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The Canadian Union of Public Employees anti-privatization campaign has attracted national and international attention.

## 9 Commons or Commodity? The Debate over Private Sector Involvement in Water Supply

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Private corporations are playing an increasingly significant role as builders, owners, and operators of water supply systems around the world, and they have dramatically increased their market share in the water supply sector over the past two decades (Finger and Allouche 2002; Silva, Tynan, and Yilmaz 1998). Although most water supply systems in Canada remain publicly owned and operated, several Canadian municipalities have recently signed contracts with private companies for water supply and sewerage management. Typically, municipalities retain ownership of water supply networks but contract out their management to private, often international, companies.

This increase in private sector involvement has been highly controversial. Many Canadian cities (including Toronto, Vancouver, and Montreal) have experienced heated debate over the involvement of private companies in water supply management in the past few years. Canada's largest public services union – the Canadian Union of Public Employees (CUPE) – and the Council of Canadians have been running sustained campaigns against private sector involvement in the water sector (see, for example, Barlow and Clark 2002). In response, campaigns and publications in favour of privatization have been organized by groups such as the Canadian Council for Public Private Partnerships, Pollution Probe, and some government agencies and water supply utilities (see, for example, Brubaker 2002). Advocates of private sector involvement argue that the benefits include improved management and access to much-needed finance. Opponents of private sector involvement warn of decreased accountability, threats to public health, declining service levels, and degraded water quality.

This chapter analyzes the public-private debate in Canada, beginning with historical background on the three most common approaches to water supply: public, private, and cooperative.

## How to Provide Water? The Public, Private, and Cooperative Approaches

Debates over water supply governance revolve around three idealized models of resource management: the "public utility" (or municipal) model, the private sector "commercial" model, and the community "cooperative" model (Table 9.1). How did these different models emerge? The answer can be found, in part, through analyzing the history of urbanization and associated industrialization of water supply. As cities grow, some means of supplying large amounts of water and removing large quantities of sewage becomes increasingly necessary. In nineteenth-century cities, universal water and sewerage networks emerged as the preferred model (Goubert 1986; Hassan 1998; Melosi 2000). Water was no longer drawn from local wells and streams but, rather, was mass produced, abstracted in large quantities, and treated at plants before being distributed through networks in densely built up areas where economies of scale made supplying water feasible.

In many cities, private corporations built and operated the first water supply networks. Private companies operated in cities like Boston, New York, London, Paris, Buenos Aires, and Toronto, typically supplying water to wealthier neighbourhoods; the poor had to rely on public taps, wells, and rivers (or, in the most desperate cases, stolen water). Growing awareness of the role of water in the spread of disease, particularly in crowded urban environments, led to widespread support for the development of the provision of safe drinking water to all citizens through "universal" water supply networks (Luckin 1986; Hamlin 1990). The terrible cholera and typhoid epidemics of the nineteenth century, combined with an apparent inability or lack of interest on the part of the private sector to finance universal provision, led governments to take over the business of water supply infrastructure. In places where private companies continued to operate – as they did to a limited extent in France, England, and Spain – they were tightly regulated. Private water companies in the United Kingdom, for example, had dividends capped and were required to reinvest any remaining profits in the water supply business.

### "PUBLIC UTILITIES"

The "public utility" model of network water supply provision was thus, in many cases, a response to nineteenth-century experiences with the private provision of water supply. For much of the twentieth century, governments

ran most water supply systems, particularly in industrialized countries and urban areas. With the aim of providing universal access and protecting public health, governments created public utilities that owned the infrastructure and, in most cases, provided services to consumers on a subsidized basis. Water was regarded as a public service, often run at the municipal level, and was frequently not metered. Where private companies continued to operate, their activities were strictly regulated. In Canada, few private companies continued to operate in urban areas (with exceptions in some smaller towns, such as White Rock, British Columbia). Many rural communities continued to run "private" systems independently of governments, but these were generally not-for-profit and on a small scale.

The justification for government control of water supply systems was made on economic and ethical grounds. In economic terms, water was thought to be subject to "market failures" – a characteristic that makes it difficult or impossible for markets to operate.<sup>1</sup> In particular, the fact that water flows through the hydrological cycle (circulating between oceans and rivers, lakes, streams, and groundwater through evaporation and precipitation) makes it difficult to establish private property rights. In the case of water supply networks, market failures also arise because networks are usually run as monopolies;<sup>2</sup> without competition, markets cannot operate effectively. Moreover, the public health risks that arise when even a few people do not have access to clean water (thus being subject to water-borne diseases like cholera and typhoid) mean that water can be considered a public good.<sup>3</sup>

In the nineteenth century, the idea that citizens had a right to a sufficient supply of clean water, and that this was essential to their being able to participate in civic life, became dominant in industrializing countries. Governments began to articulate and assume the duty of ensuring water supply, as a basic need, for all citizens. This, in turn, was understood to have economic benefits: healthier citizens who felt included in society would be more productive workers. Thus, ethical arguments were intertwined with economic justifications that favoured universal water supply, controlled by governments.

As a result, in most industrialized countries and urban areas, governments dominated the business of water supply throughout much of the twentieth century. Where governments set up corporations to run water supply systems (as in the Netherlands), these tended to be non-profit and publicly owned. Private companies played a minor role. In Canada, they tended to be small and owned by users or local investors rather than publicly traded corporations. The situation is similar in the United States: the National Research

Council found in 2002 that only 15 percent of the population was served by privately run systems, the majority of which were small and local. This figure has remained stable since 1945 (NRC 2002).

#### PRIVATE SECTOR MANAGEMENT

The private sector model in water supply is, in contrast to the public utility model, characterized by the management (and sometimes ownership) of infrastructure by private, for-profit corporations. There are many different types of private sector models (for a review, see Bakker and Cameron 2003). Privatization involves the sale of water supply networks to the private sector; this approach to water management is rare and has only been attempted in a few countries, such as England and Chile (Bakker 2004; Bauer 1998). The most common approach in Canada is "public private partnerships" (P3s), in which the government retains ownership of supply networks and private companies are contracted for a defined period of time (usually less than thirty years) to design, build, operate, or manage components of a public water supply system. Cities such as London, Ontario, and Moncton, New Brunswick, have experimented with P3 contracts for water supply system management and sewerage system management. Sometimes municipalities may delegate management to another public operator, as is the case with many Ontario municipalities, which delegate management of their water supply systems to the Ontario Clean Water Agency (a provincial Crown corporation).

In some countries, this approach to water management is widespread (Johnstone and Wood 2001). For example, about 70 percent of the French population is served through different types of public-private partnerships. Over the past decade, there has been a rapid increase in the number of P3s (Bakker 2003). However, the majority of formal water supply systems around the world (and in Canada) remain publicly owned.

Private sector participation usually entails commercialization, through which private sector norms (such as efficiency and profit incentives) are applied to water supply management. Commercialization frequently involves the introduction of metering and associated changes in water rates. The principle of full-cost pricing (prices should reflect the full cost of the service) and economic equity (consumers should pay for what they use) are usually applied, in contrast to subsidized pricing and social equity (pricing according to ability to pay), which frequently characterize public utility systems.

#### THE COOPERATIVE APPROACH

In areas where a strong tradition of community-run services exists, or in areas too sparsely populated to interest governments or private companies, communities often build and run their own water supply systems. Community-run water supply systems are frequently managed as cooperatives. There are many types of cooperative: a simple definition is "an enterprise owned and democratically controlled by the users of the goods and services provided" (Co-operatives Secretariat 1998, 1). Users can be consumers, employees, or producers of products and services. In most cooperatives, users are actively involved in various aspects of management and decision making. The goal of most water supply cooperatives is effective (not necessarily efficient) management, in line with community norms.

In Canada, this model is most widely used in rural areas (there are approximately 200 water supply cooperatives in Canada, mainly in Alberta, Manitoba, and Quebec) (Co-operatives Secretariat 2001). Water cooperatives tend to be rare in urban areas in developed countries, but they are widespread in Denmark and Finland. These Scandinavian countries have a long-standing tradition of private participation in water services through not-for-profit and self-sufficient "water associations" and cooperatives that are owned and managed by consumers, especially in sparsely populated areas. Water cooperatives are usually small-scale but may also be large-scale. In Wales in 2001, the regional water and waste water company, which had been privatized in 1989, was restructured into a non-profit corporation that is owned by its members and serves more than three million customers (Bakker 2004).

#### DIVERSITY IN PRACTICE: MIXING AND MATCHING MODELS

There are significant differences between the three models outlined above. For example, the role of the consumer is different under public, private, and cooperative management, with consumers being treated, respectively, as citizens, customers, or as community members. Each role implies different rights, responsibilities, and accountability mechanisms.

Despite these differences, these three models often overlap in practice. For example, municipally run water supply systems can have a commercial approach to water pricing. Publicly owned utilities may even choose to mimic a private company through "corporatization"; that is, through creating a for-profit private corporation that remains publicly owned. Edmonton and Kingston, for example, have corporatized their water supply departments, creating private corporations with the city as sole shareholder. Or municipal

governments may choose to contract the services of another publicly owned water supply utility (such as the Ontario Clean Water Agency) rather than a private company.

Water supply is a locally managed resource, which allows different communities to evolve different ways of implementing specific models. The result is a great diversity of approaches. Another reason for diversity is the fact that provinces have responsibility for water supply under the Canadian Constitution, with each province adopting a slightly different approach to regulations governing water supply. In addition, since provinces usually delegate water supply to municipalities, approaches to water supply differ strongly even within provinces. Table 9.1 gives examples of the range of business models applied across Canada.

Despite the range of possible approaches, it is important to note that, during the twentieth century in Canada, municipal ownership and management of water supply systems was dominant. Some private water supply systems were built in large cities (such as Montreal and Toronto), but these were relatively quickly incorporated into growing public systems (Benedickson 2002; Jones and McCalla 1979). Outside of large cities, some private systems continued to operate, but these are typically small; most large Canadian municipalities run their water supply systems directly. As Table 9.2 indicates, six of Canada's ten largest municipalities follow the "traditional" municipal public utility model (Calgary, Montreal, Ottawa, Toronto, Vancouver, Winnipeg). Two others (Halifax and Edmonton) have chosen to corporatize water supply services. Hamilton has chosen to continue with municipal management after having had a ten-year P3 contract for water supply, and Halifax has opted for a P3 for certain elements of its wastewater treatment system. Toronto and Vancouver recently explored restructuring options (with Toronto debating the creation of a stand-alone corporation and Vancouver debating a P3 contract for water treatment), which resulted in heated public debate, after which both municipalities decided to continue with direct municipal management.

### Increasing Involvement of the Private Sector

For much of the twentieth century, water supply was an "invisible" resource; little attention was paid to the systems that keep water running through our taps. By the 1990s, things began to change. Infrastructure systems – many of which had been built at the turn of the century – were aging, and many had

TABLE 9.1

**Business models for water supply in Canada**

| Business model                           | Who owns infrastructure?         | Who operates infrastructure?                        | Legal status of operator           | Legal framework     | Who owns the shares?           | Example                             |
|--|----------------------------------|---|------------------------------------|---------------------|--------------------------------|-------------------------------------|
| Government utility: direct management    | Municipal or regional government | Municipal or regional administration                | Government department              | Public              | n/a                            | Vancouver                           |
| Municipal board or commission            | Municipal government             | Commission or board                                 | Public agency                      | Public              | n/a                            | Peterborough                        |
| Cooperative                              | Users/ Cooperative society       | Users or delegated authority                        | Cooperative society or corporation | Varies              | n/a (or users)                 | Rural Alberta, Quebec, and Manitoba |
| Crown corporation                        | Government or utility            | Utility   | Usually defined by special law     | Public or corporate | Government                     | Saskatchewan (SaskWater)            |
| Corporatized utility                     | Government or private company    | PLC as permanent concessionaire                     | Corporation                        | Corporate           | Local/prov. government         | Edmonton                            |
| Government utility: delegated management | Government or private company    | Government and/or temporary private concessionaires | Corporation                        | Corporate           | Private shareholders           | Hamilton                            |
| Direct private utility                   | Private company                  | Private company                                     | Corporation                        | Corporate           | Shareholders or investor-owned | White Rock (BC)                     |

TABLE 9.2

**Water supply business models in large Canadian municipalities**

| Municipality         | Agency  | Business model                               |
|----------------------|---|--|
| Calgary              | Calgary Waterworks                                  | Municipal utility                            |
| Edmonton             | EPCOR Water Services                                | Public corporation                           |
| Halifax (water)      | Halifax Regional Water Commission                   | Public corporation                           |
| Halifax (wastewater) | Halifax Regional Environmental Partnership          | P3   |
| Hamilton             | City of Hamilton                                    | Municipal utility<br>(formerly a 10 year P3) |
| Montreal             | Public Works, City of Montreal                      | Municipal utility                            |
| Ottawa               | Drinking Water Services Division,<br>City of Ottawa | Municipal utility                            |
| Toronto              | Toronto Works and Emergency Services                | Municipal utility                            |
| Vancouver            | Greater Vancouver Regional District                 | Municipal utility                            |
| Winnipeg             | City of Winnipeg Water and Waste<br>Department      | Municipal utility                            |

not been properly maintained (CWWA 1997; Infrastructure Canada 2004; Sierra Legal Defence Fund 2004). Growing populations and increasing per capita demand put strain on existing systems. The availability of grants from higher levels of government that fund water supply infrastructure development has decreased in recent years. Many municipalities lack financing for necessary capital-intensive infrastructure replacements, and politicians lack the political will to increase water prices to economically sustainable levels.

At the same time, consumers' expectations are increasing. The importance of protecting drinking water quality was brought home to the Canadian public by water contamination incidents in Walkerton, Ontario, and North Battleford, Saskatchewan (O'Connor 2002a, 2002b; Prudham 2004; Woo and Vicente 2003). Many water supply systems required considerable investments in order to continue to meet the appropriate standards for drinking water. Environmental pressures are increasingly important, with increasing demands, at times backed up by new legislation, to reduce the environmental impacts of water use. In some regions, such as the Prairies, this is complicated by the increasing unpredictability of water resources due to severe

droughts and unusual weather patterns – a possible signal of climate change impacts on water supply (Schindler 2001).

The political landscape is changing as well. In many countries, including Canada, governance frameworks have evolved significantly over the past two decades. Roles previously allocated to governments are now increasingly and controversially categorized as more generic social activities that can be carried out by other actors, such as private companies (Pierre 2000). Some observers characterize this trend as a unidirectional shift toward "distributed governance" (Rogers and Hall 2003), in which government responsibilities and functions are increasingly devolved to market (and, in some cases, community) actors (Pierre 2000; Rogers and Hall 2003). Mike Harris's administration in Ontario, for example, oversaw municipal amalgamation, deregulation, and the introduction of new legislation that enabled greater private sector involvement in the water supply sector (Bakker 2005; Bradford 2003; Prudham 2004).

### The P3 Model

Confronted with significant challenges in maintaining water supply systems, in a political climate conducive to involving the private sector in the provision of public services, some municipalities in Canada have entered into P3 contracts for water supply. To date, these contracts are concentrated in medium-sized communities and currently represent a small proportion of Canadian water consumers (Table 9.3). This pattern of distribution of P3s is due, in part, to the greater resources, expertise, and financing that larger municipalities may generate; in such cases, recourse to the private sector via P3s may not be considered necessary. Local political factors are also important. Over the past three years, the cities of Montreal, Toronto, and Vancouver have considered restructuring (a P3 in the case of Montreal and Vancouver, and corporatization in the case of Toronto). In all cases, restructuring proposals aroused significant public opposition – typically spearheaded by a coalition of environmental groups, organized labour, and other civil society groups. In all three cases, restructuring proposals were scaled back or shelved in response to public opposition.

### Potential Advantages and Disadvantages of P3s

There is limited information about P3 performance in Canada to date, as private companies usually make only limited performance information available,

TABLE 9.3

## Examples of public private partnership contracts in water supply in Canada

|               | Type of contract                                  | Operator   | Start Date | Duration (years) |
|---------------|---|--|------------|------------------|
| Goderich (ON) | Management contract: water treatment              | United States Filter Corporation                                 | 2000       | 5                |
| Moncton (NB)  | BOT: water treatment facility                     | United States Filter Corporation                                 | 1998       | 20               |
| Canmore (AB)  | Management contract: water treatment              | EPCOR  | 2000       | 10               |
| Hamilton (ON) | Management contract: wastewater treatment         | Philips Environmental, then Azurix, then American Water Services | 1994       | 10 (now ended)   |
| Halifax (NS)  | BOT and management contract: wastewater treatment | Consortium (including United Water, Ondeo)                       | 2002       | 30               |
| London (ON)   | O&M contract                                      | Azurix, then American Water Services                             | 2001       | 10               |

and independent benchmarking protocols are not systematically applied to water utilities in Canada (unlike in other jurisdictions). It is thus difficult to assess the performance of private companies under different contracts. One exception is the case of Hamilton, Ontario, which has one of the earliest and largest P3s to date in Canada (Box 9.1).

As with any business model, P3s have advantages and disadvantages that vary significantly, depending upon the structuring of individual contracts. However, we can make some generalizations about the relative strengths and weaknesses of P3s. If properly structured, P3 contracts may offer several advantages. Necessary expertise, which may not be available in-house, may be obtained on an ongoing basis. Cost savings may be made through efficiency gains, although this depends upon the nature of incentives built into the contract. Increased flexibility in procurement, day-to-day management, and employment practices is another advantage often cited by proponents of P3s, although this varies, depending upon the legislative and regulatory frameworks in place in any given jurisdiction. Access to finance is another potential advantage: a variety of P3 contracts allow municipal governments to

## BOX 9.1

## A PUBLIC PRIVATE PARTNERSHIP IN HAMILTON

In the early 1990s, Hamilton was facing a large accumulated deficit in infrastructure investment in water and wastewater treatment capacity; approximately 50 percent to 60 percent of its water and wastewater systems were fifty to one hundred years old, with significant implications for drinking and environmental water quality in the region, particularly in Hamilton Harbour (Hamilton 2001). In January 1995, the Regional Municipality of Hamilton-Wentworth signed a contract with a local company, Philip Services Corporation, delegating the management of the operation and maintenance of the city's water and wastewater treatment facilities, pumping stations, and reservoirs. The contract was not publicly tendered and Philip Services was the sole bidder. The contract value was assessed at approximately \$187 million and, when signed, was one of the largest delegated management contracts for water services in North America.

Four different operators have managed the water supply system since the initial contract was signed in 1994. Philip Services operated under the terms of the contract for four years and, after the bankruptcy of its parent corporation, was sold in 1999 to Azurix Corporation, a newly created subsidiary of Enron. Subsequently, Enron sold Azurix to a US-based water services company, American Water. Shortly after completion of the sale, American Water announced that it would be taken over by a German multi-utility, RWE, one of the largest water services corporations in the world. The turnover in operators has been a source of debate in Hamilton. Questions were raised regarding the lack of competitive bidding for the original contract, whether the contract remained legally binding, and the possible financial implications for the city if it were to cancel the contract. Concerns have also been raised about water quality incidents, labour relations, and water and wastewater tariffs that had risen above the rate of inflation during the 1990s. In 2004, the city decided to take its water supply system back under public management.

The Hamilton case illustrates some of the ways in which P3s can lower accountability and transparency. No public participation was initiated by the city. The municipality chose not to publish its contract with the private operators (unlike other cities, such as Moncton and Goderich, which have made their contracts publicly available). Council meetings were closed-door sessions, in part, to protect "commercial confidentiality." Residents of Hamilton had limited means of finding out about the P3 process and had limited information with which to evaluate the performance of the private operators. Poor governance intensified an already heated political debate over the P3 contract.

SOURCE: Bakker and Cameron (2003, 2005).

delegate water supply to a private operator who provides project financing. From the perspective of governments, this strategy sometimes has the advantage of reducing apparent pressures on government budgets. The reduction in the government's borrowing requirement does not, however, necessarily imply lower bills for consumers, nor does it necessarily imply cheaper financing: the Walkerton report found that commercial finance was generally more expensive than public finance.<sup>4</sup> Gaining access to financing through the private sector can provide short-term relief to government budgets, but it may mean higher bills for consumers in the long run. Private finance is not a panacea for the financing shortfall in the water sector.

Moreover, as the municipality of Hamilton discovered, good governance is necessary to ensure that the potential advantages of P3s materialize. If governance is poor – for example, weak oversight mechanisms, poorly structured incentives, or unclear performance targets – performance is likely to be poor, no matter what business model is chosen. In many countries, independent regulatory bodies at the municipal, provincial, or even national level have been created, based on the belief that, without robust regulation, neither public nor private water suppliers are likely to perform well; often, these regulators perform “benchmark” comparisons of utilities in order to assess whether prices are reasonable and whether performance is efficient and effective. This is particularly useful in the case of P3 contracts, which typically require skilful contract administration in order to ensure that contractual obligations are being fulfilled – for example, that quality targets are being met.

In Canada, there is no such regulatory framework: P3s are currently regulated “by contract,” in which municipalities are responsible for monitoring and regulation. Municipalities often lack the expertise necessary to oversee complex contracts, particularly those granting a large degree of autonomy to the contractor, such as concession contracts. Moreover, contractors typically have a greater degree of experience in P3 contracts than do municipalities. This is particularly the case in the water sector, which is very concentrated: globally, there are fewer than a dozen private companies capable of handling large-scale municipal water supply contracts (Finger and Allouche 2002). These companies typically supply millions of customers and run contracts simultaneously in many countries. Given this imbalance in information and expertise, supervision of the contract and any renegotiation may occur on terms favourable to the contractor but less favourable to the municipality, although this is not so likely to occur when municipalities carefully compare options (including an improved status quo) before choosing to enter into a P3.<sup>5</sup>

Moreover, the municipality may not be able to adequately supervise the condition of infrastructure being managed by the private company. If contracts are not carefully structured, and if monitoring is ineffective, the private sector may not maintain the water supply infrastructure to agreed-upon standards. The alternative – detailed independent regulation – is potentially costly and may undermine some of the desired advantages of P3s, such as greater flexibility in management. Multilateral financial institutions such as the World Bank make significant funds available for the creation of regulators for P3s in developing countries, and other countries with more extensive experience with water privatization, such as England, have created economic regulators. No such system exists in Canada.

Another potential disadvantage is that P3 contracts may result in reduced transparency and accountability to consumers, particularly in the case of long-term contracts. For this reason, P3 contracts are often politically controversial. This may have unforeseen consequences. For example, consumers in England's Yorkshire region did not respond to calls to conserve water during the extreme drought of the mid-1990s because of their resentment of the for-profit model and their perception that conservation would boost company profits (Bakker 2000). Given the risks of reduced transparency and weakened accountability, the Walkerton Inquiry recommended that P3 contracts be made publicly available, and it suggested that companies report requirements to municipal councils at more regular intervals than they do under normal corporate practice.

#### Debating Water Privatization: Is Water a Commons or a Commodity?

Resistance to the involvement of the private sector is often influenced by ethical concerns, which can be characterized as the view that water should be treated as a commons and a human right rather than as a commodity (Table 9.4). People who hold the view that water is a commons often assert that water is a resource essential for life – for both humans and the environment. From this perspective, collective management – whether by communities or the state – is not only preferable but also necessary: private ownership of the water supply will, it is argued, invariably conflict with the public interest. Those who advance the “commons” view assert that conservation is most effectively encouraged through an environmental, collectivist ethic of solidarity, which encourages users to refrain from wasteful behaviour. The real “water crisis” arises from socially produced scarcity, in which a short-term

logic of economic growth twinned with the rise of corporate power (and, in particular, water multinationals) has "converted abundance into scarcity" (see, for example, Shiva 2002). Accordingly, private companies should be excluded from water management, which should be organized as a "water democracy" consisting of decentralized, community-based, democratic water management, under which water conservation should be politically, socio-economically, and culturally inspired rather than economically motivated.<sup>6</sup>

In contrast, the "commodity" view of water asserts that the private ownership and management of water supply systems (as distinct from water itself) is possible and indeed preferable. From this perspective, water is no different from other essential goods and utility services. Private companies, who will be responsive both to customers and to shareholders, can efficiently run and profitably manage water supply systems. Incentives for water conservation can be provided through pricing: users will cease wasteful behaviour as, with increasing scarcity, water prices rise. Proponents of the commodity view assert that water must be treated as an economic good, as specified in the Dublin Principles<sup>7</sup> and in the Hague Declaration.<sup>8</sup>

Proponents of privatization argue that, through efficiency gains and better management, private companies will be able to lower prices, improve performance, and increase cost recovery, thus enabling systems to be upgraded and expanded. This is seen as critical in a world in which one billion people lack access to safe, sufficient water supplies. Privatization (the transfer of ownership of water supply systems to private companies) and private sector "partnerships" (the construction, operation, and management of publicly owned water supply systems by private companies) have, it is argued, worked well in other utility sectors.

Opponents of privatization point to successful examples of public water systems as well as to research that indicates that private sector alternatives are

not necessarily more efficient, and are often much more expensive for users, than are well-managed public sector systems (see, for example, Estache and Rossi 2002). They assert the effectiveness of democratic accountability to citizens as opposed to corporate accountability to shareholders – an argument less easy to refute following the collapse of Enron, which, by the late 1990s had, through its subsidiary Azurix, become one of the world's largest water multinationals. From this perspective, the involvement of private companies is incompatible with guaranteeing a citizen's basic right to water. This is because private companies – answerable to shareholders and with the overriding goal of profit – will manage water supply less sustainably than will their public sector counterparts.

#### Beyond the Public/Private Divide?

The debate over private sector involvement in water supply in Canada is highly polarized. Political controversy inevitably surrounds the introduction of the private sector into water supply management. Debating this issue should not sidetrack Canadians from the goal of ensuring long-term sustainability of water supply. Other countries have adopted a pragmatic approach and selected the best mix of the various models – public, private, and cooperative – to suit their needs (Box 9.2).

Improving water utility governance in Canada requires creative thinking about the best mix of options for different communities, along with a reasoned process of professional analysis and well informed public debate to decide between those options. Of course, the question of whether to involve the private sector in water supply management should never be considered in isolation and should always involve fundamental questions of sustainability and good governance, such as public health, environmental protection, transparency, public participation, equity, efficiency, and effectiveness.

The question of whether or not to privatize is more than merely technical: it requires a political debate that focuses on our worldviews of water and of society. Other countries have engaged in such debate. In Uruguay, for example, a national referendum was held in 2004 on the questions of whether "water is a natural resource essential to life" and whether access to piped water and sanitation services are "fundamental human rights." Sixty percent of voters agreed with the statements, thus leading civil society groups to call for constitutional reform and the banning of private sector involvement in water supply.<sup>9</sup>

TABLE 9.4

#### The commons versus commodity debate

|            | Commons                       | Commodity                     |
|------------|-------------------------------|-------------------------------|
| Definition | Public good                   | Economic good                 |
| Pricing    | Free or "lifeline"            | Full-cost pricing             |
| Regulation | Command-and-control           | Market-based                  |
| Goals      | Social equity and livelihoods | Efficiency and water security |
| Manager    | Community                     | Market                        |
| Access     | Human right                   | Human need                    |



Canadians have not yet engaged in such a national debate, but many local debates are ongoing across the country. As participants are discovering, questions about the respective roles to be played by communities, states, and private corporations raise broader issues of environmental sustainability and deliberative democracy. In debating private sector participation in the water supply, we are also debating the relationship between markets, states, and the environment. If we are to move beyond what risks becoming a stale confrontation between market fundamentalists and ardent defenders of the state, then we must make space for this collective debate.

#### BOX 9.2

#### BEYOND THE PUBLIC/PRIVATE DIVIDE: NEW MODELS FOR WATER SUPPLY UTILITY GOVERNANCE

In Chile, private sector participation in water supply has been allowed, which has meant an increase in water bills; but the government has implemented rebates for water bills for poor families. The rebates are linked to family income and ensure that no family pays more than a certain percentage of income for water.

In the Netherlands, all municipal water supply utilities are corporatized: utilities operate as commercial enterprises, charge full market rates, recover all of their costs, and are highly efficient. While operating like private companies, each water utility is overseen by a board made up of members from different government agencies. To prevent privatization, the federal government passed legislation prohibiting the sale of water company shares on the stock market.

In Porto Alegre, Brazil (home of the World Social Forum meetings), the publicly owned water supply utility has managed to extend services to nearly all residents of the city, assisted by a multi-level tariff structure that links bills to income and subsidizes poorer customers. Despite the dominance of socialist politicians in the city government, the utility outsources 40 percent of its business to local, private entrepreneurs, thereby saving money for consumers while supporting the local economy.

The Welsh water supply utility (with over 3 million customers) was privatized through flotation on the London Stock Exchange in 1989. However, water bills had risen well above the rate of inflation since 1989 due to the perceived increased risks of investing in the then private company. In 2001, the company's managers decided to end the experiment with privatization, and the company was converted into a not-for-profit utility, owned by its members and limited by guarantee. The company's AAA bond issue was successful, and it was able to significantly reduce water bills.

#### NOTES

- 1 A market failure occurs when a market fails to meet the assumptions of standard neoclassical economic models, implying that it will not efficiently allocate goods and services. For example, market failures occur when property rights are not clearly defined or are unenforceable, when prices do not incorporate full costs or benefits ("externalities"), when information is incomplete, and/or in a situation of monopoly.
- 2 A natural monopoly is in effect whenever supply by one firm entails lower costs than does supply by more than one firm. Railroads and utility networks such as gas and water are classic examples of natural monopolies.
- 3 A "public good" is the term applied to a good that is non-excludable and non-rivalrous. In non-technical terms, this means that it is impossible to exclude some people from enjoying the good (the classic example is national defence) and that one person's enjoyment of the good does not diminish any other person's enjoyment of that good (e.g., my viewing the sunset does not diminish your ability to view the sunset [non-rivalrous]). In the case of water, the public health benefits of clean water supply are public goods.
- 4 The review of this issue commissioned by the Walkerton Inquiry found that, "in general, the financial capability of a municipal government and its ability to incur debt at favourable rates means that the cost of capital often tips in favour of public-sector based financing for water and sewerage projects" (Joe et al. 2002). Canadian municipalities have fewer options for financing than do their American counterparts as US municipalities can use municipal bonds as a financing mechanism (often supported at the state level by mechanisms to insure bonds and/or provide matching public funds).
- 5 The Walkerton report, for example, lists three options that municipal governments should consider when reviewing their systems: a municipal department, a municipal agency similar to a public utility commission (or board), and a municipal corporation (O'Connor 2002a, 2002b).
- 6 One example of this approach is the P7 Declaration on Water of 1997. The P7 (now P8) annual conference was convened for the first time in June 1997 by the Green Group in the European Parliament as an alternative to the G7 (now G8) Summit. Representatives from the world's poorest countries attend the conferences, which focus on the structural causes of and solutions to poverty.
- 7 The 1992 International Conference on Water and the Environment set out what became known as the Dublin Principles: fresh water is a finite and vulnerable resource, essential to sustain life, development, and the environment; water development and management should be based on a participatory approach, involving users, planners, and policy makers at all levels; women play a central part in the provision, management, and safeguarding of water; water has an economic

value in all its competing uses and should be recognized as an economic good. The Dublin Principles have been adopted by numerous international, multilateral, and bilateral agencies, including the World Bank.

- 8 The Ministerial Declaration of The Hague on Water Security in the 21st Century was made following the interministerial meeting known as the Second World Water Forum in 2000. See <http://www.worldwaterforum.net>.
- 9 In 2005, the Council of Canadians launched a campaign for the inclusion of water as a human right in Canada's Charter of Rights and Freedoms.

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## 10

Liquid Gold?  
Water Markets in Canada

*Theodore M. Horbulyk*

Water evokes many emotions. To varying degrees, water is mythical, symbolic, and politically polarizing. Canadians may see water as an inheritance, a birthright, an asset, a resource, or a commodity. However, an important characteristic of water resources is that they have not historically been "commodified" very effectively. In Canada, relatively few water allocation decisions are decided directly by markets and market forces, although that situation is beginning to change.

## Economic Pressures on Water Allocation

Water is highly influenced by powerful economic forces, even when there are no direct markets for water or for some of the services water resources provide. Although there is active political discussion about the appropriate limits on government versus market roles in shaping a market economy, the effects of market-based decision processes are widespread and almost inescapable. This has important implications for the allocation of water. Consider a scenario where, in the future, water – including any of its quantity, quality, reliability, or environmental services attributes – becomes relatively scarce, regionally or nationally, in either Canada or the United States. This scenario is not unlikely: in Canada there are no specific and effective processes for spontaneously balancing regional or continental water resources. Therefore, it is entirely likely that, in coming years, water will, from time to time and place to place, be seen as relatively scarce or relatively abundant. This situation may come to be viewed as either temporary or permanent and will be associated with the impression that water has become relatively "cheap" or "expensive." This may, for example, emerge as a "water quantity" phenomenon, but it may also relate to the quality or reliability of any aspect of each

nation's water resources. Given the fact that water plays a key role as a productive resource, or input, in making other goods and services, we can expect economic forces to react to regionalized or nationwide shortages according to the type and degree of integration present elsewhere in the economy.

In increasingly integrated economies, firms or investors from either region or country can acquire water by investing in the assets to which it may be linked. For instance, outside investors may purchase irrigated land that has integrated water rights, or they may purchase ownership positions (directly or indirectly through anonymous stock market transactions) in firms with valuable water rights or water access. Investors may move their water-intensive production facilities away from water-scarce and toward water-abundant areas, such as in expanding or relocating irrigated agriculture, agrifood processing, pulp and paper manufacturing, hydro or thermal electricity generators, and so on. Thus, Canadians should expect to see relative shortages or scarcity of water in any region of North America result in changes to the patterns of ownership and location of water-using production facilities.

Next, consider how changes in the relative scarcity or abundance of consumer goods can be linked to issues of water resource use and management in integrated economies. New attention is being paid to the concept of "virtual," or "embedded," water: the water that is necessary in order to produce commodities. For example, seventy times more water is used in the production of the world's food supply than is directly consumed "as water" by the world's householders. Future shortages in global food markets may start to put upward pressure on the prices of water-intensive commodities such as food grains, and this will translate into increased competition for water resources in food-producing countries such as Canada. In a world that will be adjusting to global climate change or to imbalances in population growth and economic development, increasingly open and active commodity trading systems and trade agreements could increase the rate at which these commodity shortages are transmitted to competing users of domestic water resources. These linkages work in both directions. Changes in world commodity trade can increase competition for domestic water resources, while, at the same time, domestic water management can influence Canada's trade volumes and international competitiveness.

As an example of external economic pressure on water resources, consider the water storage for hydroelectric generation in southern Alberta. Historically, water was impounded in the summer months and released to generate electricity for local markets in the winter months, when seasonal

energy demand was greatest. However, recent summer seasonal energy demand has surpassed that in winter, even in local electricity markets. Furthermore, the expansion of the continental distribution grid has raised the relative influence – via market forces – of, for example, California's energy demands and US energy regulators in deciding how Alberta's dams will be operated. Thus, if the operators of hydroelectric storage facilities see high spot market prices for electricity in the summer months, and if there is sufficient electricity transmission capacity available to reach those markets, then these operators may spill more water from storage reservoirs through their generators. In this example, electricity market forces elsewhere on the continent have the effect of raising Alberta's river flows and of making more surface water available downstream in the summer months, when that water can provide much higher value to irrigators and environmentalists alike. More to the point, historically, there have been no water markets or similar enabling institutions to which either the irrigators or the environmentalists could turn to achieve equivalent transactions directly within their own province.

Trade-related competition for water resources will not only be related to irrigation and manufacturing; water-based tourism, fishing, recreation, and travel are water uses that are also affected by so-called "trade in services." Thus, it is likely that some of the increased competition for water resources might be experienced as increased demand for ecological and ecosystem uses of water. If international trade agreements increasingly include environmental safeguards that restrict water uses in other countries, the result may be added pressure on Canada's water.

### The Creation of Water Markets

One means of responding to these competing demands for water is to create water markets. Various US and Canadian jurisdictions have been developing markets for water or for various types of water rights, or they have been introducing other forms of pricing and market-based instruments. Especially where transactions and administrative costs can be kept low, and where market information can be conveyed easily (such as via the Internet), there is considerable potential for markets to anticipate temporary or permanent imbalances in water supply or demand.

How do water markets actually work? Various types have existed throughout history in such countries as Australia, Chile, Spain, and the United States (see Haddad 2000; Young and McColl 2005), and innovative approaches

continue to be proposed and evaluated. In the simplest markets, resource managers make an annual prediction of water availability and then hold a water auction; in reality, however, this rarely occurs. Surprisingly, water markets do not always exchange volumes of water at all but, rather, the right or entitlement to use specific volumes of water under certain conditions.

In some cases, the "creation of a water market" might consist largely, and quite simply, of passing legislation describing the conditions under which governments will authorize the transfer of existing individual water rights. In these simple water markets, private buyers and sellers seek each other out, independently or with the assistance of intermediaries, and negotiate individual water sales. Historically, there may not have been any provision for these rights to move among water users, especially in exchange for monetary compensation. Indeed, even in jurisdictions where water markets already exist, many governments continue to issue rights or licences for other forms of natural resource use (such as timber harvesting, cattle grazing on public lands, and mineral extraction) that are not freely transferable among users in markets.

More sophisticated water markets might be promoted by the creation of specific market institutions, agencies, and structures that are to be operated by the government or by the private sector (usually working under government sanction). Clifford, Landry, and Larsen-Hayden (2004) use the term "water bank" to describe any of a diverse set of institutionalized processes used to transfer water entitlements among users via market processes. These authors survey water banks in twelve western US states and catalogue the banks' varied and evolving roles as, among others, clearing houses, electronic exchanges, brokers, market makers, and price setters.

In creating markets for water, there is usually considerable latitude for governments to prescribe the structure of the market and the nature of the "goods" to be traded. Indeed, a potentially important dimension of new water markets involves the specification of which parties the government will allow to participate. In practice, various jurisdictions have approached this issue differently. One might expect considerably different market behaviour and outcomes in, for example, a market that allows trades only among irrigators within one irrigation district than in a market that opens trading to any prospective purchaser. Some prospective purchasers might be potential users (e.g., those wanting to start a water-using business); other prospective purchasers might not be users in any consumptive sense (e.g., those who wish to preserve water in situ for environmental uses).

In some cases, the water rights offered for sale in a market transaction might correspond to a point and time of water use considerably different from that intended by the purchaser. Prevailing water laws or policies might only allow one to exercise the newly acquired right at the alternate location under specific new conditions, or it could require further payments for storage and distribution. Where there is competition for storage and distribution facilities, it may be preferable to have separate markets for water storage, for users' access to delivery capacity in a particular (natural or constructed) watercourse, and for use of the water itself. Under such a system of water markets (recently contemplated for adoption in Australia) water users would have to participate in a complete series of water market transactions before any water purchased could be used.

What impacts do markets have? Economists have historically examined and explained the role that markets and market-based processes can play in allocating all types of goods and services and in distributing the gains and losses that are associated with each transaction. Markets often display such advantages as bringing together willing buyers and sellers in a manner that can be flexible and highly responsive to changing conditions. Markets provide a basis for societies to organize their production, consumption, and trading activities, all at a far lower cost than might be achievable through an alternative system based on centralized planning or on individualized rations, quotas, or targets. Some markets play an important role in providing incentives to firms and to individuals to develop new sources of supply and to reduce usage or waste of resources. Markets can provide incentives to take risks, such as those involved in developing new technologies. Observation of market transactions can generate valuable information to consumers and to policy makers alike regarding the relative scarcity of particular goods and services, and it can provide valuable forward-looking signals about the expectations and beliefs of large numbers of market participants.

Recently, a number of economists described the specific application of markets to environmental goods and services, including markets for airborne emissions and for water (AIA 2005; Horbulyk 2005; Portney 2003; Woodward 2005). Almost always, these discussions are quick to describe the important limitations of markets, such as those that occur when the goods and services in question affect specific third parties (those not directly involved in the market transaction). This is the case for water resources, given that water is a multiple-use resource that is integral to human and environmental health. Another limitation arises when the services are diffused widely over

groups of people who cannot effectively act with a single voice so as to generate market bids for goods and services that they value highly. In the case of water-related transactions, it could be costly, difficult, or impossible to observe accurately, to monitor, and to enforce all of the many transactions that could emanate from some new types of markets – such as markets for “pollution credits” defining allowable emissions from nonpoint sources (King 2005).<sup>1</sup>

Thus, the ability to generate improved outcomes through the use of markets is likely to rely heavily upon new and effective monitoring and enforcement practices on the part of government. Experiences with water markets in Australia and various US states support this idea (Young and McColl 2005). If potential gains are to be realized, then considerable effort on the part of governments is likely to be required in order to define appropriate water market rights, processes, and regulatory oversight. Dellapenna (2005) argues that the required degree of public intervention might be so large that the resulting arrangements hardly qualify as a market at all and, in fact, could better be viewed as an enhanced form of public management.

Another concern that can arise with water markets is that they may have the effect of capitalizing, or monetizing, historical or newly created entitlements to use “public” resources. Some people will see it as unfair that others gain direct financial advantage. In other words, if water markets create “liquid gold,” then, regrettably, it may often be someone else’s. A counter-argument is that it is exactly this opportunity for achieving individual gain that provides direct incentive to reduce wastage and to move water to higher valued uses. In some cases, putting a highly visible price tag on achieving such a change of practices only serves to highlight how poorly the resources were managed in the first place.

To the extent that people view water resources as a public resource and common inheritance, there will be philosophical opposition to creating market-based schemes that assign private ownership to water use “property rights.” Either in perception or in reality, water resources have historically been part of some public “commons,” and the sale of any entitlements may be seen as eroding this public asset. However, this type of public opposition may also be present in situations where water has not effectively been part of a public commons for quite some time. Here, the impetus for market-based approaches may be that patterns of private and public water use and priorities are well established – even if not formalized as water rights or appropriative allocations. Water may currently be allocated in ways that rigidly follow historical patterns but that, in a changing economy, are no longer

seen as desirable. In these cases, support for the creation of water markets might be based on a desire to open up or to free up, once again for the public good, the process by which access to water resources is decided.

#### Why Have Markets for Water Resources Become More Popular?

Why have markets for water resources, in particular, gained popularity in recent years? A number of authors have provided insight into this question. Zilberman (2005) argues that the pattern of water policy reforms in the United States and elsewhere is driven by the mix of specific pressures being exerted on politicians, resource managers, and users. In his view, real or anticipated scarcity is what is responsible for the establishment of systems of water trading, while, at the same time, the increasing financial cost of water system expansion has led to various forms of privatization or public-private partnerships. Increased concern about the environment has led to new emphasis on surface and groundwater quality, along with improved support for payments for watershed services. Concerns about fairness and social justice have led to pressure to regulate the prices at which water is sold or to provide subsidies, especially in the context of developing countries.

Clearly, there are connections among these developments. The adoption of water trading mechanisms generates price signals and market revenues that facilitate the role of private developers or operators. Zilberman (2005) emphasizes the combined roles of accumulated institutional knowledge and emerging crises as determinants of when and how rapidly transitions to market allocation might occur, citing the effect of the 1990s droughts in California on the rapid promotion and acceptance of water markets there.

Howitt and Hansen (2005) identify a number of precursors to the introduction of water markets (such as the existence of infrastructure to move and to store water) and to well-defined property rights to water that are both enforceable and transferable. These authors argue that trading is more likely to proceed through markets where it can occur with few adverse physical or financial effects on third parties, either because such effects are not present or because they are well regulated. In a data-intensive study of fourteen western US states between 1999 and 2002, Howitt and Hansen also identify the relative importance of short-term “leases” of water versus permanent water “trades.” Each type of transaction may allocate future risks differently across buyers and sellers, and it may involve considerably different regulatory processes and burdens. The data show that, for twelve of the fourteen states,

leases (including those used to enable various forms of water "options") are the principal form of water market transaction.

### Alberta's New Experience with Water Markets

To what extent are these precursors and determinants of US water market development relevant to the Alberta experience? Historically, Alberta, like the other provinces, had no experience with water markets. Residents make use of the numerous rivers that transect the province from west to east and that largely determined patterns of settlement and urbanization. Because of the gradient on the downslopes of the Rockies, many of these rivers and tributaries have previously been dammed for the purposes of hydroelectric generation and flood control, providing a valuable source of interseasonal surface water storage.

To make use of these resources, Alberta, like many western US states, has employed a system of appropriative water rights based on seniority. In Alberta, ownership of groundwater and surface water rests with the government, but rights to abstract and use that water are granted under such legislation as the Water Act (Alberta) and the Irrigation Districts Act (Alberta). Historically, water users could apply for water licences to use surface water or groundwater, and there were other provisions by which riparian landholders and other rural householders could use limited amounts of water without such a licence. Any licence issued was linked to the specific parcel of private land where the water could be used, and users had seniority based upon the time when they applied for the licence (this is known as the "first in time, first in right," or "prior appropriation," approach).

This system has come under increasing strain as water use has continued to grow, exacerbated by recent droughts. The Alberta Institute of Agrologists (AIA) (2005, 5) describes how growing water scarcity in southern Alberta caused the government to impose a moratorium on issuing any new licences in specific water basins. Once a landowner's new demands for water could not be met through an application process, it was clear that something had to be done. Without some reform of water policy, patterns of water use and of broader economic development could have remained locked into the historical water use pattern, without the flexibility to address changing needs.

It is significant, in Alberta's case, that the policy reforms that were implemented chose to respect and perpetuate the seniority-based system of appropriative water rights. Another jurisdiction might have chosen to address the underlying issues of water scarcity by introducing a system of proportional

sharing in times of shortage or by introducing a scheme based on the relative priority of end uses of water. This would ensure, for example, that residential needs would be met before industrial ones (or vice versa). Alberta policy reforms chose not to rely directly upon water-pricing strategies to constrain or to redirect water use. Even with the existing water rights system, a new pay-per-use scheme would almost certainly have curtailed water use by an amount sufficient to meet current and future needs. However, with no extra water to allocate, with the endorsement of the established water rights system, and given the reluctance to rely upon restrictive pricing schemes, Alberta took the short and obvious step of adopting water markets as a way of avoiding being locked into historical water allocations.

Since 1999, Alberta has allowed various types of market transactions to reallocate diverse rights to water use. For the majority of commentators, the most significant development in Alberta's water use has been the recent introduction of permanent water transfers from one place and type of use to another (even though, by early 2006, less than ten permanent water transfers had been authorized). Space limitations do not allow a full description of the systems of water rights and trading currently used in Alberta, but key points are covered in AIA (2005) and Nicol (2005). Only since 2000 has the Water Act defined a process for permanent transfers of water licences, such as those that are held by diverse agents like irrigators, irrigation districts, cities, towns, and others. The buying of water licences is only open to those who already hold a licence, although one can become eligible by purchasing land that has a water licence attached. So far, this requirement appears to have kept many of those who would buy water rights to promote non-consumptive uses (such as purchases by a citizen's trust to enhance instream flows) out of the market. AIA (2005, 15) reports that Ducks Unlimited owns or controls more than 300 individual water licences, although this group actually takes delivery of licensed water to enhance waterfowl habitat and wetlands.

Nicol (2005) uses a series of case studies to describe six of the first transactions involving the permanent transfer of water licences away from the property to which each was tied historically. Through surveys and interviews, she explores the motivations, processes, and outcomes associated with each permanent transfer. It is clear that, as is often the case with a new regulatory procedure, these participants incurred considerable expense to set new precedents and protocols for those who might follow them.

Since 1999, the Irrigation Districts Act (Alberta) has authorized the temporary transfer (or "lease") of water rights held under an irrigation district's

licence and exercised by individual irrigators within each district. Nicol (2005) studies some 222 temporary transactions that occurred in 2001 within the St. Mary River Irrigation District in southern Alberta, carefully examining the characteristics of buyers and sellers.

Outside of irrigation districts, the Water Act (Alberta) contains a provision to reassign water temporarily between one licensed user and another. These temporary transfers may have considerably lower regulatory costs than do permanent transfers. However, these temporary assignments are restricted to pushing the buyer's level of water use back up to the pre-existing licensed levels. These assigned water amounts cannot be so large as to augment the levels of use for existing or new users. In this specific detail, the assignment provisions currently available in Alberta are considerably more limiting than are the lease provisions studied by Howitt and Hansen (2005) in fourteen western US states.

How will Alberta's water markets develop in the future? Alberta's formative water markets do not yet feature prominent "water banks," "trading exchanges," or other marketplace infrastructure. Anecdotal evidence describes a number of individuals within the irrigation industry who are willing to act as market intermediaries, matching willing buyers and sellers and helping to propose the terms of a deal that might satisfy both. At least one private sector electronic trading exchange stands ready to commence water trading operations as soon as market activity can support it.

Computational modelling tools have been designed and calibrated for the southern Alberta watersheds in order to simulate the kinds of trading that might occur in times of drought. An example is a situation in which there are relatively flexible systems of water leases in the region (Horbulyk and Lo 1998; Mahan, Horbulyk, and Rowse 2002). However, there is a large gulf between the magnitude of water trading that has been seen in Alberta to date and what such models predict could be beneficial even within a single irrigation season. Of course, a common feature of many new markets for water, as with other environmental goods and services, is the relatively low volume of initial trades (except during times of crisis).

Recognizing this, Alberta has committed to considering an even broader set of policy reforms in order to build on these new markets, hoping to eventually make use of other forms of economic instruments to target the increased efficiency and productivity of water use (AIA 2005). Urquhart (2005), for instance, argues forcefully for choosing increasingly integrated approaches

to resource management and implementing it wherever possible at the watershed or basin level.

Although it is too early to assess the ultimate success of Alberta's water markets, it seems that the ability to undertake various types of market-based transactions has provided a "pressure-release valve" for a system that had become gridlocked. Early evidence suggests that permanent water trades have been used rarely, that other forms of short-term trading are far more popular. In the future, one might expect to see greater use of options contracts, such as those based on contingent entitlements. These can be a cost-effective way for large consumers to adapt to future supply variability. Yet use of such markets may introduce policy debates about foreign ownership of water rights or about the desirability of having conservationists acquire and reallocate water supplies.

#### Questions for Debate

The pressure that market forces increasingly place on water resources will impose choices – sometimes very controversial choices – on Canadians. As discussed at the beginning of this chapter, even where local decisions were made to limit direct markets for water resources, it seems unlikely that individual jurisdictions could effectively isolate them from the many market pressures that work indirectly through the production and trade of goods and services. Accordingly, a number of questions present themselves in this debate: Are Canadians satisfied with the methods by which rights to diverse water resources are defined and allocated? If historical, current, or future rights could be reassigned – with or without full compensation, temporarily or permanently, whether by market mechanisms or otherwise – what restrictions or controls might Canadians wish to see imposed on the possible outcomes? How can the governance of water resources be improved at all levels? There have, for example, been historical concerns about accountability and funding for water supply, treatment, and sanitation infrastructure. More recently, public-private partnerships (so-called "P3 initiatives") have been implemented in some jurisdictions, apparently even before broader terms of governance and accountability have been well established or understood. Similarly, the advent of market-based instruments may call for the development of specialized water courts and/or for new forms of water market regulation. Does the apparent opportunity to harness the power of market forces



for water allocation create pressure to improve water governance? Or, conversely, is improvement in water governance capacity now facilitating the use of water markets?

To what extent, and through which processes, are Canadians prepared to anticipate and to resolve domestic and bilateral issues of interjurisdictional cooperation over water resources? Domestically, potential disputes are not only limited to those between specific provinces and the federal government but may also involve multiple provinces, First Nations, and cities or regions. Bilaterally, for example, there may be a need to revise the issues and processes covered by the International Joint Commission and the Great Lakes Charter Implementing Agreements.

What do Canadians view as the appropriate role of civil society and community groups in the governance of water resources? Who, for example, should be allowed to participate in water markets? A relatively recent trend in the United States involves the growth of small-scale, community-based, local watershed protection groups, along with much larger basin-wide water organizations. How can the potential value of such groups be harnessed? And how can their information needs be met? For example, in the United States, widely collected local stream flow and hydrology data are publicly and continuously available to all via the Internet. In Canada, data are less widely collected and less readily available.

### Conclusion

Water not only flows over and under provincial and Canada-US borders but is also embodied in, and influenced by, the growing trade in goods and services. If water use decisions were ever isolated from the dictates of market forces, this is no longer the case. Greater integration within and across Canadian and American markets is applying additional market pressure, both directly and indirectly, on the allocation and management of water resources. This greater integration may also provide an opportunity for increased cooperation in the management of transboundary water resources as well as an opportunity to share experiences in such areas as improving governance and community participation. Early evidence suggests that diverse forms of water markets and the implementation of market processes will be an ever-present part of this policy debate. As Zilberman (2005) notes, historically, short-term crises have served as powerful and effective catalysts, leading to rapid and profound changes in water policy and practice. To the extent possible, citizens

across the continent will want to prepare for these crises by having their facts at hand and their homework completed, especially when faced with water policy choices that are highly controversial and not easily reversible.

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### NOTE

- 1 Nonpoint sources refer to small, diverse, and diffuse contributors to contaminant loading in a watershed, such as hundreds of individual farm fields and pastures that might release phosphorus into waterways. A sewage outfall or a large factory's discharge pipe, by contrast, would be considered a point source of phosphorus or other contaminants.

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## 11

# Trading Our Common Heritage? The Debate over Water Rights Transfers in Canada

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In recent years, the Sunshine-Coast Regional District, which is located about eighty kilometres and a ferry ride away from Vancouver, has needed additional water. Like many municipal districts, it was eager to increase its tax base, so when approached by developers eager to expand on the booming housing market, the district immediately said yes – and then scrambled to find water.

The district turned its gaze to nearby Hotel Lake, a scenic but tiny lake described by one resident as constituting not much more than a "puddle on a rock." Local residents had long been concerned about the existing overuse of the lake, which is just over a kilometre at its longest, less than half a kilometre at its widest. As with many water sources in Canada, government officials had continued to grant water rights to Hotel Lake until conflict between competing uses was inevitable. Local residents were eager to protect the drinking water source, and conservationists and the federal fisheries agency worried about an endangered population of sockeye salmon in a stream that depended upon outflow and seepage from the higher elevation lake. All were concerned about the impacts of potential water diversions proposed by the district.

In 2003, the district had applied for a new licence to abstract water from Hotel Lake. Due to local concerns, the provincial government put the district's application for a new licence on hold and ordered a study of potential impacts. Instead of paying for a study that might not support its application, the district paid \$85,000 to an existing owner of water rights to Hotel Lake, thereby obtaining a source of new water while avoiding an increase in the quantity of legally allocated water from the lake. In 2004, the provincial government approved this "water rights transfer,"<sup>1</sup> despite the fact that the water rights had not been used for thirty years and that the maximum volume

allowed by the water right could result in a 70 percent increase in actual water use in the lake.

Fearing lowered water levels, decreased water quality, and the possibility that unregistered domestic users would lose access altogether, local residents and conservationists filed a legal challenge. The residents' appeal was successful in getting the transfer put on hold, pending further studies.<sup>2</sup> The resort to litigation will surprise few who are familiar with water use management. Water rights transfers are one of the most controversial water governance issues, and they are a microcosm of one of the most controversial debates of all: the extent to which water use should be managed as a commodity and water rights treated as private property. Where water rights transfers are allowed, litigation soon follows.

The Hotel Lake fight is one of the first of its kind in Canada, but it is safe to say it won't be the last. The growing demand for water – both inside and outside Canada – will cause increased conflict between existing users as well as a growing recognition of environmental needs. And those who seek water in the future may discover it's all spoken for. As discussed below, water rights transfers will either play a key role in addressing this inevitable conflict or they will exacerbate it.

### What the Heck Is a "Water Rights Transfer"?

At the outset, it may help to clarify some similar-sounding terms. A "water taking" refers to the actual physical capture and use of water. Water takings are often categorized as being a withdrawal or a diversion. A withdrawal generally refers to a water taking that is returned to or kept within the same watershed. On the other hand, a diversion generally refers to a water taking that is removed from a watershed. Throughout this chapter, the term "water use" denotes any water "taking." Any volume of water may be involved: from small quantities of water on land directly adjacent to a river or lake to large-scale removal of water long distances from the water source, including highly controversial "out-of-basin" diversions and water "exports."

To undertake any of these activities, it is generally necessary to have legal permission to withdraw or divert the water, which is referred to as a "water right." Water rights are usually attached ("appurtenant") to land and are passed along with title to the land. "Water rights transfer" generally refers to the conveyance of water rights from one party to another for use in a different place and often for a different purpose. Alberta has the most mature water rights

transfer market, followed by British Columbia. A "water market" (discussed in Chapter 10, this volume) may refer to something as simple as the ability of private parties to arrange rights transfers between themselves (subject to government approval) on terms they negotiate, which may include payment to the holder. More commonly, the term evokes situations in which government policies, institutions, and brokers encourage and facilitate transfers.

### TRANSFERABILITY AND OWNERSHIP: THE INTERRELATION

The question, "who owns the water?" is controversial and generates highly charged public debate. Canadian law generally recognizes water as a public resource but allows the establishment of private property rights to the use of water. For both pragmatic reasons and reasons of public policy, full "ownership" of water in lakes, streams, or in the ground is not allowed. On the pragmatic side, water moves through a continuous cycle – through rivers, streams, and the ground – in ways that have no regard for the boundaries of private property or national borders, so granting legal title to a litre of water in a river is simply impractical. In terms of public policy, water serves myriad human and non-human needs, including environmental needs, and this makes full private ownership inappropriate (because of the need to balance between competing uses).

Regardless of policy and political objectives that may be served or compromised by water rights transfers (discussed below), there is no avoiding the fact that allowing water rights transfers brings us a step closer to private ownership of water. *Black's Law Dictionary* defines "ownership" as "a collection of rights to use or enjoy property, including the right to transmit it to others." Accordingly, before launching full tilt into a discussion of water rights transfers, it is worth taking a brief look at historical attempts to balance water's public and private interests as well as at the broad outlines of water management in Canada.

### The Historical Context

Aboriginal custom did not create private rights to water (Aboriginal water rights are the subject of Chapter 15, this volume); rather, it sought to ensure that all forms of water usage recognized and respected one's spiritual connection with water. In the Anishinabe tradition, for example, women are the caretakers of the water and any contemplated "use" is subject to the responsibility to "ensure the survival of the seventh generation."

To assert that European settlement brought a new approach to water management is an understatement. The idea of applying property rights to water use arose out of attempts to protect water's public uses while allowing private parties to use it for their own purposes. Historically, public uses predominated in Canadian common law, whose origins are in British and Roman law. The Roman approach to water held that the primary values of rivers and seas are preserved when they are held in common, with protection of public values being predominant; however, it admitted that marginal improvement to overall welfare might occur when some limited private access was allowed (Epstein 1994).

Based on Roman law concepts, European and Middle Eastern legal systems have long accepted rivers as *public property* (Teclaff 1972). Among others, contemporary Spanish and French laws expressly acknowledge that water in rivers is public property (Nanda 1977). In the United States, many state constitutions declare water resources to be public property (Blumm 1989). On the other hand, Islamic law views water and "great rivers" as *common property*, with private rights being confined to small volumes of water within well-defined boundaries (Nanda 1977). Even in Britain, which has a system of private "riparian rights" linked to land ownership, the common good was prioritized by allowing landowners adjacent to lakes and streams the right to use water so long as overall quantity and quality – and the ability of other right-holders to use water – were not unreasonably impaired.

Currently, it would be difficult to argue that Canada manages water for the primary purpose of protecting common values. While all Canadian jurisdictions, except Ontario and Prince Edward Island, explicitly vest the ownership of water in the Crown (Christensen 2005),<sup>3</sup> most provincial governments manage water in order to maximize private commercial and/or industrial activity, which "requires" granting private parties "secure" access rights.

### Current Water Management in Canada

The primary responsibility for managing water in Canada rests at the provincial level, and the disparate approaches adopted have resulted in an incomplete, inconsistent, and often ineffectual patchwork of laws and regulations controlling water use (La Forest 1973; Percy 1988). There are five major approaches to water rights in Canada: prior allocation, public authority, riparian rights, civil code, and Aboriginal water rights. As prior allocation and public authority systems are the only ones that allow water rights transfers, they are the ones given most attention here.

### PRIOR ALLOCATION

Water use legislation in western provinces (British Columbia, Alberta, Saskatchewan, and Manitoba) and, to some extent, Nova Scotia is based on the "prior allocation doctrine."<sup>4</sup> A licensee acquires the exclusive right to use water from the date of the licence application ("first-in-time, first-in-right"). The first-in-time, first-in-right approach to water use sets up a seniority system whereby, in times of shortage, the most senior licence holder gets his or her full allocation before any junior licence holder. Generally, the rights are appurtenant (legally attached) to a particular parcel of land. These systems may allow limited use of water without a licence for specified purposes (e.g., domestic). In many cases, although increasingly less frequently, water licences were issued "in perpetuity."

These systems generally employ the underpinnings of a concept known as "beneficial use," where "beneficial" requires water to be used for purposes determined to be consistent with societal objectives and "use" requires actual use – commonly called "use-it-or-lose-it." In these systems, the purposes for which licences may be granted are defined, and the licences may be lost for non-use. Prior allocation systems have been harshly criticized. Water managers often grant rights until water supplies are over-appropriated. There is little oversight of licences through approaches such as metering or reporting of usage. Use of the water is often free or at very low cost, and there is generally no ability to "hold back" amounts for environmental needs.

Water rights transfers are often recommended to remedy the particular deficiencies of prior allocation systems. Alberta, for example, substantially revised its water use legislation in the late 1990s to accommodate water rights transfers. Although it has not amended its legislation in this regard, British Columbia is now granting water rights transfers applications, relying on an expanded interpretation of a "transfer of appurtenance provision," which previously allowed a single owner to change the place of use of a water right. Manitoba and Saskatchewan prohibit water rights transfers but are discussing possible adoption.

### PUBLIC AUTHORITY MANAGEMENT

In the Yukon, the Northwest Territories, and Nunavut the "public authority management" governs decisions about water use, which is generally implemented through local water boards.<sup>5</sup> All uses (except domestic and emergency uses) require a permit. This regime also has a "use-it-or-lose-it" cancellation component as well as provisions for cancellation or amendment

for public interest considerations (including low water). Transferability of licences is permitted in the northern jurisdictions. Transfer of licences in the northern territories is rarely, if ever, motivated by unavailability of water.<sup>6</sup> This chapter is concerned with water rights transfers as a tool for addressing situations in which all available water in a local area has been allocated. As this occurs in Alberta and British Columbia, water rights transfers in the northern territories will not be further discussed.

#### RIPARIAN RIGHTS

Water use legislation in Ontario and the Maritimes is based, in part, on the "riparian rights doctrine." This is inherited from England, where, historically, an owner of land that borders on a water source (e.g., land at the edge of a lake or land over which a stream flows) enjoys certain water rights called "riparian rights." Primarily, the landowner is entitled to have access to water flow in its natural quantity and quality (La Forest 1973). The landowner is also entitled to limited rights of use. Use must be for ordinary or domestic purposes, which (provided that the use occurs on the land itself) are not limited in amount. Extraordinary purposes (including irrigation and manufacture) are permitted if the use is reasonable and the water is returned to the water source substantially unaltered in quantity and quality. Thus, riparian rights do not permit use on non-riparian lands. A landowner, for example, could not agree to divert water from his or her property to provide drinking water for a neighbour. As such, riparian rights of use are not "transferable." Also, as groundwater does not flow in open channels, riparian doctrine does not apply to it. Ontario has placed a statutory limit on riparian rights by requiring a permit for use when water is withdrawn from surface water or groundwater sources in amounts above 50,000 litres per day for industrial uses and water bottling. Transferability of these permits is not currently allowed, but it is foreseeable that, when water sources become fully allocated, demands to transfer permits may arise.

#### CIVIL CODE MANAGEMENT IN QUEBEC

Quebec's legal system is solely based on a statutory "civil code." The Civil Code of Quebec recognizes surface water and groundwater as a resource whose use is "common to all." A recent water policy further elaborated that the right to have access to and to use water should be applied "in a manner consistent

with its nature" and, further, that the "government has a responsibility to regulate water use, establish priority uses and preserve its quality and quantity, while taking the public interest into account" (Ministère du Développement durable, de l'Environnement et des Parcs 2002). Permits for water use are not granted by any single agency. Permits granted are in relation to the type of use and are governed by different ministries.<sup>7</sup> Water use permits are not transferable.

#### ABORIGINAL WATER RIGHTS

All of the four legal approaches to water use in Canada are subject to claims of Aboriginal rights and treaty rights (discussed in detail in Chapter 15). Aboriginal customs (or customary law) governed the use of water prior to European settlement. Even after the assertion of Canadian sovereignty over Aboriginal peoples (first claimed by Britain in 1763), Aboriginal customary law continues to exist in tandem with Canadian law. To resolve the existence of both Canadian and customary law, Aboriginal rights have been interpreted within the Canadian legal system as including certain Aboriginal customs and practices.<sup>8</sup> In 1982, Aboriginal rights and treaty rights became constitutionally protected. Any Aboriginal rights and/or treaty rights (that were not extinguished prior to 1982) can no longer be interfered with (i.e., "infringed") by government.<sup>9</sup>

#### Are Transfers Good or Bad?

Water rights transfers, depending on your view, will either resolve excess water demands and conflict between users or they will exacerbate them. As in many places around the world, in Canada, the current system of water rights allocation and management has been strongly criticized in recent years. This is in part due to increasing stresses on water resources (Chapters 1 and 2, this volume), new social priorities (such as environmental protection), and changing political commitments (such as the federal government's reduced funding for freshwater monitoring).

Some observers argue that current water rights allocation systems are fundamentally flawed, particularly because flowing water is treated as having no monetary value: rights are often obtained for little or no money and can't be sold. Furthermore, applicable fees, if any, are sometimes the same, regardless of the amount actually used.<sup>10</sup> One commonly proposed solution to

these issues is to provide greater legal recognition of water rights and to allow rights holders more freedom to transfer rights between themselves. Usually, such transfers involve monetary payment and, in effect, constitute a market. Such market-based schemes for natural resources management are controversial and, when proposed in relation to water, are often absolutely polarizing.<sup>11</sup>

According to supporters, the ability to transfer water rights gives holders an incentive to use water efficiently because they are permitted to sell or lease any water they do not use. Transfers also make possible the reallocation of water rights from economically low value uses to higher value uses. Theoretically, water rights transfers may help avoid conflict as existing rights holders are not forced to give up or share water rights and, in fact, will only do so when motivated by a sufficiently attractive financial offer. Water rights transfers may also increase the water supply available to new users as water purchasers would have an increased pool of potential sellers. New users could gain access to water without incurring the expense (and environmental impacts) of a new water supply.

Water rights boosters can even make credible appeals to environmental protection: where streams are over-allocated, rights transfers provide the most politically palatable manner of reclaiming flows for environmental purposes.<sup>12</sup> While buying water rights in order to meet environmental needs might seem distasteful, supporters argue that this approach creates a realistic possibility of meeting environmental needs in water-stressed areas, whereas a plan for forced take-backs of water rights will be implemented around the same time as the devil takes up ice-skating. The Nature Conservancy (an international non-profit organization dedicated to preserving biodiversity) has purchased water rights in order to provide for environmental protection. In Nevada, for example, the Nature Conservancy (in conjunction with the State of Nevada, the US Fish and Wildlife Service, and the Nevada Waterfowl Association) has purchased almost 30,000 acre-feet of water rights since 1989 in order to restore internationally significant wetlands (Nature Conservancy 2006).

Further, when transfer approval is sought, water systems may be designed so as to allow for the imposition of environmental requirements. For example, as a condition of transfer approval, a regime may allow regulators discretion to require that a certain percentage of the water allocation be dedicated to environmental objectives. While such requirements may generate environmental improvements, they do serve as a disincentive to undertaking transfers.

According to critics, water serves social and environmental needs that are too important to be left to the whims of market forces. Most would agree that the preservation of a commercially valuable fish population, or an endangered one, is more socially useful than is the profligate watering of an exclusive golf course; however, under a market approach, the golf course is more likely to get the water. In other words, environmental interests are not able to compete in the market as it is currently structured. The benefits of environmental integrity accrue to society (and non-human interests) collectively, and an expectation that self-interested individuals will voluntarily pay for public benefits at the needed scale is absurd.

Even if environmentally minded individuals were able to mount a serious attempt to reclaim substantial water rights, this approach to water use would still be unsatisfactory. The determination of where water rights should be repurchased should be made from an ecosystem perspective and should not be subject to individual whims with regard to protecting a specific water source. Moreover, these environmental "buy-backs" would be complicated by the fact that it is currently impossible for markets to appropriately attribute monetary value to all of water's uses; indeed, critics maintain that the basic concept of assigning water a monetary value in a traditional market is fundamentally flawed. Water's true economic value, if determined properly, would reflect its "ecosystem value" – all of the services that water provides to ecosystems (such as habitat for fish). In the absence of a purchaser for ecosystem services, complex economic estimation methods have to be used to calculate monetary value. Determining the monetary value of ecosystem services using these methods is very contentious because there are many aspects of water's role in the ecosystem that are extremely difficult to convert to a monetary equivalent (e.g., the aesthetic value of a wetland). And, even if the true economic value of water's ecosystem services were determined, the current market system would not capture it.<sup>13</sup> The result is that water's market price does not reflect its true economic value.

This difficulty of calculating the true economic value of water raises troubling questions about a policy that encourages the reallocation of water to "higher value uses" – uses that are based on market outcomes in which water's most basic services are monetarily ignored. Allocating water to the highest bidder also has the potential to exacerbate social inequity. As a common saying in the water-short US southwest has it: "Water flows uphill toward money." Globally, where market-based approaches to water allocation are

adopted, subsistence farmers have been among the first to be priced out of the market (Bauer 1998).

Critics also question whether water rights transfers can live up to their promise to increase efficiency and reallocate supply. They suspect that, on the contrary, they will increase conflict by encouraging more intensive use of existing water rights, discouraging the natural attrition of water rights, and changing how water is used, thus making the rights to it more financially valuable (and, therefore, worth fighting over).

Water rights transfers also have the potential to harm other users. Even though the quantity of water that is allowed to be used does not change, rights transfers often change the amount of water actually used, the location of that use, the timing of that use (most significantly, the time of year), and "return flows" (water returning to the source after use, which is common for uses such as irrigation). Concern over these potential harms may stop many proposed water rights transfers from occurring, making transactions infrequent and rendering the purported benefits of water rights transfers more theoretical than real. In jurisdictions where water rights transfers are closely reviewed in order to prevent harm to other users and the environment, their number is correspondingly limited (Sax et al. 1991). Similarly, British attempts to allow water rights transfers were abandoned when it was determined that European Union environmental standards could not be met (Bakker 2004).

Loosening oversight to facilitate water rights transfers carries a very real risk of undermining the certainty of others' water rights. Changing the purpose, place of use, or timing of water use can affect the ability of other licence holders' rights (e.g., making it less likely that a full licence allocation will be met where licencees depend upon an agricultural user's return flows). Releasing transferors from the obligation to prepare extensive, time-consuming, and costly flows studies (a potential barrier to transfers) increases the likelihood of harm. Thus, attempts to facilitate water rights transfers and water markets could result in a somewhat ironic situation in which the market would result in the devaluing of water rights.

"Commodifying" water also carries another risk: the encouragement of speculation. The nature of water – including the fact that the geographical distribution does not necessarily correspond to population density and demand, as well as the high transaction costs associated with identifying a potential buyer – makes the use of markets awkward. Water markets intended to encourage the more efficient allocation of water may, instead, encourage

hoarding. Given the importance of water to the range of human and non-human needs described above and elsewhere in this volume, the tying up of water rights in anticipation of future profit may further discourage reallocation and undercut the competitive position of a region or province. Speculation may also create negative environmental consequences by encouraging the wasteful use of water simply in order to maintain a right in good standing for a future sale.<sup>14</sup> Most obviously, speculation may raise moral concerns, particularly for those who feel that water is a human right rather than a commodity.

### Do Markets and Water Mix Like Oil and Water?

The debate over creating markets for water mirrors debates that have occurred regarding the market's ability to manage natural resources and to achieve public objectives. Herman Daly, one of the most well-known environmental economists in the United States, says that every economy faces three challenges – allocation, distribution, and scale. And he further argues that the market's efficacy with regard to each issue differs and, when it comes to natural resources, is often low.

"Allocation" refers to the apportioning of resources among different demands. Resources in this sense can be physical (machinery or commodities), human (workers, their time and skills), financial, or environmental ("natural resources"). Because resources are limited, we must allocate them in such a way as to provide the goods and services that people want and can afford. With regard to water, this would involve decisions such as how much of an extracted water supply should be put to municipal use as opposed to industrial, agricultural, or other uses. Markets can provide important signals regarding the optimal use of any type of resources for which there are competing demands.

"Distribution" – apportioning resources and the goods and services produced among different people – is more problematic than allocation. The market will provide a distribution of goods; however, because market transactions are based on willingness and ability to pay – the highest bidders will obtain the goods – there is going to be inequality. This may be of less concern with regard to goods such as fine wine or jewellery, but it is deeply disconcerting when the issue is water needed for drinking, sanitation, or subsistence food production. Globally, the World Health Organization has repeatedly warned that over one billion people do not have access to sufficient amounts

of water for basic health and hygiene purposes (WHO 2000). To allow market forces to determine the distribution of water is, to put it charitably, callous. And many critics would argue that it is simply unethical.

The third economic challenge is that of "scale": how large can an economy become before it begins to harm the ecosystem that sustains it? With respect to water extraction, this is most easily understood in terms of how much water may be taken from a source before ecological functioning is unduly compromised. The market offers no mechanism for deciding what a desirable scale might be or for achieving it. And, unless specifically tailored to do so, a market will do nothing to correct a problem of scale that has become too large (e.g., an over-allocated water source).<sup>15</sup> Most environmental problems related to water use are "scale" problems that could be dealt with through a requirement to leave sufficient water for environmental purposes (along with related requirements to keep pollution and other disruptions of the water source to an appropriate "scale").

It is for these reasons that the proposed solution to water allocation disputes should be considered carefully and cautiously. Proposals that rely on strengthening private rights to water by adding tradability (a key component of private ownership) must be viewed in light of past experience. Specifically, water rights transfers are proposed as a solution to factors influencing inefficient water use – including individuals acting as if water has little or no monetary value and the problem of overallocation – which are endemic to the prior allocation system.

Are private water rights part of the solution or, as critics argue, part of the problem? Prior allocation has its genesis in assertions from businesses and investors that strong, secure water rights were needed if they were expected to take risks in establishing new enterprises (generally mining and agriculture, at least in the early days of colonial settlement). In response, governments granted water rights that were immune to regulation regarding water use efficiency or reallocation in light of changing societal or environmental needs (particularly as these rights were granted in perpetuity or with strong entitlements to renewals). Had the rights granted to private individuals been less strong (or "secure," to use the lingo of property rights advocates), the problems we face now might not have arisen at all. Canadian governments could have granted water rights subject to forfeiture for inefficient use or failure to adopt water-saving technology. In such a system, there would simply be no need to provide monetary incentives to water users to increase efficiency.

"Weaker" property rights, entailing greater constraints on users, would have avoided the problem that "strong" property rights have created.

If "strong" property rights are at the root of the water problems Canadians are now facing, what could strengthening property rights in water – by adding tradability – bring us in the decades to come? Canada lacks sufficient domestic experience to offer insights into how to gain the benefits and avoid the harm associated with water rights transfers. But other jurisdictions, such as California and Chile, do offer such insights.

#### WATER TRANSFERS: THE EXPERIENCES OF CALIFORNIA AND CHILE

##### California

California likely has longer and more extensive experience with transferring water rights than does any other jurisdiction in the world. As early as 1859, the California Supreme Court determined that water rights were "substantial and valuable property" that could be sold or "transferred like other property." Only one year later, the same court issued another decision that imposed serious restrictions on water rights transfers as the potential harm to other parties became apparent (*McDonald v. Bear River* and *Kidd v. Laird*).<sup>16</sup> This "no injury rule" has been interpreted to mean that one may only transfer a water right if it does not injure any legal user of water. Injury includes any change in water use that would harm those who have become reliant on unused water and return flows downstream. Water rights transfers are limited to the amount actually used, meaning that the person doing the transferring must actually give something up rather than simply capitalize on an unused paper right.

Under these historical rules, harm was avoided, but a limited number of water rights transfers were taking place each year (Sax et al. 1991). Sensing the potential to address some of the state's increasingly contentious water management issues, California took steps in the 1980s and 1990s to encourage more water rights transfers. These changes allowed short-term water rights transfers, water banking, and water rights transfers outside original areas of use, but it retained the prohibition against water rights transfers resulting in harm. During the first years after the changes, the state experienced significant conflicts, but these have now been reduced in number and water rights transfers are increasing, with hundreds of thousands taking place each year (Johns 2003). Quantities are reaching 1.2 million acre feet per year – almost a tenfold increase since the mid-1980s (Hanek 2003).



Environmentally, water rights transfers are looking good in California. In recent years, over one-third of water rights transfers in that state have occurred in an attempt to meet environmental needs (Howitt and Hansen 2005).<sup>17</sup> Leading environmental groups generally support the idea of water rights transfers, while occasionally opposing individual proposals. The State of California is even moving into being a market participant as well as a regulator, acquiring water rights for environmental purposes and for drought planning.

In short, water rights transfers in California have developed into a relatively non-contentious, frequently used tool that addresses problems of excess water demands and that also occasionally generates environmental benefits.<sup>18</sup> There is broad support for water rights transfers not only from those who embrace strong market initiatives (which is not surprising) but also from environmental groups (which is surprising).

Although there seems to be a growing consensus about the efficacy of water rights transfers within California's existing system, some have questioned the equity of the arrangements. Most of the water rights traded in California are for water provided through a heavily subsidized system of aqueducts that costs taxpayers over \$400 million per year (Environmental Working Group 2005). Taxpayers subsidize the delivery of water to farmers and businesses who are able to reap the windfall of selling it at "full market value" – without any repayment of the subsidies – often so that water can be put back or left in the stream for environmental purposes. Nonetheless, despite the rapid rise of the number of water rights transfers in California, some still argue for liberalizing water rights transfers even further and increasing the role of market forces (Mentor 2001). Those advocates might be envisioning a system more closely resembling that of Chile.

### Chile

In 1981, the Chilean government enacted an extremely laissez-faire water law that privatized water rights, promoted free market forces and incentives in water use, and sharply reduced governmental regulatory powers in water management. Since then, the Chilean Water Code has been the world's leading example of a free market approach to water law and policy – a unique experiment in treating water rights not merely as private property but also as a fully marketable commodity (Bauer 1998). The 1981 Water Code is still in force today, protected by Chile's 1980 Constitution.

The adoption of free market reforms in 1981 has an interesting genesis. The Republic of Chile had adopted a civil legal system. The country's civil code governed water rights until 1951, when a separate water code was enacted. The water allocation system under the 1951 Water Code resembled that of the western United States, but water rights transfers were only allowed if the purpose of the water use remained the same as it had been before the transfer (Mentor 2001).

In 1973, the political situation in Chile changed dramatically. Under the control of General Augusto Pinochet, the Chilean armed services overthrew the socialist government of Salvador Allende. The military coup was a reaction to Allende's land reform efforts and to deteriorating economic conditions (Carrasco 1995). The military government adopted radical free market economic policies and curtailed the government's planning, regulatory, and proprietary roles over private industry and natural resources development. A group of US-trained, free market economists known as the "Chicago Boys" gained unprecedented influence over efforts to rewrite Chilean laws to further the government's economic policy (Carrasco 1995). The government's economic development model was export-oriented, and Chile's economy was opened to the world economy (Bauer 1998).

In 1981, the Chilean military government adopted a new Water Code that reflected its overall economic and political objectives (Bauer 1998). The Water Code increased the legal security of private water rights, thereby putting an end to questions about water rights ownership left by the agrarian reform. Government economists argued that the real boost in efficiency would come from price incentives and private trading. According to the Chicago Boys, market mechanisms would motivate users to save water in order to sell the surplus and to transfer water rights to higher-valued uses within agriculture (or other sectors of the economy).

Because the Chilean Water Code is such a paradigm for free market reforms, it has often been mentioned in international debates about water policy. The predominant view outside of the country is that the Chilean model of water management has been a success. The strongest proponents of this view have been economists at the World Bank, the Inter-American Development Bank, and related institutions, which have encouraged other countries to follow Chile's lead (Bauer 1998). These proponents – never ones to let facts (or lack thereof) get in the way of ideology – did little, if anything, to verify their conclusions.

Carl Bauer undertook the first in-depth analysis of the Chilean experience. He concluded that, in most parts of Chile, water markets were inactive and had a limited impact on the efficiency of water use and the reallocation of resources. While the promises of water markets were scattered and limited, the concerns about water markets were acutely felt. On issues such as social equity and coordinating multiple water uses (managing river basins, resolving water conflicts, and protecting river ecosystems and instream flows) the Chilean model demonstrated "serious weaknesses," and there are indications that speculation and hoarding is occurring (Bauer 1998). Bauer's examination leads us to conclude that the purported benefits of water markets in Chile were overpromised and have since been underdelivered. On the other hand, the risks of water markets have been fully realized.

#### California, Chile, and Canada?

California's experience with water rights transfers has significant positive aspects, whereas Chile's gives rise to serious concerns. Will Canada come closer to Chile's experience or to California's? It is worth noting the similarities and differences among the three. In many ways, California's and Chile's water laws are similar to those in western Canada (the prior allocation system). All three have established licence or permit systems as the primary means for obtaining a water right.<sup>19</sup> All three systems respect private rights to use water while retaining state ownership of it (i.e., they distinguish between ownership of water rights and ownership of the water itself). In adopting these characteristics, all three have rejected riparianism as the legal framework for water rights ownership.

There are differences among the systems. California and western Canada allocate water according to a time-based priority system in which the claim of those with prior allocations of water is superior to that of junior water users. In Chile, water rights are divided into two classes, and the government equitably apportions water rights within each class (Ríos and Quiroz 1995).

There are other differences. California is diligent in ensuring that water users show that they are using water for beneficial purposes, whereas Chile does not do this. In fact, in Chile, once a water right is perfected, the owner may change the purpose of use without governmental approval. In western Canada, water must be used for defined purposes; in Alberta and British Columbia, water rights transfers require government approval. Furthermore, water rights in California may be lost if there is a prolonged period of non-use.

By contrast, Chilean water rights are not subject to forfeiture. In Canada, rights may be lost for non-use, although, in practice, this rarely happens.

Finally, California has adopted strong protections within its water rights transfer regime, but it also has a number of other forces that curb water management excesses. California guarantees robust citizen participation in water management decisions, something that is precluded in a number of Canadian jurisdictions. Unlike Canada, California has strong endangered species legislation (both at the state and federal levels) that is diligently enforced and that functions as the primary impetus for water rights transfers to environmental needs. California has also embraced other broad protections of the public interest, such as the "public trust doctrine."<sup>20</sup> The lesson for Canadians is that water rights transfers will only work well if they occur within a strong legislative framework – one that prioritizes the public interest and environmental protection, and that requires robust citizen participation in water management decisions. None of these conditions is currently being met in Canada.

Water rights transfers in California follow the same general approach as do those in other western US states. This cannot be said for British Columbia and Alberta. Alberta has adopted an explicit scheme of considering proposed water rights transfers that ensures the deliberation of relevant factors, such as harm to other users and the environment (see Alberta's Water Act). British Columbia's "transfers of appurtenance" are a different story. When applications are made, not only does the province fail to provide notice to the public generally, but it also fails to guarantee to provide notice to potentially affected licencees. In the *Hotel Lake* case referred to at the beginning of the chapter, the BC government took the position that harm from water rights transfers is impossible if the transfer does not increase the legal quantity of water authorized. On that basis, it refused to even consider effects on other users and the environment. The ministerial representative testifying in the *Hotel Lake* hearing went so far as to say that if an application for a water rights transfer was filled out correctly and the underlying rights had not been cancelled (regardless of whether they had been used), the application must be granted. Unlike in Alberta, in British Columbia, questions of environmental impacts, overexploitation, and overappropriation (due to the granting of too many rights for the actual quantity of water) are not currently being addressed in water rights transfer decisions.

In Canada, Alberta has some, but not all, of the protections that California has. There is at least a glimmer of hope that Alberta's experience may

resemble California's. British Columbia, given current trends, will likely replicate the Chilean experience.

### Conclusion

From our perspective, the need to sustainably manage uses of fresh water is simply too important to preclude the use of any potential tool on ideological grounds. Canadian jurisdictions should remain open to the possibility of employing economic instruments for water use management, including water rights transfers.<sup>21</sup> However, it is important to take stock of the risks involved. Looking at the examples of California and Chile, it may be seen that there is a risk that other aspects of water governance may be so underdeveloped in Canada that increased use of economic instruments may impede rather than enhance sustainable water use management. To put it starkly, there is a danger that Canada's experience may replicate that of Chile rather than that of California.

The debate about water rights transfers also occurs within the context of a great unknown – the extent to which fundamental reform of water management systems will be undertaken. If the current systems remain in place, then it makes sense to move toward water rights transfers (in an appropriate manner, of course). California has managed to address a few of the most pressing water use management problems through water rights transfers. However, even if water rights transfers have improved water use management in California, the overall system remains highly unsatisfactory. It is possible that the small improvements brought about by water rights transfers have undermined the momentum to move toward real reform.

On the Canadian side of the border, there's no question of the need for real reform of water use. It is crucial to give priority to ecological function when determining water use management. Access to water through permitting should only occur after ecological integrity is ensured, after adaptive management has been implemented (so as to be able to continuously modify water uses in response to ecological, economic, and social "feedback"), and after the implementation of appropriate governance mechanisms at the appropriate geographic (watershed) and political levels. And there must at all times be clear accountability at higher levels of government (Brandes et al. 2005).

To sum up, water rights transfers should not just be viewed as some obscure debate among policy wonks or as a tool through which someone

can obtain water. The decisions that Canada makes about whether and when to allow water rights transfers are central to the larger questions of how we manage water use, how we balance public and private interests, and how we achieve our collective social objectives (such as good water governance and environmental protection). Rather than proposing water rights transfers as the solution to our water allocation problems, we should focus on improving water and environmental governance before eventually considering water rights transfers as one potential – but limited – tool for water use management.

### NOTES

- 1 British Columbia's Water Act refers to this type of water rights transfer as a transfer of appurtenancy. Water rights transfers and appurtenancy are discussed below and in Chapter 10, this volume.
- 2 "Hotel Lake," *McClusky, et al. v. Assistant Regional Water Manager*, BC Environmental Appeal Bd. Decision 2004-WAT-0003(b) and 0004(b), issued 9 August 2005.
- 3 Ontario and Prince Edward Island have no positive statutory provision asserting the public ownership or vesting of water. However, their management approaches, as discussed below, are similar to those in several other Canadian jurisdictions.
- 4 This is a modification of a doctrine used in the western US states called prior appropriation. A similar approach was adopted in Australia as well.
- 5 In Nunavut, for example, the public authority resides in the Nunavut Water Board. As agreed to in the negotiated land claim (1993), the Nunavut Water Board oversees the use and pollution of all water sources. In the Northwest Territories, there are several boards that oversee the licensing of water use (Sahtu Land and Water Board, Gwich'in Land and Water Board, and Mackenzie Valley Land and Water Board). In addition to allocations, the Yukon Water Board also oversees the compensation process by which senior licences and exempted domestic uses are compensated for adverse effects anticipated from a new licence. There is no such process of compensation in other northern jurisdictions.
- 6 Personal communication, John Donihee, legal counsel for the Mackenzie Valley Land and Water Board, 16 August 2005.
- 7 For example, the Ministry of Natural Resources (and Hydro-Quebec) issue permits for power-related water use, the Ministry of Agriculture and Fisheries for agriculture-related water use, and the Ministry of Municipal Affairs for drinking water supply and infrastructure.
- 8 The interpretation of Aboriginal rights within the context of the Canadian legal system relies on the assertion of Canadian sovereignty, which did not have a basis in law at the time and thus may be invalid. A proper understanding of Aboriginal

- water rights is well beyond the scope of this chapter. For a detailed discussion, see Kempton (2005).
- 9 To the extent that an Aboriginal and/or treaty right to water exists, Aboriginal customary law (such as the Anishinabe practice mentioned earlier) could govern water uses and take priority over all other uses (after ecological needs are met). In Yukon, First Nation riparian rights are associated with any Settlement Lands. If the Yukon Water Board authorizes a water licence that interferes with First Nations riparian rights, compensation must be paid to the First Nations in question. If First Nations riparian rights are substantially altered by an approved water use, the First Nations in question can apply to the Yukon Water Board for compensation.
  - 10 See, for example, British Columbia, where licence fees are paid on the full licence allocation, regardless of use (Water Use Regulation, s. 7(10)).
  - 11 Market-based schemes for the management of resources are increasingly in vogue. See, for example, Grafton (1996); Parliamentary Standing Senate Committee on Fisheries and Oceans (1998); and Branch, Rutherford, and Hilborn (2006) regarding "individual transferable quotas" for managing fish harvests.
  - 12 Where transfers are allowed, non-profit groups such as the Oregon Water Trust obtain water rights to meet environmental objectives. A typical transaction might include supplying a rancher in an arid area with hay in return for her/him forgoing the irrigation of her/his own crop and leaving water instream. See <http://www.owt.org>. In the United States, government agencies often purchase water rights in order to meet environmental objectives.
  - 13 When the true economic value of a good or service is not reflected in the market, the market fails to achieve the optimal outcome (e.g., maximize social well-being). This market failure is referred to as a negative externality. The real cost to society of "using up" ecosystem services is not paid by the private use of the water. This use of ecosystem services might be the result of water withdrawal or diversion (as discussed in this chapter) or pollution. When the social cost is greater than the private cost, the market solution requires either complete property rights or government intervention (such as a tax or charge, or quota, for water use). Water rights transfers, as they exist in Canada, are not sufficient to achieve the optimal outcome.
  - 14 It has been reported that in the arid lands around Tucson, Arizona, some farmers have flooded fields to the point of non-productivity simply to maintain the water right for future sale to the growing urban area.
  - 15 Markets may be useful in determining how reductions in scale should be achieved. For example, if it were determined that water usage needed to be reduced by 30 percent, markets might help to determine which rights should be forfeited (e.g., those willing to sell back the rights at the lowest price).
  - 16 *Kidd v. Laird*, 15 Cal. 161 (Cal. Sup. Ct., 1860); *McDonald v. Bear River Co.*, 13 Cal. 220 (Cal. Sup. Ct., 1859).

- 17 Direct purchases, such as those made by state and federal entities in order to comply with federal environmental regulations (primarily augmenting stream flow to enhance fish runs), accounted for one-third of traded volume in 2001.
- 18 This is an area in which disputes related to California's failure to consider the impact of water rights transfers on groundwater use still occur. Another concern is the fact that some local rural economies have suffered as farmland is rendered idle when the water is sold (Hanak 2003).
- 19 The prior appropriation system in California originally recognized the establishment of water rights through diversion and use, without the need to apply to the government. Historical rights are now recognized within the administrative system, and new water uses require an application.
- 20 Briefly, the US doctrine states that, if the state holds legal title to resources, then it acts as a trustee for the benefit of the people of the state. As trustee, the state and its agencies are answerable to the courts in the exercise of their duty. Where private interests intersect with public claims, the former should give way to the latter (Sax 1970). A continuing duty is imposed on the state to supervise the exercise of water rights and to reconsider those rights when public trust values are endangered. This resulted in the divesting, without compensation, of water rights held by the City of Los Angeles (*Mono Lake* case).
- 21 Some other economic instruments that should be considered are revised water pricing and financial incentives (such as tax breaks for water efficiency investments).

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