

Water Pricing

Introduction

Water pricing refers to a set of charges that are attached to the abstraction, diversion or consumption of water and water pricing is a market-based mechanism that can be used to help manage supply. Other market-based mechanisms include property rights and water use permits that can be traded or exchanged through water markets.

The purpose of charging for water—whether in the form of paying for a water permit, a water use tax, a new set of water use rates or a water abstraction charge—is to change consumer behaviour by incenting wiser use and consumption through price signals. Changing consumer behaviour so that water can be used more efficiently—doing more with less—without tapping into additional supplies is a fundamental goal of water charges. Water charges are also needed to generate revenue for the operation, maintenance and capital costs of water and wastewater provision and for water related programs and services. The basic thrust behind the idea of charging for water is to shift the costs associated with water use away from governments and the general tax base to water users.

Water pricing for all sectors—municipal, agricultural and industrial—is supported by a number of multilateral international organizations such as the Organisation for Economic Cooperation and Development (OECD), the United Nations (UN) and the World Bank. In 2000, the World Water Commission (established by the World Water Council—an international intergovernmental and NGO network) concluded that the single most immediate and important measure that could be recommended is the systemic adoption of full-cost pricing of water services (Rogers 2002). These same organizations also support charging for the use of water.

One of the reasons is that water is not, and cannot be, a completely free good. There are a host of costs associated with water and its use including construction, operation and maintenance of water infrastructure (e.g., source development and protection, treatment, distribution, storage, pumping), administration, management and environmental mitigation. Currently, a good portion of the costs of providing water are borne by taxpayers through the general tax base (e.g., subsidies and grants to water suppliers and utilities) rather than direct water charges paid by the users themselves.

Types of Water Charges

There can sometimes be confusion when it comes to the idea of water pricing. Strictly speaking, the price of any good or service can only be arrived at when buyers and sellers interact in a market where the laws of supply and demand produce a market price. Because the conditions for a market do not always exist when it comes to water, much of the focus behind any type of water “pricing” is really on “administered prices.” Therefore, the terms “water charge,” “water rate,” “administered price,” “user-fee,” or “water tax” are perhaps more appropriate.

Economic Good Versus Social and Environmental Good

Water pricing is contentious public policy terrain. Water is a multi-faceted resource essential to life that has cultural, social, and environmental significance. There are those who support the notion that water is an economic good that should be priced according to its market value. But others are fundamentally opposed to putting a price on this vital resource and argue that water is a basic human right. Is there a middle ground between these two viewpoints and can a water rate structure be found that respects both?

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Water as an economic good: Water is considered to be an economic good by organizations such as the UN, World Bank and the International Monetary Fund. Additionally, many countries in the world view water as an economic good. In 1992, at the UN *International Conference on Water and the Environment*, 500 conference delegates adopted the Dublin statement. One principle included in the statement states that “Water has an economic value in all its competing uses and should be recognized as an economic good...managing water as an economic good is an important way to achieving efficient and equitable use and of encouraging conservation and protection of water resources” (Scott 1999).

Water as a social good: Those who view water as a basic social good are generally against water pricing arguing that water pricing can result in social inequity, particularly if those with low or moderate incomes find themselves unable to afford the water that they need. Thus, there are numerous individuals and organizations—such as the Council of Canadians—that oppose any concept of pricing and support the notion of water being a universal human right. Many nations have enshrined water as a right in their constitutions. Examples include Columbia, the Democratic Republic of Congo, Ecuador, Ethiopia, Gambia, Guatemala, Venezuela and parts of Spain (Zetland 2010).

Water as an economic good and a social good: Finding the middle ground between regulating water so that its value is protected—in this case, through economic mechanisms—and ensuring that social equity and the environment are maintained, is a challenge facing policymakers. However, the emerging consensus appears to be that water can be treated as both an economic good and a social and environmental good. Once again, on an international scale, this notion was embraced at the *UN Conference on Environment and Development* held in Rio. At this conference, a statement was issued saying that “Integrated water resources management is based on the perception of water as an integral part of the ecosystem, a natural resource and a social and economic good” (Gleick 2002). Some nations have followed this approach. South Africa, for example, has based its water policy around this principle. In South Africa, water for domestic use is supplied free of charge up to a certain amount to ensure equity and that everyone has access to a base amount. All water users are then charged for any water used over the base amount. South Africa’s former Water Affairs and Forestry Minister Ronald Kasrils noted that “Once the social needs have been met, we manage water as an economic good, as appropriate for a scarce natural resource” (Segerfeldt 2006).

DEFINING AND CLARIFYING TERMINOLOGY

Financial Incentives: Financial incentives include taxation and subsidies. When governments decide to tax a good, service or resource, the cost to consumers rises. Thus, taxation can serve to lower demand for whatever is taxed and encourage consumers to seek out substitutes or alternatives. On the other hand, governments can also choose to subsidize a good, service or resource through tax breaks, credits, rebates, grants or expending tax dollars. Subsidies work in the opposite direction of taxation, resulting in lower costs that encourage higher consumption.

Market-based Mechanisms: Examples of market-based mechanisms include government attempts to establish a “price” for a good, service or resource with strong public good characteristics. For goods and services provided by government, the “price” can be termed an “administered price” and is intended to recover the costs of provision. For public or monopoly goods and services provided by the private sector, governments often choose to establish a “regulated price.” Regulated prices can be specific or can range between a minimum “floor price” to a maximum “ceiling price.” Finally, governments can work to create the necessary conditions for a competitive market (e.g., create scarcity, encourage numerous buyers and sellers, define property rights, establish a trading platform, lower transaction costs) and let transactions between producers and consumers set a “market-price.” All such attempts can be referred to as market-based mechanisms.

Pricing and Charging for Water: At the outset, it is important to make a clear distinction between “pricing” and “charging” for water. Strictly speaking, a “price” for any good, service or resource can only be arrived at through the interaction of supply and demand in a properly functioning and competitive market. This interaction establishes a “market price” that reflects the economic value of the good or service in all of its competing uses. When it comes to the concept of water pricing, what most really mean is not a market price but some “financial charge”—an “administered” or “regulated” price—for water. In the absence of a market, such charges will not reflect economic value strictly speaking. In short, market prices are economically determined while any other price or charge is politically determined.

Partial Charges and Universal Charges: It is also important to distinguish between what can be called the “partial” charges that now exist in Canada and the concept of “universal” charges. The concept of partial charges reflects the fact that current charges for water in Canada typically apply only in the municipal and irrigation sectors and they seldom recover the full costs of providing the water or the social and economic costs of water use (Renzetti 2009). In contrast, “universal” water charges would touch upon all sectors and all uses of water including self-supplied industrial and commercial water use. The idea also reflects the pursuit of more rationale or accurate water charges designed to fully recover costs and to internalize social and environmental externalities. In short, the idea of “universal” water charges is about ending subsidies in the provision of water, charging all users of water across all sectors and economic actors according to what they use. It is about charging more *accurately* for water and *extending* the concept across all sectors.

Finding the Right Price

As noted above, the real price of water cannot be found in the absence of a competitive market. Instead, water charges must be “administered” or “invented” by policymakers (Garrido & Calatrava 2010.) The task of choosing an appropriate price for water is complex and must be undertaken cautiously. Rethinking how water is priced in Canada is not simply a matter of increasing current water rates or license fees. Rather, a variety of factors must be included in this decision. What problems, concerns or issues are meant to be addressed by charging for water? What costs associated with water use should be included in the price of water?

Water pricing involves accounting for both the cost and value of water. The terms *price*, *cost* and *value* must be differentiated because oftentimes these terms are used incorrectly.

Price: The price of water is a rate that is assigned to the supply and use of water. Overall, water is generally underpriced. On a global scale, water is typically priced between 10% and 50% of operation and maintenance costs (The Economist 2010). Water prices do not generally account for any environmental and social costs associated with water use and supply.

Cost: The cost of water includes financial, environmental and social costs. The financial costs are tangible, generally easy to discern and include the costs of supply and delivery (administration, distribution, operation and maintenance), and capital (pumps, water mains, treatment plants, pipe systems and investment). The environmental costs include any “damage” that water use imposes on the environment or aquatic ecosystems (Garrido and Calatrava 2010). Another way to think of environmental costs is to consider them as opportunity costs. For example, what is the cost of diverting water for use by industry rather than leaving it in its natural form to sustain a wetland? The importance of ensuring that environmental costs are reflected in water rates is being increasingly recognized. However, environmental costs are non-monetary and therefore difficult to measure and quantify. The resource costs of water reflect any foregone opportunities which users suffer due to depletion of the resource beyond its natural rate of recharge or recovery (Garrido and Calatrava 2010). Resource costs come into play when resources are overtaxed and current water rates are not sufficient to account for this over-taxation. Like environmental costs, resource costs are non-monetary and difficult to measure and quantify.

CHARGING FOR WASTEWATER

The pricing of wastewater, water discharge, effluents and pollutants often accompanies discussion over the pricing of water. Pollutants and contaminants can be introduced into the water supply due to activities such as manufacturing and farming or storm run-off from urban areas. Polluted wastewater can have disastrous consequences. For example, the Gulf of Mexico dead zone off the coast of the United States is the largest dead zone in the world, spanning some 10,000 square kilometers (Bruckner 2011). Located at the mouth of the Mississippi River, the zone is full of excessive nutrients that promote the growth of algae, which uses up available oxygen and stifles other life forms. Some of the contamination in the dead zone is due to nutrient run-off such as nitrogen from agriculture in farming states such as Minnesota, Iowa and Illinois. Nitrogen and phosphorous can also enter the water system due to other sources such as animal waste and sewage.

Not only is water pollution linked to a decrease in available water supply and an increase in water treatment costs, it can also have significant ecological and economic ramifications. In the case of the Gulf of Mexico dead zone, increased pollutants in the water supply can potentially affect the wellbeing of the seafood industry—a major component of coastal state economies.

Quantifying pollution and its consequences is not easy. First, the amount and kinds of pollutants introduced into a water source can vary by sector and water user. Some pollutants are more toxic and more difficult to treat than others. Second, identifying the sources of pollution can be difficult.

Wastewater surcharges or effluent fees can be put in place to account for water pollution. Surcharges should vary based on the kind of effluent discharged and the subsequent treatment required. Additionally, surcharges do not need to be applied to all water users as some contribute minimal amounts of pollution. Instead, wastewater surcharges can be applied to those water users with specific harmful or unwanted discharges (Pearse 2002). Wastewater surcharges must be implemented carefully. Pollution cannot be justified just because a water user has bought the right to do so. Effective pollution legislation and regulation must still be in place to limit and control allowable waste in water.



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Value: The value of water is the extent to which water is beneficial and important to each user. The value of water is difficult to quantify. The importance of water can vary between individuals and among sectors. Pricing can signal the value of water, but in almost all cases, administered water charges do not reflect the true value of water (Rogers 2002).

Generally, most water prices administered by utilities take into account at least a portion of the financial costs associated with water use. License fees or permits administered by governments are generally minimal and do not reflect the value of water. Most economists recommend that in order for any pricing system to fully serve its economic purpose, all financial environmental and resource costs should be reflected in the price of water (Pearse 2002). This may be an impossible and endless task requiring the identification of all effects of the product at each stage in the economic cycle from production to waste, assigning these effects a monetary value and then using the tax system or other authorities to add this total monetized value to the price (Stallworth undated). What is more, the “right” price of water is a moving target. Externalities can change, the demand for water varies by season, by year, and by region and water itself has much different values depending on the end-use (Policy Research Initiative 2005). At a minimum, then, some contend that the price of water should be as high as the cost of providing it.

Challenges of Water Pricing

The key to the success of any water rate system is effective regulation. Additionally, an effective rate system will be the result of collaboration between a variety of disciplines that take into account the cultural, legal, political, economic and scientific aspects of water charges. In addition to ensuring that rules are enforced, there are other obstacles that must be addressed in order to successfully implement a rate system.

Information gaps: Setting an appropriate price on the use of water requires significant amounts of information that is not always readily available. For example, water inventories must be monitored and measured, future supplies forecasted

and water users metered. Pricing will be the most effective when it is based on a strong scientific foundation and this requires making considerable investments to secure the needed information.

Political and public resistance: Implementing a rate system can be perceived as a new form of taxation and could be hard to sell to the public and politicians alike. There is likely to be resistance against water charges based on the argument that free water is a right and the responsibility of governments to provide. Implementing water rates is a long-term project and may not result in immediate and tangible payoffs for the politicians who put them in place (Minardi 2010). The challenge is properly garnering political and public support through awareness campaigns. The strains on Canada’s water supply are often invisible—people cannot see the leaky pipes beneath their feet. One way to promote water pricing is to advocate for a system that over the long-run will reduce government subsidization and therefore taxes (Thompson 1993). Additionally, some argue that the reason why water utilities have been hesitant to implement pricing policies is because of continuous subsidies received from provincial and federal governments (Renzetti 2005).

Legal barriers: The absence of legal regulations that outline quality requirements and water abstraction limits can hinder successful implementation of a rate system. Ideally, regulations should be in place before a rate system is changed. Of particular importance are regulations that mandate the quantity of water that should be allocated to the environment, a legitimate water user in its own right.

Social barriers: Rate systems must ensure that equity concerns are addressed. Rate systems have the potential to marginalize individuals with low-incomes. To ensure this does not happen, there are a variety of options such as the provision of subsidies to low-income households. Equity concerns can also come into play when considering other sectors of the economy. For example, steps may have to be taken to ensure that small businesses or entrepreneurs are not disadvantaged due to their inability to compete with larger corporations.

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Competitiveness: One concern associated with increased water charges is that costs will increase for companies and for farmers. While this may be true in some cases, each water user has different needs and whether increased water costs will have an impact on business is linked to whether other inputs can be substituted for water, water's share of total costs and whether or not users can pass on the effects of higher water charges through organizational changes or higher output prices (Renzetti 1999). Some argue that water charges on the whole would not hurt competitiveness but rather would imply the "removal of an inefficient and distortionary" subsidy (Renzetti and Dupont 1999).

Conclusion

Charging for water use has the potential to improve water resources management in Canada and the idea is increasingly drawing attention and being implemented in numerous countries around the globe. But it is not an easy task. The costs to be captured in a pricing regime are not always easy to identify and quantify and there are numerous barriers to overcome as well. Given the importance of water to Canada's future, ways need to be found to overcome these challenges and pursue a more rational approach to pricing of this precious resource.

For more information and to access the Canada West Foundation's water policy research visit: www.cwf.ca

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