

Whither (or Whether) Water Policy in Canada?

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(approx. 8100 words)

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Canada is not as advanced as it might like to believe in terms of public policy relating to water supply and quality assurance. There are issues of equity; inefficiencies associated with jurisdictional fragmentation of responsibility and accountability; an absence of reliable and commonly useful data and widespread examples of inadequate foresight and management of water in the context of other forms of resource development. There are many gaps in federal and provincial water management policy that need to be filled. The country needs to move past its own myths of limitless water abundance to create a new national water ethic based on conservation and different formulae for valuing water as a resource in its own right.

Vaux and Sandford (cited in Box 1)

Getting the Numbers Right

Most Canadians believe they live in one of the most water-rich nations on earth. Many politicians and much of the media perpetuate this view. They emphasize that Canada has 20 percent of the world's fresh water, a number that is not so much wrong as

misleading. Canada does have 20 percent of the world's *stock* of fresh water – water held in lakes, aquifers and glaciers – but its share of *renewable* fresh water that will be replenished each year is only 7 percent, roughly equal to Canada's 7 percent share of the world's land mass. As Professor David Schindler from the University of Alberta and winner of the first Stockholm Water Prize describes the situation (2007, p. xiv): “While Canada has a large freshwater ‘bank account,’ the interest rate is very low.”

So far as water resources are concerned, Canada is a middle class country. Canada may start with a moderate amount of water on a continental basis, but less than half of the renewable supply is located close to that belt of populated land in the south of the country where 85 percent of Canadians live. More than half of the flow of Canadian rivers drains northward, emptying into either the Arctic Ocean or Hudson Bay (Statistics Canada, 2003). An estimated 12 percent of Canada is covered by lakes and rivers, but only 3 percent in southern Canada. The Great Lakes are among the 15 largest lakes in the world, but the bulk of their volume is a stock left over from the melting of continental glaciers; only about 1 percent is renewed each year from precipitation on the Lakes or on tributary rivers.

Canada is not water rich, but neither is it water poor. Canada receives nearly 3000 cubic kilometers of renewable fresh water every year, about the same as China or Indonesia, but dwarfed by Russia's 5000 or Brazil's 8000 (Gleick, 2002). The United States is not far behind Canada with nearly 2500. Both countries are ecologically diverse, and each contains large areas – southwestern United States and south central Canada – that are chronically short of water. Certainly both Canada and the United States are better off than much of the rest of the world.

One statistic that does distinguish Canada from the United States is the proportion of “gross annual availability” of water that is withdrawn for human use: 1.5% for Canada versus 19.2% for the United States (OECD, 2008). Though explained in part by the huge volumes of water in the Canadian north, the difference also reflects somewhat lower rates

of per capita water use in Canada compared with the United States: 1400 cubic metres per person-year versus 1600 (Gleick, 2006, Table 2). However, both nations rank among the highest per capita users of water in the world, and well above other countries in the OECD other than Australia. Moreover, given the much higher share of water use for agriculture in the United States and Australia compared with Canada – respectively 41 percent, 75 percent, and 12 percent (*Ibid.*) – it is fair to conclude that, for their own use, Canadians are probably the greatest water users in the world.

Getting Away from the Numbers

To a considerable degree, all of the preceding discussion around the question of water endowment is beside the point. The real question is not how much water a country has, but rather how it manages its water, and the answer to that question depends on its intellectual rather than its physical resources (Homer-Dixon, 2000). Many nations in the world manage to create prosperous and democratic societies with far less water per capita than either Canada or the United States. It is the policies of a nation, and the institutions created to implement the policies, that determine whether water is extracted in ways that are ecologically sustainable, used in ways that are economically efficiently, and distributed in ways that are socially equitable. To quote from the United Nations Human Development Report (HDR) for 2006 (p. 3):

There is more than enough water in the world for domestic purposes, for agriculture and for industry. . . . scarcity is manufactured through political processes and institutions that disadvantage the poor.

Let us therefore turn our attention to water policy in Canada, with particular attention to federal water policy.

Federal Water Policy in Canada

The Federal Government of Canada does have on record a modern water policy. In 1985, the Inquiry on Federal Water Policy published its report and recommendations, entitled *Currents of Change* (Pearse et al., 1985). Two years and many hours of work later, the

report of an Interdepartmental Committee with over 100 specific commitments for action on behalf of the federal government was tabled in Parliament by the Minister of Environment. It is a remarkably good document, and one of the first in the world to state that water was needed as much to protect the nation's ecology as to promote its economy.

INSERT NOTE 3:

Note 3: More information on Canadian federal water policy both before and after the 1987 policy can be found at:

http://www.ec.gc.ca/WATER/en/policy/federal/e_backg.htm

Unfortunately, after tabling its policy, federal action on water policy stalled. Most of the specific commitments were never implemented, and most of those implemented were never enforced. The main agency for delivering the policy, the Inland Waters Directorate of Environment Canada was disbanded, budgets for water policy were drastically cut back (Pearse and Quinn, 1996). In retrospect, it appears that acceptance of the myth of water abundance was unhappily combined with the neo-liberal political climate to permit withdrawal of the federal government from the field of water policy. For nearly 20 years, only a few water specialists spoke up to point out to developing water problems. Even fewer people asked serious questions about how policies limiting the role of a central government would apply to water, which flows across, along, and under boundaries, and which is used many times between its source and its return to the sea.

Of course, dispersion of power is inherent to a federal state. Though there is plenty of disagreement about federal and provincial roles in water management (see, for example, Hill et al., 2008, on the conflicting principles of harmonization and subsidiarity), the general rule is that provinces have primary power in most of Canada, whereas the federal government has primary power in the three territories that cover northernmost Canada, on First Nations reserves, and for trans-boundary issues. There are also many areas of shared responsibility. For example, the *Fisheries Act* and the *Canadian Environmental Protection Act* give the federal government wide powers to

protect water quality. However, by the mid-1990s, there was so little evidence of its role that the federal government had to create a “Where’s Water?” task force to determine who was doing what (de Loë and Kreutzwiser, 2007). Still today, the Canadian government is more reluctant to intervene in water policy than central governments in other federal states or regional governments around the world (*Ibid.*).

Clearly, there is ample room for federal action on fresh water in Canada, and, it does seem that the federal government is bestirring itself to, once again, take national water policy seriously. If a date has to be set for evidence of that turn around, it might be publication of a report from Environment Canada’s National Water Research Institute (2004) that showed, among other things, that a quarter of Canadian communities were already facing water problems, with the percentage rising year by year.

Climate change has also been a stimulus for a return to federal involvement on water policy. Federal initiatives are reviewing, among other things, the changing flow regimes of the large glacier-fed rivers that flow from west to east across the prairie provinces and that provide water for Canada’s grain belt. In 2008, the National Round Table on the Environment and the Economy initiated a program to study the long-term effects of climate on water use in Canadian agriculture, forestry, mining, and energy (NRTEE, 2009).

Of course, just as nature abhors a vacuum, so too does political policy. In the past 10 or 15 years, provincial, municipal, and even some community groups have filled gaps left by the absence of federal initiatives (de Loë and Kreutzwiser, 2007). “River Keepers” are now active in several provinces to give the public a role in managing waterways. Conservation Authorities in Ontario have received considerable scope to manage the province’s new Source Water Protection law. A Ministry of Water Stewardship in Manitoba has become the only cabinet-level water ministry in Canada. Alberta has developed an extensive Water for Life program. Nova Scotia has

initiated a wide public consultation as it prepares to review and probably revise its water policies.

As well, several non-governmental and quasi-governmental organizations have prepared impressive reports urging stronger federal commitment to water policy. Box 1 lists those that were published between 2005 and 2008. Almost all these documents recognize the value of the 1987 water policy; none recommends a completely new policy. At the same time, they point out that many parts of the 1987 policy need to be brought up to date, and some new parts added.

The remainder of this paper will express my views about what should be among the high priorities for resurrecting federal water policy in Canada. To stay within space limitations, I will divide my remarks into three sets of three recommendations: first, those actions that are really modifications of the 1987 policy and should be implemented quickly; second, those actions that involve a shift in direction from the 1987 policy and need to be developed over the coming decade; and, third, some troubling issues in Canada-US water policies.

Three Issues That Require Immediate Attention

Research and Monitoring Capabilities

The federal government has not only neglected those areas where there is clear federal responsibility but has significantly cut research and monitoring budgets for water. What was a world-class set of institutions in the 1980s is no longer capable of tracking water quantity and water quality issues to the extent needed by a modern and environmentally conscious society. The number of laboratories dealing with water issues has dwindled, the network of hydrometric monitoring stations has been cut by one-fifth, and the world-renowned Experimental Lakes Area, a contiguous region of 58 small lakes and their drainage basins located on the Canadian shield near Kenora, Ontario, has been severely hurt by cut backs in dollars and staff (Schindler, 2001).

During the late 1990s when the federal government acted strenuously to eliminate chronic budget deficits, Environment Canada, which has much of the mandate for federal water policy, was not so much attacked as committed suicide. In a misguided attempt at self-protection, it announced that it was a scientific ministry, not a policy one. The department failed to realize that the budget cutters might take the view that any scientific activities worth doing should result in profitable activities for the private sector and should therefore be funded by private, not public, sources.

. If it is to manage water effectively, Canada must restore its water monitoring and water research capabilities. Particular attention needs to be given to ground water. Thanks to past research, we know quite a lot about surface water in Canada, but much less about ground water – even though a quarter of us depend on it for drinking water, and many farms and industries pump large volumes every day (Nowlan, 2005). We do not know how much water is there, nor how much is pumped. All we know under most provincial regulations is how much their licenses permit them to pump – and that only for the larger users. The recently-revised agreement for managing the Great Lakes (the “Great Lakes Compact” – formally an inter-state agreement but informally also including Ontario and Québec) made it clear that any policy conclusions on boundary and trans-boundary waters must be tentative until groundwater basins are mapped with something approaching the accuracy of surface water basins.

National Household Water Act

Experience over the past few years shows that Canada needs a nationally legislated household water act – it should not focus just on drinking water – based on federal-provincial agreement and backed by procedures for enforcement. Some people have died and hundreds have been sickened as a result of tainted water, notably in Walkerton, Ontario, and North Battleford, Saskatchewan. Many will suffer lifetime effects. The problems stemmed mainly from ideologically based devolution of power without adequate time or money to prepare local governments for their increased responsibilities. For example, the laboratory that tested samples of water from

Walkerton's treatment plant did identify the presence of the deadly strain of *E. coli* bacteria, but it was under no obligation to alert anyone, so it didn't.

We also need to develop systems to ensure that we neither waste potable water nor neglect the potential of grey water (household waste water other than that from the toilet). It is economically and ecologically foolish to use drinking water to flush toilets, and equally so to ignore the potential for using rain water for clothes washing and grey water for lawns and gardens. This is exactly the sort of measure that might be included in the stimulus packages that are being considered to help our economies extract themselves from the current depression. The household water act could also be extended and adapted for use in commercial and institutional buildings, most of which use water in ways only slightly different from that in a home and which can go even further in toward implementing efficient and ecologically preferable water and waste water systems. (Hospitals and laboratories are obvious exceptions to this rule.)

The national household water legislation should also respond to the deplorable conditions found in many First Nations communities – Inuit, Indian, and Métis. Far too many of these communities live with chronic water problems and boil-water advisories. The problem is not insufficient federal funding to build the necessary infrastructure but lack of funding for local management and supervision: training local staff to operate their water supply and treatment plants, to maintain them, and to monitor inputs and outputs for quality on a real-time basis.

Getting Prices Up Where They Should Be

Though mainly a provincial responsibility, it is foolish that water prices in Canada barely cover pumping costs. Subsidized water promotes neither efficiency nor equity (Renzetti, 2007). It may be hard politically to argue for water priced at its marginal value, as an economist might suggest, but there is little resistance to pricing water to cover its full delivery cost, including capital costs for infrastructure to deliver fresh water and to remove and treat waste water. Evidence shows clearly that water is used more

carefully when it carries a price based on the volume used (*Ibid.*). One regression analysis showed that the introduction of water meters leads to a 50 percent reduction in water use (Campbell, 2004). To the extent that there is an equity issue in pricing water, it is easily overcome by providing, say, ten cubic metres per household every quarter at a special low price (or “social tariff” as it is called in many countries). Losses incurred in providing this water can be recouped by from higher prices from those who consume in excess of this amount of water. Subsidizing larger consumers can be avoided by charging the higher price on the full volume used, not just the amount in excess of that allowed by the social tariff.

Federal leadership in setting model codes for water and wastewater pricing is long overdue. Much as with other codes in Canada, they could then be adopted in whole or in part by the provinces and territories. A major incentive to improve pricing of water could be introduced by making the codes (or a provincial equivalent) mandatory before receipt of any federal funding of water and wastewater infrastructure.

Three New Directions For Federal Water Policy

What policies should Canada develop now for managing its water in the future? The 1987 federal water policy document provides a good base from which to start. Some parts do need to be updated, and this can be rather easily accomplished. The bigger task is to consider changes that would take the policy in new directions.

Shifting Policy Focus from Supply to Demand

Since the earliest days of digging canals to bring irrigation water to farms, and construction of aqueducts and qanats to bring drinking water to cities, water policy has focused overwhelmingly on supply – extending pipelines, constructing dams, building reservoirs, drilling deeper. Though remarkably successful at getting water to people who need it, this approach shows signs of reaching a limit. Capital costs per cubic meter of new supply are doubling every decade, environmental effects are more severe, and the

adverse effects on indigenous peoples are no longer acceptable. The real opportunities now lie with activities on the demand side, something that should come as no surprise, given the high rates at which Americans and Canadians use water.

Both Canada and the United States need to shift the emphasis in their water policies and programs from increasing supply to reducing demand. There is no shortage of opportunities (Brooks and Peters 1988; Tate, 1990; Vickers 2001). Low-flow toilets cut water use per flush by three-fourths, and automated irrigation systems that turn water on and off in accord with soil-moisture probes cut typical water use by half. Payback periods depend of course on prices and costs, but most efforts to increase water use efficiency are far cheaper than new sources of supply, they can be installed far more quickly, and they are less risky (Wolff and Gleick, 2002). Dams, for instance, are particularly susceptible to cost overruns, and, in a time of changing climate, their benefits over time are likely to diminish. Careful studies of specific areas and sectors typically find cost-effective savings of one-third or more, even in California where water has been managed carefully for longer than in most parts of the continent (Gleick et al., 2005; Gleick et al., 2005).

Despite low water prices, statistics show that Canada has made some progress toward greater water efficiency in the last decade. For example, the number of Canadian households with low-flow showerheads increased by 50 percent, and the number with low-flow toilets tripled (Statistics Canada, 2007). Despite a common mis-statement, prices do affect water use. A comparison of Canadian cities (Brandes, 1999) showed that people living in cities that charge a flat rate for water use 70 percent more than do people living in cities that pay per unit of volume. A typical Calgarian, who was not likely to be metered, used about 350 litres each day, whereas a typical Edmontonian, who probably did have a meter, used less than 200. Water utilities, many of which are looking ahead to shortages, are taking notice (Furlong and Bakker, 2008).

There is much to be gained from improvements in water use efficiency, but greater efficiency alone will not suffice; we must also conserve. Efficiency refers to reductions in the quantity of water to achieve a given task, as with watering lawns with low-flow sprinklers; conservation refers to changes in the nature of the task, as with planting greenery that does not require watering (Brooks, 2005). Generally, water efficiency can be evaluated by cost effectiveness compared with the next increment of supply; conservation in contrast must be evaluated by a wider range of measures, including equity and ecological sustainability.

Apart from the 50 to 100 liters required for each person every day for drinking, cooking, washing and sanitation, there are many substitutes for human uses of water. We can cool our machines with air; we can grow food with advanced rain-fed techniques; we can use grey water to flush our toilets. We can also change our habits, as, for example, by shifting toward vegetable rather than animal sources of protein. For the most part, the demand for water is not for water itself, but for the services it provides: cooling, cleaning, growing. (Drinking water is an obvious but quantitatively small exception to this rule.) If we regard water as a bundle of services rather than as a need in itself, we typically find many more options to satisfy the demand. This approach, which goes by the name of water soft paths, and which represents a true paradigm shift in water management (Gleick, 2000), is gradually gaining attention in North America (Wolff and Gleick, 2002; Brandes and Brooks, 2007; Brooks et al., 2009).

Instituting the Public Trust Doctrine

The public trust doctrine emerged from English common law at the time of the Magna Carta, but it has roots that go back to Roman law. The ancient Romans considered the air, rivers, sea and seashore as common property for the use of all citizens provided that person A's use did not interfere with person B's use (Maguire, 1997). Though English tradition promoted private ownership as a way of supporting the upper classes, it reserved waterways and shorelines for the Crown, with the rights of the Crown conditional on granting the public a right of use for such common purposes as fishing,

loading and unloading cargos, and transportation. A similar development also occurred under French Civil law. In both countries, the public right remained in place even if title to the land was held by a private person.

The concept of a public trust began to appear in American court decisions in the middle of the 19th century. As in England, the idea was that lands, shorelines, air, sea, and seabed were held by government as a public trust for the benefit of the whole community. A century later, when the public trust doctrine was well established in several states of the United States, it came to play a major role in environmental legislation. Ralph Pentland, who played a central role in development of the 1987 water policy in Canada, and who has become an advocate for application of the public trust doctrine in Canada, writes (2005; p. 3):

/The public trust doctrine/ has been used not only to preserve the right of the public to use of water and other resources, but also to challenge the action or inaction of various levels of government with respect to the protection of the public interest in certain lands and resources.

The modern version of the public trust doctrine is most fully described in an article written about 40 years ago by Joseph Sax (1970). Sax emphasized that, under the concept of public trust, the public must be granted some form of legal right that is enforceable against the government. To add a modern note, Sax also emphasized that the concept must recognize both quantity and quality dimensions of natural resources. As Pentland notes (2005), the “real power of the public trust doctrine lies not in the laws themselves, but in the creativity of the courts and those arguing cases before them.” The subtitle of Sax’ essay is instructive: “Effective Judicial Intervention.” For example, a public easement can be used to guarantee access to trust resources, or the court may insist that ways be found to protect public use when some portion of the resource is alienated for private use. The doctrine can also be invoked by citizens to challenge political or administrative decisions, or the lack of them, by governmental bodies.

Despite its origins in English common law, the public trust doctrine is still largely unknown and unused in Canada. If the public trust doctrine were adopted for water management in Canada, it would make explicit the responsibility of both provincial and federal governments to manage renewable natural resources within their respective areas of authority in such ways as to support the long-term use and enjoyment of them for the whole public. As one example, such a doctrine would make it very difficult to adopt currently proposed amendments to the Navigable Waters Protection Act (which are buried inside the Budget Implementation Act of 2009) that would grant the federal government authority to identify waterways deemed worthy and unworthy of federal protection, and therefore to limit the public's right to use the latter. On the other hand, such a doctrine would benefit Canadians when dealing with the growing number of cross-border issues involving protection of water quantity and water quality.

Pentland suggests that the timing is appropriate for introduction of the public trust doctrine in Canada is appropriate (2005; p. 10):

A number of changes have taken place in Canada over the past few decades that suggest the time may be right to move the public trust concept, or at least something akin to it, forward in the Canadian context. These developments include a more activist role being played by the judiciary in response to the *Canadian Charter of Rights and Freedoms*, the development of broad fiduciary duties that do not depend on a traditional trust relationship, the introduction of public trust language into a few statutes, and recent musings by the Supreme Court of Canada on the topic. . . . It seems inevitable that the public trust doctrine or something akin to it will eventually be embraced by Canadians. The only question that remains is whether policy-makers or the judiciary will take the lead.

Water for Ecosystems

Most water policies in Canada continue to be designed as if all available water can be extracted for human uses, with little recognition that much of the water in lakes, rivers, and underground must be left in place to provide natural services ranging from fishing and transportation at one end (of the commercial spectrum) through waste dilution

and flood control in the middle to habitat protection and cultural preservation at the other end (Falkenmark and Rockström, 2005; Postel and Thompson, 2005). Across southern Canada, wetlands have been filled in, critical ecosystems degraded, and many cubic kilometers of water lost to inefficient agricultural, industrial, commercial, and household practices. Not all these problems are directly a result of failings in federal water policy, but many of them are (National Water Research Institute, 2004). The issue is not just establishing minimum water levels but also requiring rates of flow that emulate, as closely as possible, the high periods and low periods that would occur under natural conditions.

The objective of a federal water-for-ecosystems program would be to maintain ecosystems in a state healthy enough to continue to provide natural services. Intact ecosystems typically provide economic values for society well above the private values achieved after land is converted to purportedly “more productive” uses (Millennium Ecosystem Assessment (2005). The problem is to determine how much diversion or withdrawal of water is too much. Quantification of environmental services is difficult on an ecological basis, and even more so when those services have to be monetized for economic comparisons. However, methods are being developed that show how evaluation and comparison can be accomplished (Postel and Richter, 2003).

Discussions about water use either within Canada or between Canada and the United States will always be truncated so long as only human uses of water are considered. Rather than trying to reach a series of independent decisions, the Government of Canada should create a federal-provincial task force (and perhaps a bilateral one as well) to review the literature on analytical methods for establishing the levels and patterns of water that must remain in place to maintain healthy ecosystems. The resulting report would recommend a methodology capable of identifying over a range of conditions the volume and timing of water withdrawals that seem likely to be acceptable. Somewhat different methods (or, perhaps, more and less restrictive criteria) might be appropriate for new projects or where dams or diversions already exist.

Presumably the analytical results would be subject to administrative or judicial review, but, provided that the process is transparent, such review is always needed as a counterweight to scientific recommendations for public policy. The methodology would of course have to be updated every decade or so, as experience and research indicates that improvements are possible.

Bilateral Issues with the United States

Canada and the United States share the longest border in the world – and, inevitably, they share lakes and river systems too. There was an evident need for some way to manage these areas jointly and without resort to lengthy legislative or judicial processes.

Therefore, exactly one century ago, the two countries passed the *Boundary Waters Treaty Act* of 1909, and that in turn allowed for the creation of the International Joint Commission (IJC) as the body tasked with responsibility for managing Treaty provisions. The Act has been a great success. It is difficult to conceive of how disputes might have been resolved and shared waters managed in its absence. However, 100 years after its passage, there remain a number of fresh water issues that trouble Canada-U.S. relationships. Some observers suggest that the number and intensity of such issues is increasing (Schindler and Hurley, 2004).

The International Joint Commission

The IJC is often praised in discussions on water policy, and there are proposals to emulate it in areas where water rights are more highly contested than they are in North America (Hermon, 2004). However, in recent years the IJC seems to have been sidelined by the Canadian and the United States governments in a number of trans-border disputes about water development and use. In this centennial year of the *Boundary Waters Treaty*, we should re-establish the IJC as the centrepiece of its implementation. The Devil's Lake controversy, which affects the Province of Manitoba and the States of North Dakota and Minnesota, illustrates the need for an effective IJC.

Devil's Lake is a shallow body of water in the farmlands just west of Grand Forks, North Dakota. Because it is shallow, and because farmers in the area like to drain their fields in the spring to permit planting as early as possible, Devil's Lake tends to overflow its banks during the spring runoff. In 2005 the State of North Dakota avoided U.S. federal environmental assessment requirements by using its own funds to build artificial drains that take up to 170 cubic metres per minute of water from the lake (and siphons that take the water under wetlands to avoid other U.S. legislation), and discharge it via the Sheyenne River to the Red River, which flows northward along the border with Minnesota and across the international border into Manitoba. Clearly, the drains change the rate and timing of flows across the border, but that fact in itself is not grounds for a reference to the IJC. In the early years of the last century, when the Boundary Waters Treaty was being negotiated, Canada saw the economic potential of dams on trans-boundary rivers in the western provinces. It therefore insisted that changes in *quantity* of water flows be treated differently from changes in *quality* of water flows. As a result, the Manitoba government and the environmental groups that oppose the Devil's Lake drains are forced to search for quality effects to make their case, even though the quantity change is obvious.

At one point in the history of the Devil's Lake imbroglio, the United States suggested to Canada that the issue be referred to the IJC. (Joint references are not explicitly required by the Treaty, but they have become the accepted way to proceed.) Canada felt the reference was premature because of lack of information, but, in retrospect, should probably have accepted and allowed the IJC to develop the necessary information and then make recommendations to the two governments. It is probably too late now for Canada to urge a joint reference, but the federal government could support Manitoba (and Minnesota) by insisting that all measures taken in the 2005 Safeguard agreement signed by both countries be implemented. To now, it has not done so. Given the number of proposals that are already, or shortly will be, on the table for projects affecting trans-boundary water flows in the central part of the continent, the failure to refer tough cases to the IJC is disturbing. INSERT NOTE 4

NOTE 4: For further information on, and potential dangers from, these projects, see:

http://www.gov.mb.ca/waterstewardship/water_info/transboundary/potential.html

Even if Devil's Lake and other such issues were referred to the IJC, and a determination of harm obtained, it is not clear what could be done on the American side of the border. In contrast to Canada, the United States has never passed legislation to implement the Boundary Waters Treaty (Hall, 2007). For this and other reasons, some Canadian have begun to ask if political figures in the United States are dissatisfied with the Boundary Waters Treaty itself. Perhaps they do not like the key clause of the Treaty, which divides boundary waters on the basis of an "equal and similar right to use," rather than a formulation based on population or economic size, which would of course favour the United States.

Major Water Diversions

In the past, Canada has been cavalier in approving large-scale water diversions, with little regard for their environmental effects or their implications for First Nations communities. Canada is the biggest diverter in the world of water within its own boundaries. Mega-projects in eastern Canada and in British Columbia have focused on the generation of hydroelectricity, and, in the Prairie provinces, on providing water for irrigation. Once considered the epitome of progress, high dams and the associated infrastructure are increasingly challenged for their limited economic benefits and high environmental costs. The criticism is intensified because much of the hydropower, aluminum, and agricultural crops are sold to corporations and electrical utilities in the United States, an economic exchange that does leave a lot of money in Canada but also keeps the nation in its traditional role of primary producer with few of the benefits that come from value-added activities and secondary industry.

A number of such mega-projects are currently under consideration, including at least two that involve a series of dams. The first proposal would erect four dams with a total capacity of 1,500 MW to provide hydroelectricity for an aluminum smelter. The other is Agrivision Corporation's proposals to "drought-proof" Saskatchewan with a series of dams and to provide a huge increase in available irrigation water. Neither

proposal is moving rapidly beyond planning to construction, and, no doubt, the current economic crisis has slowed down the search for capital. Serious objections have been raised to both projects, and neither is likely to pass easily through either economic evaluations or environmental and social assessments. As well, there are precedents in which adverse public sentiments scuttled such projects. In 1994 a cross-border campaign focused on the adverse social and environmental effects of the Great Whale complex that had been proposed by Hydro-Québec to produce power to sell to the New York State Power Authority. Eventually, public pressure led the Power Authority to cancel its purchase contract, and, of course, without a purchase contract Hydro-Québec could not raise capital for construction.

Perhaps a similar campaign might slow down the excessive rate of tar sands development in Alberta. With current technology, two to four barrels of water are required for every barrel of synthetic crude produced (Griffiths and Woynillowicz, 2009), and most of this water is unrecoverable; it is left to evaporate in a tailings ponds. In addition, over 85 kilograms of carbon dioxide are released for every barrel of synthetic crude produced (Woynillowicz et al., 2005). Synthetic crude oil derived from tar sands is the dirtiest of all common forms of liquid hydrocarbons, and, in this case, concern about buying “dirty oil” is being heard at senior political levels as well as from the public.

Bulk Exports of Water

Last year the Montréal Economic Institute published a research paper that suggested that there are big profits could be made in Québec from bulk sales of the province’s water to other countries (Boyer, 2008). This report is only the latest of many to make such claims. However, careful research finds little possibility that the export of water would even pay back its costs (PRI, 2007; Saunders and Wenig, 2007). The only people who really need more water are farmers, and they require vast quantities – and expect to get it cheaply. Given that it is expensive to pump water, and that it takes about 1000 tonnes of water to produce one tonne of grain (whether from rain or irrigation), sensible people will think about shipping grain, not water. The only logical exceptions

are small-scale exchanges of water between communities on opposite sides of the international border and well-defined emergencies such as fighting forest fires.

The notion of exporting Canadian water, particularly to the United States, has little public support. According to a 2004 IPSOS-Reid poll, 80 percent of Canadians do not want their water sold in bulk. Given this overwhelming political sentiment, one wonders why the Canadian government, which seems to have constitutional authority to deal with the issue, does not just pass legislation to forbid bulk exports. One reason is the ambiguous status of bulk water sales under the North American Free Trade Act (NAFTA). In contrast to bottled water, which is clearly a commodity, bulk water is neither included in nor excluded from NAFTA. However, in 1998 the Canadian government did step in to block a proposed deal to export water by tanker from Lake Superior to Asia, and there were no evident consequences (Saunders and Wenig, 2007). The whole question about international trade rules for bulk water can be avoided if the federal government were to make the broader declaration that it will oppose any inter-basin transfer of water. Given the geography of the continent, such a position would all but preclude bulk exports – and it would be a giant step toward protecting the natural environment.

Conclusions

Water use used to grow more or less in step with economic growth. However, since about 1980, total (not just per capita) water withdrawals in the United States have been stable or even declining (Wolff and Gleick, 2002). Canada seems to be following a similar pattern: water withdrawals did not increase during the first half of the 1990s (after which, in another cost-cutting measure, surveys of national water use were halted). In 2002, a task force created by the IJC concluded that consumptive use of water in the Great Lakes basin had been “consistently and significantly” overstated for at least 30 years (IJC, 2002, p 83). Despite governmental neglect and low water prices, a more efficient, equitable, and environmentally satisfactory water future seems within reach for both Canadians and Americans.

Canada must build on the 1987 water policy and ensure that it helps the nation achieve a sustainable regime for water in this new millennium. The changes required are not that many, but they are significant. What is getting in the way of improved water policies? The same thing that gets in the way of any policy reform: institutional barriers that inhibit more satisfactory policies, along with the vested interests and power relationships that support those barriers. Canadian water policies continue to be based on an assumption of huge water resources and are thus heavily biased toward supply-side approaches. It is time – indeed, long past time – that we confronted those barriers and turned toward a demand-side water policy as soon as possible.

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