, Philippines, Argentina, Buenos Aires
Build-Operate-Transfer	Australia, Canada, China, Chile, Malaysia, Thailand, Mexico, New Zealand, South Africa, United States
Full Privatization	United Kingdom, Chile

Operational involvement, financial involvement, and risk allocation vary depending on the form of PPP. Consequently, the benefits of each vary as well. Each type of PPP is briefly described in the following sections. It is

worth bearing in mind that each PPP arrangement is (or should be) uniquely tailored to the needs of both partners, and that the classifications often blur in practice.

### ***Service Contracts***

Service contracts are the simplest form of PPP, where the private sector is contracted to perform a specific service for a short period of time or to complete a specific project. Examples include consulting assignments, construction contracts, and “contracting out” of services such as hydrant maintenance, pipeline inspection and rehabilitation, and laboratory services.

Service contracts enable governments to accomplish tasks for which there is insufficient demand to develop internal resources. Intermittently required or specialized expertise can be contracted on an as-needed basis. An additional benefit is the cost savings that can be realized by opening the services to competition through a tender process.

While, as previously stated, PPPs are not extensively used for water services in Ontario, service contracts are the exception. As the simplest form of public sector participation, the “partnership” element is very limited, since the relationship between the public and private sectors is a straightforward purchase of service. All management and investment responsibility remains with the public sector, therefore benefits are limited to the context and structure of the way the public sector does business.

### ***Management Contracts***

Management contracts extend the responsibility of the private sector into the operation and maintenance of government-owned infrastructure or operation of government-owned businesses. In Ontario, the contracted operation of municipal water and wastewater infrastructure in Goderich, Hamilton, and Haldimand-Norfolk by the private sector are examples of management contracts.

Compared to service contracts, management contracts transfer greater authority for operational decision-making to the private sector. With the empowerment to change how operational objectives are met, management contracts allow the private sector to develop improvements in efficiency and technical ability. With a management contract, the public sector generally bears the output risk of operations, as the private sector is guaranteed payment for the service provided regardless of changes in the demand. The private sector usually bears some input risks associated with its model for management of the business.

### ***Leases***

Leases take management contracts a step further by transferring output risk to the private sector as well. The private sector leases infrastructure assets from

the government, and is compensated with the revenue stream that the assets generate, rather than on a fee-for-service basis. Asset ownership remains with the public sector, introducing complexities when investment in asset renewal or expansion is required. The incremental benefit of leases over management contracts is that the private sector is additionally motivated to reduce costs in the face of revenue risks.

### ***Concessions***

Concessions are similar to leases, with the additional transfer of responsibility for infrastructure investment to the private partner. Conceptually, the private sector has full and complete responsibility for operating the business, including asset renewal and expansion as needed to maintain the integrity of the infrastructure. Since ownership of the assets remains with the public partner, ultimate control of the water systems remains in the public domain.

By placing responsibility for operations and investment with the private sector, incentives are created for efficiency throughout the entire business, including procurement and financing. This provides the opportunity for the private sector to fully optimize service delivery, balancing investment against operations for the optimal combination of labour, materials, and capital. Concessions are the point in the PPP spectrum where the full scope of commercial discipline of the private sector is harnessed.

### ***Build-Operate-Transfer Arrangements***

Build-operate-transfer (“BOT”) arrangements combine concessions with initial procurement of assets. The private partner is responsible for designing, constructing, then operating and maintaining facilities for a long period of time. Ownership of the assets is transferred to the public sector at the end of the operating period. These are typically used as a procurement mechanism for new water or wastewater treatment plants that have easily-measured outputs and physical boundaries, but can be used for pipe networks as well.

The objective is to introduce private sector efficiencies into the earliest possible point in the service delivery chain, when facilities are designed and built. A BOT allows the private partner to optimize the total cost of service delivery by trading initial investments with operational needs over a long period. This flexibility is not afforded by the traditional procurement process, where designer and operator are different parties and not necessarily motivated by a common goal.

“Design-build” procurement for infrastructure, while sometimes considered to be a PPP, does not entail operation by the private sector and is less a partnership than a procurement strategy. A BOT or design-build-operate takes design-build further by including facility operations and maintenance for a period of time following construction.



### ***Full Privatization***

Privatization is full divestiture of public infrastructure assets and operations to the private sector (which means transferring monopoly rights from government to the private sector). Government maintains necessary levels of control through regulatory rather than contractual means. Existing regulatory structures may not be adequate to protect the public good in this case, requiring significant regulatory reform in concert with full privatization.

A variation of full privatization is a joint venture where the water service company is operated on a private model but jointly owned by a private sector firm and the previous government owner. Protection of public interests is maintained through ownership of the operating company, rather than the assets directly.

### ***Determining PPP Type and Structure***

Each type of PPP offers different benefits and requires a particular level of effort on the part of both partners. Selecting an appropriate PPP depends on the problems that need to be solved, the needs of the public partner, and the capabilities of the private sector. Each case is unique, requiring significant efforts to develop a successful partnership that meets the legitimate objectives of both partners.

### 3. Global and Canadian Trends in Water Service PPPs

Public-private partnerships in water services are becoming increasingly common around the world. The primary drivers are similar everywhere, in both developed and undeveloped countries: the need for infrastructure investment and operational improvement is high, and governments are less willing or able to supply the necessary capital and expertise. This creates a need both for efficiencies in operation and investment, and for additional sources of investment.

Capital and operational demands stem from:

- increasing performance and prescriptive standards;
- more stringent human and environmental health regulations;
- need to renew ageing infrastructure that has not been provided for financially;
- extension to unserved areas to improve access; and
- population growth and densification.

Private-sector water utilities provide 99 percent of the UK's and 75 percent of France's population with water and wastewater services (*Neal et al, 1996*). The UK's transfer in 1989 of all water and wastewater assets to the private sector was driven by the huge need for investment created by impending European Union ("EU") standards. The companion document to this paper includes a review of the UK's success with full privatization of water services. France has a long history of private sector participation in water services, with some of today's water companies having their origins as private firms in the 1800s.

In other European countries, there is a trend of increasing private sector participation in water services. Members of the former Eastern Bloc countries face the dual pressures of EU standards and the infrastructure deficit left by years of communist rule. Private sector participation is providing some of the capital and operations expertise to improve these systems.

Large scale PPPs involving municipal water systems are on the increase in Canada and the United States as well, although public sector delivery is by far the dominant service model. The PPPs in place are generally either management contracts for treatment plants and/or pipe networks, or BOT-type arrangements for treatment plants. Canada's first water treatment plant BOT was in Moncton, New Brunswick in 1998. Major U.S. cities using PPPs for water service delivery include Atlanta, Indianapolis, Milwaukee, Seattle, and Tampa.

There is some experience with fully privatized water service in North America, although the fraction of the population served is small. In the U.S., several small water utilities (in communities of less than 3,500) have been “investor-owned” since their inception<sup>2</sup>. In White Rock, British Columbia, a private utility has been extracting, treating, and delivering water to the city of 18,000 for over 80 years.

### ***Private Sector Interest and Availability in Canada***

There are approximately eight major water companies operating globally, most of which have their roots in the private water companies of France and the UK. Most of these have local points of presence in Canada. In addition, there are several North American based companies capable of financing, building, and operating water infrastructure, most of which are based on the competencies of parent consulting engineering or construction firms. In general, there is no shortage of private sector interest and ability in delivering water services in Canada.

### ***Why Aren't Water Service PPPs More Common in Canada?***

Governments have historically been responsible for the development, financing, and operation of water systems in Canada. Reasons for this include the following:

- Water is a very capital-intensive business, requiring levels of investment that at some points in history may have been the domain of governments only.
- Considered a public good, water provision is often an element of nation-building and community-building, and may not have been supportable on a commercial basis in the early years of community development.
- Many municipalities in Ontario face a new situation, where capital and technical needs are for renewal and performance improvement, where ownership of major assets has been transferred from the Province, and where cost-effectiveness is the concern of both ratepayers and senior governments. Until these factors combined, there may have been little stimulus to investigate PPP alternatives.
- Proposed PPPs often face opposition from those opposed to changes to the traditional public sector model for water service delivery.
- Over the past 10 years or so water service has become a competitive global industry with many companies seeking business opportunities worldwide. The offerings of these firms have become more attractive as

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<sup>2</sup> There are a great many very small *user-owned* water and wastewater systems in North America that service single buildings or developments such as resorts, camps, and trailer parks. These are owned and operated neither by governments nor private water service firms, but by the water users themselves. These have traditionally been considered sub-standard by health and environmental agencies as compared to government-owned systems, and are generally phased out as government water and sewer systems are expanded to unserved areas. The Canadian Water and Wastewater Association estimates that approximately 90 percent of the population is served by government water systems, and 85 percent by government wastewater systems. The majority of the remainder are likely served by user-owned systems.

efficiencies and competencies have been developed as the industry has matured.

The recently announced Municipal Performance Measurement Program, an initiative of the Ministry of Municipal Affairs and Housing, will collect and compare municipal efficiency in the delivery of several services, including water. There has historically been little pressure on the public sector to investigate alternative means of delivering water services, and few alternatives for providing those services. Both of these conditions have now changed, making water sector PPPs both possible and of interest to governments.

Unfortunately, it often takes a widely recognized crisis (*Gentry et al, 1997*) to stimulate unfamiliar working relationships such as water sector PPPs. Recent large-scale water quality events in Walkerton (2000, E.coli), Collingwood (1996, Cryptosporidium), Cranbrook (1996, Cryptosporidium), and Kelowna (1996, Cryptosporidium), can fairly be described as unprecedented localized crises. If the crisis hypothesis holds some truth, the relatively uneventful (until recently) long-term public record of government water delivery may partially explain the dominance of the public model for water services in Canada.

## **4. Basic Characteristics and Strengths of Water Service PPPs**

In the water industry, the private sector and the public sector have different motivations to perform. The public sector's motivations are public service, benevolence, tradition, and the need to provide essential services when and where they are not otherwise available.

The private sector is motivated in two ways that contribute to improved performance in water service delivery. The first is profit motive. Profitability is enhanced by developing efficiencies during the course of a PPP's duration. When the time comes for competitive contract renewal, profitability gets "reset" to normal market levels, and the drive for efficiency continues into the next contract period. Profit motive benefits both the public and private sector partners, driving costs down over time.

The second motive is avoidance of operating risk (i.e. political, legal, financial, and regulatory risk). Private sector firms cannot afford to under-perform, as their profitability, solvency and future as a going concern depends on meeting their obligations and satisfying both their public sector partners and the water users. If they do not, they risk fines, forfeit of bonds, contract default, damage to their corporate reputation, and legal actions. The concerns of private sector managers are therefore very much aligned with those of the water user.

### ***Underlying Characteristics of PPPs***

There are four underlying characteristics that make partnerships with the private sector an attractive way to deliver water services: competition; economies of scale; clear paths of accountability; and de-politicizing of decision-making.

*Competition* forces private sector firms to continually improve processes and technologies as they work toward providing the best value in the marketplace. Competitive forces are introduced to water services through competition either *for* the market (where companies compete for the right to operate a monopolistic business for a period of time), or competition *in* the market (where companies compete against each other for the business of water users). Most water service PPPs are of the former type, since water and sewer systems are by nature monopolistic. A competitive process is used to select the service provider, "testing the market" each time the agreement is renewed<sup>3</sup>. Competition drives continuous improvement of processes,

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<sup>3</sup> In the case of full privatization, there is a need to provide competitive forces through regulatory means such as "yardstick competition" and price capping to protect the public from detrimental monopolistic practices.

technologies, and staff, harnessing market forces to assure value to the water users.

Private sector water firms, because they operate many water and wastewater systems, develop *economies of scale* that further contribute to efficiency and quality of service. Stimulated by competition and supported by multiple customers, they can afford to invest in research and development of technology, processes, training, and practices that can be applied across all of their operations. In addition, many of the major water service firms have a breadth of resources that goes beyond operations, with divisions specializing in areas such as research, equipment manufacturing, and engineering. The specialized resources of private sector water firms and their associated businesses can be employed in publicly-owned water systems through PPPs, bringing expertise that is not available to a single water utility acting alone.

A clear path of *accountability* inherently results from a partnership arrangement. This is a product of outcome-based contractual agreements that bind the private sector partner to a performance specification, and the softening or elimination of conflict of interest that frees regulators to monitor and enforce as intended.

*De-politicizing* of water system operations allows the merits of operational and investment decisions to be weighed strictly on a business-like basis that is not complicated by political concerns. PPPs achieve this by transferring decision-making authority (the extent of which depends on the type of PPP) from the public to the private sector. If political input becomes necessary, it can be achieved through contract negotiation between partners or a new competition - transparent and accountable processes that contribute to rational decision-making.

These four underlying characteristics are the foundation for the many benefits that water service PPPs can offer to help address current issues with water delivery in Ontario.

## 5. Benefits of Water Service PPPs

Benefits that accrue to the public sector partner and water users through the use of well-structured water service PPPs include:

- additional sources of financing;
- improved speed and efficiency of procurement;
- improved operational efficiency;
- highly qualified personnel;
- additional and more specialized governance;
- transfer of risk from the public sector;
- clear accountability;
- improved regulatory compliance; and
- protection of the public interest.

This section describes how these benefits come about.

### ***Additional Sources of Financing***

Water and sewer systems are very capital-intensive, and many systems have significant immediate upgrading needs stemming from years of deferred investment. Where governments are unwilling or unable to increase public debt to meet investment needs, the private sector can supply capital through PPP arrangements without impacting municipal balance sheets.

Treatment plants are particularly suited to private financing through BOT arrangements, as they are discrete facilities with large capital costs, identifiable income streams, and measurable outputs. Through a BOT, a municipality can secure the provision and operation of a major facility without up-front capital cost. Of course, capital costs are eventually borne by end users and government through a combination of direct user fees and subsidies<sup>4</sup>.

Even in cases where municipalities are willing to increase debt to finance new facilities, private sector funding may still be beneficial depending on the terms that can be attracted to the project. A private sector partner's total package of financing, construction, and operation may be more cost-effective than a combination of public debt and private partner construction and operation. This can be tested through a competitive bidding process that requests both financed and non-financed proposals from the private sector.

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<sup>4</sup> Full cost recovery is not uniformly practised across the Ontario municipal water industry. The user fees paid by water users may only pay a portion of operating costs and sustaining capital costs. The gap between true costs (including capital and renewal) and fee revenue is covered by subsidies and/or deferral of investment.

Private capital and investment is available through the full spectrum of PPPs, even in the simpler types where financing is not an explicit component of the specification. For instance, with a management contract the private partner may be required or may choose to make immediate equipment upgrades in order to meet its obligations for service and price.

For water systems in need of significant refurbishment or expansion, access to capital through PPPs can assist in developing the needed infrastructure when it is needed, with creative repayment structures, and with overall cost-efficiency in procurement and operation.

### ***Improved Speed and Efficiency of Procurement***

PPPs can significantly speed up procurement (design, construction, and commissioning) of water and sewer infrastructure as compared to the traditional model of separate design and construction phasing. The “design/build” component of BOT arrangements places responsibility for design and construction with a single private sector partner, who has the opportunity to optimize design with material and construction costs, delivering one end product (the completed facility). Integrating operations into the partnership allows further optimization of design, material and construction costs, and operational considerations, often resulting in significantly lower procurement and life-cycle costs.

PPP procurement models provide the private sector with greater latitude to solve problems creatively through integration of design, construction, and operations principles. The traditional approach with separate design and construction phases put up barriers to creativity that reduce opportunities for efficiency, regardless of the talents of those involved.

There are many examples of design-build procurement and BOTs delivering infrastructure faster and/or at less cost than the traditional method. For example, the City of Dartmouth procured a water treatment plant 40 percent faster than its schedule under a traditional approach (*CCPPP, 2000*). Faster procurement is advantageous because it brings benefits (such as health and environmental protection) to the community sooner, and reduces procurement costs. The Tolt River water treatment facility in Seattle, which under conventional procurement was estimated to cost \$100M USD, under the eventual BOT cost \$65M USD. Compared to Seattle’s original traditional approach, total savings under the BOT are estimated at \$70M USD over 25 years (*Seattle Public Utilities, 2000*).

### ***Improved Operational Efficiency***

By automating, cross-training staff, investing in time and labour saving equipment, reducing staff levels, implementing organizational best practices, and exploiting economies of scale, significant operational savings can be obtained by private sector operators. This is not to suggest that public sector



water utilities are not capable of developing efficiencies, however the non-competitive environment does not appear to stimulate efficiencies to the extent generated by the private sector. Existing management contracts are direct evidence of this, for most of these PPPs would not have been entered into unless the private partner could guarantee significant savings over the status quo of public sector operations.

Operating exactly the same infrastructure, often with the same staff, the private sector has proven its ability to operate more efficiently. For example, Ontario's Regional Municipality of Halimand-Norfolk is saving 34 percent compared to its in-house costs with a management contract for operation of its wastewater facilities (*CCPPP, 2000*), which is a typical level of savings achieved by management contracts.

Efficiency is very important to both partners. For the public sector, it frees up resources that can be reinvested in water and sewer infrastructure, used to lower user fees for water and sewage services, or used for other municipal purposes as the case may be. No matter where the savings are directed, the result is greater value for water users and taxpayers.

### ***Highly Qualified Personnel***

Developing and retaining a highly qualified staff complement is critical to private sector water companies because it is a primary front upon which they can build competitive advantage, develop efficiencies and manage corporate risk. Meeting government standards is the minimum level of acceptability for the private sector, rather than the target, because staff expertise contributes to profitability and performance.

Under-qualified or ill-suited staff put private sector companies at enormous risk. In the public sector, the consequences of poor performance are generally neither swift nor clear, which allows multiple objectives to creep into the management of human resources. The recent Ontario Ministry of Environment inspection program (*Ontario Ministry of Environment, 2000*) found that "in 10 cases, plant operators were not appropriately certified by the ministry or had inadequate ongoing training". In contrast, underqualified staff would be an intolerable risk to private sector operators, and are therefore such situations are extremely unlikely in a PPP.

Higher training standards do not merely protect the private sector partner by reducing corporate risk. Well-trained and cross-functionally trained staff are better equipped to protect human and environmental health through their work functions. This illustrates the alignment of private sector interests with those of the public sector and the public itself.

### ***Additional and More Specialized Governance***

With public sector water service delivery, high-level governance rests at the PUC or municipal council level. The ability of these entities to assess operational risks and respond in kind can depend solely on the qualifications of the municipal staff advising them, which may not be adequate especially in smaller communities. PPPs can offer an additional form of high-level technical and performance governance through the management and monitoring systems of the private sector partner.

### ***Transfer of Risk from the Public Sector***

There are risks to operating any business, and water services are no exception. The purpose of transferring risk is to allocate each type of risk to the party that is best equipped to mitigate it, or in other words, to the party best qualified to undertake the activity. This approach minimizes the overall risk and cost for water services, benefiting all parties including the water user.

Roughly categorized, there are commercial risks that stem from changes in the market for inputs to the business or its outputs, and operating risks that stem from the processes used in the business and the regulations and specifications that must be met. PPPs by definition transfer the majority of water system operating risk from the public sector to the private sector.

As risk is transferred, so is liability, so that if mistakes do happen, taxpayers (the public sector) are not liable for compensating taxpayers – the private firm is. However, the underlying intent of the public sector in transferring operating risk is not to hire a scapegoat but to minimize the chance of mistakes occurring at all.

The presence and transfer of commercial risk varies depending on the type of project and PPP being contemplated. Commercial input risks are transferred where the private sector has agreed to provide services or facilities at a fixed price regardless of changes in its cost base<sup>5</sup>. Output risks (due to price or demand changes) can be transferred through the payment structure: volume or usage based payments transfer risk, while fixed price contracts do not.

While the concepts of risk transfer may seem somewhat arcane, the key point is that through PPPs the public can better protect itself by transferring risk and responsibility to private sector firms that are better equipped to mitigate it. At the same time, the direct risk faced by the public through public sector operations can be reduced.

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<sup>5</sup> Agreements may allow for the “pass through” of some cost elements, such as energy, depending on the optimal balance of risk in each particular situation.

### ***Clear Accountability***

PPPs create a clear path of responsibility and remedy through the partnership agreement. With public sector operations, it can be difficult to allocate responsibility between the interlinked political, governmental, regulatory, financial, and operational elements of service provision when something goes wrong or improvements are to be implemented. While PPPs cannot bring clarity to blurred responsibility between government tiers, agencies, departments and ministries, they do offer clarity around operations, investment, maintenance, and any other functions that are encompassed by the partnership.

All PPPs are based on a contract that defines what outcomes the private sector partner must achieve, and the boundaries around what methods they may use to achieve them, if any. Penalties for not meeting the specified outcomes are specified. Division of responsibility between the public and private partners is explicitly defined. Standards for reporting and performance monitoring are set out. With such a contract in place, there are clear commitments to specific levels of performance, a basis for monitoring, a chain of command that can be followed in the event of problems, and an understanding of the ramifications for under-performance.

Both the private partner and public partner make commitments through the PPP agreement that improve the overall accountability of water system operations. The accountability of the public partner to its water user and taxpayer base improves, because duties and procedures for water system operations are clearly defined. But more significantly, the role of the public partner transitions from one of operations manager to contract manager.

This transition relieves conflict of interest in the municipal environment. It allows the municipal partner to monitor and enforce the quality of service delivery with considerably less concern for the costs and practicalities of meeting objectives. The difficulties and costs that may be associated with corrections are the responsibility of the private sector partner who must address them or risk default. The municipal partner becomes more accountable to its taxpayers and water users, as it can act on their behalf through the provisions of the PPP contract without internal opposition. The combination of a performance-based contract and a competitive selection process demonstrates a municipality's accountability for both quality and value.

The accountability of the provincial regulatory enforcement regime is also improved through PPPs. The provincial government faces conflict of interest with public sector water operations because enforcement orders can create operational and capital needs that trigger government expenditures. The common goals, constituents, and funding sources of both tiers of government make it difficult and often illogical for one to act strongly against the other.

The number of Ontario water treatment facilities found to have operating, equipment, or performance deficiencies in the recent Ministry of Environment inspection program suggests that the province has had difficulty in enforcing regulations, at least until recently. As a direct example, the Walkerton Inquiry has heard that despite regulator knowledge of monitoring and operating deficiencies in the Walkerton water system, legally binding orders for correction were not issued (*Canadian Water and Wastewater Association, 2000*).

Where water operations are run by private companies, the effectiveness of the existing regulatory regime improves through elimination of conflict of interest between the regulator and the regulated. Accountability of the private sector firm through the PPP contract ensures an appropriate response, while accountability of the regulatory agencies comes through their empowerment to act without conflict (because the risk of fines and costs of compliance are not borne by government).

Water service delivery by municipalities (or by OCWA under contract to municipalities) is in essence a self-regulated industry. Where water services are delivered through PPPs, the environment becomes that of a regulated industry, improving accountability of all participants to each other and to water users.

### ***Improved Regulatory Compliance***

Through improved accountability of the regulator and public partner, contractual performance obligations of the private partner, and relief of conflict of interest in the enforcement regime, regulatory compliance can be expected to improve significantly under a PPP arrangement. For example, the transition of the UK water industry to a fully privatized and government-regulated industry has brought significant improvements in drinking water and wastewater effluent quality, as was intended.

PPPs not only enhance the enforcement capabilities of the provincial government, but they create an additional level of monitoring as municipal governments cease being water system operators and become contract managers. Enforcement of the contract at the municipal level, combined with enforcement of regulations at the provincial level, can be expected to improve compliance.

### ***Protection of the Public Interest***

Only one form of PPP, full privatization, has the potential to transfer full control and ownership of infrastructure assets out of the public sector. To deal with this, an enhanced regulatory environment is necessary to provide the controls needed to ensure continued protection of the public good. Alternatively, the public sector can take ownership in an operating company jointly with the private sector.

With all other forms of PPP, the public sector retains ownership of assets and has additional control of water services through the contractual arrangements. This provides the public partner with a single point of contact for addressing water delivery issues, increasing control by reducing complexity. Rather than making multiple decisions and co-ordinating many facets of management (labour, technology, budgets, etc.) to address an issue, the public partner need only make the issue known and then monitor the actions of the private partner to ensure compliance.

For due diligence, a thorough PPP contract will contain provisions for monitoring the compliance of the private partner on a regular basis. This mechanism increases control by providing a feedback loop between objectives and performance that is not clouded by conflict of interest. Such mechanisms are not necessarily in place in publicly run water systems, where the utility is assumed to have the expertise to monitor itself.

As a last resort and as a demonstration of ultimate control, if a private sector partner is not fulfilling its contractual obligations and is in default, the contract can be terminated and a new service provider found. Public control is not sacrificed through well-crafted PPP agreements. The mechanisms of control are different, and may in fact be more effective than those available with traditional service delivery.

All PPPs, with the exception of full privatization, leave full control over water user rates in the hands of the municipality. Rates or subsidies may need to rise if new investment is required or operating standards are upgraded, or they may fall if efficiency gains are not needed for new investment. The decision whether to recover full costs of water provision through rates, or through a combination of rates and subsidies is not materially affected by implementing PPPs, except that they may present an opportunity to reduce rates. In the case of full privatization, regulatory price controls may be necessary to protect the public good.

### ***Evidence of PPP Benefits***

The companion publication of this paper reviews some water service PPPs in Canada and the United States. The cost savings attributed to the Canadian water service PPPs are summarized in the following table.

Location	Project	PPP Type	Quantified Savings
Hamilton, Ontario	Water and wastewater facilities	Service Contract	\$12M over contract life
Haldimand-Norfolk, Ontario	Wastewater treatment facilities	Management Contract	\$1M per year, 35% savings
Edmonton, Alberta	Wastewater treatment facilities	Service Contract	\$0.4M per year average, 18% savings
Dartmouth, Nova Scotia	Water treatment plant	Procured as Design-Build Finance Operate (BOT type)	\$17.6% capital, 10.1% operating
Moncton, New Brunswick	Water treatment plant	Design-Build-Finance-Operate (BOT type)	\$12M over contract life

In addition to cost savings, the record of environmental compliance for these projects has been excellent, with wastewater effluent and drinking water quality consistently meeting targets.

## **6. Considerations for Successful PPPs**

Water service PPPs are not a panacea, but when carefully developed and applied appropriately, they can make water delivery more cost-effective, sustainable, and accountable to the public. This section outlines some considerations for ensuring the success of PPPs in water services.

### ***Type of PPP***

The type of PPP must be appropriate for the situation at hand, and custom-crafted to the specific deficiencies and strengths of the infrastructure and public partner capabilities. Different areas of need that influence the determination of an appropriate PPP structure include the need for technical or managerial expertise, operating efficiency, investment in pipe networks or central facilities, or organizational or regulatory reform.

### ***Willingness to Change***

The change of the municipal role from service provider to contract manager must be philosophically and culturally accepted by the municipality. Without this, it may be very difficult to develop and implement an effective PPP structure.

### ***Clear Communication to Stakeholders***

The public is rightly concerned with the delivery of essential services such as water. With PPPs representing a significant change to the traditional model of service delivery, it is important that legitimate concerns be addressed through clear communication of the need for and benefits of a proposed PPP.

### ***Competitive Process***

The competitive process for selecting a private sector partner is a key element for success. The process must be transparent to all effected parties, fair, and carefully designed to ensure that the true needs of the public sector are met. The process and the PPP agreement itself can range significantly in complexity, so there must be willingness to commit sufficient resources to the process.

It is also very important to have a clear understanding of what the current costs are for providing the service being considered for transfer to a PPP. Without this, it can be very difficult to assess the benefits of private sector proposals. It may require a significant effort to determine true current costs, because of resource-sharing between municipal departments. Allowing the current public provider to prepare a fully-comparable proposal for evaluation,

or by having a “shadow bid” prepared to determine what costs would be through the traditional procurement approach, can assist in this regard.

### ***Performance-Based Agreements***

Many of the benefits of PPPs stem from the private partner’s ability to produce the required outcomes in a way that is different than the status quo of public sector system management. To provide this flexibility, PPP agreements must be outcome or performance based to the greatest possible extent. Detailed specifications of how outcomes are to be accomplished will limit flexibility, creativity, and savings, and should be avoided. Instead, functional specifications should be used to encourage innovative and imaginative solutions.

### ***Asset Protection***

Public assets must be protected from neglect during the course of a PPP, to ensure that cost efficiencies are not developed at the cost of asset depletion. This can be handled by specifying the required condition of assets at the end of the contract, requiring financial guarantees or reserves, by specifying a minimum operations and maintenance schedule, or requiring periodic independent condition audits. This is primarily of concern for very long term PPPs such as leases and concessions, where there is sufficient time for neglect to cause material problems. In these cases, the complexity of an appropriate PPP agreement for asset protection is warranted by the magnitude of anticipated benefits.

### ***Mutual Benefit***

Each partner must be willing to accept the motives of the other and work for mutual benefit. The public sector partner must willingly accept the need for the private sector partner to make a profit, and consider their profitability a success factor. In turn, the private sector partner must be willing to go beyond the strict terms of the PPP agreement on occasion to support the public sector partner. In other words, a true partnership approach is appropriate.

### ***Major Capital Investment***

The issue of major capital investment is relatively straightforward with a BOT agreement, because new infrastructure is its reason for being. But in concessions, where some major capital investment is encompassed by a PPP, it is important to clearly determine the process by which the partners will handle originally unforeseen needs and determine financing arrangements. Needs could be stimulated by the public sector partner (e.g. service area expansions), or revealed by the private sector partner (e.g. previously unknown condition of assets). The agreement must therefore clearly state the baseline conditions, and provide a means for adapting as the concession proceeds.

Because of the considerations noted, the importance of water services to community and environmental health, and the unique situation that exists in every municipality, it is crucial that PPP agreements be carefully structured to meet the legitimate interests of both partners, as well as the public good. The effort required to develop a successful partnership agreement can be substantial. Professional assistance in the areas of finance, law, engineering, and competitive process is required where municipalities have little prior experience with PPPs or where municipal resources are limited.



## **7. Summary**

Public-private partnerships for water services are being used successfully in many areas of the world, including Canada and Ontario. PPPs offer an effective means of implementing improvements, such as those that may be recommended by the Walkerton Inquiry or that are demanded by a more aware public, and should be seriously be considered by municipalities facing challenges in water and wastewater service delivery. By employing the expertise of the private sector in delivering water services more widely, Ontario can expect improved regulatory compliance, greater accountability for public and environmental health, and cost savings.

## References

1. K. Neal, P. Maloney, J. Marson, and T. Francis, *Restructuring America's Water Industry: Comparing Investor-Owned and Government Water Systems*, Reason Public Policy Institute Policy Study No. 200 (January 1996)
2. B. Gentry and L. Fernandez, *Evolving Public-Private Partnerships: General Themes and Urban Water Examples*, Yale/UNDP Program on Public Private Partnerships for the Urban Environment (November 1997)
3. *Overview of Successful Public-Private Partnerships in the Water Sector*, Canadian Council for Public-Private Partnerships (November 2000)
4. *Tolt DBO: Project Summary*, Seattle Public Utilities (December, 2000)
5. *Overview of Successful Public-Private Partnerships in the Water Sector*, Canadian Council for Public-Private Partnerships (November 2000)
6. Ontario Ministry of the Environment, *News Release: Environment Ministry Orders Corrective Actions at 50 More Ontario Waterworks* (November 27 2000)
7. Ontario Ministry of the Environment, *News Release: Environment Ministry Orders Corrective Actions at 50 More Ontario Waterworks* (November 27 2000)
8. Canadian Water and Wastewater Association, *Snippings & Clippings: Infamous Walkerton Well Never Meant to be Permanent*, CWWA Bulletin (December 2000)
9. R. Poole Jr., *Revitalizing State and Local Infrastructure*, Reason Public Policy Institute Policy Study No. 190 (May 1995)
10. A. Orwin, *The Privatization of Water and Wastewater Utilities: An International Survey*, Environment Probe (August 1999)
11. E. Bennett, *Public-Private Cooperation in the Delivery of Urban Infrastructure Services (Water and Waste)*, PPPUE Background Paper, UNDP/Yale Collaborative Program (1998)
12. *Contract Operations Save Towns Money, Headaches*, WaterWorld (June 1999)
13. L. Moraru-de Loe, *Privatizing Water Supply and Sewage Treatment Services in Ontario*, (March 1997)
14. L. Miljan, *July 2000 Fraser Forum: I'll Drink the Privatized Water*, The Fraser Institute (July 2000)
15. G. Silva et al., *Private Participation in the Water and Sewerage Sector – Recent Trends, Public Policy for the Private Sector*, The World Bank Group – Finance, Private Sector, and Infrastructure Networks (August 1998)
16. C. van den Berg., *Water Privatization and Regulation in England and Wales, Public Policy for the Private Sector*, The World Bank Group – Finance, Private Sector, and Infrastructure Networks (August 1997)
17. *Toolkits for Private Participation in Water and Sanitation*, World Bank (1997)

***Companion Document***

The companion document to this submission, entitled, Overview of Successful Public-Private Partnerships in the Water Sector, should be read together with this submission.

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