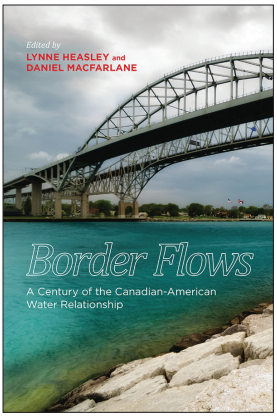

BORDER FLOWS: A Century of the Canadian-American Water Relationship

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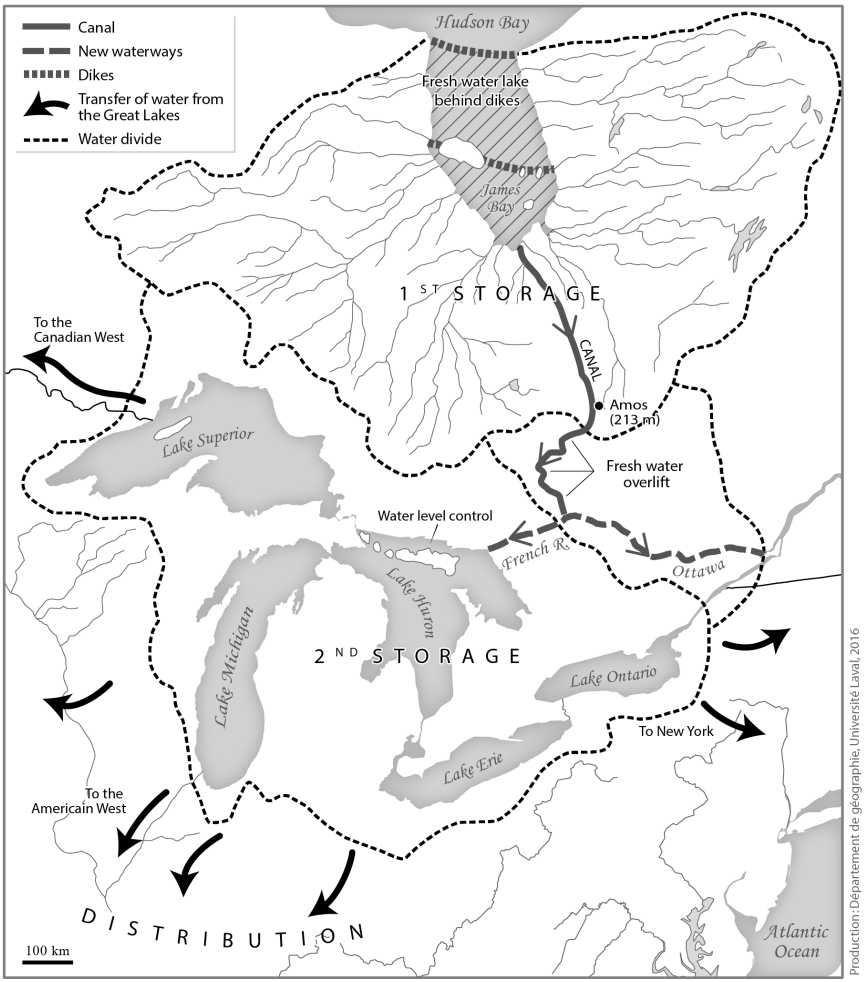
Quebec's Water Export Schemes: The Rise and Fall of a Resource Development Idea

Frédéric Lasserre

For more than a century, Quebec has relied heavily on its freshwater resources for water-based transportation, pulp and paper production, and hydropower. The second-largest Canadian province by area—and unique in the Canadian confederation because of its French-speaking majority—Quebec is bisected by the St. Lawrence River in the south and abuts James Bay (the southern part of Hudson Bay) in the northwest. As a result of its abundant water resources, Quebec leads all other provinces in hydroelectric power exports, including Newfoundland and Labrador with its massive Churchill Falls power project.[1] Perhaps the most famous hydroelectric developments in Quebec are those on the waters flowing to James Bay (the so-called Project of the Century, in the 1970s), which have secured large hydropower exports for the province. Former premier Robert Bourassa authored a book, *L'énergie du Nord: La force du Québec* (1985), in which he looked back with pride at the completion of the first phase of his government's James Bay hydro project.[2] This project paved the way for additional hydro developments in the North. But most significantly, Bourassa turned his attention beyond power, including a chapter that anticipated the export of water itself. Bourassa was influenced by the GRAND Canal model first developed by Thomas Kierans in 1959.[3] GRAND was one of several



5.1 The GRAND Canal scheme. Map by author.

large-scale, long-distance Canadian water diversion schemes promoted by the private sector and, at times, by provincial governments. Kierans expected that the United States would want to purchase this resource. Such schemes have invariably been dismissed because of intense public opposition. More recently, however, Quebec has emerged as the centre of renewed plans to divert fresh water into the heart of the continent. Advocates hope to create a profitable market for this plentiful Quebec resource.[4]

The idea of exporting water from Canada dates back to the late 1950s, a period that saw a rise in intercontinental projects (such as the St. Lawrence, Niagara, and Columbia projects discussed in chapters 4 and 6 of this volume).[5] It stems from the engineer-bred reasoning that technology is available to move water from where it flows to where it is needed to sustain economic growth, at a time when environmental impacts were not considered a priority and when public money was considered abundant. Canada and the United States were not alone in considering such schemes; similar projects were being considered in the Soviet Union, China, and the Middle East. The GRAND project was one among several that blossomed during the 1960s. The North American Water and Power Alliance—which proposed flooding most major valleys in the Rockies to build reservoirs for water from northwestern Canada and then transferring the water via canals to most regions of the western United States and northern Mexico—and the Alaska-California Subsea pipeline project were also proposed. None of these megaprojects was ever built.

Abundant scholarly and popular literatures depict both the history of water export ideas and the political debate these ideas generated, especially when they concerned the waters of the Great Lakes.[6] A few analysts and advocacy groups remain anxious that American interests could someday force Canada to sell its waters.[7] The debate has subsided somewhat since the enactment of a number of controls: ratification of the Great Lakes–St. Lawrence River Basin Water Resources Compact in September 2008 (discussed in chapter 1 of this volume; new legislation controlling water exports in all provinces except New Brunswick; and the May 2010 introduction (though not the passage) of Bill C-26 in the House of Commons.[8]

However, the debate over water exports is far from over. Contrary to the view of doomsday prophets, the main proponent of water diversions is no longer the United States with its potential appetite for water. Rather, the locus is now Canada itself, and particularly Quebec. Though the provincial government long championed water diversions for hydropower production (as had British Columbia, Manitoba, and Newfoundland), it did not endeavour to export water, despite Premier Robert Bourassa's advocacy of the idea in 1985.[9] But today Quebec's business community and symbiotic economic think-tanks are providing the main impetus for water export proposals. Let us consider the history of these proposals to the present day, and specifically how they evolved in the province.

Power from the North: Quebec experimenting with the water export idea

Quebec's power is generated and distributed by a government-owned corporation, Hydro-Québec, which was founded in 1944. At first it competed with private companies, but the provincial government used Hydro-Québec as a tool to foster electricity production so as to attract industries and drive energy prices down. In 1963, the government decided to nationalize the eleven remaining private companies that still controlled a substantial share of the electricity generation and distribution business in Quebec, creating a single Crown corporation that could enable the government to wholly control its energy policy. After briefly considering the nuclear option, the government—headed by Bourassa, a young and ambitious economist—decided in 1971 to dam the La Grande River and divert three northern rivers (Caniapiscau, Rupert, and Eastmain) so as to develop ten thousand megawatts of power. This was the James Bay Project; it was fully completed only in 2007.

Bourassa, leader of the provincial Liberal Party and premier of Quebec from 1970 to 1976 and then again from 1985 to 1994, was proud that his James Bay project could provide Quebec with energy autonomy. If opposed to the independence stance put forth by the Parti Québécois, Bourassa was nevertheless determined to increase Quebec's autonomy in every way, voting for Bill 22 in 1974 to increase the prominence of the French language, pleading for the (failed) Meech Lake Accord (1987–1990) that would have granted greater autonomy to Quebec, and fostering economic tools that could enhance Quebec's economic independence. Seduced by Kierans's GRAND Canal proposal to divert water from James Bay to the American Southwest through a Great Lakes route (an idea first floated in 1959), Bourassa, along with several major engineering companies, enthusiastically endorsed damming James Bay so as to turn it into a freshwater reservoir, pumping the water over the Canadian shelf, and ultimately exporting it to multiple destinations. The premise of the GRAND project is that freshwater runoff from natural precipitation would be collected in a dammed James Bay by means of a series of outflow-only sea-level dikes constructed across the northern end of the bay, cutting it off from the rest of Hudson Bay. The stored fresh water would be pumped from the new freshwater reservoir in James Bay via a series of canals and pumping stations south to the

Great Lakes and then to the U.S. Southwest. Several nuclear plants would be needed to generate the power to haul the water above the Canadian Shield to the Great Lakes and then to the Southwest.

This project was a natural extension of Bourassa's economic approach to divert Quebec's northern rivers for hydropower production. His reasoning was that if fresh water could be exploited for power exported to the United States and Ontario, why not export water, too—a natural resource with which the province was richly endowed?[10] What's more, previous large diversions in Quebec on the Eastmain and Caniapiscau Rivers had met with little opposition.[11] Enthusiasm for the project waned, however. Its costs were astronomical in a time of rising public deficits and debt, while the business community was suffering the financial shock of 1987.

In 1998, the Nova Group water export project from Sault Ste. Marie, Ontario, had been granted a license to export 600,000 cubic metres per year of Lake Superior water to Asian markets. Confronted with a public outcry, the federal government revoked the license. In 1999, the Quebec government under the Parti Québecois enacted a two-year ban on water export projects.[12] Over the next two years, an extended cabinet debate over water exports oscillated between a temporary moratorium and a permanent ban. The Quebec Ministry of International Relations studied scenarios in which the province might become a major binational water player. Likewise, public researchers partnered with private industry to study the economic viability of water exports.[13] The Ministry of Trade and Industry also left open the door to water exports.[14] But in the wake of the Nova Group controversy, Ottawa lobbied the provinces to pass water export bans as part of a federal framework to manage and regulate water. The Quebec government initially rebuffed what it considered a blatant infringement on its constitutional rights over natural resources within Quebec's borders.[15] But advocates of the ban prevailed, with a permanent ban on water exports. In 1999, the province enforced a temporary moratorium on the exportation of water, the Water Resources Preservation Act; then in December 2001, Environment Minister André Boisclair's Bill 58 entrenched the ban on large-scale diversion of water out of the province.[16] Boisclair also elaborated Quebec's policy on water in 2002, which formalized for the first time a comprehensive resource management policy for water that integrated environmental and social dimensions and departed from the previous view that water was basically an economic natural resource to be exploited.[17]

The saga over water exports continued in new forms, raising questions about behind-closed-doors political struggles to revise this new ban on water exports. In 2004, Quebec's environment minister, Thomas Mulcair, renewed the debate by publicly advocating for water export projects.[18] Liberal Premier Jean Charest quickly disavowed Mulcair's position, committing to Bill 58. This time, the business community showed little enthusiasm for the project.[19] Note how the controversy transcended party politics and loyalties: the Parti Québécois was in power in 1999, while the Liberals ruled in 2004. Both periods resulted in deep divides within the ruling parties. Promoters of water exports were present in both major political parties and in both periods, but the issue was contentious throughout. As for Mulcair, one may wonder why he endorsed the idea of water exports in the first place: Was it his personal opinion? Or a trial balloon that his governing cabinet had asked him to float? His past position proved controversial during the 2015 federal election when opponents, notably Justin Trudeau, challenged him to clarify his present point of view.

The Liberal government never renewed the idea that water exports could be beneficial for Quebec. To the contrary, on June 11, 2009, the National Assembly unanimously passed Bill 27—*Loi affirmant le caractère collectif des ressources en eau et visant à renforcer leur protection* (An act to affirm the collective nature of water resources and provide for increased water resource protection)—a permanent ban on water exports.[20] As of 2016, among the parties represented in the National Assembly, three major political parties (the Liberal Party, the Parti Québecois, and Québec Solidaire) oppose water export schemes officially; the Coalition Avenir Québec, while not advocating water exports, stresses instead the need to protect the resource. Of the political parties in Quebec, only the Quebec Conservative Party (zero MPs and 0.39 percent of the vote in the 2014 provincial general election) advocates water exports. In the short term, a revival and political endorsement of such schemes thus seems unlikely. In the long term, though, one might expect the business community—which supported Bourassa's export ideas in 1985 and renewed its interest later—to continue evaluating both the economic and political possibilities.

Strong Lobbying by the Business Community

Water Tanker Exports: Saving the Water-Poor Is Not Profitable

To backtrack from the previous section, let us return to 1996 and a different angle on water exports: this was a time when government and industry were strategizing to revive a weak economy. As a result, Quebec business projects engaged with water exports received a big boost. In October 1996, the provincial government, led by Lucien Bouchard, held the Summit on the Economy and Employment in an effort to develop new economic options for growth. The summit included representatives from the social, NGO, and business communities. Proponents of water exports at the summit reasoned as follows: water is an increasingly scarce resource globally but abundant in Quebec; water is one of the natural resources—and provincial assets—the government should develop, just like forest resources and hydropower; and the sale of water could quickly be taken advantage of and developed. Several businesspeople—including Jean Coutu, the founder of a very successful drugstore distribution empire, the oil company Ultramar, and engineering firm Navtech—envisioned a future in which Quebeckers would be "the Arabs of water."[21] This group based its plans on estimates that the global population will reach ten billion by 2020, the fact that 15 percent of the world's countries already lacked water, and Quebec's boast that it contains 16 percent of the planet's freshwater resources (a major error: in fact it has no more than 3 percent).

Coutu was the most active booster of the economic promise in exporting water. Using the summit's framework, Coutu strategized with several firms about how, exactly, to capitalize on the province's abundant water resources, focusing primarily on export revenues and job creation. The oil company Ultramar envisioned increased revenues for its outgoing oil tankers if the ships could carry large quantities of water. Ship design firm Navtech and shipbuilding firm Davie also proposed designing a removable coating that could prevent oil from contaminating fresh water, or a specialized polyvalent ship designed to carry bulk water.[22] Optimism ran high, and these stakeholders considered shipments to be possible as early as December 1997 or January 1998. Coutu asserted that

> Time has come to take advantage of Quebec's immense freshwater resources by exporting it to countries that face scarcity. . . . The next century will be that of water, which will be worth as much as oil. Quebec holds more potable water than Saudi Arabia holds oil, and could develop ways to organize its export on a large scale, by tanker ships or another way.[23]

Coutu's message was twofold: first, Quebec was richly endowed with a precious natural resource that was at least the economic equal of hydropower; and second, sharing this resource with the world would be a moral act of compassion (by contrast, locking it up was utterly selfish).

The project faced a number of obstacles. One was a reluctance to invest in costly public projects at a time when proponents of government austerity and privatization were ascendant. The public debate emerged first in the Symposium on Water Management in Quebec, organized by the INRS-Eau and held in Montreal in December 1997.[24] Then, concern ran high among opinions on water issues. Reportedly, major cities, including Montreal, were planning to privatize municipal water services, and much ado was made about water issues at public hearings during the Beauchamp Commission (1998–2000)[25] that would eventually lead to the National Policy on Water written by Boisclair. The commission's final report lambasted the idea of massive water exports.

However, and this point is often overlooked by water export advocates, it was not so much public resistance that led to the project's demise. To the contrary, public opinion was rather favourable in 1996: the idea of exporting another abundant natural resource was considered at first by the public—just as it had been by Premier Bourassa in the past—a good thing inasmuch as it could foster Quebec's economic autonomy and strengthen its relative economic and political status within Canada. A strong connection between nationalism, identity, water, and hydroelectricity emerged in Quebec, something not witnessed in other parts of Canada where hydropower was not seen by the public as a way to transcend the potential for cultural endangerment. Hydropower was a political tool with which to assert Quebec's financial, economic, and political status; water exports could be considered just another way of taking advantage of the province's natural resources.

What caused the demise of the water export idea was the advent of environmental concerns, as illustrated in the forestry policy scandals triggered by the film *L'Erreur boréale* (1999), which denounced clearcutting practices, and the poor economics of the project. When the working group on water exports first convened around Coutu in mid-December 1996, there were no completed market studies. As such studies unfolded, difficult questions soon emerged. Would there be buyers? Would exported water be cheaper than water produced from desalination plants? Would potential buyers be eager to buy water over a long period so as to turn investments into a profit?[26] The Coutu working group predicted revenues of about $2.6 billion annually and claimed that Quebec indeed had a firm order.[27] The claim about an order was never verified and was probably wrong.[28] Straightforward cost-benefit analyses were negative as well. It turned out that water shipped by tankers from Sept-Îles would be more expensive than water produced from desalting plants at the destination.[29] While visiting Montreal in September 1997, Egypt's minister of water resources, Mahmud Abu-Zeid, commented on water export schemes from Quebec:

> Ever since I arrived in Montreal, I have been asked if we are going to import water from here. But Egypt has many other opportunities, all much cheaper than importing water from as far away as Canada. Transportation costs would prove prohibitive. I have no idea where this idea could have come from.[30]

The Egyptian minister emphasized that a cubic metre of water cost about $0.70 in Egypt, whereas the most optimistic forecast for Quebec's water exports was $3.25 per cubic metre—a highly unfavourable comparison. A few days before the Symposium on Water, the daily *La Presse* published the opinions of several foreign water experts on Quebec's project. Jean Margat in particular asserted, regarding drinking water, that

> For many countries, . . . the problem is not a scarcity issue, but a financial problem to purify and distribute this potable water. Where would these countries find money to buy imported water? It would thus first be necessary to assess they have the means to pay. Otherwise, exports will be gifts.[31]

Unable to prove that tankers could export water at an affordable cost, and unable to find customers willing and able to pay such premiums, export advocates lost public and private support. In the end, it was economics rather than conservation that killed these projects.

Renewal of the Export Scheme to the United States

For advocates of water exports, the United States was the only remaining potential customer. In the late 1990s, public fear of water exports to the U.S. had abated, but from 1998 to 2004, the economic think tank Institut Économique de Montreal (IEM) floated a debate over the opportunities in water exports from Quebec.[32] The federal government's efforts to ban water exports were pointless, explained Marcel Boyer, as the resource was provincially managed.[33] The argument in favour of water exports revolved around three main points:

(1) Water was abundant in Quebec, so export could be very profitable when water scarcity was increasing elsewhere; exporting just 10 percent of Quebec's water would generate $65 billion in revenue.

(2) Quebec was richly endowed and, therefore, had a duty to share a vital resource.

(3) Several water export schemes were working well around the world, a trend Quebec should follow.[34]

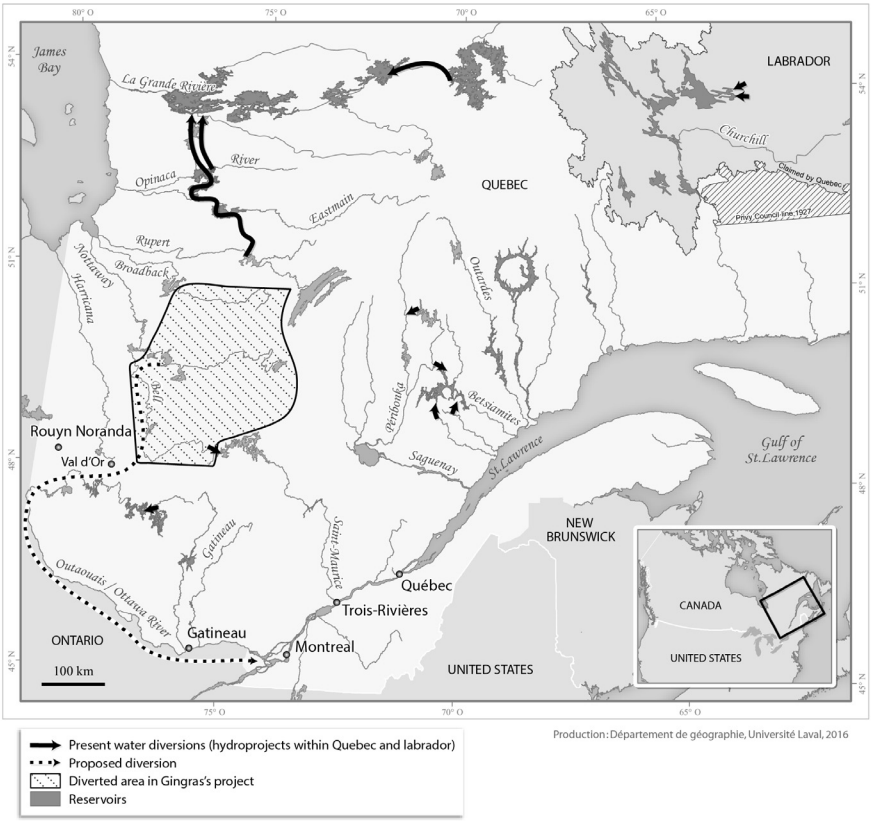
Boyer did not detail specific plans but suggested, as an example, intercepting flood water from rivers flowing toward James Bay—an idea reminiscent of the GRAND project—and turning them south above the Canadian Shield. Boyer estimated that exporting that water to the United States, at about 800 m^3/sec, could generate $0.65 per cubic metre and $16 billion in revenue. In general, Quebec could dedicate 10 percent of its renewed water to export.[35] The paper made no mention of a cost-benefit analysis or market study. Nor did it mention that extracting 10 percent of the renewed water would require construction of a grid of aqueducts and pipes. The paper also did not indicate that local impacts could be much greater than

10 percent of the flowing water. What's more, Boyer was unable to quote any international example to support his proposal. For example, of existing water export schemes from Lesotho to South Africa, France to Spain, and Turkey to Israel, the Lesotho–South Africa water diversion is the only demonstrable success. By contrast, desalination projects have proven economically viable. France's export project from the Rhone to Spain finally collapsed in 2009 after facing intense opposition both in France and in Spain,[36] while the 2004 Memorandum of Understanding for the export of water from Turkey to Israel was first put on ice by Israel in 2006, before being cancelled by Turkey in 2010.[37] In 2008, at the time the IEM published its report, sufficient information existed to suggest that chances of success were low for both the Turkish and the French water projects. There is definitely no trend toward development of commercial water export schemes in the world; however, there definitely is a trend toward building desalting plants, hundreds of them.[38] Most recent or future projects for water diversions are still domestic, as in Quebec, China, and India, for instance.[39]

And yet water export hopes live in the present. In 2009, Pierre Gingras, an engineer retired from Hydro-Québec, again advocated harnessing the three rivers flowing northwest into James Bay, then diverting them into the Ottawa River and indirectly to the United States; he argued that added flow through the Ottawa River could compensate for diversions from the Great Lakes (Figure 2).[40] His diversion scheme thus does not include a direct pipeline between western Quebec and the American Midwest, but rather works as a water swap between the Great Lakes and the Ottawa River. Gingras estimated the project would cost $15 billion but would generate $2 billion in power and $7.5 billion in revenues from the selling of the water itself. While Gingras demonstrated the technical feasibility of the concept, he included no credible cost-benefit analysis or market study.

Odette Nadon, a lawyer for the law consulting group BCF, also advocated in 2010 for the right to export water on a commercial basis. She mentioned that she already represented business customers exporting water from Quebec for irrigation purposes, but did not disclose which firms these were. Doubts were raised as to the credibility of her assertions, since water for irrigation implies very large volumes, which could not easily leave Quebec unnoticed.[41]

These three proposals contend that enough demand exists in the United States to recover costs and offer a profitable investment. But the



5.2 Quebec water diversions. Map by author.

proposals never prove this hypothesis, instead simply asserting as a matter of fact that there is substantial U.S. interest. If cities and industries in the West are indeed eager to pay such sums for a cubic metre, their actual share of Western water consumption is meager. Agriculture absorbs about 80 percent of the region's water—water that is heavily subsidized for farmers (who pay a few cents per cubic metre). So how can export proponents assume that U.S. farmers—the major consumers of water—would buy Canadian water priced at, say, eighty-five cents per cubic metre? This lack of a credible analysis for the marketing of bulk water helps explain why the Quebec government paid little attention to the proposal. The National Assembly unanimously voted in favour of Bill 27 in 2009. The new law, titled

An Act to affirm the collective nature of water resources and provide for increased water resource protection, provides for both surface and groundwater withdrawal projects being subject to conditional authorization by the government. Water cannot be appropriated and thus exported or pumped without the government's approval.

For Quebec, the economics of water export do not justify large public or private investments. Apart from their severe environmental impacts and public disapproval, water is simply too heavy and not valuable enough to profitably export. Debt-battling governments are no longer willing to invest in such unpopular and costly projects, even when important constituencies might profit in the interim (for example, through construction contracts). Even in the United States, the Western States Water Council (WSWC) reckons that the era of large-scale water diversions is over, even from its neighbour Canada, because they are too expensive to build and operate.[42]

Conclusion

In Canada, the public continues to worry about water diversions to the United States. But such diversions already exist in Canada, and in Quebec. The extent of negative impacts on the environment is disputed. Even among biologists, the conservation concept of minimum ecological flow is controversial.[43] Water does remain in Canada for each of these diversions, but this is not the point; Canadians collectively forget that their daily comfort and economic activity depend on major river diversions. For a long time, Quebeckers thought water exports could be beneficial, though that view has waned over the last fifteen years, bringing Quebeckers closer to other Canadians on the issue of water export schemes. It is therefore a contradiction to protest water transfers to the United States on environmental grounds while refusing to assess—and possibly to consider phasing out—transfers within Canada.[44] In the end, however, environmental reasons were not the only barrier to water export projects from Canada. Economic barriers loomed just as large. Hence, the water export projects never materialized. In the short term, at least, water exports from Quebec will not be the solution to water scarcity problems in other parts of North America.

Notes

1 Patrick Forest and Frank Quinn, "Quebec's Northern Waters: Export Opportunity or Illusion?" (Munk School Briefings No. 16, Munk School of Global Affairs, University of Toronto, 2011).

2 The James Bay Project refers to the construction by state-owned utility Hydro-Québec of a series of hydroelectric power stations on the La Grande River in northwestern Quebec and the diversion of neighbouring rivers into the La Grande watershed.

3 The Great Recycling and Northern Development (GRAND) Canal of North America is a water management proposal that was designed to alleviate North American freshwater shortage problems. It stems from the idea that James Bay can be diked and transformed into a freshwater reservoir; its water, which would be pumped back across the Canadian Shield, would then be available for reuse in North America. In 1985, the GRAND Canal received an enthusiastic response from Quebec Premier Robert Bourassa and from within Quebec business circles. However, feasibility studies never materialized and governmental support for this project no longer exists.

4 Canada's renewable freshwater resources are estimated at about 7 percent of the world's total, and Quebec's at about 3 percent. Given the small population size of both Canada and Quebec, this large water resource nurtured the idea that Canada could share part of its resources so as to alleviate the water stress elsewhere.

5 J.C. Day and Frank Quinn, "Water Diversion and Export: Learning from the Canadian Experience" (Dept. of Geography Publ. Series No. 36, University of Waterloo, 1992); Frédéric Lasserre, "Les projets de transferts massifs continentaux en Amérique du Nord: La fin de l'ère des dinosaures?," in *Transferts massifs d'eau: Outils de développement ou instrument de pouvoir?*, ed. Frédéric Lasserre (Quebec City: Presses de l'Université du Québec, 2005); Frank Quinn, "Canada's Water in a Continental Context," Paper No. 76 (paper presented at Universities Council on Water Resources conference, Santa Fe, July 2006), http://opensiuc.lib.siu.edu/ucowrconfs_2006/76; Frank Quinn, "Water Diversion, Export, and Canada-U.S. Relations: A Brief History" (Munk Centre for International Studies Briefings No. 8, Program on Water Issues, MCIS, University of Toronto, 2007).

6 Wendy Holm, ed., *Water and Free Trade: The Mulroney Government's Agenda for Canada's Most Precious Resource* (Toronto, James Lorimer & Company, 1988); Peter Annin, *The Great Lakes Water Wars* (Washington, DC: Island, 2006); Dave Dempsey, *Great Lakes for Sale* (Ann Arbor: University of Michigan Press, 2008).

7 If Bill C-26 would indeed regulate diversions from transboundary waters, it includes nothing about watersheds farther north, which therefore—in theory—can be diverted.

8 David Johansen, *Bulk Water Removals: Canadian Legislation*, Background Publication No. 02-13-E (Ottawa: Library of Parliament,

rev. July 7, 2010), 6, http://www.parl.gc.ca/content/LOP/Research-Publications/prb0213-e.pdf.

9 Robert Bourassa, *Power from the North* (Toronto: Prentice-Hall, 1985).

10 Ibid.

11 The diversion of the Eastmain and Caniapiscau Rivers was part of the hydropower development of the La Grande River, and at the time these diversion projects met with little opposition. The diversion of the Rupert River, decided in 2002, completed the diversion schemes aimed to increase the flow of the La Grande River. See Day and Quinn, "Water Diversion and Export"; and Lasserre, "Les projets de transferts," 490–91.

12 *Loi visant la préservation des ressources en eau* [Water Resources Preservation Act], National Assembly, Quebec, 36th Leg., 1st Sess. (1999); Louis-Gilles Francoeur, "Québec prolonge le moratoire sur l'exportation de l'eau," *Le Devoir*, December 22, 2000.

13 Researchers from INRS-Eau partnered with Crown corporations Société Générale de Financement and Investissement-Québec. Frédéric Lasserre, "L'eau, la forêt, les barrages du Nord du Québec: Un territoire instrumentalisé," in *Le territoire pensé: Géographie des représentations territoriales*, ed. Frédéric Lasserre and Aline Lechaume (Quebec City: Presses de l'Université du Québec, 2002), 19.

14 Louis-Gilles Francoeur, "Québec songe à exporter son eau, malgré l'avis des autres provinces," *Le Devoir*, March 19, 1999.

15 Louis-Gilles Francoeur, "Gestion des eaux: Bégin rabroue Ottawa; "La stratégie fédérale fait fi des compétences que le Québec exerce pleinement," *Le Devoir*, February 12, 1999.

16 *Loi modifiant la Loi visant la préservation des ressources en eau* [An Act to amend the Water Resources Preservation Act] (Bill 58), National Assembly, Quebec, 36th Leg., 2d Sess. (2001).

17 Quebec, *Water. Our Life. Our Future: Quebec Water Policy* (Quebec City: Environnement Québec, 2002), http://www.mddelcc.gouv.qc.ca/eau/politique/policy.pdf.

18 Louis-Gilles Francoeur, "Mulcair rouvre la porte aux exportations d'eau," *Le Devoir*, June 15, 2004.

19 Louis-Gilles Francoeur, "Exportation d'eau potable: Les industriels de l'eau trouvent l'idée inopportune," *Le Devoir*, June 19, 2004.

20 *Loi affirmant le caractère collectif des ressources en eau et visant à renforcer leur protection* (Bill 27), National Assembly, Quebec, 39th Leg., 1st Sess. (2009) chap. 21, s. 31.105.

21 Luc Chartrand, "Le mirage de l'or bleu," *L'Actualité* (Montreal), November 1, 1997, 23.

22 Daniel Allard, "Exportation d'eau en vrac: Québec en tête de pont," *Commerce Monde*, November 1997, http://www.commercemonde.com/archives/nov97/sommaire/sphoto.html; Dany Fougères, "Des projets qui tombent à l'eau: Transferts, dérivations et exportation de l'eau du Canada et du Québec depuis les années 1960" (working paper, INRS, Montreal, n.d. [2003?]), 21–22, accessed June 25, 2012, http://www.hydrologie.org/hydrodinosaures/usa.htm.

23 Hélène Baril, "Eau potable exportable," *Le Soleil*, October 30, 1996; translation mine.

24 The INRS-Eau is the branch of the Quebec Institut national de la recherche scientifique (INRS) dedicated to research on water.

25 Quebec, Bureau d'audiences publiques sur l'environnement, *Rapport de la Commission sur la Gestion de l'eau au Québec: L'eau, ressource à protéger, à partager et à mettre en valeur* (Quebec City: BAPE, 2000).

26 Fougères, "Des projets qui tombent à l'eau," 24.

27 Kathleen Lévesque, "L'exportation d'eau rapporterait 2,6 milliards aux promoteurs québécois," *Le Devoir*, April 16, 1997.

28 Fougères, "Des projets qui tombent à l'eau," 24.

29 "Les projets d'exportation d'eau douce laissent Québec plutôt froid," *Le Devoir*, August 30, 1997.

30 Denis Arcand, "Douche froide sur l'exportation d'eau en Égypte," *La Presse*, September 3, 1997; translation mine.

31 André Pratte, "Rêver en bleu," *La Presse*, November 27, 1997; translation mine.

32 Marcel Boyer, *L'exportation d'eau douce pour le développement de l'or bleu québécois* (Montreal: Les Cahiers de recherche de l'Institut économique de Montréal, 2008), http://www.iedm.org/files/cahier0808_fr.pdf; Forest and Quinn, *Quebec's Northern Waters*.

33 Boyer, *L'exportation d'eau douce*, 19.

34 Ibid., 6, 24, 20–22.

35 Ibid., 6.

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41 Hugo Joncas, "'Mes clients exportent de l'eau en vrac,' dit une avocate de BCF," *Les Affaires* (Montreal), October 27, 2010.

42 Tony Willardson (deputy director, WSWC), personal communication, February 22, 2005.

43 It proves very difficult to set harmonized thresholds of water withdrawal impacts given the diverse environmental conditions of every river. The matter of which indicators should be used to track impacts is also debated among the scientific community.

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