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THIS PUBLICATION contains four papers from a two-day conference on Transboundary Environmental Governance in Canada and the United States, held at the Woodrow Wilson International Center for Scholars on May 8 and 9, 2008, and organized by the Canada Institute. The conference aimed to provide participants with a better understanding of the varied institutional arrangements that make up environmental cross-border governance between Canada and the United States, and determine whether these arrangements have had a substantive impact on the bilateral environmental relationship.

Much of the discussion throughout the conference focused on the relevance and impact of the International Joint Commission (IJC) on bilateral environmental issues. Through the Boundary Waters Treaty of 1909, the International Joint Commission was granted a broad range of powers by the Canadian and United States governments to jointly manage transboundary water resources. The IJC's institutional structure—allowing equal representation from both countries and a commitment to binational consensus in its decision making—has been heralded as a model for building international cooperation between countries.

As Stephen Brooks points out in his paper, however, very little work has been carried out to determine the IJC's impact or effectiveness in resolving transboundary water disputes. He maintains that the IJC is in fact in danger of becoming marginalized in issues of cross-border governance as a result of the creation of many other institutions that share its mandate. Consequently, says Brooks, the IJC has been relegated to a less prominent role than had been envisioned when it was created over 100 years ago.

Timothy Heinmiller makes the case that although the IJC and its international river management regimes have been essential to the political economy of the Prairie region for decades, they now threaten the region's stability by adhering to water management policies that do not reflect a changing climate. Implementing needed institutional reforms that promote environmental sustainability, Heinmiller says, will require overcoming significant political pressure from sectors with a vested interest in maintaining the status quo.

Heinmiller touches on the difficulties of governing today's environmental challenges, a theme addressed in more detail by Debora VanNijnatten. VanNijnatten argues that current bilateral institutions have not grown sufficiently to address shared environmental problems between Canada and the United States. While there has been little action at the national level to address these challenges in either country, a groundswell of activity has occurred at the subnational level to address a variety of bilateral environmental issues. She maintains that this activity has led to the emergence of Cross Border Regions that work jointly to address environmental challenges and now represent an essential component of the Canada–U.S. environmental relationship.

In the report's final paper, Barry Rabe examines efforts by Canada and the United States to address climate change. Rabe argues that both countries have lacked the political will and institutional capacity to achieve a significant reduction in carbon emissions. However, state-led initiatives to reduce carbon emissions and the results of the November 2008 election in the United States may be signs that North America is finally poised to seriously address climate change. Given the high level of energy interdependence between Canada and the United States, says Rabe, both countries would benefit from working collaboratively to reduce greenhouse gas emissions.

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TRANSBOUNDARY ENVIRONMENTAL GOVERNANCE IN CANADA AND THE UNITED STATES

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The International Joint Commission: Convergence, Divergence, or Submergence?

STEPHEN BROOKS

The Canadian-U.S. Boundary Waters Treaty, which marks its centennial this year, is a remarkable achievement of foreign relations and environmental policymaking. It broke new ground by resolving, on a platform of bilateral equality, a number of transboundary water conflicts and establishing a broad regime for the joint management of water resources across the Canada-U.S. border. Yet the record also shows that the International Joint Commission, the binational environmental authority brought into existence by the treaty, is at risk of becoming marginalized or sidelined on matters of sharp controversy and consequence. In this article, the conundrum between the perceived and real impact of the IJC is explored in interviews with past IJC commissioners and chairs, who were questioned about their personal characteristics for the job, how they regard their role, and their differing viewpoints. Even as the IJC enters a second century, there is debate about its institutional purpose and scope. Perhaps the biggest threat to the IJC's relevance is the emergence of numerous institutions and programs that share its mandate. The resulting situation has left the IJC's once preeminent voice on environmental issues as just another among many.

At one time, the International Joint Commission created by the Boundary Waters Treaty of 1909, was *the* institution for the management of environmental relations between Canada and the United States along their shared borders. Since then, things have become vastly more complicated. The map has grown crowded with institutions and programs developed for studying, advising, advocating, resolving, and regulating these relations. In part this reflects the explosive growth in number and complexity of issues requiring transboundary environmental governance.

While still an important part of this network of cross-border environmental management, the IJC and the Boundary Waters Treaty of 1909, at their inception, represented so much more. They expressed the possibility of convergence between Canadian and U.S. policies achieved through joint decisions made with equal representation from both countries. They embodied the ideal that commissioners should rise above mere national interests in deliberating and recommending on matters of shared concern between their two countries.

But there was the potential for divergence based on the manner in which commissioners are selected. Appointments to the national

sections of the IJC have always been the prerogative of its member governments. This led to the possibility that the backgrounds and outlooks of Canadian and American commissioners might differ in significant ways.

Over the 100 years of its existence, the IJC's status as the preeminent authority managing transboundary environmental matters has become diluted, not through failures on its part, but as a result of the arrival on the scene of so many cross-border institutions, agreements, and processes, formal and informal. The field has grown crowded and competitive, and the IJC's status and, some would argue, its relevance, have been submerged.

This paper examines the forces of convergence and divergence that operate within the IJC and are linked to the built-in dichotomy between its form—which stresses national equality and impartiality—and function, which inevitably is affected by national differences in outlook and interest. The hypothesis is that the ability of the IJC to manage transboundary environmental issues between Canada and the United States is necessarily limited by the tension between these forces of convergence and divergence. Also diminishing the IJC's role is its submergence, particularly since the 1960s, under a growing tide of transboundary processes and institutions.

THE BOUNDARY WATERS TREATY AND THE IJC AS AN INSTITUTION FOR POLICY CONVERGENCE

It is the nature of international treaties to impose obligations on and establish rights for governments that sign them. Treaties often include rules and mechanisms for dispute resolution and other forms of decision-making. Diminished national sovereignty—or, put differently, shared sovereignty in the area covered by a treaty—generally results from those agreed-upon rules and structures.

The Boundary Waters Treaty of 1909, Article III of which creates the International Joint Commission, was and remains a rather exceptional treaty in terms of the rules and decision-making structures it established for transboundary environmental governance. It was signed during an era when border disputes between Canada, represented by the United Kingdom, and the United States were prominent and difficult to manage. The treaty itself resolved a number of specific conflicts, including a general ban, with some exceptions, on water diversion from the Niagara River above the Falls (Article V) and agreement on the apportionment of water in the St. Mary River and Milk River watersheds.

In themselves these were important accomplishments. But the treaty went much further than that. It established a broad regime for the joint management of water resources across the Canada-U.S. border, an approach unprecedented at the time. This management would take place under the auspices of a decision-making body, the IJC.

Indeed, in both form and function, the Boundary Waters Treaty broke new ground. Article II establishes the right of reciprocity in the case of injury arising from interference with or diversion from boundary waters, stating that each country shall have "the same rights and entitle the injured parties to the same legal remedies as if such injury took place in the country where such diversion or interference occurs (Canada 1909)." Article III limits the sovereignty of each government by requiring IJC approval for any diversion or obstruction

> "The Boundary Waters Treaty was and remains a rather exceptional treaty in terms of the rules and decision-making structures it established for transboundary environmental governance.

that affects "the natural level or flow of boundary waters on the other side of the line." Article VIII imposes yet another limitation on national sovereignty by requiring IJC approval for the construction of dams or other obstructions "involving the elevation of the natural level of waters on either side," and authorizing the IJC to establish conditions for the protection and indemnity of interests on the other side of the border.

> "Unanimity is not a requirement, but as a practical matter, nothing can be accomplished without some degree of bilateral consensus.

Finally, in a final sweeping provision, Article IX assigns the IJC a potentially vast role in transboundary governance that goes far beyond the joint management of water resources. The IJC is empowered to study and report on "any other questions or matters of difference arising between [Canada and the United States] involving the rights, obligations, or interests of either [country] in relation to the other or to the inhabitants of the other, along the common frontier between [them]." This prerogative may be triggered by a reference from either national government or both.

This last provision did not establish that the IJC's report and recommendations would be binding. However, its wording—the fact that it anticipates referrals on a virtually limitless array of transboundary issues—suggests that its creators foresaw the possibility that the IJC's authority might extend beyond water issues.

If the IJC's function was exceptional, so was its form. Granted, the idea of a commission with representation from both countries was not new. The Alaskan Boundary Commission had been created several years earlier with representation from the United Kingdom (one member), Canada (two members) and the United States (three members).

What was novel about the IJC was its truly bilateral nature and the fact that both Canada and the United States were assigned equal representation. Each country was allotted three representatives and a national section chair who would preside over meetings hosted in his or her country. Article VIII of the Boundary Waters Treaty specifies that the commission shall decide cases according to the majority principle. Articles IX and X provide that reports based on references require support from a majority of commissioners. Failing that, each nation's commissioners would be entitled to submit separate reports which would then be reviewed by an independent umpire under Article XLV of the Hague Convention. Given the equality of national representation on the commission, it very quickly became clear that the decision-making style of the IJC would have to be consensual. Unanimity is not a requirement, but as a practical matter nothing can be accomplished without some degree of bilateral consensus.

Three other features of the IJC's charter are worth mentioning. First, under Article XII of the treaty, each commissioner is required to sign a "solemn declaration" that he or she shall "impartially perform the duties imposed upon him under this treaty (Canada 1909)." This is a clear indication that commissioners are not to view their role as that of advocates for their respective national interests, nor serve partisan interests within their own government or political parties.

Second and related is that the treaty does not empower either national government to issue instructions to its national section of the commission. The IJC therefore enjoys an unparalleled degree of formal independence from its member governments.

Finally, certain decisions of the IJC are final and may not be appealed to or overturned by national governments. Article IV states that the IJC's decisions will be final in cases arising under Article III of the treaty, involving applications for water obstructions or diversions that affect "the natural level or flow of boundary waters on the other side of the [border]." Final decision-making authority is also conferred on the IJC by Article X of the treaty, which authorizes the governments of Canada and the United States to refer transboundary matters—not just water management issues—to the commission for binding arbitration. The IJC has never received such a reference.

Final authority on selected matters, equality of national representation, and a potentially vast scope for

investigating and making recommendations on transboundary issues adds up to an exceptional institution with considerable authority. But one of the puzzles associated with the IJC is the divergence of opinion, from good to bad, on its importance and effectiveness. Alongside glowing tributes are dismissive and sometimes highly critical assessments. The following evaluations and observations serve as examples.

- Writing just after the completion of the Columbia Treaty negotiations between Canada and the United States, G.V. La Forest referred to the "transcendent importance" of the IJC in Canada-U.S. relations (Deener 1963:37).
- Roughly 40 years after the Boundary Waters Treaty was signed, G.W. Brown stated his view that "[The IJC is] the most important single agency for peaceful settlement so far established between Canada and the United States" (Brown 1948: 26).
- In his book, *Canada and the United States: The Politics of Partnership*, Robert Bothwell observes that "over the years the IJC resolved a fair number of transboundary annoyances." But he also expresses the view that the commission is of rather marginal importance, reflected in the fact that "relatively few people…know of it" and that it has fallen far short of the hopes of Elihu Root, the American secretary of state who signed the Boundary Waters Treaty and who expressed the wish that it would "set an example to the world by the creation of a judicial board as distinguished from a diplomatic and partisan one to deal with all these matters" (Bothwell 1992: 9).
- Most volumes of the Canadian Institute ofInternational Affairs' longstanding "Canada in World Affairs" series make only brief and passing mention of the IJC. Carleton University's prestigious "Canada Among Nations" series, between 1996 and 2006, lacks any mention of the IJC, despite the fact that every year there are chapters devoted to aspects of Canada-U.S. relations.
- The leading textbooks on American foreign policy make no or only passing mention to the IJC.

It is beyond the scope of this article to evaluate how well the IJC has done its job. Such an evaluation would have to be based on measurable criteria concerning the commission's functions, taking into account the original and evolving expectations for the IJC and the avenues realistically open to it to influence transboundary environmental governance and outcomes. That is a difficult challenge that remains open for the taking. Within the scope of this publication, the goal is to examine and assess the IJC model of transboundary environmental governance, with an eye to identifying forces of convergence and divergence that have been revealed.

RESOLVING NATIONAL DIFFERENCES: SUGGESTIONS OF DIVERGENCE IN THE IJC LITERATURE

The terms of the Boundary Waters Treaty, the original aspirations held for the IJC, and the model of consensus decision-making that quickly became the commission's hallmark all suggest convergence between the interests and outlooks of Canada and the United States. But much of the secondary literature on the IJC—written by those not directly associated with the commission—suggests that divergence of viewpoint has been the norm in cases involving controversy and when the stakes were perceived by governments as being high. What happens then, when the interests of the two countries represented on the IJC come into serious conflict?

Elihu Root, who was secretary of state under President Theodore Roosevelt and is widely considered to be the original founder of the IJC, had an ambitious vision for it as an impartial arbiter for the management of transboundary environmental issues. Unfortunately, that vision soon struck the shoals of reality.

In 1918, an IJC decision launched what Robert Bothwell describes as an "ambitious transnational regime" to clean up pollution in the Great Lakes (Bothwell 1992). "The idea was so ambitious," says Bothwell, "that it was promptly buried." Bothwell attributes much greater effectiveness to the IJC when it awarded dam-

ages on the American side as a result of pollution caused by a smelter at Trail, British Columbia, a decision issued a decade later. But this earlier case, Bothwell argues, was a particularly egregious example of the opposite and did not leave as its legacy the sort of robust joint management of transboundary environmental issues that Root has envisaged.

The stakes were also high in the case of the protracted negotiations that finally led to the Columbia River Treaty in 1961. The IJC had been involved in studying the environmental consequences of dam construction and flooding of the Columbia River valley since 1944 and issued two reports during the intervening decades. However, the treaty solution was ultimately reached in direct government-to-government negotiations. The former chair of the IJC's Canadian section, General A.G.L. McNaughton, was outspokenly critical of the treaty (Bothwell 1992: 82). These developments seemed to confirm that if the gap between the IJC's view and that of the politicians was too wide, the IJC would be sidelined in favor of alternative decision-making venues.

Although the IJC operates without instruction from either government, the specific terms of a reference to the commission may impose limits rather similar to government instructions. This was the case, for example, when the Canadian and American governments referred to the IJC the study of the environmental consequences of raising the Ross Dam at the border between British Columbia and Washington state, as recorded in identical letters sent simultaneously to the IJC on April 7, 1971, by the U.S. and Canadian secretaries of state. The reference expressly prohibited the commissioners from commenting on whether the project should proceed. It also stipulated that the IJC's recommendations should be "not inconsistent" with either the 1942 decision that had approved a raising of the dam and therefore an extension of the dam's reservoir into Canada or a 1967 deal by which British Columbia had agreed to increased flooding in return for an annual cash payment.

The Ross Dam case is particularly interesting for what it reveals about the IJC's diminished capacity as a venue for decision making when the stakes are high. The Canadian government was opposed to the additional flooding in British Columbia that would result from raising the dam. The issue dragged on until 1984, when Seattle agreed not to raise the dam and to provide cash compensation to British Columbia in exchange for an 80-year guarantee of electrical power that had been promised but never exported from the province. Government and regulatory authorities on both sides of the border were important in the resolution of this drawn-out conflict, but the IJC appears to have been sidelined.

Contentious, high-stakes issues do reach the IJC from time to time. One involved record-high water levels in the Great Lakes in the early 1970s, causing widespread flood damage in 1972 and 1973. The environmental impact became a source of conflict between Canada and the United States. Peter Dobell reflected on the IJC's part in the resolution (Dobell 1985:103):

> *President Nixon was pressed in December 1972 by congressmen from the Great Lakes states to initiate negotiations with Canada to reduce the flow of water into the Lakes. Early in 1973 the Subcommittee on Inter-American Affairs of the House Committee on Foreign Affairs began hearings on complaints that the IJC had not done all it could to keep water levels from reaching record heights. These direct pressures on the administration led to an insistence by the American section of the IJC that the flow of water out of Lake Superior be temporarily reduced at the locks at Sault Ste-Marie. The Canadian section of the commission was given only eleventh-hour notice of the United States' intention and agreed reluctantly on 30 January to reduce the outflow and then only to preserve the traditional unanimity of commission decision.*

At roughly the same time the IJC had been assigned a case that did not, strictly speaking, involve boundary waters. This was the Point Roberts reference of 1971. Point Roberts is a small piece of American territory that juts south from British Columbia but is physically separated from Washington state by Boundary Bay. The residents and developers of Point Roberts pushed for water exports from geographically contiguous British Columbia into the community, a proposal that met with strong opposition from the Canadian provincial and local governments. The IJC established a binational committee to study and recommend what to do about the water supply problem. Its proposal that Point Roberts be made an international park, jointly administered by Canada and the United States, was strongly opposed by community interests. The IJC was unable to resolve the situation acceptably to both parties and essentially abandoned the issue in 1977.

THE IJC MODEL VERSUS THE IJC IMAGE

Politicians and IJC members are very proud of the commission's tradition of consensus decision-making. It is at the top of the list of attributes mentioned by virtually every commissioner, past and present, when explaining how the IJC operates and why they believe it has been successful.

Canadian Prime Minister Mackenzie King, when giving speeches on international cooperation, would regularly reference the IJC model as one that deserved to be emulated throughout the world. The IJC was routinely and glowingly mentioned by Canadian spokespersons after what became known as the "Canadian speech" was delivered to the League of Nations. Following World War I, Canadian officials proposed that the IJC model be replicated as a means for resolving the border conflict between France and Germany. In more recent times, the IJC has generated interest from as far away as the Middle East as a model that could possibly apply to governance in Jerusalem.

But aside from insiders' enthusiastic observations about the IJC model—what fellow author Barry Rabe, in introductory remarks to a Woodrow Wilson Center conference on transboundary environmental governance in May 2008, called "internal self-assessment"—almost no empirical work has been carried out on the commission's effectiveness. As part of this, no one has studied the commissioners themselves in any systematic way: their backgrounds, how they have viewed their role on the IJC, how the experience of serving on the commission may have influenced their outlooks, and the consequences of these factors for IJC decision making.

The importance of these factors is implied by the fact that the IJC has had, over the years, a considerably higher profile in Canada than in the United States. In all frankness, the IJC has not enjoyed a high profile in either country outside of the Great Lakes region. The exception to this is when some very contentious issue has arisen, such as the Devil's Lake controversy at the North Dakota-Manitoba border or the protracted dispute over management of the Columbia River that led to the Columbia River Treaty. But within the hierarchy of public sector organizations, the IJC is generally seen to be higher within Canada than it is within the United States. This point was brought home by an anecdote about a former American commissioner. When contacted by the U.S. State Department about whether he might be interested in being nominated to the IJC, that individual asked, "What does it do?" The official replied that he was not sure, but that he would check into it and get back to this potential nominee.

> "The IJC has had, over the years, a considerably higher profile in Canada than in the United States.

A higher profile and greater institutional prestige in Canada than in the United States might be expected to produce asymmetry in the caliber of appointees to the two national sections of the IJC. It would not be unreasonable to expect that Canadian appointees would tend to have a higher status within Canadian public life than their American counterparts have within their country.

Simply being viewed as a "bigger deal" north of the border would not necessarily in and of itself lead to asymmetry on the commission. On one hand, it could produce a dynamic whereby Canadian commissioners tend to attach greater importance to the IJC's work and see its role and possibilities in transboundary environmental governance differently from their American counterparts. But the shared experience of working together on the IJC could conceivably dull the impact of commissioners' different backgrounds and initial expectations and generate greater convergence in their outlooks and behavior.

Still, there are good reasons to think that the personal characteristics of decision-makers, including their backgrounds, expertise, expectations, and role perceptions, will affect the IJC's performance. This is underscored by the IJC's form, involving equal national representation, a tradition of consensus decision making, and exceptional independence from the governments that finance it. Against

these neutralizing factors, commissioners' outlooks and behaviour could tip the balance and possibly lend insight as to why the IJC, on one hand, has been described as an institution of "transcendent importance" in Canada-U.S. relations (Deener 1963:37), but has also, at times, seemed rather marginal and disappointing in impact.

Background information on each commissioner was drawn from such sources as the Canadian and American versions of *Who's Who*, Canadian parliamentary and U.S. Congressional records, and various online sites. Whereas it was easy to find this material for commissioners serving within recent decades, it was difficult to find reliable or in some cases any pertinent information on those who served during the IJC's first decades unless they were prominent or held elective office. Of the 83 persons who have served on the commission, no information could be located for approximately one-fourth of the total. This lends the possibility that the informal findings reported here may not accurately reflect the reality of the IJC membership over its complete 100-year history.

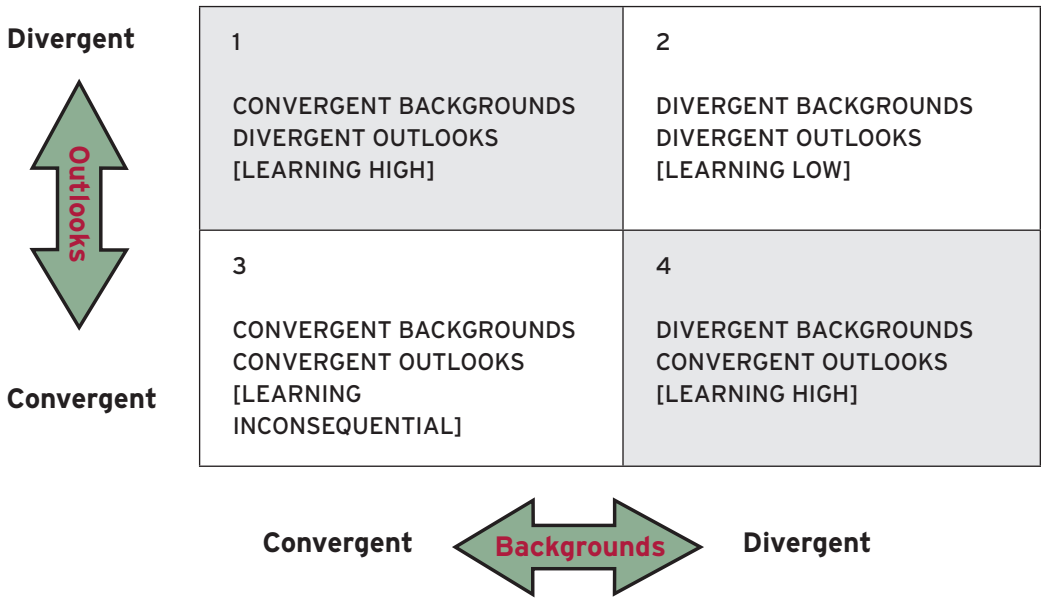
To better understand the impact of commissioners' viewpoints on the effectiveness of the IJC model, interviews were conducted with eight current and past commissioners, five from the American section and three from the Canadian section of the IJC. The basic questionnaire found in Appendix 1 was adapted for each interviewee.

BACKGROUNDS AND OUTLOOKS: AN EVALUATIVE SCHEMATIC

Differences in background may be associated with differences in outlook. Engineers and environmental activists, for example, may have very different outlooks on whether a proposed dam is intended to generate electrical power or divert water for agricultural purposes. Likewise, other things being equal, someone who has spent her career in the public service might be expected to bring a somewhat different outlook to environmental management than a person who comes from a business background.

Obviously it is not possible to predict a person's outlook on environmental or other matters from a handful of facts about her background. But we know that these background details matter and may contribute to a pat-

TABLE 1: Divergence and Convergence in the Backgrounds and Outlooks of Canadian and American Commissioners: Four Possibilities



tern suggestive of varying outlooks among Canadian and American commissioners independent of their differences in nationality and culture and associated belief systems.

Figure 1 identifies four possible scenarios that might characterize IJC commissioners at any point in time. The horizontal axis measures the similarity or dissimilarity in their background characteristics and the vertical axis measures the potential for similarity (convergence) or dissimilarity (divergence) in commissioners' outlooks, as proposed.

Quadrants 1 and 4 project relatively high learning as a result of the experience of serving on the IJC. Intuitively, the scenario in quadrant 1 seems improbable and is, moreover, at odds with most of what has been written about the IJC. Quadrant 4, on the other hand, seems plausible: that the same factors contributing to a learning experience might increase the convergence of opinion among commissioners. Some of these contributing factors are described below.

- Unlike ambassadors and State Department officials, IJC commissioners do not receive instructions upon appointment.
- Many appointees have little background in the policy matters referred to the IJC and are likely to be influenced from those who have expertise.
- The scientific character of IJC content and expert consultations will serve to reduce the effects of partisanship and other political influences on commissioners.
- The limited authority of the IJC may reduce the weight of partisanship and nationality on how commissioners perceive their roles.

Both quadrants 2 and 3, on the other hand, depict scenarios where a low level of learning takes place as a result of serving on the IJC. Quadrant 2, the most unlikely, paints a scene where IJC decision making is characterized by a high degree of conflict between the national sections and stalemate, neither of which has been typical.

Quadrant 3 describes a scenario where the orientation and experience gained by serving on the IJC is of less consequence than other factors in shaping commissioners' outlooks. This scenario is plausible, but likely to be mediated by differences in background characteristics among Canadian and American commissioners. A possible contributing factor is that commissioners come from two different societies and there exist, *prima facie*, grounds on which to assume that their outlooks will differ and reflect cultural differences between Canada and the United States.

Based on a preliminary survey of the literature describing the IJC's role over the past century, four specific expectations were identified and presumed to exist before examining the actual backgrounds of commissioners and conducting interviews with a sample of them. These presumed characteristics are described below.

- Canadian appointees have higher status within Canadian politics and society than U.S. appointees do within the United States.
- U.S. commissioners are appointed later in their careers than are Canadian commissioners.
- Partisanship is more frequently a factor in U.S. appointments, so American IJC appointees are less likely to have environmental expertise than Canadian appointees.
- Service on the IJC tends to generate some degree of convergence in the outlooks of commissioners from the two national sections.

BACKGROUND AND OUTLOOKS: FINDINGS

Of the four expectations identified above, only the last two were supported by data collected from biographical material on IJC commissioners and from personal interviews. It is, of course, rather difficult to measure political status, and both the Canadian and American sections of the IJC have included a fair share of "notables." On the American side, the early history of the IJC saw a number of prominent members of Congress appointed, including, as chairs, Senators Thomas Carter (Montana) and Clarence Clark (Wyoming) and Rep. James Tawney (Minnesota), all Republicans. Canadian chairs have included many individuals who served in prominent roles before their IJC appointment, including Thomas Chase Casgrain, a Conservative Party member of Parliament; Arnold

Heeney, former ambassador to the United States; General Andrew Macnaughton, former minister of Defense and ambassador to the United Nations; Maxwell Cohen, dean of law at McGill University, who chaired a number of federal commissions; Davey Fulton, a Conservative cabinet minister; and Herb Gray, a Liberal cabinet minister and deputy prime minister. It would appear that the relative status of U.S. appointees has declined somewhat in recent decades, and that there has been greater consistency over time in the relative status in Canadian public life of those appointed to the commission. But that is a judgment call.

> Partisanship plays a larger role in American nominations to the IJC.

The second expectation, that American commissioners will tend to be appointed later than their Canadian counterparts, follows from the first. If the IJC has less relative visibility and prestige in the United States than in Canada, then it logically would follow that American commissioners might be older at the time of their appointment than Canadian commissioners. The inference is that appointment to the IJC would provide a final stint of public service before retiring from active public life.

In fact, the average age of U.S. commissioners when appointed is 59.5 years, compared to 57.9 for Canadian commissioners. Granted, these data are based on incomplete data. But they are representative of 28 of 43 U.S. commissioners (65 percent) and 27 of 40 Canadian commissioners (68 percent) during the period from 1909 to 2007.

The third expectation, that partisanship plays a larger role in American nominations to the IJC and that American commissioners are less likely than Canadian appointees to have experience in environmental issues when appointed, is supported by the background data. Table 2 shows that appointees with backgrounds in Congress or state politics comprise 71 percent of all U.S. commissioners and that a smaller percentage of Canadian commissioners, 48 percent, had ever served in Parliament or been elected to a provincial legislature. Public service and academia have been more active recruiting grounds for Canadian than American commissioners. It is worth noting that only a handful of commissioners with professional backgrounds in business or engineering backgrounds were recruited for either national section—even though a couple of these individuals served as national section chairs, including Claude Lanthier on the Canadian side and Roger McWhorter on the American side. Again, the data were incomplete, with reliable information on 34 of 43 U.S. commissioners (79 percent) and 31 of 40 Canadian commissioners (78 percent). Cautious interpretation is therefore advised.

TABLE 2: Career Backgrounds of IJC Commissioners

COUNTRY	CANADA	UNITED STATES
Parliament/Congress	35% (11)	53% (18)
Provincial/State politics	13% (4)	18% (6)
Public service (non-elected)	19% (6)	9% (3)
Business	13% (4)	6% (2)
Academe	16% (5)	9% (3)
Engineering	3% (1)	6% (2)

The final expectation, that the very experience of serving on the IJC influences commissioners' outlooks towards greater convergence, goes to the heart of the IJC model. The main basis for this assessment derives from personal interviews with eight commissioners, past and present, including several national chairs. These individuals represent only one-tenth of all commissioners who have served on the IJC, but they all have served over the past couple of decades. It is quite possible that commissioners who served earlier in the IJC's history might have responded differently to the survey questions (Appendix 1). However, to reach an understanding of how the IJC functions today, including its possibilities and limitations, the outlooks and experiences of recent commissioners are most beneficial.

When asked about the circumstances of their appointment to the IJC, four commissioners indicated that they had requested a position on the IJC and four said they

had not specifically asked for an appointment to the commission but that their name had been put forward by someone else, a governor or senator, for example. All of those who had not requested an appointment to the IJC had low prior knowledge of the commission and its role. Among those who asked for an IJC appointment, three began with a high level of knowledge about the commission. A fourth commissioner had an interest in environmental issues and was aware of the IJC, but said a key factor in seeking the appointment was the opportunity to sit on a commission of this level without residing in Washington, D.C.

“Had the IJC inserted itself forcefully into the acid rain issue in a way that had driven a wedge between the Canadian and American governments, there is a good chance that would have accelerated efforts or opinions aimed at marginalizing the IJC’s role in policy making on the American side of the border.

As for the others, despite not seeking the appointment, two commissioners had backgrounds that qualified them for the appointment. One had a strong prior background in environmental policy and another in the natural sciences, so both were familiar with the scientific and environmental modeling issues that come before the commission.

With some notable exceptions, it has not been the Canadian or U.S. policy to appoint well-known environmentalists to the IJC. Pierre Béland, appointed by the Canadian government in 1995, was such an exception. Adèle Hurley, appointed Canadian chair in that same year, was also well known in environmental circles for her policy advocacy work on the acid rain issue. Other commissioners, notably American section chair Gordon Durnil, became environmentalists of some public reputation as a result of the experience of serving on the IJC.

The fact that so few individuals were recruited with serious credentials in environmental science, policymaking or advocacy may seem puzzling. But the example of former Canadian commission chair, Adèle Hurley, may be illustrative. Hurley resigned less than one year after her appointment to the chair following a dispute with her fellow commissioners over a report on acid rain.

Hurley pressed for the commission to issue a formal written report to the Canadian and American governments. By invoking sections of the Clean Air Act, it purported to limit the U.S. government’s plan to allow some deregulation of coal-burning power generation in the Midwest. Rather than issue the report, the IJC made oral representations to the two national governments—representations that effectively were ignored.

As a longtime environmental advocate who had been active in Canada on the acid rain issue for well over a decade, Hurley apparently found herself unable to compromise her well-known beliefs on coal-burning electricity generation. Environmentalists applauded her choice. But what some regard as failure on the IJC’s part, others regard as deft avoidance of a likely political imbroglio in the United States over the IJC’s role and power.

It is possible to speculate about what the consequences would have been if Hurley had won the day and the IJC’s written report and recommendations had been released. The commission had already acquired a reputation in some governmental circles, on both sides of the border, of being an extension of the environmental movement and anti-industry in viewpoint. Some observers believed that it had become compromised and overly aligned with the environmental movement under Gordon Durnil’s leadership, when the issue of industrial chlorine discharges into the water system was high on the IJC’s agenda. Had the IJC inserted itself forcefully into the acid rain issue in a way that had driven a wedge between the Canadian and American governments, there is a good chance that would have accelerated efforts or opinions aimed at marginalizing the IJC’s role in policy making on the American side of the border.

Adèle Hurley clearly had a vision for the IJC, and when she found that its behavior did not conform to

that vision, she was quick to resign. In this respect she was surely exceptional. Only two of the eight commissioners interviewed could truly be said to have begun their terms on the IJC with an existing set of goals or a sense of direction. In both cases their goals and stated direction involved reining in the IJC's authority.

One commissioner said in an interview that he perceived the IJC to be "the most powerful commission in the world." This description, half-serious, was based on this appointee's previous involvement, as an elected official, with an issue on which the IJC had taken an active role—and one the commissioner perceived to be highly negative.

The other commissioner believed that within recent decades the IJC had in some respects overreached its proper role, particularly during the 1980s and 1990s. "I thought that the IJC had become too activist," that individual said, mentioning in particular the perception that the commission had wandered off-course, from sound science into the realm of environmental advocacy, with its support for the ban on chlorine discharges. This commissioner mentioned the IJC's permanent staff as collusive with the bias that had developed over time on the commission, stating that "It's a bit like having Greenpeace work for you."

All four of these proactive commissioners were asked about the sources of their goals and sense of what the IJC should be doing, including their role on the commission, and who or what influenced their initial expectations and acquisition of knowledge about the IJC activities. Even though there was no limit on the number of factors they could mention, most attributed their learning about and expectations for the IJC to only one factor. And in three of four cases, the commissioners—all of whom had requested appointment to the IJC—had acquired their knowledge and expectations before their nomination.

Two commissioners mentioned a formal briefing by IJC staff as an important part of their initial learning experience and two others said that they had not received any formal briefing. Three commissioners mentioned IJC staff members, in every case by name, as being important to their acquisition of knowledge about the IJC and their role on it. Another couple of commissioners stressed the importance of on-the-job learning.

What stands out among these findings is the relatively unstructured and informal nature of the process of learning to be an IJC commissioner. Former U.S. section chair Gordon Durnil addresses this point in his book, *The Making of a Conservative Environmentalist* (Durnil 1995: 175):

> *The learning curve is sharp for new commissioners, but it is up to them to make the job what they want it to be. They can quietly sit back, making no waves, issuing non-controversial and inconsequential reports. They can be receptacles of irritable government problems, hiding these problems from public view as they quietly spend years studying them. Or they can get ahead of the curve. They can be catalysts for government action at the state and provincial, federal, and even international levels.*

With regard to IJC commissioners' interactions with other public officials, the interviews made very clear that this is primarily—and, under some national section chairs, exclusively—a function of the Canadian and American chairs. This similarity aside, there appear to be some national differences that are related to the institutional differences between the Canadian and American systems of government and perhaps also to the relatively greater status that the IJC enjoys in the policymaking community in Canada relative to the United States. On the American side, visits to members of Congress for what one commissioner called "budget maintenance" purposes appear to be common, as is occasional testimony before congressional committees. Meetings with officials from the Army Corps of Engineers, the Environmental Protection Agency, state departments of natural resources, and the Great Lakes Fisheries Commission were among those mentioned by another American commissioner.

If insecurities concerning the IJC's budget were shared on the Canadian side, they certainly were not expressed. On the U.S. side, however, they were mentioned. One commissioner said that possible budget cuts were a real concern at a time when "There were some feelings that we were becoming an environmental commission to the detriment of our water role . . . . There was a sense in the Senate that the IJC was getting out ahead of issues."

On the Canadian side, at least one former chair was of the belief that the IJC should not meet with government officials, on the grounds that this would in some way compromise its independence. This view was not shared by his U.S. counterpart. But another Canadian commissioner reported meeting often with government

> Once you get out of the Great Lakes, you find that the IJC doesn't have much of a profile.

officials, including at the highest levels. The personal style and status of an IJC national section chair appear to be factors determining the nature and frequency of interactions with government officials.

On both national sides of the IJC, albeit more vocally from the American side, commissioners who were not section chairs expressed some frustration that the opportunities available to them to be more involved in the commission's activities, including interaction with government officials, were too few. "A shortcoming of the current model," said one American commissioner, "is that it is at the discretion of the chair when and how the other commissioners are involved . . . . Given the broadening of the IJC's activities," this commissioner added, "the other commissioners should be more involved."

The question of raising the IJC's profile, if not among the general public, then at least among environmental policymakers and opinion leaders on both sides of the border, might be seen as an indirect measure of the commission's influence. Only one commissioner did not express some significant doubts about the IJC's importance as an institutional player. "I'm not so sure that we were always supposed to be relevant," said one American commissioner. And a Canadian member observed: "Once you get out of the Great Lakes you find that the IJC doesn't have much of a profile."

At least two commissioners, both on the American side, used the terms "providing political cover" and "legitimization" for some of what the IJC was expected by government to do. Another U.S. commissioner declared, "The IJC is more important in Canada, where it's seen as an instrument of policy in dealing with the United States on environmental issues. It just isn't on the radar screen outside the Great Lakes region in the U.S."

A somewhat different observation about the perceived relevance of the IJC was made by another American commissioner who expressed the view that the "radicalization" of the commission during the years when a ban on industrial chlorine discharges was high on the environmental agenda had contributed to the marginalization of the IJC. According to that individual, the episode in the commission's history left a legacywhereby the IJC is perceived as a "loose cannon" by some American government officials.

CONSENSUS, CONSENSUS, CONSENSUS

Not all observations were critical. And every positive assessment of the IJC emphasized the commission's tradition of consensus decision making.

Officially, at least, Canadian and American commissioners have rarely found themselves on opposite sides of the fence. A 2006 presentation made by former American Section Chair Dennis Schornack included a striking slide showing that in only 2 percent of all cases resolved by the IJC did the commissioners split on national lines (Schornack 2006: Slide 2).

It is hard to argue with a 98 percent success rate. But if no one criticized the consensus model of decision making that is the hallmark of the IJC, several commissioners identified limits to its effectiveness.

For example, interviews with commissioners reinforced a point made in some of the literature, namely that matters considered too contentious or too important simply are not assigned to the commission. In the words of one American commissioner, "Neither government really trusts the IJC."

An American commissioner, speaking of references to the IJC, said "they are only used when the governments know pretty much what the answer will be." When the recommendations of the commission do not accord with the preferences of one or the other government, as happened in the Lake Champlain reference, "We were told that we were out of line," he continued. "Governments aren't going to give up power to an independent-minded body if there is a risk of not liking the decision."

This same U.S. commissioner expressed skepticism of whether the IJC is capable of changing to carry out its mission more forcefully. "We're supposed to prevent and resolve disputes," he said, "But we have never prevented

anything. We haven't had a history of anticipating, but this is what we need to do and are trying to do now."

Several commissioners identified the need for quality scientific information as prerequisite for re-making the IJC into a more proactive entity capable of achieving true binational cooperation and consensus. Two commissioners, one from each national section, specifically mentioned the "solemn declaration in writing" that IJC commissioners are obliged to take—requiring that they "impartially perform" duties imposed upon them under the Boundary Waters Treaty"—as a factor encouraging better outcomes.

PERSONALITIES ON BOARD

Still others blamed differences in national values and interests for perceived limitations to the IJC's effectiveness. Several commissioners expressed the view that divergent outlooks between Canadian and American commissioners reflect inherent cultural difference. Their views echo a point made by former U.S. section chair Gordon Durnil in *The Making of a Conservative Environmentalist* (Durnil 1995: 24):

> *2A couple of Canadian commissioners also testified to the existence of a "continental divide" between commissioners. Said one: "There are differences. We tend to be more progressive in Canada, even our businessmen are more progressive than American businessmen." Another Canadian commissioner ventured the opinion that "the American commissioners perhaps operate more based on their own national interests."*

And from the American side, a former commissioner expressed the view that, "the Canadian approach is more centralized than ours," an observation that former commissioner Durnil also makes in his book (Durnil 1995: 25). A similar view was expressed by a U.S. commissioner who believes that instead, much of the IJC's work should be focused on local governments and regional authorities where the implementation of water policy is managed. About the IJC outcomes, "everything becomes the responsibility of local governments eventually," he observed.

Several commissioners mentioned the impact of personalities on the IJC, particularly those of the national section chairs, as critical to the effectiveness of the commission's consensus model. From scarce third-party information that exists, it is clear that leadership styles have varied. And still, a serious clash of personalities or leadership styles has seldom been a problem—although it did appear to impede the commission's work at one point in the IJC's history. One Canadian commissioner noted that their section, under the leadership of a particular Canadian chair, would caucus separately, "giving the Americans time to think"—in the words of the offending section leader. The same commissioner expressed the view that ideology and nationality had mattered much less than the personalities of the commissioners during his IJC tenure. But in reaction to that, both a Canadian and American commissioner cited this particular colleague as being rather "parochial" and overly concerned with acting as a spokesperson for regional interests.

American commissioners expressed the view that Canadian members were more sensitive than their American counterparts on the issue of water out-takings from the Great Lakes. According to this person, issues involving the environmental effects of dams werealways divisive and "sometimes we would just put matters aside if things got too contentious," he observed.

In recent years, the IJC's role has expanded from one of merely study to communicating with the public and organized interests about the increasingly broad range of transboundary issues on which it makes recommendations. "We can talk to anyone," said a Canadian commissioner, whereas at points in the IJC's history, its interactions with organized interests were not always amicable. For example, Gordon Durnil has written about the very strained relations that existed between the IJC and representatives for businesses that relied on the use of chlorine in their industrial processes. But at least one American commissioner offered the countering viewpoint that during his term, "Business representatives understood the need for compromise and ultimately were easier to talk to than environmental groups."

Still another U.S. commissioner said that to American politicians—presumably conservative politicians—the

IJC appeared to be "captured" by the environmental movement in the 1980s and 1990s. "I don't see myself as representing either industry or environmental groups," he said, but opined that the government's reliance on the IJC had probably been damaged by perceptions that the IJC had become a champion of the environmental movement. Another commissioner, also an American, remarked on the perceived political naivety of the scientific experts regularly consulted by commissioners.

Canadian commissioners had relatively few things to say about the IJC's relations with industry and environmental interests. One commissioner vouched for the commission and said there was very little in the way of direct dealings with such groups. Another Canadian commissioner spoke of his/her interlocutors in the public sector, giving the impression that direct meetings and contacts with industry and environmental groups were neither frequent nor particularly important to the IJC's functioning.

CONCLUSION: CONVERGENCE, DIVERGENCE OR SUBMERGENCE?

The original vision held for the IJC was one of convergence. It would serve to reconcile the interests of Canada and the United States concerning shared management of their joint water resources and perhaps even play a broader role in the resolution of transboundary environmental disputes.

The IJC structure and tradition of consensus decision making accord with this vision of convergence. But the tug of different national interests and outlooks has sometimes proved insurmountable. At those times, the likelihood that the IJC is capable of reconciling these differences, acting as the impartial arbiter that Elihu Root hoped it would become, is rather low. Interviews with some past and present commissioners corroborated the importance of numerous factors that contribute to divergence between the IJC's national sections.

This does not mean that the IJC becomes irrelevant when the gap between national differences is wide and the stakes are high. Rather, it is to say that the IJC is capable of playing only a limited role in such circumstances. Ultimately, its influence will depend on its member governments' willingness to use the commission as a venue for actual decision-making and actionable results. From experience, the ever-present threat of divergence that is most easily overcome when the commission is self-limiting, i.e, when it sticks to its charter of water issues and issues nonbinding decisions or recommendations, particularly on issues where Canada and the United States have staked out different positions.

At this point in the commission's history, it may well be that one of the most significant limitations on its effectiveness has to do with the proliferation of multiple institutions and programs that, like itself, are concerned with managing cross-border environmental issues. As the playing field of institutions involved in studying, advocating and regulating these matters has become more crowded, the IJC's voice has become just one among many, even if it is the most venerable of the pack. Submergence under a tide of competing cross-border processes and institutions has contributed to a less prominent role for the IJC today than was expected and predicted 100 years ago.

> "Influence will depend on its member governments' willingness to use the commission as a venue for actual decision-making and actionable results.

Fifty years ago a study of transboundary environmental governance between Canada and the United States would have been focused on the role of the IJC exclusively. That might even have been true 30 years ago. It is no longer the case today.

REFERENCES

Bothwell, Robert. 1992. Canada and the United States: The Politics of Partnership. Toronto: University of Toronto Press.

Brown, G.W. 1948. Peaceful Settlement Between Canada and the United States. Toronto, Ryerson Press.

Canada. 1909. International Boundary Waters Treaty Act (R.S., 1985, c. I-17), accessed at http://laws.justice.gc.ca/en/ShowFullDoc/cs/I-17///en.

Deener, David, ed. 1963. Canada-United States Treaty Relations, G.V. La Forest, "Boundary Waters Problems in the East," London, Cambridge University Press.

Dobell, Peter. 1985. Canada in World Affairs, 1971-73. Toronto, Canadian Institute of International Affairs.

Durnil, Gordon. 1995. The Making of a Conservative Environmentalist. Bloomington, Indiana: Indiana University Press.

Schornack, Dennis. 2006. "The International Joint Commission: A Case Study in the Management of International Waters." Presentation at the Rosenberg International Forum on Water Policy, Banff, Canada, September 10, 2006.

Appendix 1
Questions for IJC Commissioners

1. Do you recall when and how you learned that the government/administration wanted to nominate you to the IJC? Had you requested this position? (If yes, then why. Whether yes or no, why do you think the government chose you for this post?)

2. Did you know much about the IJC, the boundary Waters treaty or environmental policy at the time of your appointment?

3. When you started at the IJC, how did you see your own role and that of the commission? I mean, did you start out with a set of goals or a sense of the direction in which the IJC should go, or were these things that learned while on the job? Where did these goals or sense of direction come from? Who or what was most influential in your on-the-job learning at the IJC?

4. During your years as a commissioner what other government agencies or departments did the IJC interact with most? What about Congress/Parliament and its members and committees?

5. Was it ever your sense that the IJC had a visibility problem within the policy-making community; that it just wasn't central enough or often enough on the radar screen?

6. The IJC is the original binational Canada-US institution and talking to commissioners I know that they are proud of the track record of cooperation. But were there ever occasions when you felt that US and Canadian commissioners were on different wavelengths, representing different points of view or responding to different interests?

7. I know that as a commissioner you may have had extensive dealings with environmental and industry groups. Were some groups easier to deal with than others? (Elaborate)

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The current water management regimes along the shared transboundary rivers of the United States and Canada were established under the International Boundary Waters Treaty (IBWT) of 1909. Prairie rivers tend to fluctuate between scarcity and flooding, and successful attempts to dam, store, and internationally apportion river flow were forward thinking at the time and contributed to the region's economic development and political stability. But now many Prairie rivers have reached a point of full allocation and this same water supply is threatened by global climate change. New interests have emerged and sought to reframe water management priorities to support environmental concerns. The very institutions that once contributed to this region's economy now threaten to undermine its stability by too strict adherence to the status quo. The region faces the challenge of accommodating environmental protection and preservation within the existing IBWT framework. The outcome could shape the Prairie political economy—in good ways or bad—for the next century or longer.

Managing Water Scarcity in the Prairie Region: The Role of the IJC in a Changing Climate

B. TIMOTHY HEINMILLER

The shared boundary waters of North America span a number of diverse natural regions. While the 1909 International Boundary Waters Treaty (IBWT) created a unified set of governance principles for all boundary waters, this framework has been adapted and expanded by the member governments and the International Joint Commission (IJC) to meet the unique water challenges of each distinctive border region.

In the Prairie border region, characterized by scarce and highly variable water supplies, transboundary rivers have long been an important source of water for irrigators and urban riparians, and the water management rules developed within the framework of the IBWT clearly reflect this.

While international apportionment and management of the St. Mary, Milk, and Souris rivers have greatly contributed to Prairie agricultural development, this political economy is also predicated on a water supply that is threatened by global climate change. Water supplies are almost fully allocated in the region, and although current institutions have created a relatively stable equilibrium amongst water users, a steep decline in water supplies could throw this into disarray. Many experts predict that the Prairie region, which is naturally semi-arid, will have even less water in the future. This could pose a major threat to the viability of current agricultural patterns and the institutions that have enabled them.

This article examines the substantial contributions of the IBWT and IJC to the development of the Prairie political economy over the past century and considers whether this political economy will be sustainable as the region faces increased water scarcity due to global climate change.

THE TRANSBOUNDARY RIVERS OF THE PRAIRIE REGION

Unlike most other regions of the Canada-U.S. border, which have abundant water resources, the Prairie region is characterized by a scarce and highly variable natural water supply. Surprisingly, given the region's reputation as one of the world's agricultural breadbaskets, its average annual precipitation is between 300 and 500 mm, and less in some places (Matthews and Morrow Jr. 1985:38). This makes the Prairies a somewhat marginal area for dryland agriculture, despite vast stretches of fertile land.

The Prairie region's main source of water is found in the few rivers of relatively modest size that transect the landscape. Farmers have come to rely heavily on these rivers for stock watering and agricultural irrigation; the latter is by far the largest use of water in the region. Managing the Prairie rivers to facilitate large-scale irrigation is a pervasive challenge, although not the only one.

Prairie residents must also cope with highly variable and sometimes wildly erratic river flows. In fact, Prairie residents often describe their rivers as "either mud or flood," reflecting a situation of general scarcity punctuated with occasional flooding. Annually, river flows are usually highest in the spring during the winter melt and lowest in the late summer and fall, but periodic spikes in river flow due to extreme weather events are common and can result in severe flood damage to riparian properties.

In the region there are three major rivers that cross the international boundary and are managed by the IJC on an ongoing basis: the St. Mary, the Milk, and the Souris. However, the St. Mary and Milk rivers are generally treated by the IJC as a single river system since they are hydrologically connected by a diversion canal in northern Montana.

In addition to these three rivers, several smaller creeks cross the international boundary. Although the IJC has been involved with these tributaries, it has not developed any river-specific management rules.

As described, the St. Mary, the Milk, and the Souris are characterized by water scarcity and flooding and their variability of flow presents water management challenges quite distinct from neighboring river basins to the east and west. In the West, over the Rocky Mountains, the Columbia is the main transboundary river, and though it has many management challenges, scarcity is not one of them. To the east, the Red River flows through some Prairie lands and has perennial flooding problems, but this area has both more water and less irrigated agriculture compared with its western Prairie counterparts. Consequently, the Red River's management challenges differ in kind from those on the St. Mary, Milk, and Souris rivers, and it is not included in this discussion of Prairie rivers.

> "Prairie agricultural development is predicated on a water supply that is threatened by global climate change.

St. Mary River. The westernmost river in the Prairie region, the St. Mary originates in the Rocky Mountains of Glacier National Park in Montana. From there it flows northward into Alberta, where it joins with the Oldman River to form the main stem of the South Saskatchewan River. The St. Mary is by far the largest of the transboundary Prairie rivers and has the least variable flow (Halliday and Faveri 2007:77). Its main source is glacial melt in the Rocky Mountains, which provides a more dependable and stable flow compared with the surface runoff on which the Milk and Souris rivers depend.

Milk River. The Milk River originates as run-off in the Montana foothills and has a much lower average annual flow and much higher flow variability than the St. Mary (Halliday and Faveri 2007:77). The Milk, part of the Missouri River system that drains through the Mississippi River into the Gulf of Mexico, is also unusual in that it starts in Montana and flows northward into southern Alberta for about 200 km before arching southward to return to Montana.

At various points, the St. Mary and the Milk are in close

proximity to each other, and, over the first two decades of the 20th century, the U.S. Bureau of Reclamation constructed a canal to connect the St. Mary to the Milk, thus diverting the St. Mary's more abundant flow to support irrigation in northern Montana. International contr oversy over this project proved to be one of the precipitating factors in the negotiation of the IBWT, and the canal has since linked the two rivers both hydrologically and institutionally in an IJC water management regime.

Souris River. Unlike the Milk, the Souris River lies in the same drainage basin as the St. Mary. Both are part of the Saskatchewan-Nelson Basin that eventually drains into Hudson Bay. Despite that, the two rivers are geographically distinct. The Souris has its source in southern Saskatchewan and runs southward into North Dakota before arching northward and re-entering Canada in southern Manitoba and merging with the Assiniboine River.

The Souris is fed almost entirely from surface runoff. Due to the inconstancy of its source, the river is characterized by flows that are relatively low and highly variable. Sometimes the Souris is reduced to barely a trickle and other times is so swollen that it bursts its banks (Hood 1994). Governments on both sides of the border have gone to considerable effort and expense to try to bring the basin's flows under control, and an IJC water management regime has been a key element of that attempt.

While the St. Mary, Milk, and Souris rivers have been subject to international management regimes under the auspices of the IJC, a number of other transboundary rivers in the Prairie region have not. Many of these rivers and creeks seemed too small or underutilized to warrant the investment of time and political capital that would be necessary to develop specific management regimes. Yet even in the absence of river-specific management regimes, the general principles of the IBWT have still been applied to the use of these rivers. As a result, they have been subject to a substantial level of international involvement. For example, the IJC was involved in resolving international disputes on Sage Creek (shared by Alberta and Montana) and Poplar Creek (shared by Saskatchewan and Montana) in the late-1960s and mid-1970s, respectively (Jordan 1974:532; Hood 1994:27-28).

The Waterton and Belly rivers, which rise in Montana and flow into Alberta, where they eventually join the St. Mary River, are the largest rivers in the Prairie region that do not have river-specific management regimes. This situation is not for lack of trying. In the 1950s, the IJC was asked to investigate and recommend a regime for these rivers, but the commissioners could not come to agreement and split along national lines, submitting separate reports to their respective governments. This is the only time in the history of the IJC that such a split has occurred. No subsequent attempt to develop water management regimes for the Waterton and Belly, has been undertaken (Willoughby 1981:37).

> "If the Prairie region's transboundary rivers present management challenges, they also provide incentives for productive international cooperation.

If, by their very natures, the Prairie region's transboundary rivers present management challenges, they also provide incentives for productive international cooperation. Given how these rivers meander back and forth across the border, neither the United States nor Canada is an exclusively upstream or downstream jurisdiction. Canada is a downstream jurisdiction on the St. Mary River, but upstream on the middle section of the Milk River and the upper section of the Souris River. These unusual patterns and alternating upstream-downstream relationships have created something of a natural balance of power between the two countries. Each country knows that if it exploits its upstream advantage to the detriment of the other, there could be retaliation on another river—or even on a different reach of the same river.

This natural landscape has given rise to a much different political dynamic than exists, for example, between

the United States and Mexico. On that border, the United States consistently is the upstream jurisdiction and has exploited this advantage to full effect (Reisner 1993:463-465).

WATER AND THE PRAIRIE POLITICAL ECONOMY

Since the first arrival of white settlers in the nineteenth century, the political economy of the Prairie border region has been shaped fundamentally by the scarcity and variability of water supplies. Agriculture has been the dominant economic activity in many parts of the region. Water management has played a critical role in Prairie agriculture, both for irrigation and stock watering, though the former uses far more water and has a much bigger impact on the environment than the latter.

Cities and industries in the region also tended to locate along its relatively few major rivers. As these riparian interests developed, they became subject to severe damage and dislocation from periodic flooding of Prairie rivers. Together, the riparians and irrigators shared a fundamental interest in trying to control Prairie rivers through damming and water storage. Riparians sought control to prevent flooding during high flows and farmers sought greater dependability—through artificially manipulated water storage and delivery—during low flows.

> "Water was regarded as such a scarce and valuable resource that it should not be wasted by leaving it in a stream where it is not utilized.

The interplay between water and the region's economic interests are reflected in the differing meanings of the term "conservation" in the Prairies versus the more water- abundant regions to the east. In the East, to "conserve" water is to minimize usage so that much of it is left in the natural environment. In the Prairies, "conserving" water means controlling, storing, and using it before it is lost to the environment. Water was regarded as such a scarce and valuable resource that it should not be wasted by leaving it in a stream where it is not utilized.

Along with their shared stake in water control, farmers and riparians also generally agreed that most water in the Prairie region should be utilized for beneficial use, defined as use that contributes some kind of economic benefit. The acceptance of control and beneficial use was almost universal amongst the early interests involved in developing the Prairie region. As a result, water management was cast as a "development" issue rather than one concerned with environmental preservation and/or protection. Most often, when water controversies arose, they were not about whether the Prairie rivers should be developed, but about how the costs and benefits arising from development would be distributed amongst the relevant parties (Worster 1985: Reisner 1993).

Yet as control and beneficial use became widely accepted as the basic goals of water management in the Prairies, the transboundary nature of some of the most important rivers in the region arose as a serious complicating factor. The international border divided agricultural and riparian interests on national grounds, creating political rivalries that threatened to swamp progress towards their mutual water development goals. And at certain critical junctures, local water development issues became highly politicized and escalated into international conflicts involving both federal governments.

An early example of this was the St. Mary's Canal controversy at the start of the 20th century. In 1902, at the behest of agricultural interests along the Milk River, the U.S. Bureau of Reclamation investigated and in 1905 received approval from the U.S. Congress for the construction of a canal to divert water from the St. Mary River to the Milk. However, the Canadian government protested the canal's construction and, after having its protests ignored, threatened retaliation by approving its

own project that would have diverted water from the Milk River back to the St. Mary within Canadian territory (Simonds 1999). In all of this, the mutual interests of farmers and riparians on both sides of the border were overwhelmed by international rivalry and progress in water development was stalled.

All parties gradually came to realize that what was needed was some sort of institution to manage and resolve international disputes of this nature. The controversy over the St. Mary Canal was one of a number of transboundary water disputes which brought the U.S., Canadian, and British governments to the negotiating table, eventually resulting in the IBWT in 1909 (Dreisziger 1981).

The treaty's Article VI specifically addressed the management of the St. Mary and Milk rivers, creating the first international river management regime in the Prairie region. And even more important was the creation of an international forum—the IJC—where transboundary river management disputes could be investigated and settled, and new river management rules could be negotiated. For farmers and riparians on both sides of the border, the creation of the IJC was a major boon as a forum in which international rivalries could be contained and their common interests in water control and beneficial use could be recognized and pursued.

And since its creation, the IJC has promoted the interests of farmers and riparians in river management regimes for the major transboundary Prairie rivers. International rivalries have persisted, sometimes resulting in awkward political compromises, but agricultural and riparian interests have become well entrenched within the international management regimes for both the St. Mary-Milk and the Souris. Three characteristics of these regimes reflect these interests most clearly and are discussed more thoroughly below:

- Inter-jurisdictional water apportionments allow governments to plan their water development and grant private entitlements to agricultural and riparian water users.
- Drought and flood provisions permit modification of the apportionments to ensure that agricultural and riparian water users will be able to cope with extreme water events.
- Intergovernmental river management boards administer the apportionments and head-off disputes.

Inter-jurisdictional water apportionments. The St. Mary's Canal controversy in the early 1900s created uncertainty for irrigators and governments in the St. Mary and Milk basins about the permanence of their water supply. This uncertainty was a major barrier to irrigation development because few people wanted to invest in the construction of irrigation systems without assured water supplies. To help remedy this, one of the main features of Article VI of the IBWT was an apportionment of the waters in question (IBWT, 1909):

> *…the St. Mary and Milk Rivers and their tributaries… are to be treated as one stream for the purposes of irrigation and power, and the waters thereof shall be apportioned equally between the two countries, but in making such equal apportionment more than half may be taken from one river and less than half from the other by either country so as to afford a more beneficial use to each.*

Article VI also recognized that the United States had a prior appropriation of 500 cubic feet per second (or three-quarters of the natural flow) from the Milk River and that Canada had a prior appropriation of 500 cubic feet per second (or three-quarters of the natural flow) from the St. Mary River, reflecting the areas in each country where large-scale irrigation was planned or had already begun (IBWT, 1909). In effect, the two countries agreed to share the St. Mary and Milk Rivers equitably in aggregate, but provided Alberta with a larger, prioritized share of the St. Mary and Montana with a larger, prioritized share of the Milk. This trade-off allowed both jurisdictions to accelerate their irrigation development.

While the apportionment in Article VI created enough water supply certainty to facilitate substantial irrigation expansion, differing interpretations of the apportionment forced the IJC to clarify it shortly after its introduction. The disagreement centered primarily on the locations at which the apportionments should be measured and the protocol for determining how the river would be equally apportioned, after each country's prior appropriation had been met.[1] Starting in 1915, the IJC held a series of hearings on the matter and, in the irrigation seasons of 1918 to 1921, issued provisional orders specifying the water entitlements of each country (Halliday & Faveri 2007:81).

The disagreement on Article VI's interpretation was a critical early test of the legitimacy of the IJC and, for a time, the U.S. government threatened to ignore

any imposed settlement. But the commissioners persevered and engaged local irrigators to determine what apportionment arrangements would suit their needs (Willoughby 1981:28). In October 1921, the Commission issued an order containing a judicious apportionment compromise crafted by accepting the American position on the location of apportionment measurement and the Canadian position on the protocol for equal apportionment (IJC 1921; Halliday and Faveri 2007:81). Despite some continued protests from the Montana government, which brought the issue before the IJC again in 1928, 1930, 1931 and 1932, these apportionment rules prevailed (Willoughby 1981:29). Although fully satisfying no one, the rules have proven adequate to almost everyone, providing international stability and the water supply security needed to facilitate irrigation development in the St. Mary and Milk basins.

In the Souris basin, the issue of water apportionment did not arise until the late 1930s, but international apportionment rules were also put in place at the behest of agricultural and riparian water interests. By the late 1930s, North Dakota had undertaken dam construction and irrigation in its portion of the Souris, while Saskatchewan was only beginning its development. In 1940, the IJC was asked to recommend an international apportionment for the basin. However, the Commission, citing inadequate river flow data, recommended only an interim apportionment that approximated levels of existing water use (Hood 1994:14-19).

Saskatchewan saw this apportionment as detrimental to its interests, because it effectively froze water development at current levels, to the advantage of North Dakota.

> The IJC was a major boon as a forum in which international rivalries could be contained and their common interests in water control and beneficial use could be recognized and pursued.

Consequently, the Saskatchewan government lobbied for, and attained, a new interim apportionment in 1959 that allowed Saskatchewan and North Dakota to each use 50 percent of the natural flow originating within their respective borders while allowing the other 50 percent to pass to their downstream neighbors (Hood 1994:16-19; IJC 1959). Amendments in 1992 and 2000 placed a number of conditions on these apportionments (discussed further below), but this basic 50/50 split remains the defining feature of inter-jurisdictional apportionment on the Souris.

Throughout the Prairie region, inter-jurisdictional river apportionments have been central to water development, providing each jurisdiction with enough security of water supply to facilitate the widespread distribution of private water rights. Beneficial use has been the defining principle of water rights distribution in all five Prairie jurisdictions. There have, however, been substantial inter-jurisdictional differences in water entitlement systems.

In Montana and North Dakota, water rights were distributed primarily through prior appropriation, utilizing the "first in time, first in right" principle. Under the prior appropriation system, anyone who could put a volume of water to beneficial use could claim a right to it, but had to maintain this beneficial use or risk losing this right to a new claimant (Worster 1985:108; Tarlock 2001). The "first in time, first in right" and beneficial use principles were also adopted in the Canadian Prairies, though ownership of all water in the region was vested in the Crown by the *Northwest Irrigation Act* of 1894. As a result, in addition to proving beneficial use, Canadian water rights claimants had to seek government permits in order to formalize their claims (Percy 2005).

Over the intervening decades, all Prairie jurisdictions have modified and added to their initial prior appropriation and prior allocation systems, Saskatchewan and Manitoba making the most radical reforms. And yet the principle of beneficial use has been largely preserved throughout the region and remains a defining feature of the Prairie political economy.

Drought and flood provisions. Apportionment rules contribute greatly to water supply security, but they inherently assume a "normal" level of water flow that can be divided amongst water users. Yet, because water flows in the Prairie region are highly variable, there are many years in which the "normal" level of supply is not available and water users are subjected

to either drought or flooding. Extreme water events, while periodic, are a major threat to the riparian and agricultural water users of the Prairies. It may only take one drought or one flood to put their livelihoods or property in jeopardy. Consequently, the IJC's water management rules in the Prairie region have been supplemented with provisions that modify the apportionments in extreme conditions. These drought and flood provisions are designed to allow agricultural and riparian interests to cope with these conditions until "normal" flows resume.

In addition to providing water security for established users, these drought and flood provisions have had an impact on the political economy of the Prairie region in other ways. They have reduced the level of risk involved in more marginal agricultural and riparian water uses, encouraging their development and facilitating the pursuit of beneficial use of the water resources in the region.

In the St. Mary-Milk Basin, irrigation is the dominant water use and the primary concern of irrigators has been drought protection. In the negotiation of Article VI of the IBWT, it was accepted that the "normal" natural flow of both rivers was around 666 cubic feet per second during the irrigation season. Canada was given a prior appropriation of 500 cubic feet per second on the St. Mary and the United States was given a prior appropriation of 500 cubic feet per second on the Milk; in both cases these apportionments were considered to be three quarters of each river's presumed natural flow (IJC 1921). In low flow periods— when flows were less than 666 cubic feet per second— this apportionment posed the danger that the party with the lesser interest on each river could be partly or entirely deprived of water as the other country exercised its prior appropriation.

The prior appropriations were designed to protect each country's major irrigation areas in the region. However, the few remaining interests left at risk by this arrangement quickly voiced their concerns. The outcry brought about new provisions in the form of the 1921 IJC Order offering drought protection. When flows in either the St. Mary or the Milk drop below the "normal" level of 666 cubic feet per second, the prior appropriations are transformed from three-quarters of natural flow (500 cubic feet per second) to three-quarters of actual flow, which varies depending on the severity of the drought (Halliday and Faveri 2007:81). As a result, at least one-quarter of actual river flows always goes to the non-prioritized jurisdiction on each river, helping irrigators in these jurisdictions survive drought periods until "normal" flows resume.

> Inter-jurisdictional river apportionments have been central to water development, providing each jurisdiction with enough security of water supply to facilitate the widespread distribution of private water rights.

On the Souris River, flooding is at least as great a concern as drought. The international apportionment rules have been modified to protect riparian and agricultural interests from both extremes.

For flood protection, the most significant development has been the construction of the Rafferty and Alameda dams in southern Saskatchewan during the 1980s and early 1990s. Situated in the upper part of the basin, these dams offer flood protection to parts of southern Saskatchewan and northern North Dakota. A main beneficiary is the city of Minot, North Dakota, which had experienced flooding throughout its history, including a catastrophic flood in 1969. In fact, North Dakota stood to benefit so much from the Rafferty and Alameda dams that the United States contributed more than $40 million to their construction (Hood 1994).

However, the dams changed the hydrological context of the existing 50/50 apportionment. Saskatchewan could now lose a significant part of its apportionment through evaporation from the Rafferty and Alameda reservoirs, while doing so for the protection of North Dakota riparians. Accordingly, in 1992, the apportionment rules were modified (IJC 1992):

> *Under certain conditions, a portion of the North Dakota share will be in the form of evaporations from Rafferty*

and Alameda Reservoirs. During years when these conditions occur, the minimum amount of flow actually passed to North Dakota will be forty percent of the natural flow at the Sherwood Crossing.

This new 60/40 apportionment is limited to relatively wet years in which there is both an adequate natural flow at the international border (the Sherwood Crossing) and the level of Lake Darling in North Dakota is at a minimum specified level. A more intricate set of compromises among the governments and users of the Souris is difficult to imagine. Yet the new flood and drought provisions work to ensure that both Saskatchewan and North Dakota riparians enjoy the flood protection of the Rafferty and Alameda dams but that Saskatchewan has the opportunity to build up its water storages in relatively wet years, when the 60/40 apportionment comes into effect. In contrast, during relatively dry years, when they need it most, North Dakota irrigators are assured of their traditional 50 percent share of the Souris.

Intergovernmental river management boards. Intergovernmental river management boards have been crucial to the preservation of these elaborately constructed international water management rules. In shared resources like the Prairie transboundary rivers, the management rules themselves constitute a public good that, although highly valued by many, is inherently vulnerable to the free-riding and defection challenges that characterize all public goods (Ostrom 1990:38-49). These challenges can be particularly acute in an international context where there is no sovereign figure to ensure or enforce compliance (Heinmiller 2007).

The IJC's solution was to create bodies with a mandate to administer established river management rules, monitor rule compliance, and resolve minor disputes. These intergovernmental river management boards are binational in membership and often involve representatives from relevant state and provincial governments, thus establishing informal inter-jurisdictional networks and trust ties that further circumvent the public good problem. Involved as they are in day-to-day apportionment implementation tasks, these intergovernmental authorities have become the face of transboundary river management in the Prairie region and one of the guarantors of the established political economy.

The St. Mary-Milk was one of the first shared basins to have an IJC-created river management body, but its organizational design was somewhat atypical of the many river boards that followed. Its origins can be traced to Article VI of the IBWT which allowed the IJC to direct a designated reclamation officer from the United States and a designated irrigation officer from Canada to work cooperatively in the measurement and apportionment of the St. Mary-Milk waters (IBWT 1909). The responsibilities of these officers were further expanded and elaborated in the 1921 IJC Order (IJC 1921).

No formal management board was created and to this day, the intergovernmental authority on the St. Mary-Milk basin remains known as the "Accredited Officers." Functionally, its role in rule administration and dispute resolution is at least as important—if not more so—as the more formalized IJC boards in other transboundary basins.

In their administrative activities, the Accredited Officers are guided by the "Administrative Measures" which "…form the basis for calculating the natural flow and determining each jurisdiction's performance in meeting the specifications of the Order" (Halliday and Faveri 2007:85). While the Administrative Measures provide a common protocol for apportionment implementation, they also allow the Accredited Officers some latitude to resolve minor issues before they become major disputes. For example, they can resolve differences concerning "balancing periods," the duration of time over which water diversions are measured and accounted for to ensure they are in compliance with apportionment rules. In the St. Mary-Milk basin, the standard balancing period is 15-16 days. Typically, apportionment deficits in one balancing period are made up in the next balancing period, although "this practice has been varied to enhance beneficial use " (Halliday and Faveri 2007:87). In such difficult circumstances, the Accredited Officers have been successful in implementing these types of selective apportionment while maintaining the fundamental integrity of the rules themselves.

In the Souris Basin, IJC river management boards have played a similarly important role in the region's political economy. The first such board was created in 1948 and was known as the International Souris-Red Rivers Engineering Board. This board was mandated "… to report on the use and apportionment of the waters within the Souris, Red, Poplar, and Big Muddy river basins and to develop plans of mutual advantage for these waters" (IJC 2007). However, once a universally accepted

apportionment of the Souris was reached in 1958, the activities of this board were eclipsed somewhat by the new International Souris River Board of Control, which had responsibility for monitoring the apportionment's implementation.

The two boards coexisted for a number of decades until 2002, when all international administrative responsibilities for the Souris were consolidated in the new International Souris River Board. The current board has 10 members, five Canadian and five American, including representatives from the Saskatchewan, Manitoba, and North Dakota governments.

In their various manifestations, all these boards have played a key role in allowing the governments and users of the Souris to put these scarce and highly variable waters to beneficial use. The Souris' interim apportionment rules, for example, establish that flow releases from Canadian dams should be scheduled to approximate natural flow patterns and to allow for "beneficial use" in North Dakota. The Souris River Board is then tasked with the application of these general principles and the reconciliation of any contradictions between them (IJC 1992). Thus far, it has proven quite adept at this task and the fundamental integrity of the Souris apportionment has been maintained.

CHANGING PERCEPTIONS AND PRIORITIES AND THE POTENTIAL IMPACT OF CLIMATE CHANGE

Longevity and stability have been key to the success of the Prairie river management regimes. However, now these institutions' longevity—and the fact that they adhere to the priorities of a much earlier era—may be contributing to an erosion of public support.

Overall, the regimes devised for the St. Mary-Milk and Souris basins have clearly reflected and advanced the development interests of farmers and riparians who were dominant in the Prairie political economy at the time of their creation and for decades afterward. And while these management regimes, and the various state and provincial water entitlement regimes interlinked with them, have fundamentally institutionalized the objectives of control and beneficial use in Prairie water management, the underlying social consensus supporting these objectives has begun to erode.

As the Prairie political economy has evolved, new interests have emerged who do not value control and beneficial use in the same way as irrigators and riparians. Among other things, they have sought to reframe water management priorities to support environmental rather than developmental concerns.

Many of these new interests, which include Aboriginals, environmentalists, and recreational fishers and boaters, among others, value the Prairie rivers in their natural state and reject the premise that control and beneficial use should be the primary objectives of Prairie water management. Since the late 1960s, this group of interests has steadily gained in size, organization, and political influence, staunchly—if not always successfully—resisting attempts to expand control and beneficial use through further dam construction. The substantial and protracted resistance to the construction of the Garrison Diversion in North Dakota, the Oldman Dam in Alberta, and the Rafferty and Alameda dams in Saskatchewan are vivid illustrations of this bloc's concerns and attempts to influence water management in the region (Reisner 1993:187-93; Glenn 1999; Hood 1994).

As Aboriginals, environmentalists, and recreationalists have tried to recast Prairie water management according to environmental priorities, they have come up against

> "As the Prairie political economy has evolved, new interests have sought to reframe water management priorities to support environmental rather than developmental concerns.

an institutionally entrenched status quo defended by powerful vested interests. While some issues have been reframed successfully, major institutional reforms have been relatively rare. When environmental reforms have taken place, they have generally been in the form of "add-ons" to existing institutions. For instance, some minimum streamflows have been established and fish and wildlife protections have been introduced, but they have been added to institutions still fundamentally designed to achieve control and beneficial use.

The accommodation of recent environmental protection measures with longstanding rules geared toward development remains awkward and incomplete within most Prairie water management institutions, including the transboundary river management regimes. For example, in the Souris basin, amendments enacted in 2000 now provide greater consideration and protection for the water needs of important fish and wildlife refuges in North Dakota. However, the essential elements of the apportionment remain unaltered and "beneficial use" remains one of the guiding principles for flow releases (IJC 2000).

One of the greatest challenges in the current Prairie political economy is the need to accommodate the more recent water management goals of environmental protection and preservation within the existing framework of institutionalized water management goals favoring control and beneficial use. The outcome of this political, conflictual, and incremental process will shape the Prairie political economy—in good ways or bad—for the next century or longer.

The ecological context for this debate has also changed significantly in recent years. The onset of global climate change—and urgency in forestalling that change—have become widely accepted and scientists have begun to work out exactly how climate change is likely to impact the Prairie region.

Prairie transboundary waters and climate Change. After a century of management under the principles of control and beneficial use, many Prairie rivers have now reached a point of full allocation. Full allocation means that regulators have judged a river can support no additional consumptive use and, in some cases, the issuance of new water entitlements has been frozen. Along the transboundary region, full allocation has been reached in the Alberta portions of the Belly, Waterton, and St. Mary rivers, where "applications for any new allocation licenses are no longer being accepted" (Alberta Environment 2003:5). A similar situation exists on the Milk River, which the Montana government has closed to further development.

> "Major institutional reforms have been relatively rare and have generally been in the form of "add-ons" to existing institutions.

Even though full allocation was the long-term water management goal of many irrigators and water development enthusiasts in the Prairies, it has proven to be a somewhat precarious state of affairs for both water users and governments. One problem has been the creation of institutionalized periods of water shortage. When full allocation is reached on rivers with variable water flows, as is the case in the Prairies, the inevitable result is shortages during low flow periods. The Alberta government reports that water shortages are evident on the St. Mary River one of every 10 years, on average, and the Montana government reports that shortages are evident on the Milk River on average in six of 10 years (Halliday and Faveri 2007:84).

These persistent and recurring periods of shortage have a disproportionate impact on low-priority entitlement holders, and are therefore systematically creating disadvantaged groups who in turn are demanding more secure shares of scarce resources. This is true both domestically and internationally. Already there is evidence of substantial international discontent with the IJC river management regime for the St. Mary and Milk rivers, due, in large part, to recurring water shortages.

In 2003, Montana Governor Judy Martz began a campaign to have the IJC re-evaluate its 1921 Order for the St. Mary-Milk claiming that "…the Order does not equally divide the waters of the two river basins, that circumstances today are different than before 1921, and that improvements are required to the administrative procedures that implement the Order" (Halliday and Faveri 2007:82). The IJC held public hearings in

response to the matter in July 2004. Despite substantial public input from a wide variety of individuals and interest groups, no major changes to the Order or the Administrative Measures have yet been forthcoming (Halliday and Faveri 2007:82–87).

Environmental degradation is yet another consequence of full allocation. Recurring water shortages are a fact of life under of full allocation, and these shortages not only have an adverse impact on low-priority entitlement holders, but also on the environment, which frequently is given the lowest priority of all. Prolonged water shortages can significantly damage riverine environments, destroying fish, fowl, and wildlife habitat and increasing the concentration of water pollutants.

For irrigators and other riparians, dam storages and releases can be used to mitigate low flow periods. However, most dams create water flow patterns that are much different than would exist in a natural state. Furthermore, the interruption and manipulation of natural flows creates its own set of environmental problems, including river channelization, interrupted fish spawning, and loss of native flora and fauna. Thus, even the existing efforts to mitigate recurring water shortages come at a substantial environmental cost.

The environmental damage wrought by full allocation in the Prairie transboundary rivers is evident in recent assessments by the U.S. Environmental Protection Agency (EPA). These data have been summarized in Table 1. Of the 23 river branches in the St. Mary-Milk and Souris basins assessed by the EPA in 2004, nine were designated as "good," six were designated as "threatened," and eight were designated as already "impaired" (Environmental Protection Agency 2004).

In this EPA study, a "good" assessment means the river branch supports all existing water uses, a "threatened" branch has water quality that supports existing uses but is declining, and "impaired" river branches are those whose water quality does not support one (or more) water uses. Between the two basins, the St. Mary-Milk was judged to be in the worst shape,

TABLE 1: EPA Assessments of Environmental Health for Major Prairie Transboundary Rivers (2004)[2]

RIVER	NUMBER OF RIVER BRANCHES	GOOD BRANCHES	THREATENED BRANCHES	IMPAIRED BRANCHES	BRANCHES NOT ASSESSED
St. Mary River	1	0	0	1	0
Upper Milk	3	1	0	1	1
Lower Milk	6	0	0	3	3
Upper Souris	17	5	3	1	8
Lower Souris	23	3	3	2	15
TOTALS	50	9	6	8	27

Source: Environmental Protection Agency 2004

Given that full allocation has placed the Prairie political economy in a precarious position of recurring water shortages and environmental degradation, it is not unreasonable to speculate that within the context of global climate change, this same political economy may become completely untenable.

which is not surprising given the higher level of irrigation development in the St. Mary-Milk and the state of full allocation that exists in much of this basin.

Most climate change models predict that as global warming accelerates, precipitation patterns will change and overall river flows will decline in the Prairie region. For instance, higher winter temperatures are predicted to cause more winter precipitation to fall as rain, rather than snow. And that would be highly problematic for farmers because much of the water will run off during the winter months when it can not be used, rather than remain as snowpack to feed the Prairie rivers during the spring melt, as now occurs naturally.

There also is concern that some of the Prairie rivers with sources in the Rocky Mountains, such as the St. Mary, will experience a long-term decline in river flows due to melting glaciers and reduced winter snows. Correspondingly higher summer temperatures, while increasing the potential growing season, will also increase evaporation rates, creating more demand for water just at the time when available water supplies are likely to be in decline (Bruce et al. 2003:19-28; Barnett, Adam and Lettenmair 2005:305). In summary, the median water supply on the Prairies is expected to decline as a result of climate change and the current state of full allocation may become a future state of severe over-allocation, even with no further growth in water allocations.

> "Recurring water shortages are a fact of life under full allocation, and can significantly damage riverine environments, destroying fish, fowl, and wildlife habitat and increasing the concentration of water pollutants.

THE NEXT CENTURY OF TRANSBOUNDARY WATER MANAGEMENT IN THE PRAIRIE REGION

The emerging question for Prairie water management is whether—and how—the current water management regimes, including the transboundary regimes, can be adapted to the changing climate. Growing pressures for such reform have already become evident in Montana's recent insistence on a review of the 1921 IJC Order. But the growing need for reform does not guarantee it will be initiated or meet with success. There are many political hurdles in the way of any major international reform effort.

The obstacles facing reform can be viewed more clearly using Paul Pierson's analysis of institutional resilience (Pierson 2004:142-153). Pierson argues that efforts to reform established institutions are often prompted by their dysfunctional effects, as seems to be true in this case with the recurrent shortages to low-priority users and the environmental degradation that has occurred.

General recognition of an institution's dysfunctions, however, is not sufficient to secure its reform because established institutions tend to be resilient. The three main sources of institutional resilience identified by Pierson include coordination problems, veto points, and asset specificity and positive feedback (Pierson 2004:142-153). Any one of these is enough to make an institution resistant to reform. The institutions of Prairie transboundary water governance exhibit all three, making them particularly resilient despite increasing evidence of the need for reform. These concepts are examined in more detail below.

Coordination problems. From a collective action perspective, institutions are highly valued because they serve as mechanisms for resolving difficult coordination problems amongst actors. This is the case with the Prairie

transboundary river management regimes which were created decades ago to overcome coordination problems in water development. Because the coordination problems of water development will remain, and probably intensify, with the onset of climate change, governments may be very reluctant to abandon tried and true institutions for addressing these problems, even if they are contributing to water shortages and environmental degradation. These negative effects may be discounted and subordinated to the overriding goal of maintaining predictable and stable international coordination, which is a key objective in itself for many governmental and private interests. In other words, the current transboundary regimes may be maintained simply as a means of ensuring stability and comity in Prairie water management, notwithstanding the negative economic and environmental effects these regimes may have.

Multiple veto points. Even if the region's governments are willing to take a chance on new transboundary water management regimes that are more effective in the context of climate change, the presence of multiple veto points in the institutional reform process contributes to the difficulty of achieving institutional reforms. "Veto points" refer to actors within an institutional reform process who have the authority to block and reject reform proposals. Based largely on the work of George Tsbelis (1995), it is now widely recognized that the more veto points that exist within a reform process, the less likely it is that reforms will occur.

Multiple veto points also increase the probability that any successful reforms will be watered down to the lowest common denominator of the various interests controlling them, thus hampering their effectiveness. To reform the Prairie transboundary water governance regimes, reform proposals must pass through a number of veto points, most notably the IJC, and both the U.S. and Canadian governments, with all the concomitant veto points internal to each of these. Clearly there are ample opportunities for those disaffected by a proposed reform to block it and any reform proposal that makes it through all of these veto points is unlikely to move far from the institutional status quo.

Asset specificity and positive feedback. The governments and private interests in the Prairie region have invested heavily in infrastructural and organizational assets that are specific to the current transboundary water management regimes. These investments, in themselves, provide substantial positive feedback that helps to perpetuate the current regimes.

One has only to look at the existing infrastructure of dams, canals, and irrigation along Prairie transboundary rivers to realize that a massive public and private investment has been devoted to constructing these very valuable and specific assets connected to water development. The farmers and riparians who benefit from this infrastructure, the public servants who maintain and manage it, and the politicians who have built careers on its construction all receive substantial positive feedback from its continued existence.

Institutional reforms to address climate change could present a threat to some of these investments by posing the risk they could become stranded or lost in a new regime that seeks to roll back water use or restore natural river flows. So, despite growing recognition of the dysfunctions of the current water management regimes, many public and private interests are so heavily invested in them, politically and financially, that it is very difficult for these actors to contemplate major reforms.

Overall, the Prairie transboundary water management regimes' capacity for institutional resilience suggests that institutional change, if it occurs at all, is most likely to be incremental and reactive. Given the investments that water development interests have made in these regimes and their desire to manage coordination problems peaceably, these interests can reasonably be expected to have a conservative approach. This orientation, combined with their access to many veto points, means that institutional reforms are unlikely to stray far from the development-friendly status quo.

The actors involved in this situation—including the IJC and the U.S. and Canadian governments—are unlikely to pursue institutional reforms until the need for such reforms becomes clear and compelling. Reforms to address climate change are most likely to be reactive rather than proactive. A key question which remains unanswered is whether these reactive institutional changes will be able to keep pace with the changing climate. If climate changes outpace institutional changes, severe environmental, economic, and social dislocation may be the result.

An incremental and reactive response to the threat, one that may or may not prove adequate to the looming situation, is the most likely scenario. However, a more dramatic transformation of current water man-

agement regimes is not unthinkable. The likely impetus for rapid change would be some kind of environmental calamity, such as a prolonged drought or a severely degraded river. Such disasters can serve as "focusing events" that re-frame governance issues and serve to sway the status quo by destabilizing resilient institutions.

Conceivably, a major environmental crisis could re-frame Prairie water management from developmental terms to environmental terms, opening up a wide range of institutional reform options quite different from the status quo. Unfortunately, such dramatic institutional change would come at a potentially high environmental, economic, and social cost.

CONCLUSION

Almost a century after the creation of the IBWT, the IJC and its international river management regimes in the Prairie region are entering a period of challenge and uncertainty. For decades, these regimes have been an integral part of the Prairie political economy, serving the interests of farmers and riparians and facilitating water control and beneficial use on a massive scale.

Full allocation on many Prairie rivers, while a tribute to the success and achievement of water management objectives put in place a century ago, has more recently revealed vulnerabilities in this region's political economy. Sectors of this economy have become victims to recurring problems of water shortages and environmental degradation. Already a threat under current climate conditions, these problems could undermine the political economy under a warming climate trend. The threat of global warming that has been endorsed by all major governments presents unprecedented challenges that risk completely overwhelming current Prairie river management schemes.

In the next few decades, the major challenge facing the IJC and its partner governments in the Prairie region will be to adapt their international river management regimes to the imperatives of climate change. However, the challenges involved with reforming these regimes are formidable. The many vested interests benefiting from the current regimes have a considerable number of veto points at their disposal to block the reform process or render it ineffectual. The fact that the existing regimes have undergone relatively few reforms since their creation, despite the emergence of the environmentalist movement and various new water users who have pressured for reform, is evidence of how resilient these institutions have been in the past.

Institutions such as the IJC and the transboundary Prairie river authorities it has spawned are valued for their durability. They brought perceived problems under control and are widely credited with contributing to a flourishing political economy in the region. However, their same durability can seriously undermine needed change and lead to the erosion of regional stability and institutional legitimacy. It will be up to the partner governments in the Prairies to figure out how to resolve this institutional paradox if the IJC is to continue to have a meaningful role in the management of the Prairie transboundary rivers over the next century.

NOTES

1. More specifically, the United States argued that the apportionment should be measured at the border while Canada argued that it should be measured upstream, near the rivers' sources. This was relevant because an upstream apportionment would have provided Canada with a larger share of waters originating in the United States, particularly on the Milk. On the other issue, there was agreement that Canada had a prior appropriation of 500 cubic feet per second on the St. Mary and the United States had a prior appropriation of 500 cubic feet per second on the Milk, but there was disagreement on how to operationalize the "equal apportionment" of the waters in excess of these prior appropriations. While Canada felt that all waters in excess of the prior appropriations should be divided equally between the two countries, the United States felt that the non-prioritized country

should get the next 500 cubic feet per second, then the remaining waters should be divided equally. Native water rights in Montana were also a concern in relation to Article VI, but were not a major issue in the IJC proceedings. (See Halliday & Faveri 2007:80).

2. (In the EPA assessments, "impaired" river branches have water quality conditions that do not support one (or more) water uses, "threatened" river branches have water quality that supports all existing water uses but is in decline, and "good" river branches fully support all existing water uses. The EPA assessments are based on data provided by the state governments. (See EPA 2004a; EPA 2004b) Alberta Environment. South Saskatchewan River Basin Water Allocation. Alberta Environment, 2003.

Barnett, J.P., J.C. Adam, and D.P. Lettenmair. "Potential Impacts of a Warming Climate on Water Availability in Snow-Dominated Regions." Nature 438 (November, 17 2005):303-09.

REFERENCES

Bruce, J.P. et al. "Climate Change Impacts on Boundary and Transboundary Water Management." A Climate Change Action Fund Project. Natural Resources Canada, 30 June 2003.

Dreisziger, N.F. "Dreams and Disappointments." In The International Joint Commission Seventy Years On, edited by Robert Spencer, John Kirton, and Kim Richard Nossal, 8-23. Toronto: Centre for International Studies, 1981.

Environmental Protection Agency. Assessment Data for the State of Montana 2004. 2004. National Assessment Database. http://oaspub.epa.gov/tmdl/w305b_report_v4.state?p_state=MT&p_cycle=2004. Accessed 12 January 2008.

———. Assessment Data for the State of North Dakota 2004. 2004. National Assessment Database. http://iaspub.epa.gov/tmdl/w305b_report_v4.state?p_state=ND&p_cycle=2004. Accessed 12 January 2008.

Glenn, Jack. Once Upon an Oldman: Special Interest Politics and the Oldman River Dam. Vancouver: UBC Press, 1999.

Halliday, R., and G. Faveri. "The St. Mary and Milk Rivers: The 1921 Order Revisited." Canadian Water Resources Journal 32, no. 1 (2007):75-92.

Heinmiller, B. Timothy. "Do Intergovernmental Institutions Matter? The Case of Water Diversion Regulation in the Great Lakes Basin." Governance 20, no. 4 (2007):655-674.

Hood, George N. Against the Flow - Rafferty-Alameda and the Politics of the Environment. Saskatoon: Fifth House Publishers, 1994.

International Joint Commission. "1959 Interim Measures." 1959. http://www.ijc.org/conseil_board/souris_river/en/souris_mandate_mandat.htm. Accessed 15 January 2008.

———. "Interim Measures as Modified in 1992." 1992. http://www.ijc.org/conseil_board/souris_river/en/souris_mandate_mandat.htm. Accessed 15 January 2008.

———. "December 2000 Amendment to the Agreement Between Canada and the United States for the Water Supply and Flood Control of the Souris River Basin." 2000. http://www.ijc.org/conseil_board/souris_river/en/souris_mandate_mandat.htm. Accessed 15 January 2008.

———. In the Matter of the Measurement and Apportionment of the Waters of the St. Mary and Milk Rivers and their Tributaries in the United States and Canada, (1921).

———. International Souris River Board - Background Information. 12 May 2007. http://www.ijc.org/conseil_board/souris_river/en/souris_home_accueil.htm. Accessed 15 January 2008.

Jordan, F.J.E. "The International Joint Commission and Canada-United States Boundary Relations." In Canadian Perspectives on International Law and Organization, edited by R. MacDonald, G. Morris, and D. Johnston, 522-43. Toronto: University of Toronto Press, 1974.

Matthews, Geoffrey J., and Robert Morrow, Jr. Canada and the World - An Atlas Resource. Scarborough: Prentice-Hall, 1985.

North Dakota Water Conservation Commission and State Engineer of North Dakota. Third Biennial Report of the State Water Conservation Commission and the Twentieth Biennial Report of the State Engineer of North Dakota (1942).

Ostrom, Elinor. Governing the Commons. Cambridge: Cambridge University Press, 1990.

Percy, David R. "Responding to Water Scarcity in Western Canada." Texas Law Review 83 (2005):2091-107.

Pierson, Paul. Politics in Time - History, Institutions, and Social Analysis. Princeton: Princeton University Press, 2004.

Reisner, Marc. Cadillac Desert - The American West and Its Disappearing Water. 1986. 2d ed. Vancouver: Douglas & McIntyre, 1993.

Simonds, William Joe. "The Milk River Project." In Bureau of Reclamation History Program. 1999. http://www.ubr.gov/dataweb/html/milkrive.html. Accessed 22 January 2008.

Tarlock, A. Dan. "The Future of Prior Appropriation in the New West." Natural Resources Journal 41 (Fall 2001):769-93.

Treaty Between the United States and Great Britain Relating to Boundary Waters, and Questions Arising Between the United States and Canada. 1909. http://www.ijc.org/agree/water.html. Accessed 12 December 2002.

Tsebelis, George. "Decision Making in Political Systems: Veto Players in Presidentialism, Parliamentarism, Multicameralism and Multipartyism." British Journal of Political Science 25 (1995):289-325.

Willoughby, William R. "Expectations and Experience." In The International Joint Commission Seventy Years On, edited by Robert Spencer, John Kirton, and Kim Richard Nossal, 24-42. Toronto: Centre for International Studies, 1981.

Worster, Donald. Rivers of Empire - Water, Aridity and the Growth of the American West. New York: Oxford University Press, 1985.

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Environmental Cross-Border Regions and the Canada-U.S. Relationship: Building from the Bottom Up in the Second Century?

DEBORA L. VANNIJNATTEN

A century ago, the United States and Canada embarked on joint environmental governance when they signed the Boundary Waters Treaty of 1909. Yet as both countries enter a second century of shared environmental challenges, there is little policymaking apparatus at the federal level to address ever more pressing threats. Instead, hope for environmental solutions, once directed at higher level federal and international authorities, is being directed downwards. One mechanism for carrying out such change is a "cross-border region" (CBR), or assemblage of local, regional, state, and provincial entities who, on the basis of shared ecosystems as well as other cultural, economic, historic, and location factors, are motivated to jointly pursue environmental change or preservation. This article reviews four CBRs operating along the U.S.-Canadian border and concludes that they are capable of having meaningful impact on environmental policies and outcomes. However, differences and asymmetries among CBRs render them less cohesive and directed than they might be. Environmental CBRs, as a model, offer the best prospect of becoming "hubs" for environmental cooperation between the United States and Canada but need help from federal authorities in the form of concrete support and resources.

The United States and Canada are now moving into their second century of bilateral governance of shared environmental challenges. And unfortunately, while those challenges are growing, the tools for addressing them are not. In recent years, close observers of Canada-U.S. relations have seen relatively little that is new at the federal level in the way of joint environmental initiatives.

The first century of joint governance was launched when the International Boundary Waters Treaty (IBWT) was enacted in 1909. Article IV of the Treaty included a statement that "waters shall not be polluted on one side of the border to an extent that causes harm to health or property on the other," and it was on the strength of this clause that a complex set of institutions, capped by the International Joint Commission, was established to manage shared waters all along the 49th Parallel. Over time, specific agreements with respect to Great Lakes waters and air pollution were also put in place, and the IJC was joined by other bilateral institutions such as the Canada-U.S. Air Quality Committee.

However, while these bilateral environmental institutions have in many cases served as stable mediators for narrowly defined environmental problems, broader sustainability objectives have become mired in politics and the sensitivities of diplomacy. Moreover, national governments in Canada and the United States backed off environmental policy-making beginning in the early 1990s due to resource constraints, a perceived lack of political pay-off, or both. In the post-9/11 era, environmental issues fell even further behind other policy priorities.

As a result, by the mid-1990s, many environmental observers were looking not to national actors to lead the charge to avert further environmental degradation, but rather to an entirely different set of political actors at the continental level. It was hoped that the establishment of the trilateral North American Commission for Environmental Cooperation (CEC) would lead to the development of a continental environmental regime that would encourage, even push, national governments to act. However, these hopes remain largely unfulfilled; a lack of resources and political interference by participating governments placed real limits on the role that the CEC can play.

It is on this Canada-U.S. environmental policy-making stage, populated with many supporting but few lead actors, that subnational governments, particularly northern-tier and western states and to a lesser extent Canadian provinces, have quietly adopted central roles. Case study work over the past decade indicates that subnational governments, often acting through cross-border cooperative mechanisms, have been the primary locus of environmental policy initiatives and innovations to address transboundary problems (see for example: Rabe 2004 and VanNijnatten 2005).

The evidence shows that subnational (e.g., state and provincial) cross-border interactions have become more formalized, increasingly multilateral or regional in orientation, and more ambitious in terms of the projects undertaken (Alley 1998; Alper 1997; Alper 2003; Hildebrand, Pebbles and Fraser 2002; Springer 2002; VanNijnatten 2006c). Hope for environmental solutions that was once directed at the IJC and then the CEC is now being directed downward, to the subnational level.

KEY TO ABBREVIATIONS

CBR	Cross-border region
CEC	Commission for Environmental Cooperation of North America
GHG	Greenhouse gases
IBWT	International Boundary Waters Treaty
IJC	International Joint Commission
NEG/ECP	Conference of New England Governors/Eastern Canadian Premiers
PNWER	Pacific NorthWest Economic Region
PRI	Policy Research Initiative
PTP	Powering the Plains initiative
RGGI	Regional Greenhouse Gas Initiative
WCI	Western Climate Initiative

> "Sustainability objectives have become mired in politics and the sensitivities of diplomacy.

The increased presence of subnational governments on the environmental policy-making scene suggests that it might be possible to reconstruct the Canada-U.S. environmental relationship from the "bottom up," recasting it according to a subnational model of cross-border regions (CBRs) rather than remaining solely focused on bilateral (i.e., nation-to-nation) entities.

This proposition raises several empirical questions. First, does this structure exist, i.e., does the U.S.-Canadian border comprise a series of environmental CBRs with distinct boundaries? Are U.S. states and Canadian provinces gathering more closely together in such a way that these jurisdictions can be considered regional clusters, linked together not only by geography but also by perception and networks? Second, if environmental CBRs exist, are they capable of autonomous action by means of articulating and acting on regional goals through joint institutions? Third, are they capable of having a meaningful impact on environmental policy goals, on the instruments chosen to achieve these goals (i.e., employing regulation, exhortation, or the market) and, perhaps most importantly, on outcomes? Finally and fundamentally, what are the prospects for achieving effective environmental policy from the bottom up as we move into the second century of Canada-U.S. environmental governance?

Combining insights gleaned from the author's own research on state-province environmental linkages,[1] as well as the *Leader Survey on the Emergence of Cross-Border Regions*[2] carried out by the Policy Research Initiative of

the Government of Canada, this paper attempts to answer these important questions. First, distinct environmental CBRs are indeed emerging on the Canada-U.S. border, although the boundaries of these regions are flexible and often issue specific. Second, these regions are capable of autonomous action, but significant asymmetries exist in terms of institutional maturity and functional capacity. Finally, environmental CBRs are having some impact in terms of policy goals and instrument choice but it is not yet clear whether the results are "meaningful" with respect to environmental outcomes.

ARE THERE DISTINCT ENVIRONMENTAL CROSS-BORDER REGIONS?

Ecological attributes provide the most obvious means of defining the boundaries of environmental CBRs. On the Canadian side of the border, an "Ecological Framework" has been adopted for official purposes and can assist in the task of demarking CBRs (Natural Resources Canada 2008). On the American side, however, there is more debate about where to draw ecological boundaries, and less standardization in terms of ecosystem boundaries.[3] And with no formal classification scheme consistently applied, the task of defining environmental CBRs with reference to ecological attributes is not straightforward.

Another approach might be to define environmental CBRs as those regions containing major ecological features, the threats to which provide some kind of impetus for joint action. In the Pacific Northwest, for example, the transboundary relationship is anchored by the Georgia Strait-Puget Sound Basin, spanning the southern coastal reaches of British Columbia and the northwestern areas of Washington state. Moving east, the Cascades and the "Crown of the Continent" (the *montane cordillera* landscape connecting Yellowstone to the Yukon) draws British Columbia, Alberta, and Montana into cooperative relationships.

Next there is the Red River Basin straddling Manitoba, North Dakota, and Minnesota, requiring attention to shared watershed management issues. In the Canada-U.S. heartland, the Great Lakes Basin already serves as the dynamis for considerable cross-border interaction, while Lake Champlain and its associated watershed further east encourage a mutuality of interest between Québec, New York, and Vermont. Finally, at the continent's northeastern edge, the Appalachian landscape and the shared coast and boundary waters, particularly the Gulf of Maine Basin, promote a shared approach to environmental challenges.

Delineating shared ecosystems in this manner has little relevance if they are not recognized as such, especially by residents living and working along the border. So the next step is to look for evidence of agreement on boundaries and ecological attributes of CBRs. Here, recent survey results may prove illustrative (Brunet-Jailly, Clarke and VanNijnatten 2006).

The Policy Research Initiative (PRI), in its Emergence of Cross-Border Regions Project, conducted initial research into interactions along the 49th parallel. The approach was to examine "economic and organizational cooperative linkages" as well as "cultural/values similarity" (Policy Research Initiative 2005: 3). While the research was not designed specifically to accommodate ecological attributes, the PRI found that CBRs are a primarily subnational, regional phenomenon composed of different provinces and states straddling the U.S.-Canada border. Results pointed to the existence of four distinct CBRs: the West, the Prairies-Great Plains, the Great Lakes-Heartland, and the East, with some jurisdictions straddling more than one CBR (Policy Research Initiative 2006: 1).

In order to test their initial findings the PRI then conducted a detailed survey of environmentalists working in leadership roles in a cross-border capacity.[4] Only a small proportion of survey respondents actually worked in the environmental field, but subsequent to the survey, follow-up interviews were conducted by this author with individuals who had completed the survey and were also leaders in environmental transborder organizations.

The results of the Leader Survey and interviews provide support for the notion of CBRs and indicate widespread agreement on their key aspects. First, respondents agreed that there *is* such a thing as a CBR, consisting of states and provinces as its basic units. Indeed, no respondent or interviewee specifically questioned the membership of three "core" CBRs consisting of British

Columbia and Washington state in the West, Ontario and the Great Lakes states in the Great Lakes-Heartland, and the New England states, New Brunswick, and Nova Scotia in the East.

There were some differences of opinion about where to draw the boundaries on the outmost edges of some CBRs; for example, does Québec belong in the East or the Great Lakes-Heartland? Based on survey and interview responses, there appear to be transition zones on the periphery of CBRs where the inclusion of specific states or provinces is equivocal. And membership in a CBR not mentioned above, the Prairies-Great Plains CBR, seemed particularly difficult to define.

There was agreement that CBRs should be based at least in part on ecological features and that subnational units containing or adjacent to major ecological features should be included in the core CBR. When asked which factors were most important in defining their CBRs, survey respondents rated shared ecosystems quite highly, more so than cultural similarities or historical links (Table 1). That response was strongest in the Great Lakes, which may reflect the importance of lake ecology in everyday interactions.

Respondents expressed the most support for location factors as a defining feature of CBRs, and this implies some agreement on the importance of shared physical/natural boundaries. Only economic exchanges were more highly rated.

In verbatim comments, many survey respondents (including twice as many Americans as Canadians) as well as all interviewees wanted to see some reference to environmental linkages, natural landscape, or shared geography added to the definition of CBRs. One survey respondent noted, for example, that "the Washington state-British Columbia CBR is tied together by the shared central Columbia River and the Puget Sound/Georgia Basin watershed/airshed." An interviewee from the Great Lakes region stated that "the physical presence of the watershed is key" (Krantzberg interview), while another from the Northeast noted that "the real region is based on ecosystem boundaries" (Tremblay interview).

While all interviewees emphasized shared ecosystems with circumscribed boundaries in their understanding of CBRs, they also observed that a CBR should be defined, in the words of one interviewee, by its "environmental reach," which is less precise than defining the physical boundaries of shared ecosystems and may well extend beyond strict ecological boundaries. As a Great Lakes interviewee explained, "the watershed creates a shared necessity to cooperate" but there is some geographic license in defining the region, depending on the issue under discussion (Krantzberg interview). She noted, for example, that when discussing the problem of invasive species, Québec is considered part of the region, whereas discussions of air pollutant transport tend to shift the borders of the region more toward the Midwest.

TABLE 1: "What factors are important when defining the boundaries of your CBR..." (Policy Research Initiative Leader Survey, 2005-2006)

FACTOR	EAST	GREAT LAKES	PRAIRIES-GREAT PLAINS	WEST
Shared Ecosystems	55%	81%	75%	75%
Locational Factors	79%	95%	100%	89%
Economic Exchanges	76%	95%	100%	89%
Cultural Similarities	28%	14%	8%	17%
Historical Links	52%	43%	42%	26%

A state official in the Northeast, someone who has been actively engaged in transboundary environmental cooperation, observed that "environmental factors define the boundaries of the Northeast region, but I am not only referring to 'shared ecosystems.' Rather, this is a cross-border region which shares an environmental strategy based on the reality of cooperation to deal with shared environmental issues. Shared ecosystems are only part of this reality" (Smith interview).

An interviewee from the Pacific Northwest explained that "bigger is often better" in terms of defining a CBR, as so many environmental issues require a broad coordination of efforts (Trachsel interview). These equivo-

cations suggest that jurisdictions directly bordering a major ecological feature, e.g., a watershed, are at the core of the CBR, while those located on the periphery may be included or not depending on the issue. Speculatively, the challenges to defining a Plains/Prairie CBR may have something to do with the lack of a major ecological feature acting as a focal point.

Still another criterion for determining the boundaries of environmental CBRs is to trace the formal imprint of cross-border governance. This author constructed a database of state-province linkages along the Canada-U.S. border.[5] "Linkage" was defined as follows: mechanisms setting forth procedures and conditions for regularized interactions in a formalized manner by means of jointly signed documentation, incorporation of interactions into jurisdictional operating procedures and budget, or the establishment of identifiable institutions attached to resources and personnel.

In the basic calculation in Table 2, the number of environmental linkages was totaled for each province paired with all border or border-region states.[6]

Ontario has a high number of ties with all eight Great Lakes states, indicating a significant level of clustering in this region. British Columbia shares many linkages with its contiguous northwestern neighbours and also is linked with California and Oregon, indicating another cluster. Indeed, the top ten state-province pairs in terms of the number of environmental linkages are almost exclusively Great Lakes and Pacific Northwest jurisdictions.

The number of environmental linkages between New England jurisdictions and Atlantic provinces is generally lower; however, the Québec-New Brunswick-Nova Scotia-Maine-New Hampshire-Massachusetts grouping suggests another regional cluster. It is noteworthy that, in terms of formal collaborative linkages, there does not appear to be any significant level of clustering among Plains/Prairie jurisdictions.

Table 3 provides data organized by region in two different ways. There is overlap of some states and provinces when determining the boundaries of New England versus the Northeast. The purpose here is to construct an Index of Linkages, which measures the average number of linkages per pair in each region, and to examine this alongside an Index of Bilaterality, which is the ratio of bilateral to multilateral agreements seen within each region.[7] Viewed together, these data provide insight into the degree and nature of transborder institutionalization within environmental CBRs.

TABLE 2: # Linkages per Province-State Pair (Top 20 only)

PAIR	# OF LINKAGES	PAIR	# OF LINKAGES
BC-WA	22	AB-ID	11
ON-MI	17	QC-PA	11
ON-MN	16	ON-IN	11
QC-NY	15	ON-IL	11
ON-NY	13	AB-WA	11
ON-WI	13	BC-MT	11
ON-OH	13	BC-CA	11
BC-ID	13	AB-OR	11
ON-PA	13	QC-ME	10
BC-OR	13	QC-NH	10
QC-VT	12	NS-ME	10
NB-ME	12	NB-NH	10
AB-MT	11	NB-MA	10

Key

AB Alberta
BC British Columbia
CA California
ID Idaho
IL Illinois
IN Indiana
MA Massachusetts
ME Maine
MI Michigan
MN Minnesota
MT Montana
NH New Hampshire
NY New York
NB New Brunswick
NS Nova Scotia
OH Ohio
ON Ontario
OR Oregon
PA Pennsylvania
QC Québec
VT Vermont
WA Washington
WI Wisconsin

As Table 2 indicates, environmental linkages are regionally concentrated—that is, they cluster—in the Pacific Northwest, the Great Lakes, and New England. British Columbia-Washington state have the greatest number of linkages (22), followed by Ontario-Michigan (17), Ontario-Minnesota (16), and Québec-New York (15).

The New England region has a smaller number of agreements and institutions but those linkages, more than in any other region, tend to be multilateral rather than bilateral (i.e., involving more than one other member state or province in the region). The Conference of New England Governors/Eastern Canadian Premiers (NEG/ECP), its Committee on the Environment and its International Committee on Energy, as well as the Gulf of Maine Council on the Marine Environment, and various Northeast forest and fire protection councils, account for much of the cross-border activity.

The broader Northeast bloc shows a greater

tendency toward bilateralism. This can be explained in part by the numerous agreements between Québec and its neighbors. One might argue that there is a Québec-New York-Vermont (Northern New England) subregion, which straddles but is for some purposes distinct from the core New England region.

In the Great Lakes, there is a combination of multilateral and bilateral activity; there are nine mechanisms incorporating all Great Lakes jurisdictions as well as a host of bilateral agreements between Ontario and its neighbors. The extent of these latter agreements tips the balance of the region toward bilateralism. There is also a significant number of bilateral agreements between Manitoba and its neighbors; these jurisdictions might be considered another subregion.

The Prairies/Plains region scores relatively low both in the number of environmental linkages focused on the region and on the index of bilaterality. This does not indicate a high level of multilateralism among Prairie/Plains jurisdictions, however. In examining the database more closely, it would appear that pairs included in the Prairie/Plains region are often drawn into activities involving states in the broader Midwest (e.g., the Association of Midwest Fish and Game Law Enforcement Officers, the Midwest Association of Fish and Wildlife Agencies, the North Central Forest Pest Workshop), the mid-continent states such Colorado, Kansas, Missouri, Nebraska (e.g., the Central Flyway Council), or the broader West (e.g., the Western Association of Fish and Wildlife Agencies).

In the Pacific Northwest, the picture is predominantly one of bilateralism, with the very close British Columbia-Washington relationship at its core. The Northwest has the second highest score on the index of bilaterality and the second highest number of linkages focused on the region. Certainly, there are multilateral mechanisms dealing with coastal environmental management, such as the Pacific States-British Columbia Oil Spill Task Force, and other groups focusing on natural resource management at the regional level, such as the Western Legislative Forestry Task Force and the Western Wildlife Health Cooperative. The Pacific Northwest Economic Region (PNWER) is an umbrella linkage set up by statute to deal with transboundary policy and planning in the region; among its many projects, PNWER deals with a number of environmental/sustainability issues, primarily those relating to energy technology and development. British Columbia and Alberta, in addition to being members of PNWER, are also connected to their southern neighbors by a wide variety of bilateral agreements and institutions.

TABLE 3: Subnational Environmental Linkages by Region

REGION	INDEX OF LINKAGES* (AVG # OF LINKAGES PER POSSIBLE PAIR)	INDEX OF BILATERALITY† (RATIO OF BILATERAL TO MULTILATERAL AGREEMENTS)
New England Provinces: NB, NS, PEI, NL States : NH,VT, ME, MA, CT, RI	**7.1**	**.49**
Northeast Provinces: QB, NB, NS, PEI, NL States : NH,VT, ME, MA, CT, RI, NY, PA	**7.0**	**.77**
Great Lakes Provinces: ON States : NY, PA, OH, MI, IN, IL, WI, MN	**13.25**	**1.05**
Prairies/Plains Provinces: MB, SK, AB States : WI, MN, ND, MT	**5.5**	**.54**
Pacific Northwest Provinces: BC, AB States : WA, OR, ID, CA, AL	**8.5**	**1.24**

* The Index of Linkages is calculated as total linkages divided by the product of the number of provinces in the region multiplied by the number of states in the region.

† The Index of Bilaterality is calculated as the number of bilateral agreements divided by the number of multilateral agreements.

When the three different approaches to setting the boundaries of environmental CBRs—ecological attributes, survey results, and institutional networks—are overlaid upon one another, it becomes clear that CBR definitions and boundaries tend to be firm enough to identify core membership in a region but flexible enough so as to incorporate other relationships depending on the issue.

Three environmental CBRs stand out for being built upon distinct, core clusters of jurisdictions: the *Pacific Northwest* (encompassing British Columbia, Alberta, Washington, Idaho, Oregon, and Montana); the *Great Lakes-Heartland* (including Ontario, Minnesota, Michigan, New York, Illinois, Indiana, Ohio, Wisconsin, Pennsylvania), and *New England* (including Québec and the four Atlantic provinces as well as Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont).

In addition, we can identify three smaller clusters of jurisdictions that straddle core cross-border regions and might be considered sub-regions characterized by networks of bilateral interactions: Québec-Northern New England (New York and Vermont); Manitoba-Minnesota-North Dakota; and, Alberta-Montana-Idaho.

The three core clusters can radiate influence outward to draw in other states and provinces in the subregions or those who lie on the periphery but want to be connected for particular purposes. For example, Québec, New York, and Vermont may be incorporated into broader Northeast environmental efforts or the tentacles of the Northwest may reach out to Alaska and California on selected issues such as coastal management and energy. The Plains/Prairie grouping is not nearly as cohesive as any of the other environmental CBRs and perhaps does not fit the definition of an environmental CBR at all. Rather it is a very loose grouping of jurisdictions that interact bilaterally or are occasionally drawn into the activities of other regions.

ARE ENVIRONMENTAL CROSS-BORDER REGIONS CAPABLE OF AUTONOMOUS ACTION?

A Northeast interviewee expressed the view that, "one of the most important aspects of cross-border cooperation is to have a defined plan with measurable goals/objectives and a timeline—specificity is necessary. This provides a roadmap for cross-border activity and also provides a measure of accountability" (Smith interview).

That person may as well have been describing a set of criteria for determining whether environmental CBRs are capable of autonomous action. Whether environmental CBRs have articulated regional goals—and whether these are "hard" or "soft" goals—are qualifying factors. The maturity and governing capacity of joint institutions also matter. Concepts like horizontal and vertical networks, and the concrete and in-kind supports that are available for achieving any regional goals to which jurisdictions have committed, will come into play and should be taken into consideration when evaluating a CBR's capacity for action.

Goals and accountability. Each of the three core CBRs that have been identified in the last section, the *Pacific Northwest*, *Great Lakes-Heartland*, and *New England* CBRs, has undertaken region-wide initiatives. There are, however, notable differences among the three regions in terms of the applicability and specificity of their goals, as well as accountability measures.

New England CBR. Truly region-wide initiatives, which involve states and provinces on an equal basis, are strongest in the New England region. The Conference of New England Governors/Eastern Canadian Premiers (NEG/ECP), out of successive rounds of multilateral planning and negotiating, created Action Plans for Mercury, Acid Rain, and Climate Change—with provisions applying to all participating jurisdictions. NEG/ECP Action Plan goals feature overall pollution reduction targets (e.g., a 50 percent reduction in mercury pollution by 2003) connected to specific tasks that are intended to achieve these goals (e.g., emission limits for point sources and waste management protocols).

The same approach was taken in successive Gulf of Maine Council Action Plans. These plans are even more detailed, although less focused on targets than on tasks (e.g., "protect and restore marine habitats"). Objectives are tied to work plans that contain dozens of initiatives (e.g., mapping of priority areas, conducting risk analysis for invasive species). In both the Gulf of Maine and NEG/ECP initiatives, progress on action items must be reported to political leaders in the participating jurisdictions on a regular basis. However, goals are not legally binding on participating jurisdictions unless they have been incorporated independently into domestic legisla-

tion, which occurs infrequently and almost exclusively on the U.S. side.

Great Lakes-Heartland CBR. Activities in the Great Lakes tend to be bifurcated. Many initiatives, such as the Aquatic Nuisance Species or Soil Erosion and Sediment Control programs conducted by the Great Lakes Commission, had their origins on the American side of the border as an outgrowth of state-federal cooperation. The role of Canadian jurisdictions is less significant in terms of program initiation. And while such programs contain specific goals, they exist in support of ongoing binational/federal activities rather than being truly initiatory in the sense of the NEG/ECP Action Plans, which fill actual policy gaps where federal authorities have not acted. In terms of accountability, such programs have reporting requirements, as they are funded by state or federal departments and are thus subject to oversight. This accountability does not necessarily promote regional objectives, however.

Truly region-wide initiatives, such as updates to the Great Lakes Water Quality Agreement, traditionally have been the preserve of the two federal governments. However, recently, through an initiative of the Annual Conference of Great Lakes Governors and Premiers, the 1985 Great Lakes Charter was updated (Great Lakes Annex). This agreement may signal movement toward a more broadly based, subnational approach in the future, at least in terms of water management in the basin.[8]

The Annex will put in place new processes for judging water removals on the basis of potential environmental harm and requires that states and provinces institute conservation programs. The Charter cannot be enforced internationally but relies on domestic legislation similar to the NEG/ECP Action Plans. Significantly, however, the Charter contains provisions for legal action in the event that a participating jurisdiction does not implement the agreement or fails to abide by its terms, and this will provide a significant degree of accountability if/when the Charter comes into force. At present, not all jurisdictions have ratified the compact.

Pacific Northwest CBR. There are a number of British Columbia-Washington state agreements covering the Georgia Strait-Puget Sound Basin. The goal is to lay out management actions to be undertaken by participating jurisdictions in order to reduce pollution (e.g., initiatives to reduce emissions from agriculture, industry, and marine vessels).

Specific goals and timelines are generally not a feature of such bilateral agreements and multilateral projects involving all or most jurisdictions in the region tend to be even more informal. Examples include the much-vaunted Hydrogen Highway project, which involves linking the infrastructure for fuel cell cars in individual jurisdictions, and the PNWER Consensus on Water Issues, intended to address the impact of climate change on water resources within the region.

However, the Pacific Northwest environmental CBR has been drawn into climate change programs being pushed by the western U.S. states, and this may signal a turn toward more specific and directed environmental policy efforts, at least in this policy sector. One of these, the Western Climate Initiative (WCI), was launched in February 2007 by the governors of Arizona, California, New Mexico, Oregon, and Washington to develop regional strategies for reducing greenhouse gas (GHG) emissions. Other western states and also western provinces of British Columbia and Manitoba have joined the Initiative.[9] Through WCI, the partners have set an aggregate GHG reduction goal of 15 percent below 2005 levels by 2020 (Western Climate Initiative 2007). A market-based mechanism in the form of an emissions trading scheme is being implemented to help achieve that reduction goal.

Maturity of joint institution. Another indicator of the capacity for autonomous action is the maturity of the joint institutions that have been created in order to carry out cross-border regional goals. Table 4 shows state-province linkages within regions according to the date of establishment[10] and pinpoints the percentage growth in linkages during various time increments as well as the growth overall.

These data are helpful under the premise that "older" environmental cross-border regions, by virtue of their institutional maturity, may have enhanced capacity for autonomous action through more established inter-relationships and more experience dealing with a range of issues. One might also surmise that older linkages, as well-established entities, have better access to funding sources. More recent linkage building may indicate less actual experience in terms of transborder problem solving, a less established architecture of engaging in such problem solving and thus less capacity for follow through.

The New England region experienced early institutionalization; almost half of all the region's linkages, including the multilateral NEG/ECP as well as entities focusing on resource management, air quality and energy issues, were in place prior to 1980. In the NEG/ECP, the New England region has thus had an umbrella organization focused on environmental and sustainability issues for three decades. This may explain the importance of "historical links" that respondents from the region referred to in survey questions. More recently, there has been considerable bilateral activity on the margins to deal with specific environmental and management issues.

In the Great Lakes region, there has been consistent linkage building until recently. A number of linkages include all Great Lakes jurisdictions and have been in place for some time, but seem to be linked informally, such as the Great Lakes Water Use Database. Lacking here is a subnational umbrella organization with a broad mandate, such as the NEG/ECP or PNWER. As noted by a Great Lakes interviewee: "There are too many institutions in the Great Lakes basin… the big question is: who is in charge?" (Krantzberg interview).

On the other side of the continent, the Pacific Northwest region is institutionally "younger." The region experienced a burst of new linkages (10 in all) from 1991 to 95. During that time, British Columbia and Washington state signed an Environmental Cooperation Agreement and established an Environmental Cooperation Council; also PNWER was created and became active in environmental issues. More recently, British Columbia and Alberta have established additional linkages with their contiguous state partners to address air and water pollution as well as energy cooperation.

Table 4: Environmental Linkages by Regionand Time Period

ENVIRONMENTAL	>1980	1980 % of 2005	1981-85	1986-90	1991-95	1996-2000	2000-05	2005
New England	6	50%	1	3	0	0	2	12
Northeast	6	30%	1	6	1	1	5	20
Great Lakes	5	24%	3	4	4	4	1	21
Pacific Northwest	4	19%	1	2	10	2	2	23

Vertical and horizontal governance and integration. Another measure of an environmental CBR's effectiveness is its capability for vertical and horizontal governance, which is key to regional coordination of environmental issues. Work by Anne-Marie Slaughter (2004) indicates that vertical and horizontal transborder networks of officials can build trust and establish the kind of long-term relationships that are necessary for addressing the increasing number of policy problems that reach across state borders.[11]

So another question to explore is whether environmental CBRs have the capability to integrate activities from higher to lower levels of governance across their respective regions. The case study literature indicates that environmental CBR linkages are focused primarily around state-province executive actors and are transgovernmental and transborder in nature, i.e., they involve communication and cooperation between officials in related departments of all participating governments. These interactions and cooperation are typically the byproducts of annual conferences of political leaders, whose outcomes then provide direction to committees of senior-level officials invested with process and management responsibilities and mid-level officials assigned project-specific tasks. Between meetings, further deliberation and communication continue electronically.

Further insights into this question are provided by interviewees, all of whom work full-time with transboundary organizations. In their view, a major difference among environmental CBRs—and one that can perhaps serve as a proxy for their permanence and ability to form and maintain effective relationships—lies in the sophistication of their committee systems. The Great Lakes region has an elaborate system of organi-

zations which operate committees and subcommittees, and these tend to be more permanent and better staffed than their counterparts elsewhere. New England organizations are relatively sophisticated in terms of their committee systems but do not tend to be permanent or well staffed, with the exception of the Gulf of Maine Council. In the Pacific Northwest, committee systems are less elaborate and one jurisdiction often agrees to take on management responsibilities. PNWER is a well-established exception.

In New England, federal-level involvement usually is achieved through formal provisions for "observer status" on committees addressing particular issues or carrying out specific projects. This is true for NEG/ECP committees as well as the Gulf of Maine Council. Often these same observers prove instrumental when project-specific federal funding is sought. New England groups also collaborate with local governments, as seen in projects associated with the NEG/ECP's Mercury and Climate Change Action Plans. The Gulf of Maine Council has a long history of collaborating with local and regional governments.

The federal presence is strongest in the Great Lakes given the presence of the IJC and its associated bodies. This is true both in terms of formal collaboration as well as scientific and technical support. In fact, some observers contend that the federal presence overshadows subnational initiatives and may in some cases be a *barrier* to cooperation in the region. But local governments are also becoming more active in Great Lakes initiatives and undertaking certain multilateral initiatives.

In the Pacific Northwest, collaboration with regional governments, such as the Greater Vancouver Regional District, is fairly routine. Here, too, the federal presence is stronger than in New England. Federal officials often provide funding and in certain cases have been willing to assume project leadership—something that is not seen in the New England region.

There is another question to be considered concerning governance structure and that is whether environmental CBRs have the capacity to integrate activities horizontally across sectors, i.e., to engage and link government, the private sector and citizens in environmental initiatives? This leadership responsibility is still evolving and remains a weaker aspect of environmental CBRs in general. It likely reflects the fact that, as noted above, the main drivers of cross-border regional action tend to be executive department officials.

> "The New England region experienced early institutionalization; almost half of all the region's linkages were in place prior to 1980.

Lack of horizontal integration may also reflect the relative lack of organizational capacity among civic groups within the various environmental CBRs. Yet even in the Great Lakes region, where civic groups are well organized and well connected with the scientific/expert community, the major linkages are dominated by interactions between executive officials.

In New England, the Gulf of Maine Council purports to facilitate horizontal networking. Its website notes that, "We organize conferences and workshops; … raise public awareness about the Gulf; and connect people, organizations, and information" (Gulf of Maine Council website). And, in fact, representatives of civic groups sit on the central Council and also serve on its more than a dozen committees, although they are far outnumbered by government officials. The NEG/ECP, by contrast, is less consultative, interacting more frequently with policy experts than with civic representatives. In the Pacific Northwest, there is a tendency to seek interactions with the private sector over those with civic groups.

Financial structure. Resources are a problem for all environmental CBRs. All regions share a key vulnerability in being reliant on existing departmental or executive branch funds for ongoing management activities and specific projects. It goes without saying that for the executive entities providing funding dollars, the priorities of fulfilling domestic mandates take precedence over transborder projects, particularly in the United States, where there is active legislative oversight.

Being reliant on executive-level funding also renders environmental CBRs susceptible to changes in government in one or more jurisdictions, and a corresponding

lessening of political support and resources for regional projects. Table 6 points to this problem; respondents to the PRI Leader Survey consider "underfunding of initiatives" and "the capacity of cross-border organizations" to be among the most significant obstacles to cross-border cooperation.

TABLE 5: PRI Leader Survey Responses

BARRIERS TO COOPERATION "...TO A GREAT EXTENT"	NE	GL	P-GP	WEST
Different regulatory/ legal systems	45%	24%	67%	42%
Security	45%	38%	50%	56%
Infrastructure conditions	41%	57%	50%	39%
Border crossing conditions	45%	81%	56%	54%
Economic conditions	41%	52%	58%	50%
Political Factors	52%	57%	67%	56%
Capacity of cross-border organization	55%	52%	67%	61%
Underfunding of Initiatives	55%	43%	58%	42%

The majority of project-specific funding is sought from Canadian and American federal departments and even, in some cases, the CEC. The fact that such funding is ad hoc and temporary in nature proves an obstacle to medium- and long-term planning. There is also a real need for funding to support travel and in-person interactions, which all interviewees perceive to be critical for cooperation and project success. As one interviewee from New England noted, "[t]he most important thing that [federal] governments can do to promote the work of CBRs is to provide funding to facilitate the face-to-face interaction that is so critical to successive cross-border projects. Targeted federal funding to support travel costs… is key" (Smith interview).

To summarize with regard to the central question posed in this section, environmental CBRs do show evidence of the capacity for autonomous action. This is true both in terms of regional goal articulation and institutional development of their shared institutions. But there are significant differences and asymmetries among them.

Shared institutions in New England are institutionally mature and regionally integrated, exhibiting the capacity to work vertically and to a lesser extent horizontally through relatively stable committee systems. Also, a higher level of policy ambition is expressed in "hard" goals backed up by concrete timelines and reporting requirements. And while resources are an ongoing problem for all environmental CBRs, the more institutionally mature New England region has had some success in obtaining funding for specific progams.

Many of these same features can be seen in the Great Lakes region. It contains a complex array of organizations, many of which exhibit organizational sophistication and governance capability. Great Lakes linkage mechanisms are horizontally and vertically linked for networking, and have resources at their disposal, especially in terms of federal scientific and technological expertise.

However, the Great Lakes environmental CBR tends to be limited in two major ways. First, the tendency toward bilateralism in the region and the lack of an umbrella organization hamper region-wide ambitions. It is possible that the recent activism of the Annual Conference of Great Lakes Governors and Premiers signals greater subnational regionalism, however. Second, the larger federal presence, both in terms of cross-border linkages and departmental objectives, occupies policy room that might otherwise be available to subnational governments. In particular, the U.S. federal government looms large over the Great Lakes environmental CBR, and this has had an inhibitory effect on its capability for autonomous action.

In the institutionally newer Pacific Northwest Region, initiatives are more management-oriented rather than focusing on specific goals, and the CBR is less institutionally mature. As the major multilateral organization, PNWER is an exception in terms of institutional capacity but still reflects the lack of project specificity. Vertical and horizontal networking are under development, but relationships tend to be strongest with the federal government and the private sector.

DO ENVIRONMENTAL CROSS-BORDER REGIONS HAVE MEANINGFUL POLICY IMPACT?

While environmental CBRs can be shown to exist and are characterized to a varying degree by their ability to articulate and act on regional goals through joint institutions, any estimate of their actual or potential impact on environmental policy is more speculative. There is a marked lack of empirical research in this area. Here it is only possible to set down some initial thoughts on the impact of environmental CBRs based on the policy goals adopted by individual jurisdictions, their policy instrument choices, and actual environmental outcomes.

Policy goals refer to the stated or expected ends of the course of action to which a government has committed. The existence of shared policy goals within environmental CBRs denotes a commitment on the part of participating governments to come together and to cooperate across borders. Joint policy goals signal to the private sector and citizens that their governments acknowledge a problem, they agree that solving the problem requires some form of coordinated action, and they are willing to spend time together discussing the problem in a joint forum. This is not insignificant.

> The fact that project-specific funding is ad hoc and temporary in nature proves an obstacle to medium- and long-term planning.

Most observers would agree that considerably more forceful action by governments is necessary across the full range of environmental problems. To achieve that requires setting more ambitious, long-term goals, employing a wide range of policy instruments to achieve these goals and paying much closer attention to what we are actually achieving in terms of environmental outcomes.

Certainly CBRs have developed commitments to joint environmental policy goals. In the case of climate change policy, for example, the NEG-ECP's *Climate Change Action Plan* commits members to reduce GHG emissions to 1990 levels by 2010, 10 percent below 1990 levels by 2020 and ultimately to decrease emissions to levels that do not pose a threat to the climate. Further west, the Dakotas, Iowa, Minnesota, Manitoba, and Wisconsin have launched a Powering the Plains (PTP) initiative with a consensus agreement to develop regional scenarios for reducing CO_2 emissions 80 percent from 1990 levels by 2050. PTP partners also have committed to developing a regional energy transition roadmap guiding efforts to achieve this long-term goal. In the Pacific Northwest, British Columbia, Washington, Oregon, and California have agreed to individually reduce GHG emissions by 33 percent from current levels by 2020.

Other environmental issues have brought additional commitments to shared goals. For example, reduction in mercury pollution is the focus of another NEG/ECP Action Plan. And, states and provinces in the Great Lakes region, working through the Great Lakes Commission and other collaborative organizations, have adopted common objectives with respect to aquatic nuisance species and coastal wetlands. The Pacific Northwest has spawned joint initiatives addressing transboundary air quality and ecosystem health in the Puget Sound-Georgia Basin area.

By themselves, the existence of shared goals within environmental CBRs may represent a form of progress for environmental policy, particularly in cases where individual jurisdictions have endorsed regional goals as a first step (i.e., they previously had no target), or where jurisdictions have endorsed successively more ambitious goals. For example, Newfoundland, home to some of the largest point sources of atmospheric mercury emissions in Canada, showed little inclination to reduce those emissions prior to participating in the NEG/ECP Mercury Action Plan. As another case in point, British Columbia's target for GHG reductions, now in line with its geographic neighbors, grew considerably more ambitious over time.

Without full case studies, it is difficult to argue that progress in setting policy goals in these specific instances

are due primarily to activities in environmental CBRs; it seems reasonable to propose, however, that these activities have had *some* influence. Pressure to act more urgently or forcefully has, in most cases, originated with U.S. states, not Canadian provinces. States also have been the driving force behind some of the most ambitious CBR initiatives.

For example, it was the commitment by Massachusetts to a "Zero Mercury Strategy" which helped to drive the NEG/ECP's Mercury Action Plan. The Western Climate Initiative (WCI) emerged out of the energies of a group of West Coast states and it was only when the Initiative was up and running that British Columbia and other Canadian provinces became interested. The original impetus for the Great Lakes Charter was concern on the U.S. side among states that there would be major demands on the basin's water resources in the future (International Joint Commission 2000: 4).

When states have met regularly with their Canadian counterparts in environmental forums, they have exerted a form of "peer pressure" on provinces to follow their lead. And the greater sense of urgency across the U.S. border seems to have produced initiatives that are in many cases more ambitious and more stringent than the Canadian status quo.

However, there are a few caveats with regard to shared goals within environmental CBRs. First, the nature of "shared" regional goals requires closer scrutiny. In many cases, where there is a specific goal or target, the target applies region-wide rather than to individual jurisdictions. For example, the WCI partners have set an aggregate GHG reduction goal; their "Statement of Regional Goal" declares that "this regional, economy-wide goal is consistent with the emission goals of WCI partners and does not replace the partners' existing goals (Western Climate Initiative 2007). As a consequence, individual jurisdictional goals can—and do—vary from those that are jointly adopted.

As a second point, goals endorsed in annual meetings of premiers and governors, while laudable and designed to provide some measure of political accountability, do not acquire the force of law—and galvanize implementation action—until they are embedded in legislation. And only rarely has that happened, particularly on the Canadian side.

And finally, sometimes policy goals may not take the form of specific targets related to environmental quality at all, but rather may be more process- or task-oriented, e.g., "protecting habitat" or "improved reporting/monitoring." Such is the case with many of the goals directing activity in the Great Lakes and in bodies such as the Gulf of Maine. Such goals direct participating jurisdictions to perform tasks, but it is not known whether those tasks improve environmental quality to a measurable degree.

There is another conundrum: shared policy goals are not necessarily proximate to the actual depth of commitment to those policy goals on the part of participating governments. The literature is full of examples of environmental agreements whose goals have been endorsed, even formally, but have not been met by participating governments. Kyoto is a recent, high-profile example.

As such, policy instrument choice, which refers to the actual means that governments devise to achieve policy goals, may be a better indicator of the depth of commitment to cross-border cooperation on environmental protection, than policy goals per se. It goes without saying that a willingness to incur the political and material costs associated with regulation, or with taxing environmentally unfriendly behavior, indicates a higher level of commitment on the part of government to environmental protection than does, for example, a voluntary "challenge" issued to industry to change.

Compared with environmental goals, the impact of environmental CBRs on the choice of policy instruments for carrying out those goals is much more indirect. In fact, until very recently, the focus primarily has been on achieving shared goals and then *compatibility* of policy instruments, not generally on the adoption of the *same* policy instruments.

In the early phase of the NEG/ECP Action Plans, the policy instrument choices of American states and Canadian provinces were quite different. States participating in the NEG/ECP Climate Change Action Plan were from the beginning more likely to adopt a range of policy instruments, including regulatory targets for reductions in GHG and tailpipe emissions, alternative energy generation, incentives for energy conservation, and the RGGI emissions trading system for the electricity sector. By contrast, eastern Canadian provinces were more likely to rely on voluntary challenges to reduce emissions, including negotiated nonbinding emissions reductions agreements with industry and public education programs to encourage energy conservation (New England/Eastern Canada Climate Change Report Card Partners 2006: 16-20). There was initially little interest

in regulated emissions reductions, alternative energy mandates, or market-based instruments such as cap-and-trade regimes. Implementation plans for the NEG/ECP's Mercury Action Plan showed a similar trend.

More recently, there are signs of convergence creeping into policy instrument choice, some examples of which are shown below:

- Québec has formulated a comprehensive 2006-2012 Action Plan for climate change that includes a duty on gasoline and fossil fuels, new tailpipe emission standards (on the California model), alternative energy targets, and regulated reduction targets for various industrial sectors.
- In December 2005, Prince Edward Island passed a Renewable Energy Act requiring utilities to acquire at least 15 percent of electrical energy from renewable sources by 2010—with plans to substantially increase this mandate.
- British Columbia has instituted both a cap on emissions and a carbon tax.
- Ontario, Québec, Manitoba, and British Columbia are in the process of joining the state-led WCI and have called on other provinces to take part.

Indeed, Québec Premier Jean Charest has publicly mused that it is only a matter of time before all provinces and territories follow the United States and unite behind a common approach—a cap-and-trade system for GHG emissions (Laghi 2008).

As perhaps another signal of this trend, an empirical case study conducted by this author found that almost a decade after negotiating the NEG/ECP Mercury Action Plan, there is growing convergence among the six New England states and the five eastern Canadian provinces with respect to policy instruments advocated in the plan (VanNijnatten 2006d: 29-30). Among the six New England states, clustering is very much in evidence; all six states have endorsed the reduction target and those states with air emissions sources tagged in the Action Plan (utility boilers, incinerators, etc) have, for the most part, adopted limits more stringent than federal standards. There is also some clustering in terms of mercury-containing product restrictions, disposal objectives, and notification requirements among New England states.

The Atlantic provinces also have endorsed the NEG/ECP target and have adopted some mercury policy instruments that are consistent with the Mercury Action Plan, although they have not been as active as New England states. Instead, Atlantic provinces, like states, have been most active in regulating point sources associated with atmospheric mercury releases, to that end adopting similar disposal and notification requirements.

The implication is that participation in CBR initiatives has not only encouraged provinces and states to adopt more ambitious goals, it has also encouraged provinces to employ regulation as well as alternative (particularly market-based) policy instruments. But more detailed studies are needed in order to definitively ascribe these trends to the influence of environmental CBRs.

> "The original impetus for the Great Lakes Charter was concern on the U.S. side among states that there would be major demands on the basin's water resources in the future.

Finally, beyond goals and instrument choice, of utmost importance to those concerned about transboundary environmental governance is whether CBRs are having a discernible impact on environmental policy outcomes, that is, environmental quality as measured in levels of pollutants in ambient air, water, soil, or plant and animal life. While it is still too early to answer this question, there are a few trends worth noting.

First, while environmental CBRs are a relatively new phenomenon, particularly when compared with bilateral environmental governance, one can already see a greater focus on "results," as expressed in specific goals and objectives relating to environmental quality accompanied by report requirements. For example, the Gulf of Maine Council has resolved to become a more "results-based organization" (Tremblay interview). The NEG/ECP moved from "facilitating" action in its early

years to negotiating action plans with specific targets. The Great Lakes Charter requires its members to evaluate water use on the basis of "environmental harm," although the specific metrics are still being studied and negotiated. The Powering the Plains initiative, which originally consisted of a statement to cooperate, now has incorporated a long-term GHG reduction target. Significantly, such initiatives are increasingly accompanied by reporting requirements.

Various factors might account for this shift. First, programming with more specific targets is more likely to attract federal funding, especially on the U.S. side. And it also appears that where CBR insitutions are stronger and share more specific environmental policy goals, the result is greater success in achieving desired outcomes.

The New England CBR provides the best example of that success. Under the NEG/ECP Mercury Action Plan, participating jurisdictions agreed to undertake 45 pollution reduction actions with respect to point sources, waste management, and public education. Currently it is estimated that the interim goal of a 50 percent reduction by 2003 (from 1998 levels) has been achieved (Smith 2005). Progress on the Climate Change Action Plan has been considerably slower—but even that is only known because of mandatory reporting requirements that are exerting their own form of pressure on governments to take more decisive action, especially on the Canadian side.

CONCLUDING OBSERVATIONS

The observations in this paper are directed towards a premise established in earlier research: that cross-border environmental initiatives between the United States and Canada are to an increasing degree taking place at the subnational level, where interactions have become more formalized, are increasingly multilateral or regional in orientation, and seem more ambitious in terms of the projects undertaken. Hope for environmental solutions that was once directed at the national level, to the IJC and then the CEC, is now being directed downward, to state, provincial, and local governments and environmental policy-making organizations.

The hypothesis, then, is that it might be possible to reconstruct the Canada-U.S. environmental relationship from the "bottom up," recasting it according to a subnational model of environmental CBRs rather than remaining solely focused on bilateral (i.e., nation-to-nation) entities. Addressing this proposition, several questions were explored. First, are there established environmental CBRs functioning along the U.S.-Canadian border? Second, are those environmental CBRs capable of action by means of articulating and acting on regional goals through joint institutions? And last, are they having a meaningful impact on environmental policy making in terms of goals, mechanisms for action, and outcomes?

Without repeating the findings that led to these observations, the empirical evidence presented here suggests that the Canada-U.S. environmental relationship has evolved towards a series of three *developing* environmental CBRs which are *not*, however, equally capable of occupying and operationalizing transboundary policy spaces. While the most advanced of the three, the New England region, appears capable of undertaking coordinated, targeted action on larger policy issues, and has developed the institutional machinery to support these efforts, the Pacific Northwest is at an earlier stage in terms of both institutional and policy development. The third CBR functioning in the Great Lakes area exhibits many of the characteristics of an active, institutionally mature CBR but has experienced difficulties in terms of undertaking

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region-wide initiatives.

Asymmetries among environmental CBRs could pose problems if the shared regime for environmental governance between Canada and the United States is to be reoriented from the "bottom up." As a result, even though cross-border regional cooperation of this subnational nature has encouraged more ambitious policy goals and consideration of a wider range of policy instruments to achieve these goals, there remain serious questions about the prospects of achieving effective environmental governance at subnational hands. Overall, such efforts do not seem to be as cohesive and directed as they might be.

On the positive side, there are encouraging trends toward establishing specific initiatives with measurable goals and objectives, and a horizontal diffusion of influence. As an example, one has only to witness the spread of WCI across the northern and western portions of the continent.

The problem of uneven effort and capacity across regions, paradoxically, suggests a role for federal governments in addressing these asymmetries, for instance by facilitating policy change at the national level in order to foster cross-border project implementation and providing concrete support and resources.

Given current political dynamics, it seems possible that environmental CBRs, as a model of subnational transborder governance, offer the best prospect of becoming "hubs" for future cross-border environmental cooperation between the United States and Canada, albeit with a firmer national backdrop encouraging their institutionalization. Interestingly, on the U.S.-Mexico border, a strong if under-resourced federal framework undergirds a now decentralized, regional approach to cross-border environmental planning and cooperation. It may be that folks on the northern border need to look to their southern counterparts for inspiration.

NOTES

1. The first iteration of the research findings, funded by by the Social Sciences and Humanities Council of Canada, has been published as: Debora L. VanNijnatten, "Towards Cross-Border Environmental Policy Spaces in North America: Province-State Linkages on the Canada-U.S. Border," *AmeriQuests: The Journal of the Center of the Americas* 3 no.1 (2006). Available at: http://ejournals.library.vanderbilt.edu/ameriquests/viewissue.php?id=7

2. The objective of the Policy Research Initiative's "Emergence of Cross-Border Regions" Project was to substantiate the growing significance, scope, and nature of cross-border regional relationships, as well as to investigate the policy implications for the Government of Canada. As one component of this Project, the PRI conducted a survey of U.S. and Canadian leaders in various government jurisdictions, chambers of commerce, cross-border associations, NGOs, and think tanks. This author was an academic advisor on the project.

3. One much-used classification scheme is Bailey's Ecoregions of the United States: U.S. Forest Service, Department of Agriculture, Description of the Ecoregions of the United States. Available at: http://www.fs.fed.us/land/ecosysmgmt/ecoreg1_home.html

4. As part of its *North American Linkages* research project, Policy Research Initiative (Government of Canada) researchers and three university academics (including this author) constructed a detailed 12-page Elite Survey, the purpose of which was to examine the nature of relationships and interactions at the cross-border level. Respondents were surveyed from the four cross-border regions outlined by the PRI and from a range of organizations—provincial-state governments, cities, nongovernmental organizations, think tanks, Chambers of Commerce, regional economic development agencies, and associations. A total of 547 people were contacted and received the survey. One hundred individuals completed the survey, for a response rate of 19%. Surveys were completed between July 20 and October 7, 2005.

5. As a first step in building the database, existing studies were consulted, such as Swanson (1976), Stein and Grenville-Wood (1984), Canada School of Public Service (2004), as well as the CEC Transboundary Agreements Database. Research was then conducted in order to determine whether additional linkages could be discovered. Preliminary lists of linkages—including the name, date of establishment and membership—were then sent to each state and province for verification. Input from state and provincial officials resulted in deletions from the database, as additional linkages were declared inactive. A few additions also resulted from the verification process. Particular conditions were imposed for the inclusion of state-province linkages in the database. First, there must be some form of documentation on the linkage which provides evidence of its existence and nature and, second, states and provinces must be the primary agents of the linkage. The database is current to the end of 2005.

6. Table 2 provides data for all state-province pairs that share at least 10 environmental linkages, out of a total of 200 possible pairs. In addition to states located adjacent to

the border, provinces were also paired with Oregon and California in the West and Massachusetts, Connecticut, and Rhode Island in the Northeast.

7. A score of greater than 1.0 indicates a region in which linkages are relatively more likely to be bilateral while a score of less than 1.0 indicates a greater tendency toward multilateralism in terms of environmental linkages.

8. The newer 2001 Charter Annex actually consists of one agreement between the eight Great Lakes states and another between the states, Ontario, and Québec, although the two agreements are similar in terms of content. Further agreements to implement the Charter's overall goals have also been signed by states and provinces.

9. Other U.S. and Mexican states as well as Canadian provinces have joined as observers, with some moving toward full participant status, including Ontario and Québec.

10. In some cases, we used the date when a linkage became truly cross-border, i.e., a province joined an established inter-state organization.

11. Please note that I use the "horizontal"and "vertical"concepts slightly differently than Slaughter. She refers to horizontal networks as those among national government officials in different countries in their respective issue areas; I extend the horizontal dimension outward to include the private sector and civil society. Slaughter refers to vertical networks as those which tie supranational organizations to domestic governments; I extend the vertical dimension downward to encompass various levels of government—national, subnational, local.

REFERENCES

Alley, J. (1998) "The British Columbia-Washington Environmental Cooperation Council: An Evolving Model of Canada-United States Interjurisdictional Cooperation," pp. 53-71 in R. Kiy and J.D. Wirth, eds., Environmental Management on North America's Borders. College Station, Texas A & M University Press.

Alper, D.K. (1997) "Transboundary Environmental Relations in British Columbia and the Pacific Northwest," The American Review of Canadian Studies - Red, White and Green: Canada-U.S. Environmental Relations, 27, no.3 (Autumn):359-384.

Alper, D.K. (2003) "Emerging Collaborative Frameworks for Environmental Governance in the Georgia Basin/ Puget Sound Ecosystem," Paper presented to the Association of Borderland Studies, April, Las Vegas, Nevada.

Brunet-Jailly, E., S.E. Clarke, and D.L. VanNijnatten. (2006) "I. The Results in Perspective: An Emerging Model of Cross-Border Regional Co-operation in North America" Leader Survey on Canada-US Cross-Border Regions: An Analysis. North American Linkages Working Paper Series 012, Government of Canada, Policy Research Initiative.

Gulf of Maine Council on the Marine Environment. (2008) "About the Council" Available at: http://www.gulfofmaine.org/council/

Hildebrand, L.P., V. Pebbles, and D.A. Fraser. (2002) "Cooperative ecosystem management across the Canada-U.S. border: approaches and experiences of transboundary programs in the Gulf of Maine, Great Lakes and Georgia Basin/Puget Sound." Ocean and Coastal Management 45: 421-457.

International Joint Commission. (2000) Protection of the Waters of the Great Lakes: Final Report to the Governments of Canada and the United States. February.

Laghi, B. (2008) "Ottawa far behind provinces on climate change: report" Globe and Mail Update, July 26.

Natural Resources Canada. (2008) The Atlas of Canada: "Ecological Framework." Available at: http://atlas.nrcan.gc.ca/site/english/maps/environment/ecology/framework/ecologicalframework.

New England/Eastern Canada Climate Change Report Card Partners. (2006) Third Annual Assessment of the Region's Progress Toward Meeting the Goals of the New England Governors/ Eastern Canadian Premiers Climate Change Action Plan of 2001. Available at: http://www.newenglandclimate.org/Scorecard2006.pdf.

Policy Research Initiative (Government of Canada). (2005) The Emergence of Cross-Border Regions: Interim Report. PRI Project: North American Linkages, November 2005.

Policy Research Initiative (Government of Canada). (2006) The Emergence of Cross-Border Regions Between Canada and the United States: Roundtables Synthesis Report. PRI Project: North American Linkages, May 2006.

Rabe, B.G. (2004) Statehouse and Greenhouse: The Emerging Politics of American Climate Change Policy. Washington, D.C.: Brookings Institution Press.

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Slaughter, A-M. (2004) A New World Order. New Jersey: Princeton University Press.

Smith, C.M. (2005) "NEG/ECP Mercury Action Plan: Mercury Management and Retirement Recommendations" PowerPoint Presentation.

Springer, A. (2002) "North American Transjurisdictional Cooperation: The Gulf of Maine Council on the Marine Environment," Canadian-American Public Policy (April). Accessed at: http://www.umaine.edu/canam/PublicPolicyJournal/titles.htm.

VanNijnatten, D.L. (2005) "Mercury Reduction in the United States and Canada: Policy Diffusion Across Internal and International Borders." Paper prepared for the Annual Meeting of the American Political Science Association, Washington, D.C.

VanNijnatten, D.L. (2006a) "Environmental Constituent Regions and the Canada-U.S. Relationship," Paper prepared for the Linnea Terrarum: International Borders Conference, El Paso, Texas.

VanNijnatten, D.L. (2006b) "The Constituent Regions of the Canada-United States Environmental Relationship," in George A. MacLean, ed., Canada and the U.S.: A Relationship at a Crossroads? Centre for Defence and Security Studies, Proceedings of the University of Manitoba Political Science Students Conference, Winnipeg, Manitoba.

VanNijnatten, D.L. (2006c) "Towards Cross-Border Environmental Policy Spaces in North America: Province-State Linkages on the Canada-U.S. Border," AmeriQuests: The Journal of the Center for the Americas 3 no.1.

VanNijnatten, D.L. (2006d) "Mercury Reduction in the Canadian Provinces: Interprovincial vs. Cross-border Policy Diffusion," Paper prepared for the Annual General Meeting of the Canadian Political Science Association, Toronto, Ontario.

VanNijnatten, D.L. (2008) "The North American Context: Canadian Environmental Policy and the Continental Push," in D.L. VanNijnatten and R. Boardman, eds., Canadian Environmental Policy: Prospects for Leadership and Innovation. 3rd ed. Don Mills: Oxford University Press (under review).

Western Climate Initiative. (2007) "Western Climate Initiative Statement of Regional Goal" Press Release: August 22. Available at: http://www.westernclimateinitiative.org/ewebeditpro/items/O104F13006.pdf

INTERVIEWS

Personal interview, Dr. Gail Krantzberg, director, Centre for Engineering and Public Policy, School of Engineering Practice, McMaster University, September 1, 2006 (formerly director, Great Lakes Regional Office).

Phone interview, Michele Tremblay, coordinator, Gulf of Maine Council on the Marine Environment, September 2006.

Phone Interview, C. Mark Smith, co-chair, Mercury Task Force, Conference of New England Governors/Eastern Canadian Premiers, September 2006.

Phone interview, Daymon Trachsel, British Columbia Ministry of Water, Land and Air Protection, September 2006.

The Absence of Governance: Climate Change in Canada and the United States

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Two decades ago, Canada and the United States seemed destined to lead the world's response to climate change. They formally parted ways when deciding whether or not to ratify the Kyoto Protocol, although neither federal government has since formulated significant climate policies. Clusters of American states, many sharing a common border with Canada, have been the most active sources of policy development in either nation. This paper reviews this policy history and further explores continuing factors that deter cross-border collaboration. But it also considers ways in which Canada and the United States might begin to work together, perhaps building on sub-national initiative as well as new engagement from Washington. This analysis includes exploration of possible forms of bi-national collaboration as well as a truly continental strategy that would involve Mexico in partnership with its northern neighbors.

There has been remarkably little formal collaboration between Canada and the United States on the issue of climate change policy, despite a wide range of mechanisms for cross-border engagement on common environmental concerns and a vast body of literature that underscores the threat that climate change poses to both nations. The International Joint Commission (IJC) and the North American Commission for Environmental Cooperation (CEC), as well as non-governmental organizations, have published studies outlining the risks of climate change in both Canada and the United States (IJC 2003; CEC 2002, 2008; National Wildlife Federation 2007). These reports foretell not only the prospect of elevated temperature but also the proliferation of extreme weather events, public health risks due to changing patterns of disease transmission via insects, declining surface water levels, elevated sea levels, and shifts in agricultural productivity.

Future projections for climate change and attendant consequences frame a shared environmental challenge that is daunting in its potential impact, with cascading effects that could influence virtually every other area of environmental governance, from fisheries habitat to availability of drinking water. These findings also

KEY TO ABBREVIATIONS

CEC	Commission for Environmental Cooperation of North America
EU	European Union
ETS	Emissions Trading Scheme (of EU)
FCCC	United Nations Framework Convention of Climate Change
GHG	Greenhouse gases or greenhouse gas emissions
IJC	International Joint Commission
RGGI	Regional Greenhouse Gas Initiative
RPS	Renewable Portfolio Standards
WCI	Western Climate Initiative
WTO	World Trade Organization

confirm the sizable contributions that Canada and the United States make to the global release of greenhouse gases each year. Their per capita rates of emission are among the very highest in the world and when combined the two nations generate more than one quarter of annual global emissions. Given their huge contribution to climate change and the potential for shared consequences, both Canada and the United States clearly need to play a significant role in any serious effort to reduce global emissions. Rather than each country taking stabs at unilateral actions, they may well have more impact by acting together in coordinated fashion or even in expanded partnership with Mexico.

A CONTINENT DIVIDED: CANADA, THE UNITED STATES, AND THE KYOTO PROTOCOL

Climate change is not a new environmental challenge, but it has only relatively recently commanded attention in both Canada and the United States. Twenty years ago, in 1988, former Prime Minister Brian Mulroney heralded the era of global climate governance with a high-profile opening address at the International Conference on the Changing Atmosphere hosted in Toronto. That conference produced a recommendation supported by both Canadian and American governments that global GHG emissions were to be reduced 20 percent by 2005. A few years later, both nations ratified the United Nations Framework Convention on Climate Change (FCCC), calling for national emissions stabilization at 1990 levels by 2000. This step led to the 1997 negotiation of a binding international agreement, the Kyoto Protocol. In this instance, Canada and the United States took remarkably similar positions to the bargaining table and left Kyoto with nearly-identical emission reduction commitments that were supposed to be realized by the end of the current decade.

All of this activity between the late 1980s and late 1990s suggested that climate change essentially would be framed as a challenge of international governance, requiring some formal cooperation among nations through various venues of international diplomacy. Throughout much of this period, both Canada and U.S. officials acknowledged that climate change was a serious threat and demonstrated consistency and compatibility in both their research into the severity of the problem and willingness to engage in joint negotiated solutions. Both countries acknowledged that early experiments in soft environmental law, such as non-binding commitment under the FCCC, produced few if any intended results. The need for some form of hard environmental law established by treaty with formal reduction targets and compliance mechanisms seemed only too apparent.

Some two decades after the Toronto conference and more than a decade after Kyoto, those early steps toward international climate governance measures are now in tatters. Most parties that ratified the Kyoto Protocol, including Canada, are nowhere close to their emission reduction targets set for two years hence. In Canada, where the pledge was to reduce emissions by six percent from 1990 levels, actual emissions soared more than 26 percent between 1990 and 2006. It is commonly recognized that Canada will not begin to approach its Kyoto commitment. Ironically, the United States spurned Kyoto ratification but actually has a rate of emissions growth below that of Canada, nearly 16 percent above 1990 levels by 2006. Part of this differen-

tial, however, can be attributed to increased American import of Canadian energy and manufactured goods, whereby resulting emissions are registered in Canada. Either way, collectively, these two nations demonstrate that the absence of climate governance has produced disturbing performance results. Despite initial hopes, it seems clear that purely voluntary strategies, even when combined with technological advances, are insufficient to reverse past trends or emissions growth.

Even the most steadfast international supporters of Kyoto, such as the European Union (EU), have struggled to meet various national targets in many cases. The EU has faced significant challenges in implementing it own continental emissions trading system, the EU Emissions Trading Scheme (Ellerman, et al. 2008). Other major ratifying nations, such as Australia, Japan, and New Zealand, have also struggled to develop policies and reduce emissions growth. In the meantime, emerging economies such as China and India, which were never bound by Kyoto, have seen extraordinary rates of greenhouse gas emissions growth in recent years. This leaves very few models for effective climate governance or progress toward Kyoto's shared goal of emissions stabilization and reduction.

Hope springs eternal for further international diplomacy and coalescence around taking the next steps. Indeed, the intensified American federal engagement on climate change in the Obama era has renewed interest in this possibility, with the December 2009 international Copenhagen climate meetings an early test case. But the growing reality of climate policy in North America and elsewhere has been a patchwork quilt of state, provincial, local, and regional policies and emission reduction commitments, often leading to formal collaboration between local and regional jurisdictions rather than national governments. Some scholars have asserted that the next generation of climate policy is likely to take this form of "bottom-up" approach involving a mixture of sub-national, national, and multi-national agreements, developed through unique networks or partnerships (Selin and VanDeveer 2009).

Such arrangements are most likely to occur in cases where energy and related resources are shared and natural boundaries emerge for defining collaboration, whether shaped by a regional electricity grid that transcends jurisdictional boundaries or formal compacts among governments with a history of collaboration. This allows considerable opportunity to take advantage of economies of scale and establish governance rules among institutions with prior working relationships and trust. Such a bottom-up approach has precedents in trade and monetary policy, where a gradual move toward cross-national, continental, and, in some instances, international collaboration took into account some degree of regional, national, and even sub-national variation. It clearly reflects a quite different model than that which has dominated international environmental policy and climate change deliberations. In the latter, there has been presumed movement toward expanded international authority over sovereign nations and development of new institutions such as a World Environment Organization (Speth and Haas 2006).

Yet the "bottom-up" approach could prove more practical and create tremendous opportunity for collaboration between Canada and the United States. But the increasing involvement of individual states, provinces, cities, regions, and, in the United States, even the federal government, continues to have an ad hoc quality. There simply is no governance entity currently in operation that could be said to be serving as a model or exerting a major role in promoting Canada-U.S. collaboration on GHG reductions despite potential economies of scale and collaborative opportunities across policy arenas that such a relationship portends. Instead, collective climate governance bringing together Canadian and American entities has thus far been largely non-existent.

This paper purports to underscore the absence of governance on climate change and explore alternative strategies. It begins with a detailed overview of ongoing climate policy development within both nations, placing particular emphasis on relatively high levels of American state and regional policy development in this area when contrasted with Canadian provincial governments. This section will also describe early experimentation with creation of a Western regional zone for carbon emissions trading that links seven states and four provinces in a formal agreement. It then reviews a series of possible collaborative governance options, considering some of the enduring stumbling blocks to such coordinated action. The paper concludes with references to other models around the globe, where neighboring nations have decided to work together on climate change, with particular attention to the cases of Australia and New Zealand as well as the EU.

In light of progress being made in some corners of the world, we will ask why it has proven so hard for

Canada and the United States to find common ground on climate change. Is greater collaboration in the coming decade indeed a possibility? What does the future hold for joint Canadian and American efforts to avert climate change with shared environmental governance? This latter discussion will focus on possible ramifications from the 2008 federal elections in both nations and the February 2009 summit between President Barack Obama and Prime Minister Stephen Harper that broached the possibility of bold new collaborative options on climate change. These more recent developments may trigger new cross-border collaboration. At the same time, they may also give rise to a more fundamental reframing of the issue by expanding the scope to formally involve Mexico and thereby move from a bilateral to a truly North American continental strategy. This of course would raise numerous new issues of governance, perhaps featuring a substantial expansion of the role of the CEC or creation of new institutions.

NATIONAL DIVERGENCE AS A BARRIER TO COLLABORATION

The absence of common engagement by Canada and the United States on climate change may be at least partly attributable to divergence in their respective policy development processes. Kyoto represents a fundamental point of departure between the two countries. A history of fairly unified bargaining in all sessions leading up to Kyoto, on issues such as liberal definition of carbon sinks to allow substantial advantage to heavily-forested areas of Canada and the United States, quickly evaporated after both nations signed the agreement but pursued different ratification routes. In the United States, stiff opposition in the Senate deterred any serious consideration of ratification in the remaining years of the Clinton Administration and remarkably little was said by then-Vice President Al Gore in the 2000 presidential race about his plans for moving toward ratification. The subsequent Bush Administration decision to withdraw the United States from Kyoto in 2001 generated headlines around the world but was largely anticlimactic.

No longer tied to a bilateral bargaining position that was dominated by the United States, Canada had two distinct options (McDougall 2006; Stuart 2007). On the one hand, it could clearly withdraw from Kyoto, citing considerable risks of unilateral implementation given its degree of economic interdependence with the United States. This position was strongly endorsed by many prominent industrial organizations and a clear majority of provinces, led by Alberta. On the other hand, Canada could ratify Kyoto and thereby lay claim to the mantle of North American moral super-power on climate change, using ratification to differentiate itself from the United States and pursue a position more closely allied with the EU. Ultimately, the latter decision was taken, heavily influenced by the desire of outgoing Prime Minister Jean Chretien to leave ratification as one of his primary legacies after decades of public service.

Canadian ratification did not necessarily commit Ottawa to do anything, aside from a dizzying array of voluntary programs and subsidies for alternative energy sources that appear to have had little if any impact on emissions (Jaccard 2007). But treaty endorsement allowed Canada to remain a respected partner in ongoing international negotiations and may actually have bought it some cover for policy inaction for at least the first few years after ratification. Indeed, much of the climate policy community applauded Canadian commitment and willingness to stand apart from the United States, while remaining oblivious or choosing not to comment on Canada's near-total lack of follow-through.

At the same time, Canada's action served to formally weaken potential collaborative ties between it and the United States. Even the trading of emission credits under neighboring cap-and-trade systems, had they been established on both sides of the 49th parallel, might have been rendered meaningless for Canada as trades were only legitimate for Kyoto purposes if conducted with ratifying parties. While Canada's break with the United States on Kyoto did not formally seal its borders to policy cooperation, the rupture certainly chilled any prospects. It has also left provincial Parliaments thrashing for legislative output to demonstrate progress towards Kyoto commitments.

In contrast, American withdrawal from Kyoto earned it opprobrium as a climate scofflaw in Ottawa, Brussels,

and much of the world. The U.S. federal government's prolonged inactivity on climate policy has contributed to this perception. In fact, legislative products with potential climate impact have been quite similar in the United States and Canada. Policies of this type have tended to be larded with distributional subsidies to virtually every generator of energy (low-carbon or otherwise) and voluntary reduction programs. This began to change in December 2007 with U.S. passage of an energy bill that included an increase in mandatory vehicular fuel economy. That step was followed by a flurry of proposals under consideration in the 110th Congress and of course has led to a seeming opening of the federal policy window in 2009 given early pronouncements by the Obama Administration and the 111th Congress. But the overall pattern of disengagement by executive and legislative branches in Washington during this broad period further contributed to a global portrait of American disengagement for collective action related to greenhouse gas emissions. This deflected attention from its northern neighbor, even though Ottawa was pursuing an essentially similar strategy.

Another important point of departure involved very different policy responses below the federal level in both nations. American state governments began in the late 1990s to use their own authority to enact policies designed to reduce greenhouse gases with unanticipated aggressiveness and have only expanded and intensified those efforts in the current decade. This represents another point of American and Canadian divergence, as most provinces have done very little on climate policy throughout this period. Indeed, much provincial climate policy effort has focused on trying to extract various forms of rent in exchange for cooperation with a Canadian federal government encumbered by Kyoto ratification rather than take unilateral policy steps well within their expansive powers over natural resources and environmental protection (Rabe 2007). But as the provinces huffed and puffed about Kyoto and Ottawa, a surprisingly wide collection of states began to act unilaterally or in concert to develop significant new policy initiatives

The burgeoning bottom-up process in the United States involves essentially all imaginable options in the kit box of climate policy tools. Twenty-eight states have enacted renewable portfolio standards (RPS), which mandate a consistent increase in the supply of electricity provided from low-carbon sources. These RPSs now apply to more than 60 percent of the American population and are under active consideration in many additional states; they serve as a principal driver behind substantial growth in new renewable energy capacity in the United States in recent years. In turn, 23 states have made formal commitment to a carbon trading program that would essentially parallel the EU ETS. This includes 10 Northeastern states that comprise the Regional Greenhouse Gas Initiative (RGGI), which became the world's first carbon trading program to auction all of its allowances in late 2008. At the same time, California has attempted to use its powers to request a waiver under federal clean air legislation to implement its own legislation that would mandate dramatic reduction in carbon emissions from newly-manufactured vehicles. Fourteen other states have vowed to adopt the California standard if the federal government grants the waiver and initial executive branch opposition to such a step seemed likely to be reversed under President Obama.

Alongside unilateral experimentation of this sort, a growing number of states have attempted to enact multiple policies. California, for example, has been simultaneously pursuing an array of policy options in pursuit of statutory emission reductions by 2020 and 2050 that would exceed those of any other government in the world. In addition to its proposed vehicle emissions program, they include developing cap-and-trade, energy efficiency, low-carbon fuel, and renewable energy mandates. Other states with large populations and growing GHG emissions levels have enacted a multiplicity of climate policies; these include New York, Pennsylvania, Illinois, New Mexico, and Arizona. At the same time, even historically inactive states such as Florida, Michigan, North Carolina, Texas, and Virginia are beginning to follow suit (Rabe 2008).

As a result, the American federal system has produced a diametrically different pattern from its Canadian neighbors. American federal disengagement from Kyoto has inspired increasingly active state-level policy development, whereas Canada's formal embrace of Kyoto has generally been met with disinterest from the provinces. Even provinces most outwardly supportive of Kyoto ratification, such as Manitoba and Quebec have not begun to approach their more active American state neighbors in actual policy development. This may be changing, however, most notably in the case of British Columbia, perhaps fostering greater opportunity for cross-border collaboration than in previous years.

SIGNS OF POSSIBLE CONVERGENCE

Despite their differences, Canada and the United States have much in common and the potential exists for collaboration on climate change across the border. Admittedly, both federal governments have continued to struggle to formulate significant policy initiatives, despite innumerable proposals. The Climate Change Protection Index (CCPI), which evaluates the climate protection efforts of the central governments of 56 industrialized and rapidly-industrializing countries, finds strong similarities between Canada and the United States and ranks them near the very bottom. In the 2007 version of the CCPI, Canada ranks 51st and the United States 53rd out of 56 entries. Separated from each other only by Kazakhstan, the countries barely placed ahead of China and Saudi Arabia. So both federal governments are among the world's leading laggards with regard to climate change, and must consider any future federal policy engagement essentially from ground zero.

In turn, public opinion polling is rarely conducted with identical questions posed in both countries. But major polling in recent years suggests considerable uniformity of opinion on climate change, as reflected in Angus Reid (in Canada) and Pew polls (in the United States), as well as other reputable survey efforts. This reflects public sentiment about the existence of climate change and its perceived severity, as well as receptivity to a range of policy tools. There appears to be strong sentiment in both nations for a substantial increase in efforts to reduce greenhouse gas emissions, but particularly strong support for those tools perceived as not imposing substantial direct costs on individual citizens. This may explain the strong sub-federal government preference for regulatory tools such as RPS (in 28 states and two provinces) as opposed to carbon taxes (operational only in British Columbia on a large scale and confined to more modest energy fees in 15 states and Quebec).

In terms of actual progress, there has been some cross-border collaboration that does not involve Ottawa and Washington but rather consists of ad hoc regional arrangements, consistent with a phenomenon evident in other areas of environmental policy. Perhaps most significantly, British Columbia and Manitoba have not only become the most active provinces in terms of unilateral policy development but took early steps to formally link their efforts with seven Western American states, Arizona, California, Montana, New Mexico, Oregon, Utah, and Washington, in the Western Climate Initiative (WCI). Launched in 2006 by California and initially focused on state partners, British Columbia and Manitoba formally joined the WCI in 2007 and have been joined by Ontario and Quebec. In March 2008, the WCI released detailed draft plans for development of a regional cap-and-trade program for carbon emissions (WCI 2008), although this partnership remains in early stages of development and the depth of actual commitment from some member states (particularly Montana and Utah) and provinces (particularly Manitoba, Ontario, and Quebec) remains unclear. Even the flagship jurisdiction, California, has faced internal political resistance to moving ahead with emissions trading provisions as opposed to other regulatory mechanisms that might be advanced on a regional basis.

British Columbia took particularly aggressive unilateral actions shortly before joining the WCI, including a formal target to reduce its GHG emissions by one-third from current levels by 2020, which would place them approximately 10 percent below 1990 levels. It also set intermediate targets for 2012 and 2016 as well as long-term targets for 2050. The province also agreed to set carbon emission standards for all vehicles sold in British Columbia, through a policy that has some parallels with the California legislation and thereby veers away from the Canadian tradition of voluntary standards for vehicle emissions and fuel economy. Administratively, it established a provincial Climate Action Team to link ministries with some likely role in climate change governance.

Furthermore, British Columbia introduced a carbon tax in February 2008 that is designed to deter fossil fuel use through pricing disincentives (Fowlie and Anderson 2008). The carbon tax would generate an estimated $2 billion during its first three years of operation, which would be returned to citizens and businesses through tax credits. "In British Columbia, we don't need to look to the work of the Intergovernmental Panel on climate change to know we've got a problem," said British Columbia premier Gordon Campbell in announcing the new initiatives. "The evidence is all around us, and it obliges all of us to adapt."

Entry into the WCI has committed participating British Columbia and other states and provinces to developing a "regional market-based multi sector

mechanism" for emissions reduction. All WCI members are required to have formal reduction targets and are expected to use the regional system, most likely an emissions trading regime, to attain much if not all of their reduction goals. These respective states and provinces have also agreed to establish a common registry to track and manage credit trading for all emissions covered under the plan. "We welcome British Columbia's participation in the Western Regional Climate Action Initiative," said California Governor Arnold Schwarzenegger in April 2007 after British Columbia signed a memorandum of understanding to officially join the WCI. "We all share the same goals of reducing greenhouse gas emissions and addressing climate change while boosting economic growth. Premier Gordon Campbell's leadership on this issue is helping our two countries take a collaborative approach that will result in real actions and innovative solutions that will have an impact across the globe."

Manitoba has a longer track record of support for GHG reduction policies, though it has tended not to match its rhetoric with implementable policies comparable to those of British Columbia or many leading states. The province made a major effort to build a strong climate policy team earlier in the decade, although much of this effort collapsed after staff departures (Rabe 2007). But Manitoba has demonstrated a remarkable proclivity to sign cooperation agreements with various states. In addition to joining the WCI, it agreed in November 2007 to join with six Midwestern states (neighboring Minnesota, as well as Illinois, Iowa, Kansas, Michigan, and Wisconsin) in establishing the Midwestern Regional Greenhouse Gas Reduction Accord (Pendergrass 2007). This agreement thus far has much less detail than the WCI and a number of the participating states have not been active in early development of their own carbon cap-and-trade systems. Several years prior to the Midwestern agreement, Manitoba also joined with another subset of Midwestern states to form "Powering the Plains," a collective designed to promote regional renewable energy sources and reduce GHG emissions through methods tailored to its individual member jurisdictions.

Yet another earlier effort at cross-border collaboration involved six New England states along with Quebec and the Maritime provinces in an attempt to establish a regional zone pledged to common levels of greenhouse gas reduction by 2010 and 2020. This followed a long-standing set of common agreements among these jurisdictions, only some of which have an environmental policy focus. Some of these jurisdictions, primarily such states as Delaware and New York, are on track to meet their 2010 goal of holding to 1990 emission levels. But the promised development of common standards and policies has met with little success, with most subsequent effort involving resolutions that support the general goals but lacking in specifics.

Far more significant, the six participating states are part of a larger American regional effort known as the Regional Greenhouse Gas Initiative (RGGI). This initiative also includes New York, New Jersey, Maryland, and Delaware and may expand to include other states such as Pennsylvania. All participants will be linked through a formal cap-and-trade program for coal-burning utilities that began to auction allowances in late 2008 and has been designed to achieve a 10 percent reduction in emissions during its first decade. The RGGI states have expressed their eagerness to serve as a possible role model for federal policy but insist they will only cooperate if prospective federal legislation sets standards at the same or greater level than the regional effort. The RGGI was developed through several years of intensive collaboration between lead environmental and energy officials from participating states (Rabe 2008a). During nearly five years of deliberations, neighboring Canadian provinces have been regularly invited to attend sessions and consider membership. New Brunswick has remained a formal "observer" but no province has formally entered into the RGGI system thus far and there is no indication that this will change in the near future.

Overall, there has been some attempt among neighboring states and provinces to begin to think about cross-border collaborations, most of which emphasize some version of an emissions trading mechanism for GHGs. All of these have emerged without any active engagement or encouragement from respective federal governments, much less any bi-national or continental authority, and varies in detail from region to region. To date, the WCI is the only one that begins to outline formal commitments and expectations of membership, thereby approximating the RGGI and the EU ETS rather than more symbolic efforts that lack any mechanisms to achieve reduction goals, though it remains in a very early and uncertain stage in development. Nonetheless, the WCI precedent does raise the question or whether regional networks that link select states and provinces could be the beginning of a trend towards cross-border climate governance at the regional level.

THE CASE FOR EXPANDED COLLABORATION

Barring some sudden leap toward a new international regime, which remains hard to envision for numerous reasons, both Canada and the United States enter the "post-Kyoto" era with very modest track records of climate policy development and implementation. Aside from Canada's symbolic embrace of Kyoto and a patchwork quilt of policy development among American states, these North American neighbors have been widely depicted in international circles as short on action and long in exacerbating the severity of likely climate change. Both countries are also faulted for not seizing the opportunity to develop new climate-friendly technologies and skills for which vast new markets are anticipated. This raises the possibility of whether some common action or strategy, perhaps building on the WCI model, might constitute a reasonable next step. There is no bi-national institution which has currently taken the lead on this issue or any organizational "home" for shared climate thinking, much less governance. But there is increasing recognition of the need to renew efforts to achieve some degree of cross-border engagement, whether it entails emissions mitigation or even adaptation strategies, particularly on the heels of the Feburary 2009 summit between President Obama and Prime Minister Harper.

Much of this recognition reflects the extraordinary energy interdependence between the two nations, particularly given American importation of electricity and transport fuel. Cross-border trade in electricity began more than a century ago when Ontario and New York created an interconnection between power generating facilities at Niagara Falls (Averyt 1992). Energy trade between the two countries has steadily increased in subsequent decades and some American regions are dependent on substantial quantities of electricity imported from Canada. The 10 states that comprise the RGGI zone, for example, secure more than 11 percent of their electricity from Canada each year. Ironically, Canada does not impose any restrictions on carbon emissions from its electricity imports, despite its ratification of Kyoto, whereas RGGI states have a carbon cap-and-trade system but can only address emissions generated among participating American states.

This energy interdependence is expected to grow in coming years, in large part because the physical infrastructure for conveying electricity across extended distances in Canada and the United States is generally much stronger on a north-south than east-west continuum. There are already more than 100 power grid linkages between Canada and the United States and there has been an effort to expand these in recent years, particularly in Western areas. As one member of Parliament noted, "Currently there are more electricity lines between Canada and the United States than there are lines between Canadian provinces" (Bevington 2007). Some provincial premiers have frequently sought federal subsidies to bolster east-west transmission ties, most notably Ontario and Manitoba as a condition of their engagement in the Kyoto process (Rabe 2007). But a number of premiers have also actively supported stronger north-south ties in electricity exports, though this might require considerable investment in refined transmission infrastructure, particularly if it were designed to include more decentralized sources of renewable energy. Both Manitoba and Quebec have argued aggressively that they could further expand their substantial current capacity in hydro power and would be keen to sell this to neighboring American consumers rather than citizens of other provinces at greater distance. Indeed, when Manitoba Premier Gary Doer has met regularly with counterparts in neighboring states such as Minnesota, it is not only to engage in organizations such as "Powering the Plains," but also to explore the possibility of greater province-to-state electricity trade. In 2009, according to policy analyst Thomas Courchene, "Quebec "seems ready to enter into a long-term agreement with New England for the export of hydro electricity" (Courchene 2009, 25). Similar economies of scale are evident in other areas of energy supply.

The physical reality and environmental costs of energy generation and transport underscores the inefficiency of sustaining two separate policy regimes at the 49th parallel. Nine states that border Canada have made some commitment to a carbon cap-and-trade program, with RGGI the furthest advanced. Among the provinces, four have begun to develop linkage with these emerging trading areas, though only British Columbia

has moved as far in policy development as the more active states. In turn, while the prospects for a federal cap-and-trade bill in the 111th Congress appear increasingly promising, it is less clear that Canada is prepared to make a comparable move. Prime Minister Harper and associates appear to be moving in this direction after the Obama inauguration but the official position of the Canadian government in early 2009 involved far less stringent reductions and more voluntary mechanisms for compliance. If this pattern continued, what could emerge in the next few years is a rigorous American carbon emissions trading zone alongside a very different policy infrastructure in Canada. This poses obvious concerns of "leakage," namely whether the absence of carbon pricing and credit allocation in Canada creates a huge incentive for Americans to purchase even more quantities of Canadian electricity. In turn, this raises the issue of whether common standards or a shared emissions trading regime would prove beneficial. Such a regime could begin with the electricity sector but, as we are learning from California and the EU, any cap-and-trade system could readily be expanded to other carbon sources, whether fixed entities such as industries or mobile sources such as all commercial flights in the two nations.

Collaboration could also extend to other areas where some form of carbon-related regulation was developed. The issue of RPS is instructive here, especially given the dense concentration of American RPSs in 11 states that share a border with one or more Canadian province. Nova Scotia and Prince Edward Island have also enacted their own RPSs. No two jurisdictions with an RPS define renewable energy in identical ways and often establish special provisions to boost a specific renewable technology that has a strong base of political support in a particular jurisdiction. In turn, we are also seeing a growing pattern of "RPS protectionism," whereby authorizing legislation is somewhat discriminatory against electricity generated outside of the single jurisdiction, even in cases where it might be less expensive and more environmentally-friendly. This is a particular threat among the provinces, given the absence of a Constitutional Commerce Clause to protect cross-border commerce, as reflected in Nova Scotia's RPS that confines eligible electricity to sources generated within the province. Collectively, this type of constraint likely deters full development of renewable potential in Canada and the United States, leaving little room for shared development of technology and making renewables as price-competitive as possible with conventional sources.

Compatibility and interchangeability of energy policies are thus a big issue facing U.S.-Canadian border jurisdictions. And whereas some neighboring states have begun to try to create "renewable energy credits" that would be transferable across states through bilateral agreements, so far none of this activity has crossed any state-and-provincial border. Looking ahead, one could envision a true patchwork quilt of RPSs and related policies, perhaps a blending of state, provincial, and federal policies that work at cross-purposes with one another. As in the case of a cap-and-trade program, some mechanism to establish common definitions and develop a viable system for trading renewable energy credits across these various jurisdictions could ease the transition to renewables and thereby prove instrumental in reducing GHG emissions. Questions about transparency and compatibility also emerge with regard to renewable fuels, particularly those derived from plant material. These fuels have been heavily subsidized in both nations, although serious questions have arisen over their actual GHG impact and the fact that they require ground transport rather than pipelines for cross-border movement.

Similar issues arise for virtually every other arena of possible policy development relevant to climate change, from carbon emission standards for vehicles to sequestration strategies that store carbon below ground level. Collectively, an effort to achieve greater unity in Canadian and American approaches might also maximize the potential for both nations to take full advantage of the economic development opportunities likely to accrue to those governments that actively and effectively develop new technologies and skills that will be in high-demand in a carbon-constrained economy. Just as many private firms are attempting to take the advantage by becoming "first movers," many governments (most notably American states) are taking similar approaches. But just as the EU attempts to position itself as the "world leader" in this arena, there could be obvious advantages to some form of collaboration between Canada and the United States. This could entail not only discovery of methods to reduce emissions but also preparation to take a lead role in the international development and transfer of essential technologies and skills.

IMPEDIMENTS TO EXPANDED COLLABORATION

No matter how great the need or rationale, it is not an easy task to translate the case for climate collaboration into policies guided by an appropriate organization or network. No existing bi-national or continental institution has stepped forth to assume a lead role on climate change; hence there is no obvious starting point for any form of common policy development. As noted, organizations such as the IJC have compiled research reports highlighting likely cross-border threats posed by continuing climate change. The CEC has provided detailed analysis of continental energy markets and concluded in a 2002 report that "There is interest in, and good potential for, trans-boundary emissions trading within North America" (CEC 2002, 23). The CEC was also the venue for developing a "Statement of Intent to Cooperate on Climate Change and Joint Implementation" in the 1990s through the lead environment ministers of Canada, Mexico, and the United States, though this largely stalled after the Kyoto ratification battles began. Thus it remains difficult to point to any existing institutional base that has launched a serious collaborative effort, aside from periodic attempts by think tanks such as the C.D. Howe Institute in Toronto or the Canada Institute of the Woodrow Wilson International Center for Scholars in Washington to convene private, governmental, and research stakeholders for broad discussions of collaborative opportunities.

To some degree, such collaboration is complicated by significant asymmetries in power and authority among respective players. First, there are well-established Canadian concerns about the vast scope of the U.S. population and economy in comparison with its own. Historically, this imbalance has contributed to a number of decisions to attempt to preserve Canadian independence from the United States, such as prolonged efforts to maintain a separate currency and monetary policy despite periodic pressures for convergence (Helleiner 2006). It has also sustained a cottage industry of scholarship that chronicles and laments continual pressures on Canada to submit to integration pressures, whether overt or "stealth" in nature (McDougall 2006). Ironically, more recent iterations of this thesis emphasize numerous areas in which Canadian identity appears threatened through asymmetries that prod Canada toward convergence, but downplay cases where Canada chooses a policy route fundamentally different from the United States. Indeed, in reviewing the last decade of climate policy in Washington and Ottawa, not to mention sub-national efforts, one does not see any American pressure on Canada to conform, whether at the point of Kyoto ratification or in the development of serious climate policy tools sub-nationally. This is evident in the near-constant refrain in Canada of developing a climate policy "made in Canada," which thus far has translated into a mish-mash of loosely-structured programs that, if anything, lag behind the United States.

Nonetheless, these nationalistic concerns persist and are likely to threaten any serious attempt to link future efforts to reduce GHG emissions. A further impediment to collaboration is substantial variation in policy capacity, beginning with technical expertise in emissions trading and extending, perhaps philosophically or culturally, to disagreements about the appropriateness of a cap-and-trade approach. As a pioneer in emissions trading mechanisms, the American federal government and all 50 states have considerable expertise in emissions trading for various air contaminants and in other arenas of environmental protection (Raymond 2003). This experience has been evident in unilateral state programs to develop carbon cap-and-trade regimes very early in the current decade and more recently in efforts by the RGGI and the WCI to operate such schemes on a regional basis. All of these efforts are staffed and, in some instances, guided by state agency officials with considerable expertise in various forms of emissions trading and relative comfort with the challenges of transitioning to apply this same tool to carbon emissions. In turn, most of the deliberations over climate change in the 110th Congress focused on various forms of a federal cap-and-trade mechanism, most notably the Climate Security Act sponsored by Senators John Warner (R-VA) and Joseph Lieberman (I-CT). It is entirely possible to see such legislation enacted in the next year or two, particularly given President Obama's call for such legislation in his February 2009 address to Congress and subsequent federal budget proposal.

In contrast, emission trading has moved at a much slower pace in Canada, both for conventional air contaminants and more recently for GHGs. Both federal and provincial authorities have generally rejected trad-

> There appears to be strong sentiment in both nations for a substantial increase in efforts to reduce greenhouse gas emissions, but particularly strong support for those tools perceived as not imposing substantial direct costs on individual citizens.

ing mechanisms in favor of a blend of voluntary and regulatory strategies for reducing air contaminants. Modest early provincial efforts to establish experimental carbon trading systems (such as in British Columbia and Ontario) have essentially collapsed. Resistance to this approach and the attendant lag behind the United States may be attributable to several factors.

First, there may be legal and Constitutional constraints on development of this method in Canada, whereas there have been no such questions in the United States. As legal scholar Alasdair Lucas has noted, there is "at least a likelihood that the federal government lacks constitutional authority to legislate national standards and the necessary framework for a national emissions trading program. The result is that federal-provincial agreement is necessary and constitutional jurisdiction is not a strong candidate for either negotiating side" (Lucas 2004: 191). Second, there may indeed be resistance to such policy tools from key ministries, whether due to normative objections, greater familiarity and comfort with more conventional policy tools, or economies of scale given the relative number and size of private and public greenhouse gas sources in the Canadian case (Rabe 2007). Legal scholar Katrina Wyman has offered a particularly nuanced interpretation of the Canadian "slowness to introduce pollution markets," one that places less emphasis on cultural consideration and emphasizes economic and related factors (Wyman 2002). In turn, some policy analysts have raised growing concern about the capacity of Canadian institutions to design an effective cap-and-trade system given limited expertise and pressures to weight down such a system with all sorts of exemptions and special preferences for particular sectors or provinces.

Regardless of the ultimate explanation for Canadian recalcitrance, one thing is clear: the United States is better prepared than Canada and appears primed to move from a regional toward a national system of carbon emissions trading, even though many political hurdles remain and the implementation challenges are potentially daunting. In contrast, Canada has little significant policy development under way in this area and scant experience using market mechanisms of this sort in any environmental arena aside from fisheries management. Alongside conventional concerns about power asymmetries among these neighbors has been a rather fundamental difference in policy approach and capacity that could prove difficult to blend into any shared system. Given the two countries' diverging views and circumstances, even such issues as developing mechanisms to oversee emissions credit transactions or approve carbon offsets in trading could prove difficult to reconcile across national borders. One exception here may entail instances in which one or more provinces move in an "American direction" and use their considerable constitutional latitude to develop a "home grown" approach that allows for direct collaboration with select states or even the entire United States. This factor makes the recent venture of a set of provinces with the WCI states particularly noteworthy, as it advances serious exploration of emissions trading as a mechanism to achieve common reduction goals. Another exception may involve the Canadian federal government's March 2008 "Turning the Corner" strategy, which includes a general commitment to "setting up a carbon emissions trading market, including a carbon offset system" (Environment Canada 2008). Of course, very recent signs of possible cross-national coalescence around the cap-and-trade approach, explored more fully below, could further stimulate such policy development in Canada.

A POSSIBLE STARTING POINT FOR CANADA-U.S. COLLABORATION

Beyond emissions trading, some degree of cross-border collaboration to achieve GHG reduction might not prove to be so difficult if tools other than emissions trading were employed. And for all of the attention focused on cap-and-trade methods, any multi-level governance system is likely to employ some blend of policy tools, including forms of direct regulation. This is reflected, for example, in the American federal decision in December 2007 to mandate increases in vehicular fuel economy over the next decade. This could go even further if President Obama grants California and more than a dozen other states their request for a waiver to establish more stringent regulatory standards on carbon emissions from vehicles, thereby raising the possibility of a comparable Canadian response and common standards. Such convergence would be consistent with a growing trend toward collaborative climate change strategies among other neighboring nations around the world. In the EU, for example, where the ETS has received so much attention, far less than half of the continental reductions required under the first round of the Kyoto commitment that runs through 2012 will be achieved through this trading mechanism. Even recent proposals emanating from Brussels call for an expanded (and, hopefully, more functional) ETS to only address between 40-to-45 percent of emission reductions targeted for the next round. The remaining reductions will be delegated to individual EU Member States, who are free to pursue any menu of policies as long as reductions are achieved. A similar dynamic could also emerge between Canada and the United States over the next decade. Any common climate policy between these North American neighbors may well involve some degree of reliance on emissions trading but will also likely feature a confluence of other policies, including renewable portfolio and fuel standards among many others. This creates numerous opportunities for shared strategies between neighboring provinces and states.

Experiences from the European Union suggest that the transition to a highly- coordinated approach to climate change, whether through carbon taxation, emissions trading, or other tools, will not be easily achieved either politically or managerially (Cass 2006). But the EU offers numerous lessons whereby cross-national cooperation has begun to increase, especially in the electricity sector. Individual nations have historically protected (and, in some instances, continue to own) large entities that dominate that sector and until recently have little cross-border experience. Some scholars characterize even early episodes such as setbacks in ETS implementation as learning experience in cross-border governance that could easily lead to more parsimonious outcomes through policy learning and incremental reform that recognizes national commonalities and differences (Ellerman, et al. 2008). As with the WCI experiment involving sets of American states and Canadian provinces, some neighboring Member States within the larger EU system are establishing common strategies in select areas such as development of renewable energy and energy efficiency.

An even more apt comparison to the Canadian-American relationship involves the emerging partnership between New Zealand and Australia on climate policy. These neighbors have long struggled with asymmetries similar to their North American counterparts, with Australia the dominant partner given its substantially larger population and economic base. In turn, both have struggled to develop effective independent climate policies, reflected in rates of greenhouse gas emissions growth that are well above those of both Canada and the United States since 1990 and place them in clear violation of their respective Kyoto commitments. More recently, both nations have begun to take significant steps toward collaboration, while respecting national differences. New Zealand is developing a cap-and-trade system with broad inclusion of emission sources, and Australia is now building on significant state innovation to consider its own national trading program that could work openly with its neighbor. Both nations have begun to actively explore ways in which they might link their respective systems, attempting to achieve emissions reductions at the lowest possible cost and not incidentally. to emerge as Asian regional leaders in the development and dissemination of climate-friendly technologies. As in the European case, some of their experiences may prove instructive for the future development of Canadian and American collaboration on climate change.

A NEW BEGINNING?

Environmental policy analyses often look for "triggering events," such as environmental disasters that galvanize public concern and foster significant changes in existing policy or produce entirely new policy initiatives. New environmental policy development in both nations has frequently been linked to such events. But it is also possible that a political event, namely an election, can also be a "game-changer" of sorts, not only by bringing new people into offices but also ideas and policy proposals that might not have been feasible under prior leadership. Clearly, the 2008 American election appears to have considerable potential for having just such an impact on federal climate policy, producing a rapid shift in policy preference, particularly within the executive branch given the election of President Obama. But it is also possible that, in a far more subtle way, the 2008 Canadian election had a similar impact, through the defeat of a Liberal Party leader who ran in large part on a climate policy idea that is widely endorsed by policy analysts but clearly failed to resonate among Canadian voters and appears similarly unpopular in the United States. Combined, these two elections may create a unique opportunity for cross-border collaboration on climate change through development of a common cap-and-trade system and related institutional development, a kind of partnership that seemed almost inconceivable as recently as October 2008.

At the same time that he began to push for a carbon cap-and-trade bill toward the end of the first month of his Presidency, Barack Obama also chose to make his first foreign visit to Canada. One of the major themes to emerge from a one-day summit was commitment to a "U.S.-Canada Clean Energy Dialogue" that would not only increase the movement of energy across the 49th parallel but find ways to collaborate actively on developing non-fossil fuel sources and reducing greenhouse gas emissions. In their concluding press conference, both leaders talked about possible venues for cooperation. Obama offered his support for "the development of an electric grid that can help deliver the clean and renewable energy of the future, to homes and business both in Canada and the United States." Harper noted that "I will be watching what's done in the United States with great interest. But I'm quite optimistic that we now have a partner on the North American continent that will provide leadership to the world on the climate change issue." Even prior to this gathering, officials in both nations began to signal broad new possibilities for collaboration, including comments from Canadian Environment Minister Jim Prentice that a "key objective…should be a common cap and trade system that would allay competitiveness concerns."

> "The carbon tax approach offers a much easier path to cross-border collaboration, given its simplicity and transparency.

Cap-and-trade emerged as a leading option in both nations despite the historic differences noted earlier. Congress increasingly turned to the cap-and-trade approach during the 110th Congress and a range of bills were filed early in the succeeding 111th Congress. In Canada, the crushing defeat in October 2008 of Liberal Party leader Stephane Dion and his proposal for a "green shift" that involved direct taxation of the fossil fuel content of fuels shifted attention back to cap-and-trade as the primary default. Harper was a strong opponent of the Dion plan but also contended he was constrained from unilateral action by the intransigence of the American federal government. "We didn't want to go too tough on targets with Bush in the White House," he said at the 2008 G-8 summit in Germany, "because then if (Americans) didn't follow it would place Canadian industry at a disadvantage." It is highly unclear whether that statement was an accurate expla-

nation for Canadian reluctance to act or instead provided Harper with an excuse to avoid serious policy development. But the elimination of the carbon tax option at home and the end of the George Bush presidency to the south intensified pressure on him to match the new policies being advanced by President Obama and the incoming Congress.

There are a range of steps that the United States and Canada might take to begin to develop a common approach to this challenge. If less glamorous than a full-blown cap-and-trade system, such incremental steps might nonetheless prove useful as essential components of any future climate policy. An example of an early collaborative step of this nature would be to begin with common metrics, namely a reporting system for carbon dioxide and related GHG emissions from major sources. This step is often overlooked because the technical process for measuring emissions is relatively straightforward in most instances, usually a simple algorithm applied to fossil fuel consumption. But heretofore nearly all of the numbers used to calculate emission levels are estimates and projections rather than having a basis in formal and systematic disclosure and reporting systems. Throughout the United States and Canada, only three jurisdictions, the states of Wisconsin and New Jersey and the province of Alberta, have established statutory emissions disclosure policies. More than 30 states have been involved in extended negotiations to establish common disclosure requirements and a common GHG emissions reporting registry and the U.S. Environmental Protection Agency has also been working to develop a system in recent years. But no final agreements have reached and concerns have surfaced about possible conflicts if markedly different reporting systems emerge. It would be quite feasible technically to try to unify these systems and include Canadian federal and provincial reporting in the bargain.

Such policies tend to pose relatively straightforward requirements and as such build on existing emission reporting programs that operate in Canada and the United States for a wide range of toxic contaminants released to air, water and land. The CEC has already played a significant role in attempting to systematize these data and provide similar inventories for conventional emissions for both nations, as well as Mexico, and it could be charged with development of such an inventory for carbon dioxide and other GHGs. Indeed, the

> Given their huge contribution to climate change and the potential for shared consequences, both Canada and the United States clearly need to play a significant role in any serious effort to reduce global emissions.

Commission also includes analysis of continental climate change within its regular reporting on key North American environmental issues (CEC, 2008). The CEC has, however, fairly limited authority at present and lacks any formal charge to develop a climate change inventory much less develop a continental emissions trading program for carbon (Betsill 2009; Graubart 2008).

Regardless of the institutional home for such a venture, this kind of cross-border collaboration would break new ground by providing a model metric for GHG emissions. Indeed, one of the key stumbling blocks to the EU's first round of ETS implementation was the rush to construct a continental cap-and-trade system before any systematic program of emissions reporting was in place among parties covered under the cap. There remain doubts as to how far the EU has progressed in this regard and therefore Canada and the United States have a clear opportunity to take a lead role in designing a system that provides transparent and reliable data as a basis on which to consider any future policies.

Such a starting point as an inventory might lead to further areas of collaboration. For example, as more states and provinces consider RPS and related policies to promote renewable energy, some preliminary steps could dramatically ease this transition to expanded use of alternative energy sources. These might include common definitions of what does and does not constitute renewable energy and standardized methods for defin-

ing and measuring credits from large and small renewable production sources that could be used to meet policies in various jurisdictions. As with the emissions reporting approach, common definitions and metrics could serve to provide a consistency that is currently absent among states and provinces. These steps would constitute progress by their recognition that electricity and energy distribution is not sealed at the 49th parallel and that some basic infrastructure needs to be put into operation if future bi-national policies are to be credible and effective.

Of course, all of these early efforts at establishing transparency in measurements and reports of GHG emissions and renewable energy sources could at the same time coincide with construction of interactive carbon cap-and-trade systems by the U.S. and Canadian federal governments. Thus far, American proposals have the greatest specificity, reflected in iterations of the proposed Climate Security Act and its numerous counterparts. But they also appear to parallel the broad direction Canada introduced in the March 2008 version of its "Turning the Corner" proposal and is generally consistent with the sentiments expressed by Harper since the Obama visit. Carbon cap and trade programs remain incredibly complex, largely untested, and subject to tremendous political pressures (Rabe 2008a). The possible integration in the development of such systems or even comparable forms of carbon taxation, however, presents unique opportunities for both nations to consider whether they prefer climate policies that are interactive and follow the flow of energy and commerce or are hermetically sealed from each other. In this case, it would be crucial to allow for serious interaction between government departments or ministries charged with environmental protection and energy. Despite traditional divides and rivalries between these entities, experiments such as the American RGGI have been reasonably successful. Cross-border collaboration of officials with comparable portfolios would take it a step further, and might be achieved through integrative mechanisms similar to the kind of cross-unit interaction that was envisioned under the Security and Prosperity Partnership of North America (Craik and DiMento 2008).

In many respects, these kinds of initial steps to establish U.S.-Canadian collaboration on climate change and energy policies parallel the development of trade relationships involving both countries as well as international institutions such as the World Trade Organization (WTO). Just as bi-lateral trade relations between Canada and the United States evolved over many decades, and later expanded to formally engage Mexico in the 1990s, the WTO emerged over two generations. It was built in an incremental fashion and still recognizes substantial differences by sector, nation, and continent. Many national and multi-national entities played a role in the very gradual shift from a very loosely-coordinated system of international trade into the current mechanism that blends national, regional, and international authority. The WTO faces numerous limits and continues to be the focus of considerable criticism. But it has succeeded in reducing some rigid barriers to cross-national collaboration that once seemed insurmountable and may pose some useful models for climate policy (Victor 2004).

Of course, climate change is considerably more complex than trade. It intersects with virtually all arenas of public policy and clearly demonstrates the limits of unilateral action. But whereas a decade ago, scholars anticipated a rapid march to binding international climate governance, it has become increasingly evident that such policy will continue to cut across essentially every level of government in every nation. After a flurry of experimentation and innovation in some Canadian and American jurisdictions, most notably American states, questions emerge about the effectiveness of sustaining such a patchwork quilt, especially given the extraordinary degree of economic and energy interdependence among states, provinces, and these two neighboring nations. Twenty years ago at Toronto, Canada and the United States seemed poised to lead the world in developing a response to climate change, just as they were instrumental in leading the transition to economies less threatening to the ozone layer. But except for a cluster of extremely active state governments, neither nation has begun to deliver on those earlier promises nor has either of them seized opportunities to lead the transition to a more climate-friendly economy. There are numerous institutional impediments to sound policy development on climate change, but the essential argument for collaboration remains strong. Perhaps it could begin with steps to establish an infrastructure to gather reliable data and bring together diverse policy professionals. Such steps would help maximize the likelihood that any future policy collaboration, when undertaken, will be credible and effective.

GOING CONTINENTAL?

In turn, the very possibility of expanded American-Canadian collaboration on climate change opens the larger question of a truly radical departure, re-framing the issue and moving toward a fully North American model for environmental governance. The very creation of the CEC and early discussion of possible continental approaches to climate change serves as a reminder of the tremendous environmental and energy interdependence between both Canada and the United States but also Mexico. There have been a number of proposals over the past decade to move toward greater continental coordination and making energy and climate a central component in such an effort. For example, a 2005 Council on Foreign Relations report on "building a North American community" observed that "A North American energy and emissions regime could offer a regional alternative to Kyoto that includes all three countries." Headed by a series of former federal ministers and ambassadors from the three nations, the report also endorsed a continental emissions trading program that included offset provisions (Council on Foreign Relations 2005, 18).

This idea appears to have gained momentum in recent months, influenced substantially by the arrival of new political leadership in Washington. Interestingly, while President Obama's first foreign visit and discussion on climate change and energy involved Canada, he actually discussed cross-border collaboration on these very issues a bit earlier during a visit to the United States by Mexican President Felipe Calderon. Shortly before visiting Ottawa, Obama told a leading Canadian journalist of Calderon's interest in a new partnership, leading him to conclude that: "Mexico actually has taken some of the boldest steps around the issues of alternative energy and carbon reductions of any country out there. And it's very rare for a country that's still involved in developing and trying to raise its standard of living to stay as focused on this issue as President Calderon's administration has. What I think that offers is the possibility of a template that we can create between Canada, the United States and Mexico that is moving forcefully around these issues" (CBC 2009). In recent years, Mexico has introduced a National Program on Climate Change, established an Inter-ministerial Commission on Climate Change, and entered into talks with California officials about possible carbon emissions trading strategies.

One possible mechanism for launching a larger continental strategy would be the proposed expansion of the North American Free Trade Agreement to formally include separate side-agreements that were negotiated on environmental and labor protection. Obama has discussed this frequently, both during the campaign and in the early weeks of his Presidency (Weisman 2009). Such a step could open a mechanism to link trade liberalization with energy diversification as well as environmental and climate protection on a much larger scale than before. Both Canadian Environment Minister Jim Prentice and Mexican Environment and Natural Resources Secretary Juan Elvira have promoted the CEC as a forum for trilateral climate talks in their initial meetings with Obama Administration counterparts. In such a context, an entity such as the CEC might be given expanded authority. Of course, the CEC to date has only limited experience beyond hortatorical functions such as information disclosure and apparently "completes much of its work in anonymity" (Alm and Burkhart 2006: 5). Consideration of any expanded role therefore leaves many questions concerning its capacity to take on such a challenge as a continental cap-and-trade system, including the issue of reconciling inevitable national and regional differences in how any continental climate agreement might be interpreted or implemented (Betsill 2009). The June 2009 meeting of the CEC Council in Denver, which consists of the lead environmental officials of all three nations could prove revealing on possible avenues for collaboration and whether these recent overtures toward a continental approach are substantive or symbolic.

This kind of a partnership would create the world's largest region for collaborative climate policy, surpassing the EU in population and total greenhouse gas emissions. As noted above, Mexico has indicated growing interest during the Calderon era in becoming a world leader among emerging nations on climate change and has also expressed interest in possible involvement in a common cap-and-trade strategy. It also might be well positioned to take advantage of its considerable offset opportunities through a North American carbon market. Both Canada and the United States would also gain potential strategic advantages from such an alliance. For

Canada, Mexican involvement would help protect it against possible American domination under a bilateral system. For the United States, a continental framework might provide considerable bargaining leverage entering into any larger multi-national or international negotiations, including any future consideration of a global carbon trading regime. Thus it is possible to envision a shift toward continental collaboration, following the new lead provided by the Obama presidency. Given the growing saliency of the climate change issue in all three North American nations, the CEC or some successor body might have an opportunity to become a forceful North American player in the 21st Century, thereby expanding conventional approaches to North American environmental governance that focus exclusively on issues that cross the 49th Parallel.

REFERENCES

Alm, Leslie R. and Ross E. Burkhart. 2006. "Is Spotlighting Enough? Environmental NGOs and the Commission on Environmental Cooperation," *Canadian-American Public Policy*, No. 67 (August): 1-39.

Averyt, William. 1992. "Canada-U.S. Electricity Trade and Environmental Politics," *Canadian-American Public Policy*, No. 12 (December): 1-33.

Betsill, Michele M. 2009. "NAFTA as a Forum for CO2 Permit Trading?" in *Changing Climates in North America*, eds. Henrik Selin and Stacy VanDeveer. Cambridge: MIT Press: 161-179.

Bevington, Dennis. 2007. "Time for a Canada-wide Renewable Energy Grid," *The Hill Times* (April 30): 26.

Canadian Broadcast Corporation, "Transcript of the CBC News interview with Obama," http://www.cbc.ca/canada/story/2009/02/17/obama-transcript.html

Cass, Loren. 2006. *The Failure of American and European Climate Policy.* Albany: State University of New York Press.

Commission for Environmental Cooperation. 2002. *Environmental Challenges and Opportunities of the Evolving North American Electricity Market.* Montreal: CEC.

Commission for Environmental Cooperation. 2008. "Climate Change," in *The North American Mosaic: An Overview of Key Environmental Issues.* Montreal: CEC.

Council on Foreign Relations. 2005. *Building a North American Community.* New York: Council on Foreign Relations.

Courchene, Thomas. 2009. "The Obama Opportunity: Agent of Change in a Time of Crisis," *Policy Options* (February): 18-25.

Craik, Neil, and Joseph DiMento. 2008. "Environmental Cooperation in the (Partially) Disaggregated State: Lessons from the Security and Prosperity Partnership of North America," *Chicago Journal of International Law*, vol. 8, no. 2 (Winter): 479-512.

Ellerman, A. Denny, et al. 2008. *Emissions Trading in the European Union*. Cambridge: Cambridge University Press.

Environment Canada. 2008. *Turning the Corner: An Action Plan to Reduce Greenhouse Gas Emissions and Air Pollution*. Ottawa: Environment Canada.

Fowlie, Jonathan, and Fiona Anderson. 2008. "B.C. Introduces Carbon Tax: Province is First Jurisdiction in North America to have Consumer-Based Carbon Tax," *Vancouver Sun* (February 19).

Graubart, Jonathan. 2008. *Legalizing Transnational Activism: The Struggle to Gain Social Change from NAFTA's Citizen Petitions* (University Park, PA: Penn State University Press).

Helleiner, Eric. 2006. *Towards North American Monetary Union? The Politics and History of Canada's Exchange Rate Regime*. Montreal: McGill-Queen's University Press.

International Joint Commission. 2003. *Climate Change and Water Quality in the Great Lakes Region*.

Jaccard, Marc. 2007. "Designing Canada's Low-Carb Diet: Options for Effective Climate Policy," C.D. Howe Institute 2007 Benefactors Lecture. Toronto: C.D. Howe Institute.

Lucas, Alastair. 2004. "Legal Constraints and Opportunities: Climate Change and the Law," in *Hard Choices: Climate Change in Canada*, eds. Harold Coward and Andrew J. Weaver. Waterloo: Wilfrid Laurier University Press, pp. 179-198.

McDougall, John. 2006. *Drifting Together: The Political Economy of Canadian-United States Integration*. Peterborough, Ontario: Broadview Press.

National Wildlife Federation. 2007. *Climate Change and Great Lakes Water Resources.*

Pendergrass, John. 2008. "GHG Policies in All Regions but South," *Environmental Forum* (January/February), p. 10.

Rabe, Barry G. 2007. "Beyond Kyoto: Climate Change Policy in Multilevel Governance Systems," *Governance: An International Journal of Policy, Administration, and Institutions*, vol. 20, no. 3 (July): 423-444.

Rabe, Barry G. 2008. "States on Steroids: The Intergovernmental Odyssey of American Climate Policy," *Review of Policy Research,* vol. 25, no. 2 (March): 105-128.

Rabe, Barry G. 2008a. "Regionalism and Global Climate Change Policy: Revisiting Multistate Collaboration as an Intergovernmental Management Tool," in *Intergovernmental Management for the 21st Century*, eds. Timothy Conlan and Paul Posner. Washington, D.C.: Brookings Institution, 176-205.

Raymond, Leigh. 2003. *Private Rights in Public Resources.* Washington, D.C.: Resources for the Future Press.

Selin, Henrik, and Stacy VanDeveer eds. 2009. *Changing Climates in North America*. Cambridge: MIT Press.

Speth, James Gustave, and Peter M. Haas. 2006. *Global Environmental Governance*. Washington, D.C.: Island Press.

Stuart, Reginald C. 2007. *Dispersed Relations: Americans and Canadians in Upper North America*. Baltimore: Johns Hopkins University Press and Woodrow Wilson International Center for Scholars.

Victor, David G. 2004. *Climate Change: Debating America's Policy Options.* New York: Council on Foreign Relations.

Weisman, Jonathan. 2009. "Obama, in Canada, Warns Against Protectionism," *Wall Street Journal* (February 20): A4.

Western Climate Initiative. 2008. "Draft Program Scope Recommendations." (March 3), pp. 1-35.

Wyman, Katrina. 2002. "Why Regulators Turn to Tradeable Permits: A Canadian Case Study," *University of Toronto Law Journal*, vol. 52, pp. 419-502.

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