



SUSTAINABLE DEVELOPMENT
**BRIEFING
NOTE**

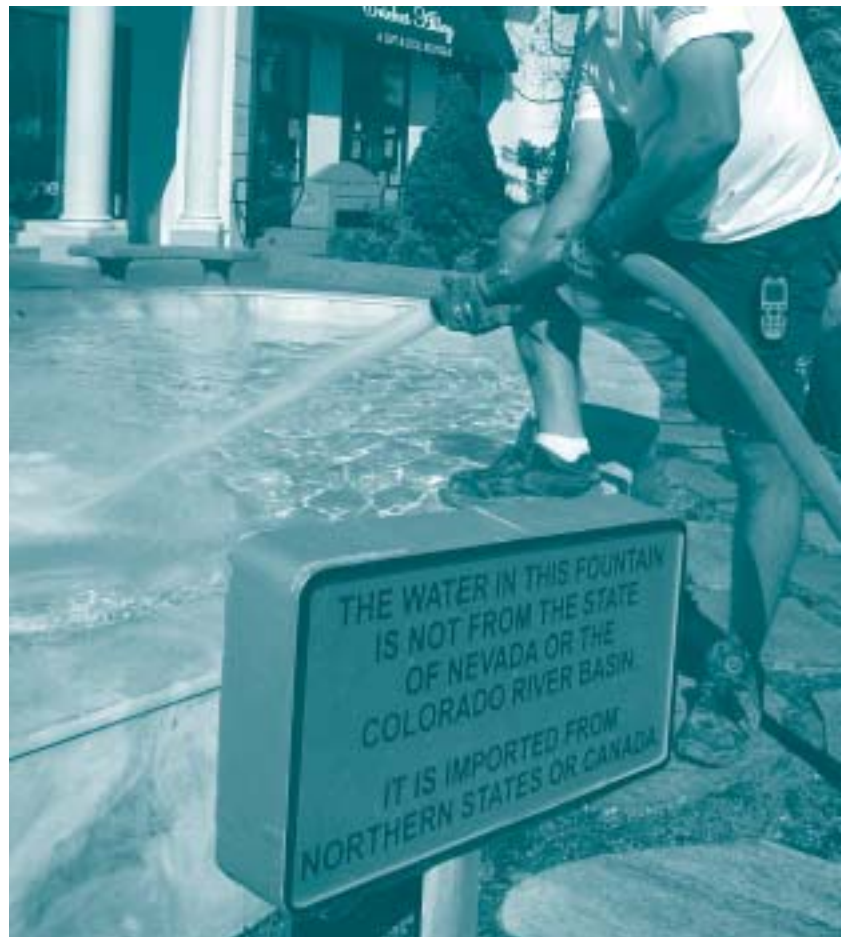
Is There a Business Case for Small-Scale and Large-Scale Water Export to the United States?

Highlights

- Water export will be pursued only if it is profitable for the parties involved.
- Most large-scale water export schemes are not likely to be profitable, and they are socially and environmentally unacceptable.
- Some small-scale water exports may be economical (such as to supply adjacent cross-border municipalities), but several significant factors weaken the business case.
- Commercial large-scale export of Canadian water is unlikely in the foreseeable future.

Introduction and Background

The issue of exporting Canadian water is a complicated one that touches on legislation, policy, jurisdiction, economics, politics, the environment, and cultural values – both domestically and internationally. Many of the complexities stem from the fact that water is unlike other natural resources: it is essential to life, and no functional substitute is available for many uses. Many people have difficulty conceiving water as



Gary Thompson, Las Vegas Review Journal.

A sign of things to come? Nevada law prohibits the use of Colorado River Basin water in public fountains. The water in this Las Vegas fountain is not, however from Canada; it is trucked in from just outside the Colorado River Basin in the United States.

a commodity. On the other hand, water is also an input for industrial processing, irrigation, electricity generation, and many other for-profit uses. This means that it has economic value, and suggests the possibility of profit from exports.

Large-scale exports schemes such as the Grand Canal and North American Water and Power Alliance proposals involve hundreds of billions of dollars, large dams, and canals for diverting large volumes of water. Small-scale exports involve tankers, pipelines, or bags or bladders towed by tugboats. At a much smaller commercial scale are exports for municipal service, bottled beverages, and water for ships leaving Canadian ports.

Entrepreneurs and politicians on both sides of the Canada–US border have speculated about the feasibility and profitability of large-scale diversions and small-scale projects to export water from Canada to the United States. Are such schemes potentially profitable? If so, are there other impediments to developing a sound business case for bulk water export to the United States?

This briefing note, the second in a series on bulk water export,¹ explores the business case for exporting bulk water to the United States. The bulk removal of boundary waters from the American side is not considered here, because that is not, strictly speaking, water export (although it might have similar effects on Canadian water resources), and because it is regulated by the Boundary Waters Treaty of 1909.

Large-Scale Export for Irrigation

Large-scale export schemes are intended to provide water for irrigation, primarily for the American Southwest. Two large-scale export proposals were advanced some years ago: the North American Water and Power Alliance (NAWAPA) proposal and the Grand Canal scheme. The NAWAPA proposal would require the flooding of large areas of British Columbia. The Grand Canal scheme proposes that Canada turn the southern end of James Bay into a freshwater reservoir using dykes, and move that water to the Great Lakes by means of nuclear-powered pumps. Like any large-scale diversion scheme, both plans would require large canal systems and flooding of large areas and communities, resulting in significant changes to ecosystems and existing infrastructure. Any business case for such diversions would need to anticipate strong opposition from Canadian citizens.

According to one analysis², the marginal price of irrigation water in the western United States ranges from about \$0.01 to \$0.13/m³, depending on location and season.³ The estimated cost of large-scale exports from Canada to the American Southwest is between \$2.67 and \$6.33/m³, depending on location, volume, and the technology used. Clearly, bulk export of water for irrigation is not economically viable.

Small-Scale Export for Municipal Use

Small-scale water export for municipal use is a different issue. Municipal water is treated to potable standards and provided in relatively small quantities to a concentrated population of consumers. The costs associated with untreated small-scale bulk water exports from Canada range from \$0.81 to \$5.66/m³, depending on the technology used and the distance of transport. In potential municipal markets in the United States, the marginal price for treated municipal water can range as high as \$4.31/m³ (in Las Vegas).

Although the buyers' willingness to pay is within the range of supply costs for bulk water exports from Canada, the supply cost is for untreated water. The municipal price, on the other hand, is for treated water. Thus, the substantial (though variable) costs associated with treatment need to be considered. Given that the cost of water treatment in the potential market would be the same regardless of the water source,

there are likely to be more competitive alternatives for supplying raw water to Southwestern US communities than through import from Canada. The movement of treated water between border communities, however, could prove to be both economical and efficient, because the water would need to be transported over only a short distance. Such arrangements already exist, mainly in border communities where distances are small enough that no re-treatment of the water is required on the receiving end – so that, in essence, the communities are achieving economies of scale by sharing a treatment plant.

Regulatory and Other Hurdles

Other than current legislation and policy, a non-financial factor hampering a sound business case for bulk exports is the requirement for environmental impact assessments prior to project development. Although small-scale exports would not have the same effect on the landscape as large-scale proposals, environmental impact assessments would still be necessary to explore a range of potential effect, such as, the introduction of invasive foreign species.⁴

Another consideration is the likely seasonal or temporary nature of the demand. Demand for imported water often arises due to temporary shortages caused by emergencies or unusual droughts. An investment in infrastructure that would depend for profitability on seasonal or temporary water shortages may be too high risk to make such a project financially unattractive.

The Competition

Demand management, desalination, and supply from closer sources would all compete with bulk water export schemes.

The costs of demand management (including such possible strategies as markets, pricing, education, recycling, efficient technologies, regulation, and Softpaths⁵) are highly variable, but they are often low and often yield environmental co-benefits. However, political, public, or bureaucratic resistance may arise to implementation of some demand management strategies.

Desalination has high capital and energy costs, as well as costs associated with the disposal of the resulting brine. It is, nonetheless, favoured by many coastal communities, such as Santa Barbara, California, because it offers security of supply. High energy prices might appear to favour imports; however, renewable energy (specifically solar) is becoming increasingly practical for meeting the energy requirements of desalination.

Other American sources would also have to be considered as competitors for Canadian water. The geography of North America is such that the United States has water-rich regions closer to its water-poor regions than are the water-rich regions of Canada. Thus, bulk transport of water between American states would likely be less expensive than bulk exports from Canada.

Inexperience

The fact that there has been little experience with commercial bulk water export markets in North America – shared municipal systems in border communities aside – further weakens the business case for export. A significant amount of work would be needed to develop a convincing business case, particularly in light of the difficulties identified above. Until there have been several years of experience with water export projects, uncertainties associated with seasonal and annual variability of demand, regulatory barriers, and the availability of feasible alternatives will significantly increase the financial risk and therefore weaken the business case for export.

Benefits to Canadians?

Bulk export would operate with little ongoing labour, particularly when compared with other natural resource-based industries such as mining or forestry. Relative to the value-added bottled water and beverage industries, bulk water export would employ very few Canadians per m³ exported. Thus, beyond the initial construction phase, bulk exports would bring little employment to Canadians. Further, any attempt by governments to charge a significant royalty on the resource would increase the cost of the water beyond the realm of profitability. Thus, bulk water export offers little advantage to the Canadian taxpayer in the long term.

Conclusion

Large-scale projects that are intended to transport irrigation water are far too expensive, as well as environmentally and socially unacceptable, to be feasible propositions. There may be a case for the export of relatively small quantities of treated water in border regions, but since border regions tend to have similar access to water resources, such exports are likely to remain small-scale and a matter of efficiency in municipal treatment infrastructure rather than a matter of availability of the water resource. Other than in such cross-border arrangements, factors such as seasonal and annual variability, regulatory hurdles, competitive supply alternatives, as well as the overall lack of experience, further weaken the business case for bulk water export schemes. While prices for water may rise, and larger government subsidies for agricultural irrigation water may become politically expedient, it is unlikely that the business case will become more compelling in the foreseeable future.

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Notes

- 1 To access the other notes in this series, which explore the economics of bulk export overseas and the status of water under NAFTA and other trade agreements, follow the "Publications" link at <www.policyresearch.gc.ca>.
- 2 Dixon Thompson, unpublished data.
- 3 All values are expressed in US dollars.
- 4 For example, an electric fence has been installed in a canal at the Chicago diversion to prevent four species of Asian carp from entering the Great Lakes.
- 5 For more on water Softpaths, see Brooks and Brandes in *Horizons* 7(3): 71-74.