



Canada-U.S. Water Issues
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Introduction:

The identification of water resources as a key aspect of Canada-U.S. bilateral relations should be no surprise. 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. Relatively few water allocation decisions are decided directly by markets and market forces.

In Canada and the U.S., questions and concerns have existed historically about the policies and practices by which water will be governed, managed and allocated, both domestically and internationally. The principal contexts in which these water issues currently arise include discussions about adaptation to climate change, about proposals for bulk water exports from Canada to the U.S., and about the resolution of conflicts over diverse trans-boundary water resources, for example. The search for solutions to these problems may be hampered by the popular misconception that Canada has abundant supplies of high quality water, ready and available to meet present and foreseeable future needs. In practice, much of Canada’s abundant water resources are found far from where they are most needed. Canada and the U.S. will have to adapt to increasing water scarcity and should expect public scrutiny of specific water-related issues to intensify. Citizens of both countries should be guided by a broader assessment of the ways in which relative and absolute scarcity of water resources is linked to the degree and pace of economic integration of their two economies.

The theme of the following discussion is that water is highly influenced by powerful economic forces, even when there are no direct markets for water itself or for the services provided by water resources. Suppose markets for water (broadly defined to include diverse water resources and water services) were completely absent in a world where markets play such a key role in allocating so much of everything else. What can one learn about water issues from an understanding of those other markets? More specifically, suppose that, in future, water—including any of its quantity, quality, reliability, or environmental services attributes—is to become relatively scarce or relatively abundant, regionally or nationally in either country. A key question to ponder is: How will this relative imbalance in water resources, shape or be shaped by the degree of economic integration between the two countries?

To explore these issues, an instructive approach is to look first at the linkages between water and the market forces that shape the two countries' means of production. Then one can look at the linkages between water and the two countries' markets for consumer goods and services, especially in a world of intensified global trade. Finally, one can allow that some water markets are likely to be present, and see what role such markets play. These three "snapshots" suggest a number of key issues, and generate a number of choices to be faced by Canadians. There are potential flashpoints, now and in future, that highlight the importance of the choices to be made.

Key Issues:

There are no specific and effective processes or procedures to balance continental water resources spontaneously. Therefore, it is entirely likely that, in coming years, water will from time to time or place to place, be seen as relatively scarce or relatively abundant on one side of the national frontier but not the other. This situation may become viewed as either temporary or relatively permanent, and will be associated with the impression that water has become relatively "cheap" or "expensive" on opposite sides of the border. This may emerge as a "water quantity" phenomenon, for example, but may also relate to the quality or reliability of any aspect of the nations' water resources. Just as it is predictable that these differences in water valuation may occur, so too is it predictable what pressures, forces or adjustments will arise in integrated market economies to resolve them.

This section raises the following key issues:

- In future, domestic water issues should be expected to play an increasing role in determining the volume of trade and Canada's bilateral and international trade competitiveness in goods and services;
- Changes in world commodity trade will play an increasing role in competition over use of domestic water resources;
- With increased integration of the Canada and U.S. economies, relative shortages or scarcity of water anywhere in North America should be expected to lead to changes in the patterns of ownership and location of water-related assets and water-using production facilities in Canada; and
- The increasing use of markets and market-based instruments to allocate water resources will provide one means to balance and accommodate the effects of increasing market pressures on water resources. Greater public efforts or investment may be warranted in developing these market institutions for water resources.

When regionalized or nation-wide shortages or imbalances of water resources arise, then one should expect economic forces to play a role in moderating them, according to the type and degree of integration which is present elsewhere in the economy. Consider first the role that water plays as a productive resource or input in making other goods and

services. Which issues arise when firms in one country see the other country's water as more abundant, less costly, or undervalued?

In increasingly integrated economies, firms or investors from either side of the border can acquire water by investing in the assets to which it may be linked. For example, outside investors may purchase irrigated land that has integrated water rights, or purchase equity 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 scarcity and toward water abundance, such as in expanding or re-locating irrigated agriculture, agri-food or pulp and paper processing, hydro or thermal electricity generators, and so on. Thus, Canadians should expect to see relative shortages or scarcity of water anywhere in North America lead to changes in the patterns of ownership and location of water-using production facilities in the Canadian economy. Depending upon whether these changes are viewed as desirable or not, these changes might be influenced through management of the water resources themselves.

Consider next 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 "imbedded" water, namely that which is necessary to produce agricultural commodities and foodstuffs. 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 to 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, trade agreements or a customs union could increase the rate at which these commodity shortages or pressures 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 a more specific example, consider 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. More recently, seasonal energy demand in the summer has surpassed that in winter, even in local electricity markets. What's more, the expansion of the continental distribution grid has raised the relative influence of, for example, California's energy demands and U.S. energy regulators, in deciding how Alberta's dams will be operated.

Especially where international trade agreements will increasingly include environmental safeguards and monitoring that restrict water uses in other countries, an added pressure may be placed on Canada's water. Trade-related competition for water resources will not only be related to irrigation and manufacturing, for example. Water-based tourism,

fishing, recreation and travel are uses of water resources that are also affected by so-called “trade in services.” Thus, it is possible that some of the increased competition for water resources might be experienced as increased demand for ecological and ecosystem uses of water.

Various U.S. and Canadian jurisdictions have been developing markets for water and / or water rights, or 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 or respond to temporary or permanent imbalances in water supply or demand. Options contracts based on contingent or interruptible entitlements can be a cost-effective means for large consumers to adapt to future supply variability. The use of such markets may introduce policy debates about foreign ownership of water rights and entitlements, or about the desirability of having conservationists acquire and reallocate water supplies, such as from consumptive to non-consumptive uses.

Experience with water markets in Australia and various U.S. states suggests that “institutions matter.” For potential gains to be realized, considerable investments may be required to define the appropriate water market rights, processes and regulatory oversight. Even where local or regional decisions were made to limit such uses of direct and explicit markets for water resources, it seems unlikely that individual jurisdictions could effectively isolate water resources from the many indirect market pressures that work indirectly through the production and trade of goods and services.

Choices for Canadians:

In light of these issues, Canadians face a number of questions and choices.

1. 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?

2. How can the governance of water resources be improved at all levels?

There have been historical concerns about accountability and funding adequacy for (urban and rural) water supply, treatment and sanitation infrastructure for example. 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, or for new forms of water market regulation.

3. To what extent, and through which processes are Canadians prepared to anticipate and to resolve domestic and bilateral issues of inter-jurisdictional cooperation over water resources?

Domestically, potential disputes are not only limited to those between specific provinces and the federal government, but may involve multiple provinces, First Nations, and cities or regions (playing a role that is increasingly independent of provinces). Bilaterally, there may be need to revise the issues and processes covered by the International Joint Commission and the Great Lakes Charter Implementing Agreements, for example.

4. What do Canadians view as the appropriate role and influence of civil society and community groups in the governance of water resources?

A relatively recent trend in the U.S., for example, has been 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 U.S., widely collected local stream flow and hydrology data are publicly and continuously available to all via the Internet.

Potential Flash Points:

Having outlined a number of fairly basic policy choices affecting water resources in the context of economic integration, there might not, in practice, be the luxury of long periods of careful and pensive deliberation before significant choices will be made. There are a number of potential flash points that could redefine the urgency and significance of any single issue. Listed here in no predicted order of likelihood of occurrence or priority, citizens of both countries will want to be aware of:

- the changing role and value of hydroelectric power.
A move to “de-commission” dams on some rivers in the U.S. and a growing valuation of the “opportunity cost” of impounded river water is being offset by the increasing value of electricity in a continental network.
- the growing number or importance of Canada-U.S. inter-jurisdictional issues affecting trans-boundary waters.
These will range from management of both surface water and groundwater in the Great Lakes region to renegotiation of the soon-to-expire treaty on the Columbia River.
- the likelihood of extreme climatic or weather events.
These include the recurrence of historical multiyear droughts, or increases in precipitation variability leading to flooding.
- local or regional crises in surface or groundwater management, quality or availability and the crises’ effect on public action, reaction and priorities.

Just as the tragic events at Walkerton, Ontario, focused Canadian attention on issues of the safety and security of domestic water supply, any of a wide range of related water resources events continent-wide could have a similar influence on public opinion and on the place of water on the political agenda. In some areas, the associated sense of urgency or expected pace of actions might cause irreversible policy decisions to be made before there is an adequate understanding of the hydrologic resources or ecological processes to be altered.

- terrorism and civil security.

Authorities already have to divert scarce operating resources allocated for public water systems to acknowledge, if not to address fully, the (acute and chronic) threats that could be motivated by terrorism. Some localized preventative measures will be directed to issues of security and protection of supply. Larger scale responses could include the alteration grid designs to increase “resilience” in supply networks or systems, and the creation of standby capacity and processes.

Options/Recommendations:

Water issues have come to prominence bilaterally because water flows not only over and under the Canada-U.S. border, but because water is also embodied in, and influenced by, growing trade in goods and services. Citizens of Canada and the U.S. have started to experience relative water scarcity and to sense these resources may be vulnerable to numerous future threats. If ever water use decisions were isolated from the dictates of market forces, such is no longer true. Greater integration of the two countries’ markets is applying additional market pressure, either directly or indirectly, on the allocation and management of water resources. At the same time, greater integration may also provide an opportunity for increased cooperation in the management of trans-boundary water resources, and an opportunity to share experiences in such areas as improved governance and community participation. Canadians face a number of fundamental water policy choices that can better position all of us to address inevitable threats and challenges.

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