Walter and Duncan Gordon Foundation

Working together: What does Canada have to gain?

Water Policy Fellowship report

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Abbreviations

CCFAM	Canadian Council of Fisheries and Aquaculture Ministers
CCME	Canadian Council of Ministers of the Environment
CCREM	Canadian Council of Resources and the Environment Ministers
CDW	Committee on Drinking Water
CIS	Common Implementation Strategy
CWRA	Canadian Water Resources Association
Defra	(UK) Department for Environment, Food and Rural Affairs
DG	Directorate General
EC	European Commission
ERA-Nets	European Research Area Networks
EU	European Union
FLOW	Forum for Leadership on Water
ICPDR	International Commission for the Protection of the Danube River
IJC	International Joint Commission
INTERREG	Interregional Cooperation Programme
IRBC	International River Basin Commission
NGD	National Groundwater Database
NRTEE	National Round Table on the Environment and Economy
OECD	Organisation for Economic Co-operation and Development
PoM	Program of Measures
PPWB	Prairie Provinces Water Board
QMV	Qualified Majority Voting
RBMP	River Basin Management Plan
SEA	Single European Act
UK	United Kingdom
US	United States (of America)
WFD	Water Framework Directive
WISE	Water Information System for Europe

Executive Summary

Despite the persistent myth of freshwater abundance, there is a real potential that regions throughout Canada, especially in the western provinces, may experience severe shortages. Experts warn that the stakes of mismanagement and inaction on water resources are higher today than ever before.

While in Canada, governance structures and institutional arrangements continue to form barriers to coordinated water management across the country, other nations have taken the lead. Since 2000, European member states have been working collaboratively towards harmonizing the management of their water resources. The driver for this effort is an ambitious policy: the European Water Framework Directive (WFD). It aims to improve the quality of the water environment across the European Union (EU) and establish common standards and practices that safeguard the quantity and quality of its water for the future.

This paper considers the first decade of WFD implementation in the EU to identify the benefits that member states are deriving from the experience of multi-jurisdictional collaboration. It also explores the governance context in which they are set to assess how Canada could derive similar gains.

40 interviews were conducted with Canadian and European officials for the purpose of this research. The evidence from these interviews indicates that the implementation of the WFD over the past ten years has generated five key benefits for the EU and its member states:

1. **Stronger transboundary institutions**: the mandate of water institutions has been clarified with the WFD and there is renewed momentum for collective action;
2. **More effective working relationships**: the interpersonal relationships and trust established between delegates means a greater potential to achieve the desired outcomes;
3. **Increased capability in water protection:** knowledge exchange and the sharing of experience between countries leads to "levelling towards the top" of European capability;
4. **Better understanding of the resource**: more data is collected and is readily comparable which translates into a clearer picture of the state of water resources across Europe and a better understanding of the issues locally;
5. **More efficient water conservation**: the duplication of effort is reduced and a considerable amount of resources are saved in the development of common solutions to similar problems.

The evidence provided by Canadian contributors and expert reports suggest that should Canada achieve levels of coordination similar to that which was attained through the WFD, it too would improve water management across the country. This supports the view of many expert groups who believe that the solution to Canada's water challenges requires a more coordinated national approach.

Collaboration under the WFD is set in the particular context of EU environmental governance, which has similarities and also marked differences with the current

Canadian environmental governance regime. In the EU, although the competencies for environment are shared between member states and the central government, (in a way similar to the shared responsibility over water in Canada) the Single European Act confirmed that environmental management would become one of the formal policy goals of the European integration. This gave the EU government a legal base from which to make progress on environmental governance. EU environmental policy has become increasingly more effective in the last decades as a result; and the transposition of EU directives into national law has meant that national policies have also been strengthened.

In addition, EU institutions apply enforcement powers established under the Amsterdam Treaty, which provides a tangible threat of penalty for non- compliance. In comparison, there is no costly exit from agreements negotiated at the Canadian Council of Ministers of the Environment (CCME) and no credible threats of enforcement of existing legislation from governments in Canada. This context has led to a "drive to the top" in EU environmental policy while Canada is "stuck at the bottom".

Other important support mechanisms enable collaboration under the WFD, such as the Common Implementation Strategy (CIS), which provides a formal platform for joint working, and funding instruments, including central government funds and cost-recovery water pricing.

The findings of this research identify five recommendations for improving Canada's national water policy framework:

1. **Invest in rebuilding the relationships between jurisdictions**. This can be done by creating a "space" or forum for delegates to meet regularly, get to know one another as individuals and rebuild some of the trust that has been lost between provincial and federal governments. Investment in the next generation of water leaders is also necessary to ensure that this foundation is in place when they become decision-makers.
2. **Start from existing work and raise the bar higher.** To stimulate multi-jurisdictional collaboration, the objectives of a national strategy should be set sufficiently high to ensure that: (1) no jurisdiction can just sit back and be an "observer" because their work is already done and (2) it is impossible to achieve the objectives by working in isolation from other jurisdictions.
3. **Place the emphasis on measurable results.** Setting the objectives of a national strategy on measureable results will lead to the valuation of data. If planned appropriately, this should lead to increased monitoring and standardized data collection programs, thereby contributing to a better understanding of the water resources locally and across the country.
4. **Institute meaningful consequences.** Effective collaboration is unlikely to happen in the absence of credible threats of consequences for non-compliance. Enforcement mechanisms established outside the WFD and carried out by the central government have proven very effective in the EU. The Canadian federal government should determine what mechanism(s) would be most appropriate by building on the powers it has under its legal and constitutional powers.

5. **Establish reliable sources of funding.** Financial resources are a key enabler of participation in collaborative efforts. To ensure their reliability, funding sources should not be solely dependent on central government programs but also include self-generating revenues from new water pricing regimes.

1 Introduction

Water scarcity is the defining crisis of the 21st century (Pearce 2006). Canada is no exception: the country's top water experts say that despite the persistent myth of freshwater abundance, there is a real potential that regions throughout the country, especially in the western provinces, may experience severe shortages. Today, the stakes of mismanagement and inaction are higher than ever before (Morris, Boyd et al. 2007).

Current initiatives from the Canadian Water Resources Association (CWRA), the National Table on Environment and the Economy (NRTEE), the Canadian Council of Environment Ministers (CCME) and the Forum for Leadership on Water (FLOW) all recognize the scale of the challenge and support the development of a coordinated response across the country. To date, however, there is still much reluctance from the provincial governments to coordinate on a collaborative approach and no sign of a national water strategy.

> *I'm surprised that the debate [whether to adopt a national approach to water management] even exists, because it is clear that water cannot be managed on a political jurisdiction basis. Even in a country as large as Canada, simply because the rivers cross borders, [...] the water cycle itself is connected and the [collaboration mechanisms] are absolutely essential and need to be, I would say [they need to be] strengthened if there is going to be successful water management.*(C13)

Where Canada has been unsuccessful to date, other nations have taken the lead. Since 2000, European member states have been working collaboratively towards harmonizing the management of their water resources. The driver for this effort is an ambitious policy: the European Water Framework Directive (WFD). It aims to improve the quality of the water environment across the European Union (EU) and establish common standards and practices that safeguard its quantity and quality for the future.

To attain the objectives of the WFD, the European government and its member states quickly realized that they could not work in isolation. In fact, they quickly recognized that their level of success is dependent on achieving collaboration among jurisdictions. Consequently, they developed mechanisms that support integration and collaboration across member states.

Canada has much to learn from the EU's ten years of experience implementing the WFD through its multijurisdictional collaborative approach.

1.1 Purpose of the report

This report makes a contribution to the national water strategy dialogue in Canada by presenting lessons from the experience of the WFD. It identifies the benefits that European member states are deriving from their experience of multi-jurisdictional collaboration and explores the governance context in which they are set to assess how Canada could derive similar benefits.

A *national* strategy is distinct from a *federal* strategy. A federal water strategy would clarify the federal government's policies relating to water. A national water strategy involves a coordinated platform for addressing water-related challenges and opportunities that demand a national (pan-Canadian) perspective. It would include all stakeholders: the federal, provincial and territorial governments, aboriginal peoples and others with an interest in water (De Loë 2009).

1.2 Structure of the report

The report is divided into six main sections. Section 2 presents the methodology. Section 3 describes the key features of the WFD. Section 4 explores the benefits of collaboration in implementing the WFD and examines the relevance of lessons learned to Canada. Section 5 explains the key features of European environmental governance and contrasts them to those of Canadian environmental governance. Section 6 explores the conditions which would enable effective multi-jurisdictional collaboration in Canada. The final section (Section 7) summarizes the findings and outlines key recommendations.

2 Methodology

The results of this study are derived from an extensive literature review and 40 interviews with Canadian and European officials. In both locations, government officials, representatives from non-governmental organizations, river basin managers, academics, and other private and public sector experts provided their views and insights on multi-jurisdictional collaboration for water management.

In Europe, the research focused on the experience of three member states: the United Kingdom (UK), France and Germany. Contributors were asked to identify the key benefits of collaboration under the implementation of the WFD and to describe the conditions and mechanisms that best supported it.

In Canada, the research focused on the experience of three provinces: Ontario, Québec and Alberta. Contributors were asked to discuss the potential benefits of a coordinated approach to water management across Canada, what would be the risks of not adopting such an approach (status quo), and what mechanisms and conditions would be required to support its implementation.

In addition to the experience of individual jurisdictions, the research also considered the perspectives of the supra-national (EU) and national (Canadian) levels of government.

To preserve anonymity, the names of the contributors are not disclosed. However, a list of their organizations is provided in Appendix A.

3 The European Water Framework Directive

The European Water Framework Directive (2000/60/EC) (WFD) is a legally binding policy for the management and protection of water in the European Union (Bakker 2006). It requires member states to aim to achieve good chemical and ecological status for all of their waters (surface, groundwater, transitional and coastal) by the year 2015. Under the WFD, "good status" is defined as biological, physico-chemical and hydromorphological conditions deviating only slightly from those found under undisturbed conditions (Le Quesne 2010).

At the time of its enactment, commentators said that the WFD represented the most important initiative in water resource management to be introduced on an international basis for many years (Chave 2001). Even today, the WFD continues to draw the attention of experts. Margaret Catley-Carson recently said that it was possibly the most ambitious integrated water policy in place anywhere in the world.[i]

3.1 Key features

> *[What makes] the WFD an interesting form of governance and regulation is that you don't specify in great detail what has to be done. But the bottom line, the outputs or even the outcomes are prescribed in advance. And how people get there is up to them. So it's creating this pressure to achieve the outcomes. (C17)*

The WFD is a framework policy which means that it sets guiding principles, objectives and timelines, while allowing individual jurisdictions to define the objectives in practical terms and determine the best methods for achieving them. Implementation mechanisms are flexible and can be adapted to local institutions and culture as long as the objectives are achieved and the principles respected (Le Quesne 2010). As opposed to prescribing specific means or the use of certain technologies, the WFD focuses on results.

Member states have a legal obligation to achieve these results. This follows the way in which the European Union (EU) promulgates regulations. Regulations are formulated as directives that member states are required to transpose into their own national legislation in order to give them effect (Weibust 2009).

When the WFD entered into force (2000), it established innovative policies in European water legislation and consequently, in water management across member states. Novel concepts in the directive include:

- expanding the scope of water protection to all waters, surface waters and groundwater;
- introducing water management based on river basins rather than political and national boundaries;
- promoting a holistic approach to water management centred on the environment instead of predominantly human needs;

- introducing the costs of environmental externalities into water pricing in order to encourage conservation;
- increasing public participation in policy-making in order to increase transparency and compliance; and
- coordinating policies that previously addressed different water types separately (for example bathing waters) and coordinates water management strategies (Chave 2001; Kaika and Page 2003; European Commission Environment 2009).

In 2000, when member states signed the WFD, the EU consisted of 15 countries. Since that time, its membership has increased to 27 and all members are required to implement the WFD. In fact, because of shared river basins, the implementation of the Directive also involves jurisdictions outside the EU, such as Norway and Switzerland.

In addition to the central policy, the WFD also provides two daughter (supplemental) directives: the Groundwater Directive (2006/118/EC) and the Priority Substances Directive (2008/105/EC) – both of which were announced in the WFD as forthcoming policies that would complement the central policy.

3.1.1 Timeline for implementation

Member states are required to achieve the objectives of the WFD by 2015. To facilitate the meeting of objectives, interim deadlines and a combination of methods and tools such as River Basin Management Plans (RBMPs) and Programmes of Measures (PoMs) have been established.

Appendix B shows the timeline for implementation as prescribed by the European Commission (EC).[ii] Since 2000, member states have achieved a number of milestones: the Directive has been transposed into national law (2003); water management units have been identified (there are 110 river basin districts under the WFD) the pressures affecting theses river basin districts have been characterized (2004); monitoring networks have been established and public consultations where held (2006-2008). Most importantly, this work culminated in the production of the first set of River Basin Management Plans (RBMPs) , which member states submitted to the Commission in March 2010.

The plans cover a six-year period, from 2010 to 2015. They describe the current status of the waters in the river basin district (relative to good status), objectives for improvement and the measures required to achieve the objectives (the PoMs).

The period 2010-2015, is the first cycle of river basin management set by the Directive. The Directive outlines two subsequent six-year cycles of river basin management to allow for potential derogations (which have to be justified according to the terms of the Directive) and to ensure that good status is maintained. The second cycle of river basin management will cover the period 2016-2021 and the final one, 2022-2027. A new set of RBMPs will be produced for each of these periods.

The next deadline for member states is 2012, when they will need to submit an interim report to the Commission on the progress made during the first river basin management cycle.

3.2 Common Implementation Strategy

The text of the Directive is complex and contains a number of terms that needed to be defined. The members stated recognized this complexity as the Directive was being drafted and demanded the support of the European Commission (EC) in the implementation of the policy. The Commission accepted and in 2001, the member states and EC jointly launched the first common implementation process in the history of European policy-making: the Common Implementation Strategy (CIS). Its objective is:

"*[…] to allow, as far as possible, a coherent and harmonious implementation of the framework directive. Most of the challenges and difficulties arising will inevitably be common to all Member States and many of the European river basins are shared, crossing administrative and territorial borders, where a common understanding and approach is crucial to successful and effective implementation. A Common Strategy could limit the risks of bad application of the Directive and subsequent dispute.*" (European Commission 2001)

For the first time, the EC and member states set up a common strategy for implementation –the Common Implementation Strategy. This is very innovative and did not exist for previous directives. (C2)

The CIS has a defined organizational structure. The process is guided by a strategic coordination group, composed principally of representatives of the European government, national departments and ministries across the member states, with the participation of non-governmental organizations, representatives from industry and civil society. Its task is to establish a work program to be carried out by a number of working groups. The working groups are composed of experts from across the EU, mostly scientists, who develop guidance documents on specific aspects of the WFD. These documents cover, for example, the common interpretation of "ecological status", and provide advice on the consideration of climate change impacts in the implementation. Some groups are permanent fixtures and others are assembled ad hoc for the duration of a specific work program. Working groups are led by a "pilot", which can be a member state, the EC, or a team of member states and the EC.

Once guidance documents are complete, they are presented to the Water Directors for adoption. Each member state has a Water Director whose main role is to represent their country at the European level in the CIS process. They are generally senior civil servants from the national environmental department. In the UK for example, this role is filled by a representative from the Department of the Environment, Food and Rural Affairs (Defra). Water Directors meet every six months in Brussels and are the highest authority involved in the CIS.

The strategic coordination group regularly reviews its work program to adapt to needs of member states throughout the implementation of the Directive. Twenty-four

guidance documents have been published to date and are available online at no charge.[iii]

Despite its well-defined structure and procedures, the CIS is not a formal forum for decision-making and outcomes are not legally binding (European Commission 2001). Member states are not obliged to participate in the process and the guidance documents are intended as to guide implementation actions, not as prescriptive requirements.

The EC, member states and stakeholders consider the CIS such a successful process, that it has inspired the design of subsequent EU policies, including as the Marine Strategy Framework Directive (2008/56/EC).

Thus, since the very beginning, implementation of the WFD has been accompanied by an innovative collaboration mechanism. The next section describes the benefits of collaboration as told by contributors during the interviews.

4 Benefits of a collaborative approach

The contributors to this research identified five key benefits of the collaborative approach established under the WFD:

1. Stronger transboundary institutions;
2. More effective working relationships;
3. Increased capability in water management;
4. Improved understanding of the resources; and
5. More efficient water conservation.

4.1 Stronger transboundary institutions

> *The cooperation that came through the river basin planning process of the WFD reinforced what was already there but in essence [...] was the glue that solidified the initiatives that were underway. (C13)*

International river basin commissions (IRBCs) existed in Europe prior to the Water Framework Directive (WFD). For example, the International Commission for the Protection of the Rhine (involving nine countries) was founded in 1950. However, the Directive's requirement for water management on a river basin scale has given IRBCs a new, more comprehensive mandate and has helped to refine their objectives. They have become coordinating bodies for the delivery of the WFD. They are the agencies responsible for the development of RBMPs and POMs and as such, act as platforms for collaboration between bordering countries.

The Danube is the international river basin that intersects the most number of countries. The river flows through18 countries, 14 of which are signatories to the International Commission for the Protection of the Danube River (ICPDR) (Seligman 2008). One interviewee explained that the WFD provides an organizing framework for the ICPDR, in which bordering countries share methodologies and learn from each other. The Directive reinforced the collaboration that was already enshrined in the Convention to the point where the river basin boundaries have become more important than the national boundaries in the management of water.

Many contributors believe that, in terms of collaboration, the Directive has had the most influence in transboundary river basin management. Of the 110 river basin districts delineated under the WFD, 40 are international basins (European Commission 2007). Consequently, "[E]veryone has to talk more to the other sides than before" (C5) and the work sessions of IRBCs have become much more practical and open.

This influence also extends to countries on the periphery of the European Union (EU) because some river basins are shared between EU member states and non-member state countries. In these cases, the coordination of water management measures is still required which extends the impact of the WFD outside of EU borders.

Where no IRBC or similar co-management mechanism exists between countries sharing a river basin, the WFD outlines incentives to encourage collaboration. For

example, no collaboration mechanism existed between Northern Ireland and the Republic of Ireland before the Directive, despite them sharing two river basin districts (the North Western and Neagh Bann river basin districts).

4.1.1 Canada on transboundary collaboration

The Canadian officials interviewed suggested that because of Canada's large landmass, it is easy to underestimate the significance of transboundary relations across the country – both in terms of interprovincial / territorial relations as well as between Canada and the United States.

There are more than 300 rivers and lakes that span the boundary between Canada and the US[iv] – which is especially significant, given that approximately two thirds of Canadians reside in these boundary water basins.[v] In addition, some of the most pressing water quality issues in Canada are being felt in the basins that Canada shares with the U.S including Lake Winnipeg and the Great Lakes. For instance, four Canadian provinces and four American states fall within the Lake Winnipeg watershed. The Lake itself is located wholly within the province of Manitoba, yet more than half of the nutrient loading that plagues the lake comes from sources outside of the province (Pentland 2010). For reasons like these, Canada's transboundary reality merits as much consideration as in Europe.

Holzinger and Sommerer use economics to communicate the significance of transboundary relations: "[…] in the case of transnational environmental goods [such as water] there are environmentally justified incentives for international cooperation: due to externalities between the states those problems can only be solved efficiently together" (Holzinger and Sommerer 2008). Conceivably, this also applies to environmental goods crossing sub-national boundaries (discussed later in this section).

> *The Boundary Water Treaty is the envy of the world. There is nothing quite like it. Hopefully our two federal governments will reacquaint themselves with its value, which lies in its use. (Ralph Pentland)*

Dispute resolution in river basins shared between Canada and the US is the mandate of the International Joint Commission (IJC), created in 1909 by the Boundary Water Treaty. In 100 years of existence, the IJC has a remarkable track record. It has received close to 100 references by the US and Canadian governments and has only failed to reach consensus on two occasions, with the governments acting on its recommendations most of the time (Pentland and Sandford 2009). However, two trends in recent years could hinder the ability of the IJC to respond to threats facing boundary waters: more expedient political processes which bypass the sound technical approach of the IJC and the decline of federal water science capacity which supports its work. These trends are troubling and experts are calling for a "reinvigoration" of the Commission through increased support of Canadian and U.S. governments (Pentland and Sandford 2009).

When considering the transboundary reality within Canada, interviewees pointed to the Prairie Provinces Water Board (PPWB) as the most successful transboundary organization in the country. Created in 1948, the parties (Manitoba, Saskatchewan,

Manitoba and the federal government) agreed on a formula for sharing their waters which were set out in the Master Agreement on Apportionment in 1969. The mandate of the PPWB has since been expanded to include water quality issues (Saunders and Wenig 2006). According to contributors, its success is due to a simple but effective governance structure, close relationships between the individuals involved and the existence of a binding dispute resolution mechanism from the Federal Court. Recently, observers have started to question whether the pressures of climate change, growing water demands and new infrastructure proposals might challenge the collaborative spirit of the agreement (Maas and Telfer 2007). To date however, the PPWB is one of Canada's best examples of multi-jurisdictional collaboration.

The PPWB stands in sharp contrast to what is happening in the Mackenzie River Basin (the jurisdiction of which shared by the provincial governments of British-Columbia, Alberta, Saskatchewan, the Northwest Territories, Yukon and the federal government). Negotiations for an agreement on apportionment of flows in the Mackenzie took 25 years and culminated in a text with highly general wording, leaving the difficult issues to bilateral negotiations which continue to drag on (Saunders and Wenig 2006). Only one of the bilateral agreements has been signed between Yukon and the Northwest Territories. The Mackenzie River Basin Transboundary Waters Master Agreement contains provisions for dispute resolution but lacks any means of enforcement (Saunders and Wenig 2006).

These findings paint a sub-optimal picture of transboundary collaboration in Canada, where few transboundary river organizations currently operate effectively to protect shared water resources between provinces and territories and between Canada and the US. Failure to remediate this could lead to escalating potential for conflict as well as negative social, economic and ecological impacts. It is evident that Canada would benefit from strengthened transboundary institutions.

4.2 More effective working relationships

European contributors identify that collaboration under the WFD has improved the effectiveness of the working relationships between member states, and between member states and the EC. As a result, this has created increased the potential of the WFD to achieve its desired outcomes.

First, interviewees believe that the degree of communication between member states has increased significantly compared to that which existed before the Directive. Discussions are both more frequent and more intensive, resulting in the development of interpersonal relationships between member state delegates. These closer relationships have enhanced the efficiency of the work of individual delegates. For instance, when in need of particular information, they are more likely to go directly to a primary source. One contributor explains: "The result of this is that, now, Mario in Italy calls Albert in Germany when faced with a problem which he knows is similar to those over there" (C12).[vi]

This new "proximity" not only facilitates the flow of information between member states but it has also spawned a number of international research groups. There are many occurrences of individuals who, after seeing one another recurrently at working

group meetings, decided to join forces to prepare research proposals that would support WFD implementation.

Over the years, delegates have grown comfortable with one another which facilitates debate and the exchange of views. In the words of a contributor, the delegates even "laugh together" (C5). Certain contributors talked about an atmosphere of trust, which they identify as being at least as, if not more, essential than the actual substance of the discussion or agreement.

> *If the people don't like each other and don't trust each other, you can forget the whole thing. (C5)*

The interviews also indicate that in the development of these relationships, delegates have gained a better understanding of one other's disciplines, cultures, legislatives systems and approaches. As a result, they have a greater appreciation for their colleagues' backgrounds and experience, and are more capable of working within the cultural and institutional diversity that exists across the 27 EU countries. What might have seriously hindered the progress of the work has now become a non-issue.

Contributors noted that establishing interpersonal relationships requires more time and resources than the traditional, top down policy approach. Yet they also recognized that the latter is much less effective and limited in terms of ability to positively contribute to collaborative water management.

4.2.1 Canada on working relationships

The Canadian contributors also see considerable value in increasing the frequency of exchanges and meetings between provincial, territorial and federal representatives in order to "get to know" one another. On the surface, these could appear as strange comments; after all, Canada is a single country with largely similar institutions in each of its jurisdictions. Yet, as one of observer notes: "As Canadians, we don't know each other very well frankly […] we tend to think we're fairly similar when we're actually very different in our social objectives" (C3).

> *Nothing beats getting together and getting to know people. (C11)*
>
> *[Implementation] takes a lot of trust being built up which can only happen through people talking together and getting to know each other. Social networks are absolutely critical here. (C1)*

Many contributors spoke of the need to build closer relationships between representatives to foster collaboration. According to one, the key behind the success of the agreements supporting the Water Survey of Canada was the three to four years of working history that the parties had with each other prior to their final approval in 1975: "Now you try to do [something similar] for groundwater or water quality, any other area, and you can't. [Environment Canada] never developed that relationship"(C18).

Departmental travel budget cutbacks in a time of financial difficulty pose a significant obstacle to the development of these relationships. Many provincial governments have temporarily banned out-of-province travelling for their staff. As a

result, the face-to-face meetings required to build those relationships are not happening. One contributor compared it to building a house where relationships are akin to the foundation: without a good foundation, there is little point in building the walls or a roof, or in this case, talking about involvement and sharing of data.

Perhaps more important still is the level of distrust that plagues relationships between federal and provincial governments on matters of the environment. According to experts, this issue is rooted in the late 1980s and 1990s when the federal government made imposed significant budget cuts in an attempt to address the national deficit. During those years, under the pressures of globalism, deficits and debt servicing charges simultaneously ballooned, pressuring governments to balance their budgets (Pentland 2009). The federal government decided that overcoming the deficit would be its highest priority. Issues of the public good such as health, education and the environment were demoted. Environment Canada suffered large budget and staff cuts which resulted in the unilateral and abrupt termination of important federal-provincial water and environment agreements[vii]. For example, the Canada Water Act fund, which supported the federal contribution to many of these federal-provincial agreements was essentially eliminated as well as a significant portion of the policy, scientific, technical and data collection expertise that supported them (Pentland 2009). Despite the years that have gone by, these events left a legacy of mistrust among senior provincial officials which continues to affect the level of collaboration on water today.[viii]

On a positive note, some contributors have been able to maintain long-lasting relationships over the years. One person told the story of his involvement in a CCME committee where, although the committee was dismantled five years ago, the participants kept in touch. Today, they still exchange emails, keep each other informed of practices in their jurisdictions and go out for a meal when attending the same conferences.

Despite isolated cases of personal relationships such as these there is a critical need for more systematic relationship building to enable the development of the relationships, essential to facilitating collaboration across Canadian jurisdictions.

4.3 Increased capability in water protection

The previous section alludes to the fact that tighter social networks facilitate the flow of information between the members of those networks. European contributors all agree that member states currently exchange significantly more knowledge on water, formally and informally, than prior to the WFD.

Very early in the implementation process, member states realized that it was in their best interest to learn from each other and share the practices that exist in their respective countries. The first purpose this served was to ensure that all countries spoke the same language in operational terms and consistently interpreted the WFD text. This quickly developed into a transfer of expertise.

To date, the majority of the knowledge exchange happens in the technical and scientific domain through CIS working groups, some joint research initiatives and other platforms such as European Research Area Networks (ERA-Nets). In practical

terms, this means that the member states that struggle with, for example the hydromorphological parameters of the WFD, learn from member states that have developed some expertise in this area. As member states get more support in the areas in which they are less competent, the process has the effect of raising overall competence of individual jurisdictions, resulting in a "levelling towards the top" in the capabilities of member states across the EU.

In addition, knowledge exchange has led to cross-fertilization, or the combining of different ideas and ways of thinking for mutual benefit. This has meant that solutions tend to be more effective because they involve the ideas of a combination of experts.

4.3.1 Canada on knowledge transfer

Canadian contributors believe that one of the main benefits of establishing a national approach is that it would necessarily create more interaction between the provinces, territories and federal government, both in the development of this approach and during its implementation. The process would increase the frequency of contact between delegates and create opportunities for information sharing and learning from each other's approaches.

One contributor explains that he "is always struck by the fact that some really interesting initiatives are taking place in certain provinces, while other provinces are not aware of them" (C15).[ix] He suggests that the linguistic barrier can be an impediment to this: "many things are done in Québec under the Politique Nationale de l'Eau but people in Saskatchewan or British Columbia know little about what is being done"(C15).[x] Other contributors blame Canada's vastness and argue that this is the reason why for example, British Columbia is often not aware of initiatives in Nova Scotia.

European member states also face the challenge of bilingualism or even multilingualism. In fact, most IRBCs operate in several languages. For instance, the Rhine river basin commission translates documents into German, Dutch and French for the use of each participating member state, demonstrating one means for overcoming this challenge. Canadian contributors see definitive advantages in communicating the initiatives of one jurisdiction to the rest of the country. At the moment, this process is ad hoc and original initiatives do not generate the interest they should. In the view of many, a national approach would support jurisdictions in sharing what they are learning through the implementation of their own provincial and territorial water policies to everyone's benefit.

These comments identify the present communication gap between Canadian jurisdictions and the pressing need to fill it. There is a need for a permanent mechanism of exchange, such as a form of national water forum, to move stakeholders beyond ad hoc exchanges that depend on conferences, into systematic and structured opportunities knowledge transfer.

Improved knowledge transfer could assist Canadian jurisdictions in becoming more competent at water resources protection as a result of closer collaboration.

4.4 Better understanding of the resource

Since concepts such as ecological status, methods such as classification tools and assessment criteria such as biological parameters have been defined and agreed on, all member states are working from a similar foundation. More importantly, they are reporting on the same indicators, making it possible to compare results and progress, and to compile an overview of the status of water resources across the EU. Moreover, because the scope of the WFD includes all waters and biological, hydromorphological and chemical parameters, this is a very comprehensive overview. As one contributor observed:"[...] from the perspective of the European Commission, we are actually getting a holistic overview of the water quantity and quality" (C19).

Online platforms support the exchange of data between member states. The most important one is the *Water Information System for Europe*[xi] (WISE) developed by the EC with the support of the European Environment Agency. WISE is used to store and view the information reported by member states. Implementation of the WFD is generating a considerable amount of data which is stored in a single place, in a standardized format. This information is publicly available and can be viewed, downloaded and queried over the internet in the format of maps and spreadsheets. The interactive maps show at a glance the outcomes of various assessments conducted under the implementation of the Directive across the EU. WISE is a work in progress and will continue to evolve with the implementation of the WFD and the advancement of other European water initiatives.

Common data formats and easy access facilitates the exchange of information between member states as well as beyond the EU. One contributor observed that this exercise of collating comparable data on the status of water in the EU in a single database has generated a common valuation of the data across member states.

Although there is considerable amount of work involved in the implementation of the WFD, contributors see that member states are now starting to get a much better overview on the status of water issues within their own boundaries, and where the pressures and impacts are most strongly felt. In their own words: "Linking the policy objectives back to ecology has drawn attention to problems that have been ignored for a long time" (C16).

A contributor from the UK explained that whereas before, issues such as diffuse pollution and geomorphological impacts previously received less attention, "[w]hat we are doing now is shining a spot light on those types of issues" (C4). Now the WFD requires that national systems be established to deal with these intractable issues. This enhances the visibility of problems, ensuring stakeholders are aware of the consistency of these issues. He added that it is now possible to show common problems across the country on maps that policy-makers can understand. Ignoring intractable issues or maintaining status quo has, therefore, become very difficult.

The significant data requirements of the assessments also highlighted flaws in the member states' existing monitoring systems. These range from insufficient geographical coverage to irreconcilable data from multiple organizations, which need

to be addressed to obtain accurate results and better information on the state of the water environment.

4.4.1 Canada on better understanding the resource

Canadian contributors also make the link between standardized information collection and better understanding of the state of water resources across the country. Without good information, it is impossible to make good decisions. Throughout Canada, water practitioners, researchers and other stakeholders agree that there are serious gaps in knowledge of the resource which impede effective water management (Morin and Cantin 2009).

Better information is critical to support decisions now and into the future. This is why, for example, the IJC is in the process of harmonizing hydrographical data in the Great Lakes basin between Canada and the US through the International Watershed Initiative. The objective is to have a seamless picture of the situation instead of one that ends at the border. According to one contributor, datasets are currently reconciled by considerable manipulation of the data, making it difficult to decide if the conclusion is an artefact of the reconciliation exercise or a conclusion based on evidence.

> *If you don't understand [the resource], sooner or later, you're going to get pushed into issues that, if you don't have that information [you won't be able to resolve]. It's just astounding [that the information required is not there] and yet, you are making decisions. (C18)*

The situation at the border is no worse than inside the country. At the moment, information on water in Canada is fragmented and scarce. Data is collected through various monitoring programs and by a variety of actors but it is rarely done in a way in which it can be compared across provinces and territories or river systems. In addition, these programs are generally sporadic in time and space, responding to a specific purpose at a specific time and are thereafter regularly discontinued. Also, the data collected by universities, consultancies and private sector industries generally do not contribute to public databases and tends to be lost in archived paper reports (The Expert Panel on Groundwater 2009). Current practices are contrary to the principle of treating water and water data as a common resource. The Organisation for Economic Co-operation and Development (OECD) 2004 Environmental Performance Review for Canada describes the environmental information as incomplete and surprisingly poor in some areas (Organisation for Economic Co-operation and Development 2004). One exception for surface water might be the Water Survey of Canada which has collected data on water quantity from hydrometric stations across the country since the 1970s. Today this network includes 2,844 operational stations of which roughly half transmit data in real-time. Data from 5,577 inactive stations remains available (for a fee) through Environment Canada's website (The Expert Panel on Groundwater 2009). However, the first national assessment of water quality in Canada was published in 2003, based on a meagre 319 sampling stations. Then in 2007, the Canadian Environmental Sustainability Indicators provided a snapshot of freshwater quality from 2003-2005 (Environment Canada 2007).

The Expert Panel on Groundwater has found that the situation regarding information on groundwater resources is similar to that for surface water. Although all provinces and local agencies have on-going water level monitoring programs, the number of observation points is generally insufficient and water quality data are not a priority. To date, systematic efforts to assemble groundwater–related data into a readily accessible pan-Canadian information management system have been limited (The Expert Panel on Groundwater 2009). Experts believe that a common database structure shared among departments would offer several advantages: it would facilitate a common portal to publicly disseminate data, minimize staff support required to maintain the databases and remove duplication of effort to assemble and maintain the data (The Expert Panel on Groundwater 2009).

As water policies increase in salience over the coming decades, data and science following a common national standard will become increasingly important (Morin and Cantin 2009). The positive news is that several initiatives are underway to start addressing this problem. One is the National Groundwater Database (NGD), hosted by the Geological Survey of Canada. The management of the NGD proposes to establish standard data types, which will be publicly disseminated for various groundwater mapping projects. Another is the National Water Atlas, a joint initiative of Environment Canada, Agriculture and Agri-Food Canada and Statistics Canada to create a web-based atlas which will provide a scientific and general overview of the state of water quality and quantity in Canada (The Expert Panel on Groundwater 2009).

In short, experts view the collection, maintenance and management of existing and newly collected water data and access to these data as a priority for action across the country (The Expert Panel on Groundwater 2009). Contributors believe that a national approach would bring consistency to the data being collected as well as the systems, responsible for sharing this information. Considering the current state of the knowledge on Canadian water resources, this would represent a very tangible benefit.

4.5 More efficient water conservation

Collaboration also leads to clear economies of scale. In the EU, collaboration on a common operational approach has prevented a "reinventing of the wheel" in each jurisdiction and has saved a considerable amount of resources in the development of common solutions to similar problems.

In her study comparing four federal systems on their environmental performance, Weibust finds that there are economies of scale in collecting and analysing environmental quality data centrally. Decentralized systems tend to have less capacity for monitoring and disseminating information on environmental quality (Weibust 2009). This is certainly the experience of the EU where, as described in section 4.4, the monitoring and dissemination of information on water has significantly increased as a result of the centralization of water policy.

4.5.1 Canada on efficiency

Canadian contributors recognize the potential economies of scale that can be achieved when working together; "let's do it once well as opposed to having to do it separately in each jurisdiction" (C8). Each jurisdiction developing its own methodology is not as efficient as developing a common one in collaboration. There are synergies to be generated and this applies to policy development as well as to research activities. Since funding is limited, jurisdictions and departments should aim to get the most value out of every dollar.

> *[…] there is efficiency on the policy development side of things in having everybody work together; I mean this has been attempted for at least ten years in terms of trying to get just the five federal families together let alone the five natural resource departments with the provinces. The amount of energy that is being wasted right now in government on trying to get something going is huge. (C10)*

These efficiencies are currently not being captured. Contributors point to the wastefulness of the current system, which is characterized by fragmentation. About 20 federal agencies have responsibilities in water management, with eight having strong mandates (Morin and Cantin 2009). These responsibilities are covered under 11 federal Acts, which tend to be sector specific (e.g. Fisheries Act) or apply to a particular geography or water body (e.g. Mackenzie Valley Resource Management Act). In addition there are two intergovernmental forums, the CCME and Canadian Council of Fisheries and Aquaculture Ministers (CCFAM), who share an interest in water but whose interaction is limited. Experts identified long ago that fragmentation negatively affects water protection efforts in the country, leading to duplication and a waste of resources(Bakker 2006).

Working collaboratively could also prove efficient by spreading the work load, which would reduce the burden of jurisdictions with less capacity. With a national approach driving the strategic work, less well-resourced jurisdictions would not be wasting time repeating this work, but could invest what minimal resources they have into implementation. Many contributors expressed the fear that, without a national approach, some jurisdictions will never be able to invest in coordinated initiatives and as a consequence, there will always be significant disparity in the protection of water resources across Canada.

5 European and Canadian environmental governance

Having identified the main benefits of a collaborative approach, this section examines the key features of European environmental governance to understand how it establishes the right conditions for effective multi-jurisdictional collaboration. It then compares the outcomes of this system to those of the current environmental governance regime in Canada.

5.1 Responsibility for the environment

The European Union (EU) is an economic and political union of 27 member states established in 1993 by the Maastricht Treaty[xii]. It is not a true federal system but it possesses some of its defining elements. In the EU, competencies in the environmental field are shared between member states and the EC and therefore are subject to the principle of "subsidiarity" enshrined in Article 5 of the Treaty. In essence, the subsidiarity principle states that decisions should be made by the lowest possible level of government and that the European government can take action where:

"*[t]he objectives of the proposed action cannot be sufficiently achieved by the member states and can therefore, by reason of the scale or effect of the proposed action, be better achieved by the Community*" (European Community 1992).

The sharing of competencies between levels of government is not dissimilar to the situation in Canada over water, where the responsibilities are shared between the federal government and the provinces. However in the EU, the central government has had a much stronger role in environmental policies. This is largely because in the EU, there is a strong preference for centralizing the policies deemed necessary for the operation of the Single (European) Market. In fact, a wide range of EU competencies are justified by the need to equalize the conditions of competition between member states. Because equalization is defined broadly, over time it has come to include environmental policies (Weibust 2009).

In 1987 the Single European Act (SEA) confirmed that environmental management would become one of the formal policy goals of the European integration. This gave the EU a legal base from which to make progress on environmental governance (McCormick 2001). Now, the environment is not only one of the primary policy interests of the EU but one of the four areas that must be considered in the development of *all* EU policy. The other three are consumer protection, culture and health (McCormick 2001).

5.2 Decision-making process

The European Commission (EC) leads the development of new policy proposals for the EU. In the case of environmental policies, its environment department (the Environment Directorate General) takes the lead. Once a policy has been formulated by the Commission, adoption rests in the hands of the Council of Ministers and the

European Parliament. The Council is comprised of one national minister per member state and represents national interests. The Members of Parliament are directly elected and represent the interest of voters.[xiii]

The adoption process is complex, in part due to the increased powers of the Parliament vis-à-vis those of the Council in recent years. The SEA and Maastricht Treaty effectively made the two institutions co-legislatures and Parliamentary endorsement is necessary before the Council ministers take the final vote on a policy. Although ultimate adoption powers remain with the Council, it has to "play ball" with the Parliament in what tends to be a lengthy and convoluted process of amendments and counter-amendments of proposals (McCormick 2001). Analysts generally view the Parliament as an environmental champion and consequently regard its stronger role as beneficial. McCormick (2001) explains that "[The Parliament's] Committee on the Environment is one of the biggest and most active parliamentary committees and has developed a reputation for encouraging the Commission and the Council to be more ambitious in the goals set by environmental law".

After considering the views of the Parliament, Council ministers must act either by unanimity, by simple majority or qualified majority. Whereas before, environmental legislation was subject to unanimous votes, most EU environmental legislation passed after the Maastricht Treaty (1993) has been subject to the Qualified Majority Voting (QMV) rule of the Council of Ministers. Under QMV, the value of the vote of each member state is calculated by a formula which partially reflects the population of the member states (Weibust 2009). Generally however, the Council seeks to avoid formal voting and prefers to take unanimous decisions, as was done prior to the introduction of QMV (Knill and Liefferink 2007).

In her research on the environmental performance of federal systems, Weibust compares this decision-making process to that of the Canadian Council of Ministers of the Environment (CCME), which also has a preference for consensus on environmental policy. However, to date, the EU has succeeded in setting more stringent environmental standards than the standards that would have been set unilaterally by member states and for this reason, it is generally regarded as a global leader in environmental policy (Weibust 2009). In this respect, the EU record is very different to that of the CCME.

Sections 5.4 and 5.5 examine the achievements of the two institutions in greater detail. The next section describes how EU legislation is implemented and enforced.

5.3 Implementation and enforcement of EU legislation

The EU passes most of its environmental legislation in the form of directives, which member states are required to implement. The implementation process is divided into three steps:

- Transposition: member states must first transpose the law into their own national legislation in order to give it effect. This involves making sure that the national legislative and administrative framework is suitable for the attainment of the goals of the law.

- Practical implementation and measuring results: once the transposition is complete, member states create the necessary administrative, technical and scientific infrastructure to protect and improve the quality of the environment. EU laws contain requirements that member states report back to the EC regularly on the measures taken.
- Monitoring and measuring the effect of the law by the EC (McCormick 2001).

The EC is responsible for ensuring the application of EU law, with the ultimate authority, if needed, to deliver a "reasoned opinion" and bring infringement proceedings against member states (see Text box 1). Reasoned opinions are submitted to the European Court of Justice, who can impose financial penalties on member states. These powers are conferred in Article 228 of the Amsterdam Treaty (European Community 1997).[xiv]

Penalties are generally in the order of millions of Euros for non-compliance and an additional sum per period where the country remains in infraction. In 2005 for example, the European Court of Justice required France to pay a 20M Euros fine for non-compliance with maritime fisheries regulation (known as "l'affaire des poissons sous-taille") and an additional 57,8M Euros per additional 6 months of infringement (European Community 2005). As one contributor remarked: "[T]hese sums are very persuasive"(C9).[xv]

TEXT BOX 1: INFRINGEMENT PROCEEDINGS IN THE EUROPEAN UNION

Infringement proceedings begin with the European Commission (EC) sending a letter of formal notice to the member state, outlining the grounds of the suspected infringement and giving it two months to respond. Following that, if the member state does not respond or the Commission is not satisfied, the Commission delivers a reasoned opinion to the European Court of Justice outlining its position on the legal matter. Court then begins legal procedures which can culminate in imposing a fine to the member state.

There is normally a substantial amount of correspondence between the member state and Commission between the formal notice and reasoned opinion. Reasoned opinions can be delivered for several reasons: failure to notify the EC of the measures taken to incorporate directives into national laws, for non-conformity of the measures taken, for infringement of the treaties or regulations, or for the incorrect application of directives.

The EC relies heavily on the complaints system introduced in the 1960s to identify infringements. This system allows anyone - a government, an elected official, an interest group or an individual - to lodge a complaint with the Commission or even to petition the European Parliament if they suspect that a member state is not meeting its obligation under EU law.

Source: McCormick 2001.

Member states have considerably more discretion over how they implement European legislation when it is a directive rather than a regulation. However failure to transpose a directive properly into national legislation can also result in action by the European Court of Justice and eventually lead to financial penalties (see Text box 1). Even though member states retain discretion in the implementation of European legislation, the level of compliance is very high because of the mechanisms that are in place for monitoring and enforcement (Zürn and Neyer 2005).

5.4 Water Framework Directive: A drive to the top

> *We have raised the bar in terms of water management and standards, well beyond that we were using [...] (C4)*

European environmental policy has become progressively stronger since the 1970s. As a consequence, the transposition of EU directives into national law has generally meant that national policies have also become more ambitious. The Water Framework Directive (WFD) is part of that movement towards stronger environmental policies (see Tex box 2 for an overview of its history). Its objectives are more demanding than any water management objective that would have been set unilaterally at the national level. Consequently, it has encouraged a positive obligation onto the policies of individual member states. A contributor sees this as beneficial: "[...]one of the positive aspects compared to a purely national approach is that [the WFD] hit the gas pedal with regard to environmental policy objectives"(C9).[xvi]

This has had significant consequences. In the UK for example, prior to the WFD, six determinants were used to assess the chemical quality of water. The Directive now requires them to consider 57 determinants to assess the health of water bodies. Under the former assessment system, 70% of UK rivers achieved the then equivalent of "good status". Now that the goal posts have moved, approximately 75% of surface water bodies are at risk of failing to achieve the objectives of the WFD (European Commission 2007). This has meant that the optimistic portrait of increasingly better water quality over the recent decades is much less bright now. The Department of the Environment, Food and Rural Affairs (Defra) has had to explain to the public that water quality had not deteriorated overnight but that the new indicators are much more comprehensive.

Overall, the objectives of good ecological and chemical status represent a much higher bar than any of the EU member states had set for themselves. All European contributors agree that even if their member state had some of the elements of the WFD in place prior to 2000, the Directive requires higher standards. For example, in France water was managed on a watershed scale, however its existing consultation process did not involve the general public. The Directive improved water management in France by now requiring it to consult with key stakeholders *and* the general public. In addition, where there were some broad aims and principles in place without specific timelines or measurable results, the WFD instantly defines those aims and makes them tangible.

TEXT BOX 2: THE MAKING OF THE WATER FRAMEWORK DIRECTIVE

The Water Framework Directive (WFD) was a long time in the making prior to its adoption and its history is rather intricate. The first proposal for a WFD was formulated in 1997. However most of the general principles and ideas that shaped the February 1997 proposal were laid out eight years earlier, at the Como conference. The Como event concluded that it was possible to prepare a proposal that would cover all European Community waters, complementing but not replacing existing water quality directives. Consensus was growing around the inconsistency of the then piecemeal approach to water resources management. The existing water quality directives addressed specific substances, sources, uses or processes with differing, and sometimes conflicting methods, definitions and aims. Stakeholders found this situation unsatisfactory and proposed the 1997 draft for a solution.

Shortly after the submission of this proposal however, the Council of Ministers and European Parliament sent it back to the drawing board on the basis that it lacked scientific and technical detail. The redrafting could only take place over a short window of time, the equivalent of two six-month presidencies for political expediency.[1]

Over this time, the initial draft was amended three times before its adoption in December 2000. The scientific and technical content was developed in parallel to the negotiations of the terms by the European Parliament and Council of Ministers. These negotiations centred on three main controversial points: (1) full cost pricing of water, (2) hazardous substances and (3) the implementation timeline. Although in general, the Commission and the Parliament worked closely together and were sympathetic in their aims, the Parliament was favourable to environmental interests and battled for stringent and legally binding legislation and the Council of Ministers was more supportive of the interests of industry and agriculture.

A common position was finally achieved in the spring of 2000, after a conciliation procedure between the Parliament and the Council.

Sources: European Commission 1998; Chave 2001; Kallis and Buttler 2001; Kaika and Page 2003.

Note: [1]The presidency of the European Union rotates between its member states every six months. The rotation follows the alphabetical order of countries in their primary official language.

5.5 Canada's water protection: stuck at the bottom

Weibust's study (referred to earlier in the report) compared environmental policy-making in three federations (the US, Canada and Switzerland) and the EU to assess whether the outcomes are a function of the level of government at which policies are made. Her comparison focused on comparing policy-making (as opposed to day-to-day management) between the national and sub-national levels of governance (i.e. federal and provincial levels in Canada or federal and state levels in the US). She found that decentralized environmental governance in these federations hindered lower levels of government in being able to prevent environmental problems from worsening. She concludes that the level of government making policies does matter and that environmental regulation is a collective action problem best resolved by a more centralized response (Weibust 2009).

Canada is in many respects a decentralized federation and particularly so in environmental policy. This is partly a legacy of the 1867 Constitution but also reflects current political constraints. In fact, policy experts argue that in recent times, obstacles to federal action are as much political as constitutional(Saunders and Wenig 2006). Weibust suggests that Canada's recurrent state of constitutional crisis makes the federal government fearful of offending the provinces, which jealously protects their areas of jurisdiction (Weibust 2009). One contributor described the situation in Canada as being "stuck" in a paralysis driven by an assumption of failure:

"*There is a paralysis driven by an assumption of collective failure. The feds know they will have a fight for two years and a breakthrough will be impossible because of a realignment of provinces and territories because of renegotiations*."(C14)

Policy experts predict that the federal government cannot continue to defer to provincial interest for much longer:

"*As Canada's water becomes increasingly under stress in the next few decades, the federal stance of deferring to provincial interest in areas of legitimate national concern will become increasingly untenable, and the pressures for it to act decisively on a range of water quality and water quantity concerns will only grow*" (Saunders and Wenig 2006).

In the meantime, the absence of a strong federal leadership in environmental policy has left a vacuum which multi-jurisdictional collaboration[xvii] is supposed to fill (Weibust2009). The next section examines how ineffective that collaboration has been to date.

5.5.1 Ineffective collaboration

The Canadian federal and provincial governments have been meeting and discussing the environment for decades, both formally and informally. The principal intergovernmental forum for discussions on water issues is the Canadian Council of Ministers of the Environment (CCME). Despite the existence of those mechanisms, there is little to suggest improvements in environmental quality (see below). Instead, these meetings have produced measures which have more in common with those of

international agreements, which are voluntary and contain no penalties for non-compliance (Weibust 2009).

> *Currently drinking water guidelines are based on an economic evaluation for the lowest common denominator: if it was 30 in the CCME number that's probably 30 because that's a number reasonably achievable in Newfoundland with all the new technology. (C6)*

One case in point is the federal-provincial-territorial collaboration on establishing Guidelines for Canadian Drinking Water Quality. This work is the responsibility of the Committee on Drinking Water (CDW) which is part of the CCME. The Guidelines are currently non-binding and advisory in status. Only four provinces and territories have adopted them in full (Alberta, Nova-Scotia, Ontario and Québec). Perhaps even more worrying is the fact that an expert report found the guidelines out-of-date, weak and more lenient compared to those of counterparts in Europe and the United States (Boyd 2006). This situation results in a patchwork of drinking water laws and approaches across the country, unequal levels of protection and persistent health risks for the Canadian population. These risks are manifested in drinking water tragedies, long-standing drinking water advisories and elevated numbers of hospital visits and admissions for water-related illnesses (Christensen, Goucher et al. 2010).

Water experts agree that, despite heightened public concern for water and the launch of numerous recent initiatives, very little improvement has occurred in the recent decades. De Loë explains:

"*[…] our ability to tackle long-standing problems such as drinking water safety, habitat degradation and overuse of water in a coordinated fashion is in question, and our knowledge of the significance of water for Canada's economy is currently poor*." (De Loë 2009)

As a consequence, the protection of Canadian water resources is in trouble and there is a clear imperative to act now (see Text box 3).

The question is *how* did Canada get here? Weibust (2009) argues that the extensive provincial role in setting, implementing and enforcing national standards has led to four "points of slippage" in Canada's regulatory system:

- Consensus decision-making processes tend to result in less stringent standards because the contribute to lowest common denominator decision-making;
- Provincial standards are infrequently updated and intergovernmental standard setting is slow. Consequently, Canadian standards become out-dated more quickly than those of other jurisdictions, who can make faster decisions ;
- Despite the role that provinces play in determining national standards and guidelines, there is substantial variation in their implementation. Even provincial participation in standard setting does not guarantee buy-in. On this point, Pentland observes that the provinces have generally set and enforced their own standards even after participating in collaborative standard setting exercises (Pentland 2010); and

- There is little enforcement of standards or regulations in place. Provincial governments are not compelled to enforce their own standards; and where they have agreements with the federal government to enforce federal standards, the federal government has chosen not to audit provincial enforcement.

Together, these points of slippage hinder meaningful environmental progress in Canadian environmental protection and national environmental policy is "stuck at the bottom" (Weibust 2009).

TEXT BOX 3: CANADA'S PRESENT WATER REALITY

Changing the FLOW: a Blueprint for federal action on freshwater (Morris, Boyd et al. 2007) paints a worrying portrait of Canada's water reality. At present:

1. Not all Canadians have access to safe drinking water. The problem is particularly acute in (but not limited to) First Nations reserves. As of April 2010, 116 First Nation communities were under a drinking water advisory.
2. Cities continue to release untreated sewerage into lakes and rivers;
3. Aquatic habitats are destroyed and fish population poisoned by industry;
4. River ecosystems are altered for hydroelectricity production;
5. The door to bulk water export is not completely closed but a bill has been tabled in parliament.

This situation could be compounded by emerging threats:

6. A warming climate that could induce longer and more severe droughts and floods in certain parts of the country;
7. The continued mining of groundwater resources without adequate knowledge of the aquifers being exploited;
8. The intensifying exploitation of oil and gas resources at the expense of water resources conservation;
9. Pharmaceuticals and personal care products entering our water streams without control or an understanding of their impacts on ecosystem and human health;
10. Unchecked invasive species introductions and propagation;
11. The persistent myth of freshwater abundance leading to Canadians not realizing that their lifestyles are becoming unsustainable.

Sources: Morris, Boyd et al. 2007; Christensen, Goucher et al. 2010.

6 Enabling effective collaboration

This section explores the mechanisms which enable effective collaboration between the European Union (EU) member states under the implementation of the Water Framework Directive (WFD). The evidence collected in this research falls into two categories: institutional mechanisms (related more generally to EU governance) and support mechanisms (developed in the context of the WFD). This examination suggests how Canada might enable multi-jurisdictional collaboration to secure benefits similar to those experienced in the EU.

6.1 Institutional mechanisms

The EU experience shows that a consensus decision-making process does not necessarily lead to lax standards nor ineffective measures. It is possible for collaborative institutions to be effective in protecting the environment. In fact, analysts found that many of the EU's most stringent and demanding policies were passed unanimously before the advent of Qualified Majority Voting (QMV) in the Council of Ministers (Section 5.2) (Weibust 2009). The literature indicates the threat of consequences also comes into play. This is largely absent under the current Canadian regime.

6.1.1 Threat of consequences

The first consequence to consider is enforcement, namely through the application of a penalty for infringement of existing policies, laws or regulations.

The EU has integrated institutions for enforcement meaning that the enforcement structure and the terms of enforcement are exogenous to the policy to be enforced. These structure and terms of enforcement are established under the Amsterdam Treaty and they apply to all directives. The member states know what these structures and terms are and how they will be enforced going into the negotiation of any new policy. Equally important is that the European Commission (EC) actively exercises its enforcement powers, making the threat of enforcement very real to member states.

In contrast, the current provincial-federal dynamics in Canada have led to the federal government choosing not to enforce the regulations which it has the powers to enforce. Pentland (2010) summarizes: "[T]he present situation in Canada is that regulators are reluctant to regulate and those being regulated are reluctant to be regulated". Consequently, the threat of enforcement is practically non-existent.

At the Canadian Council of Ministers of the Environment (CCME) for instance, nothing prevents a province from withdrawing from a negotiated standard and the Council has no recourse for enforcement. It produces strictly voluntary codes of practice and guidelines which, despite the stated aim of developing national strategies, does not result in consistent policies across Canada (Section 5.5.1). As discussed previously, provincial governments have shown themselves unwilling to be bound, even by agreements which they themselves negotiate. The most recent example of this is the Canadian Strategy of Municipal Wastewater Effluents (endorsed by the CCME in February 2009). The negotiations leading to this Strategy

took about ten years and to date, three jurisdictions (Newfoundland and Labrador, Nunavut and Quebec) have not signed the final document (C15).

The result of this has been sub-optimal environmental protection (Weibust 2009).

In the Canadian context, a second consequence merits consideration: the centralization of authority. Weibust (2009) argues that the efficacy of collaborative measures can be increased by centralized authority or the *threat of* centralization of authority. That is, participants may be motivated to work harder at collaboration if they operate in the shadow of hierarchy and failure could result in "pre-emption by the centre". The current political regime in Canada is marked by a strong preference by the provinces to avoid the federal government interfering in provincial affairs. This preference was expressed clearly in the interviews. One way to ensure that there is no pre-emption by the centre (the federal government) would be, as suggested by a contributor, for provinces to demonstrate that they are capable of effective water resources management on their own. The federal government would then have no reason to intervene. This strategy is the one adopted in Switzerland where cantons (the sub-national level of government) are no longer concerned about the loss of individual autonomy because they see horizontal collaboration as strengthening the hands of cantons *vis-à-vis* the federal government (Bolleyer 2006).

One would expect this idea to generate some traction in Canada but it has not. Weibust (2009) suggests that the main reason for this is because the threat of federal encroachment in the affairs of the provinces seems too unlikely under the current political climate. This translates into the role of the CCME secretariat, which is limited to facilitating information exchange and whose activities prioritize the protection of provincial autonomy. Consequently, there is no eminent threat of pre-emption by the centre which would encourage provinces to work harder at horizontal collaboration.

6.2 Support mechanisms

Two key mechanisms appear to support collaborative working between the EU member states under the implementation of the WFD: the Common Implementation Strategy (CIS) process and funding instruments. Each is discussed below. This section also considers how they might work in Canada.

6.2.1 A formal platform for collaboration

European contributors identified that by far, the main mechanism supporting their collaborative work is the CIS (Section 3.2).

The CIS achieves a number of milestones in EU environmental policy: it creates an exchange forum, facilitates the development of relationships and enhances the relationship between member states and the EC. In addition, the CIS is expected to reduce the need for legal measures to be taken.

Indeed, contributors described it as innovative because it has led to the co-creation of the methodology for implementation and generated a new rapport between the member states and the EC. In implementing the WFD, the relationship between the Commission and member states is not as hierarchical as it has been with previous directives. Rather, the rapport between central government and its "subordinate" states has been more equal with an attitude of "we are all in the same boat." Some contributors hypothesized that this new relationship is the result of the scale of the challenge. The ambitions of the WFD are so big that collaboration between member states, and between member states and the EC, is the only way to succeed.

> *[..] the member states usually say "oh, another directive form the Commission, and they're crazy and we'll do the minimum to fulfil their reporting requirements" but I think through this CIS they've realized it really is a real challenge and the benefits are there for integration. (C19)*

> *We learn a lot from the experience of others. It is very enriching to be able to share the experience of other countries and to build common methodologies. (C2)*

The CIS has played a central role in facilitating knowledge exchange and the development of better solutions to common problems. Through their participation in the process, member states are given a chance to learn about each other's research and initiatives. Before, collaboration mainly took place under a handful of EU programs (e.g. Interregional Cooperation Programme (INTRREG)), now it is more "global" and organized. For instance, the meetings and workshops that are part of the process create occasions for delegates to meet face-to-face. Participants see each other regularly and get to know one another. These meetings have played a crucial role in the development of relationships between member states, among technical experts and senior civil servants, and in supporting a flow of knowledge and experience between them.

Although participation in the CIS is not a legal requirement, member states have a definite interest in taking part in the development of the guidance documents. If the practices recommended are the opposite of their current practices or views, it becomes much more difficult for them to implement.

The CIS is expected to yield another significant benefit in reducing the need for the EC to trigger infringement procedures. The EC hopes that the CIS process will reduce the need for the EU government to take legal action against member states because the instances of non-compliance will be fewer. The CIS allows the EC to follow closely the progress of member states and to "warn" them early on where they see the move away from the objectives of the Directive. This also avoids surprises when the EC reviews member states' reports and allows the pro-active development of solutions as problems arise to hopefully reduce the need for referral to the European Court of Justice. This should prevent the roll-out of expensive measures for both member states and for the EU institutions that might have to invest significant time and money in a cumbersome administrative process.

6.2.2 A Canadian forum for water

The European experience clearly shows the value of a formal mechanism enabling jurisdictions to work collaboratively on water issues. In the implementation of the WFD, this platform represents the key to securing at least three of the five benefits described in Section 4: more effective working relationships, increased capability in water protection and more efficient conservation efforts.

A forum, or mechanism like the CIS, should help develop the interpersonal relationships required to rebuild the trust that is lacking between federal and provincial government officials. The EU experience indicates that this is best achieved through regular, face-to-face meetings, which allow delegates to get-to-know one another and encourage situations that are conducive to deliberations and discussions. Such a platform does not currently exist in Canada. Whereas some contributors suggest that the CCME plays this role, it does not. In its current form, the CCME does not provide the right environment for effective collaboration or trust building. Some of the reasons for this are:

- Many parties at the table aggressively assert their ownership of water within their boundaries and have no appetite for a national process where the other jurisdictions could influence the way they manage those resources (Branson 2010). This situation is perpetuated by the mandate of the CCME to protect provincial interests, which promotes the status quo rather than progress towards national processes for collective benefits;
- This context (above) prevents the federal government from taking any leadership in the absence of consensus (Branson 2010) yet this federal role is viewed to be essential: "the CCME can help but without a federal role, the glue to hold it together will be missing" (C7);
- The parties are able to - and do - exit from negotiated agreements at no cost, despite having participated in the negotiation process. This atmosphere is counterproductive when it comes to trust building;
- Not all of the players are at the table. Fragmentation in the management of water is not exclusive to the national governance regime but also exists in most provincial and territorial governments. This makes it challenging for environmental ministers to reach a consensus position when decisions implicate other ministries who are not represented at CCME (Branson 2010);
- Perhaps partly a consequence of the above, the work of CCME tends to focus on specific uses of water (e.g. drinking water or municipal wastewater effluents) instead of taking a holistic approach to water management. An expert commented that CCME's predecessor, the Canadian Council of Resources and the Environment Ministers (CCREM, created circa 1970) considered water as an important economic resource and a key part of the environment. However, this more holistic approach to water was largely lost when environment ministers divorced themselves from their resource colleagues (in 1988).[xviii]

Thus until now, water in Canada has not had a ministerial home and the CCME has not yet filled this void (Branson 2010). There have been several promises to

remediate this situation. For example in 2008, the Liberal Party Platform proposed a National Water Council supported by a Can$400 Million Canada Water Fund to implement a new National Water Strategy (Goucher 2010), but the Liberal Party was defeated in the elections. In August 2009, the Council of the Federation (a council consisting of all provincial and territorial Premiers[xix]) proposed a Council of the Federation Stewardship Council (Hanah 2009), but it is not clear what progress has been made to date, or what its membership and activities would look like.

In order for this to work, federal, provincial and territorial governments would need to make a real commitment to this forum, as effective working relationships and an atmosphere of trust will not develop overnight. For this reason, the efforts should not only focus on the senior delegates who are currently making policy decisions, but also include Canada's emerging water leaders. Governments should invest in networking and recognize the value of the upcoming water leaders getting to know one another so that these relationships can be established early on. Organizations such as Waterlution, the Gordon Foundation and the Canadian Water Network understand the importance of this. They have established workshop and networking programs where future water leaders extending across Canada from Newfoundland to the Yukon get a chance to meet and freely deliberate and exchange their ideas about water in Canada. The task ahead is huge and Canada is far behind - the next generation needs to "hit the ground running".

6.2.3 Funding instruments

In addition to the CIS, European contributors identified that the consideration of funding instruments was an important factor in enabling collaboration. Funding is often the primary barrier to partners entering an agreement, whether binding or non-binding.

Interestingly, the European government did not provide new funding mechanisms for the implementation of the WFD. In the EU governance system, from the time that a member states transposes a directive into national law, it takes the responsibility for implementing this law and is required to find the means to do so. This does not mean that governments ignore funding issues when negotiating a policy proposal. In the case of the WFD, the text embraces the principle of cost recovery for water services and prescribes the elaboration of water tariffs. Consequently, an important part of the costs for its implementation can be recovered from users (i.e. industry and tax payers through the existing (and new) institutions and arrangements in each member state). In addition, member states have the possibility to use a number of pre-existing EU funding programs which indirectly help them attain the objectives of the WFD. For example:

- Financing for new waste water treatment plants, which was made available through the Urban Wastewater Directive;
- Capacity building funds through different Directorate General (DG) programs (e.g., DG Environment's Life program which finances demonstrations of emerging technological or management tools);

- Interregional Cooperation Programme (INTERREG) - financing which supports different regions (countries) working together to address common problems; and
- EU Framework Programmes, which has a program to finance research on water.

Some of these are co-financing programs where the applicants and the EU government both invest money towards a project.

6.2.4 Funding Canada's water resources management

Canadian contributors certainly see funding as one of the key roles of the federal government in a national approach to water. In fact, this is possibly where the provinces are most interested in seeing the federal government involved, because there is hope that "they'll put money on the table" (C20). The federal government could help the jurisdictions that are struggling to meet the standards and support research and demonstration initiatives. Contributors believe that funding should not only go to infrastructure projects but also towards building the capacity of local actors. They appreciate that these investments, in community initiatives, for example, might be harder to justify in budgets because the results are generally seen in the longer term. However, they feel that these investments are as important as a new waste water treatment plant.

The main risk with government funding programs is their volatility - there are no guarantees that they will continue in the face of new economic and political pressures. A more sustainable solution would include full cost recovery of water services from the consumer.[xx] Despite its obvious advantages, such as encouraging water conservation and supporting the maintenance and replacement of infrastructure, water pricing is still heavily debated in Canada. At the same time, experts say that it is "[...] an important tool in the water conservation tool kit" (Brandes, Renzetti et al. 2010). See Text box 4.

Based on the EU experience, a balanced mix of government programs and self-generating revenues, including some funds specifically targeted at inter-jurisdictional projects, could support collaboration in Canada.

TEXT BOX 4: CANADA AND WATER PRICING

Worth Every Penny: A Primer on Conservation-Oriented Water Pricing (Brandes, Renzetti et al. 2010) explains why and how water pricing would improve water use efficiency and the financial performance of water service providers.

Presently, Canada's municipal water services prices are the lowest among similar European and North American countries while Canadian per capita use is among the highest. Prices for water and wastewater services in Canada are approximately 0.5USD/m^3 and consumption around 325 litres per day per person. In comparison, the same costs in England and Wales, where the principle of cost recovery have been implemented, are approximately 2.0 USD/m^3 and per capita consumption is around 140 litres per day per person.

In 2007, the aggregate ratio of revenue to expenditure of Canadian municipal water agencies was 70% and falling. Canada's water systems are neither self-funded nor financially sustainable, resulting in the mounting infrastructure deficits that are observed across the country. In the report, the authors present a 10-step plan to reform water pricing regimes in Canada.

Sources: Renzetti 2009; Brandes, Renzetti et al. 2010.

7 Summary and recommendations

Water, by its very nature, unites rather than divides. It is necessary to all forms of life and its cycle does not respect political boundaries. In Canada, the management of water is a shared responsibility between the federal and provincial governments. Yet despite all of the good reasons to collaborate, Canadians continue to address water issues largely as 13 individual provincial and territorial governments, numerous federal departments responsible for water and a number of disconnected federal-provincial forums.

There are different models of coordinated approaches for water resources management. This paper does not claim that one should be adopted over another or that these models should be preferred to the creation of an approach that is originally Canadian. However, it is to Canada's advantage to learn from the experience of other countries or regions.

Since 2000, European Union (EU) member states have been working at the implementation of what is possibly the most ambitious integrated water policy in place at this time: the Water Framework Directive (WFD). This research examined the 10 year of implementation of the WFD to identify the benefits of this collaboration.

The findings show that European member states derive five main benefits from collaboration. Compared to the situation prior to the WFD, contributors observe:

1. **Stronger transboundary institutions**: the mandate of water institutions has been clarified with the WFD and there is renewed momentum for collective action. In some cases, the shared water basin has become more significant than national boundaries (for matters of water management);
2. **More effective working relationships**: the interpersonal relationships and trust established between delegates means a greater potential to achieve the desired outcomes;
3. **Increased capability in water conservation**: knowledge exchange and the sharing of experience between countries leads to a "levelling towards the top" of European capability;
4. **Improved understanding of the resources**: more data is collected and is readily comparable which translates into a clearer picture of the state of water resources across Europe and a better understanding of the issues locally;
5. **More efficient water conservation**: the duplication of effort is reduced a considerable amount of resources are saved in the development of common solutions to similar problems.

The evidence collected shows that Canada's water management could gain from all of the above. The challenge is to set the right conditions for effective multi-jurisdictional collaboration to emerge.

The European approach to water management takes place in a particular context of environmental governance. Environmental management is one of the formal policy goals of the European integration. This goal is recognized in legislation (1987 Single European Act) and has given the EU government the leverage to act. In addition, this governance is characterized by integrated institutions for enforcement which are exogenous to the agreements being negotiated. Member states know what the terms and conditions of enforcement will be before going into the negotiations. Importantly, the European Commission (EC) ensures that the threat of consequences remains very tangible to member states by exercising its enforcement powers. The substantial financial penalties provide a strong incentive for compliance.

Two key mechanisms have been found to support collaboration under the WFD: the Common Implementation Strategy (CIS) and several funding vehicles. The CIS is an innovative, structured platform for joint working. Although the formal function of the Strategy is the production of guidance documents for the implementation of the WFD, its role in collaboration is much wider. The CIS process creates opportunities for regular meetings, open debates and information exchange which have allowed interpersonal relationships to develop between member states delegates.

With respect to funding, the WFD adopts the principle of full cost recovery for water services, which ensures a reliable revenue stream for implementing the objectives of the policy. In addition, member states have access to several EU funding programs ranging from financing infrastructure installation to supporting research and demonstration projects. Some of these funds specifically target the sharing of knowledge across EU regions.

Together, these findings suggest five recommendations for improving Canada's national water policy framework:

1. **Invest in rebuilding the relationships between jurisdictions.** This can be done by creating a "space" or forum for delegates to meet regularly, get to know one another as individuals and rebuild some of the trust that has been lost between provincial and federal governments. This does not necessarily need to be a new space. Existing forums could be transformed to suit this purpose better.

   As trust and personal relationships do not develop overnight Canadian governments should also invest in the next generation of water leaders to ensure that this foundation is in place when they arrive in decision-making positions.

2. **Start from existing work and raise the bar higher.** A national strategy for water should build on the provincial and territorial policies that have emerged in the last decade. Valuable work and thinking has gone in to their development. To motivate multi-jurisdictional collaboration however, the objectives of a national strategy should be set sufficiently high to ensure that: (1) no jurisdiction can just sit back and be an "observer" because their work is done, and (2) it is impossible to achieve the objectives by working in isolation from other jurisdictions. If the CIS process is any guide, in elaborating a national strategy each jurisdiction will want to promote their preferred methods (to avoid adoption costs) and get involved. Consequently, knowledge and experience will be shared and the resulting approach will be superior to the ones that would have been implemented in isolation.

3. **Place the emphasis on measurable results.** Setting the objectives of a national strategy on measurable results will lead to the valuation of data. If planned appropriately, it should lead to increased monitoring and data collection programs, thereby contributing to a better understanding of the water resources. Also, provided that the other recommendations are followed, there will be no other choice than a transition towards the harmonization of datasets because the results of jurisdictions will become interdependent.
4. **Institute meaningful consequences.** Effective collaboration is unlikely to happen in the absence of credible threats of consequences for non-compliance. Jurisdictions have to be held accountable to the objectives set in a national strategy. Central governments are typically best placed to take on the role of monitoring progress and enforcing policies. Enforcement mechanisms agreed upon outside the WFD have proven very effective in the EU. The Canadian federal government should determine what mechanism(s) would be most appropriate to enforce environmental policies by building on the powers it has under the constitution.
5. **Establish reliable sources of funding.** Financial resources support the participation of the parties in collaborative efforts. To ensure their reliability, funding sources should not be solely dependent on central government programs but also include self-generating revenues from new water pricing regimes. Any central government programs should be a serious long-term commitment that will not be left to the mercy of changes in governments and budget cuts, so that partners are not abandoned again part way. Parliamentary commitments could be considered as part of the funding options as they tend to be longer term.

The federal government would be the main player in the implementation of the majority of these recommendations. As others have said before, leadership of the federal government is essential to the success of a national approach to water management.

Robert Paehlke[xxi] said: "Effective environmental management requires the courage of a nation". Canada has been "stuck at the bottom" for too long. It is time to show what courage Canadians have and what they can achieve together. What better place to start than water.

Endnotes

i. Margaret Catley-Carson is an internationally renowned Canadian water expert. She was Chair of the Global Water Partnership and has received several honorary degrees from universities around the world. She made this comment at the Ontario Ministry of the Environment Water Thinkers seminar series in February 2010.

ii. The European Commission is the executive body of the European Union. It is responsible for proposing legislation, implementing decisions, upholding the Union's treaties and the general day-to-day running of the Union.

iii. Visit http://ec.europa.eu/environment/water/water-framework/facts_figures/guidance_docs_en.htm

iv. Personal communication with Ted Yuzyk (International Joint Commission), September 2010.

v. Personal communication with Jim Bruce (Forum for Leadership on Water), April 2010.

vi. Author's own translation form French to English.

vii. Personal communication with Jim Bruce (Forum for Leadership on Water), April and August 2010.

viii. Personal communication with Jim Bruce (Forum for Leadership on Water), April and August 2010.

ix. Author's own translation from French to English.

x. Author's own translation from French to English.

xi. Visit: http://water.europa.eu/en/welcome and http://www.eea.europa.eu/data-and-maps

xii. The Maastricht Treaty, formally the Treaty on the European Union, created the European Union and led to the creation of the single European currency, the Euro. It was signed on February 1992 by the members of the European Community in Maastricht, Netherlands, and entered into force on November 1st 1993.

xiii. The Council of the European Union (commonly referred to as the Council of Ministers) is the institution in the legislature of the European Union (EU) representing the governments of member states. It is composed of twenty-seven national ministers (one per state).The other legislative body is the European Parliament which is the directly elected parliamentary institution of the European Union. The Parliament is composed of 736 Member of the European Parliament (MEPs). It has been directly elected every five years by universal suffrage since 1979.

xiv. The Amsterdam Treaty amending the Treaty of the European Union, the Treaties establishing the European Communities and certain related acts, was signed on 2 October 1997, and entered into force on 1 May 1999.It made substantial changes to the Maastricht Treaty signed in 1992. See note xii.

xv. Author's own translation from French to English.

xvi. Author's own translation from French to English.

xvii. Weibust uses the term cooperation instead of collaboration. Collaboration is used here for consistency throughout the text.

xviii. Personal communication with Jim Bruce (Forum for Leadership on Water), August 2010.

xix. The Council of the Federation was founded in December 2003 by the provincial and territorial Premiers. Its objectives are to: (1) Promote interprovincial-territorial cooperation and closer ties between members of the Council, to ultimately strengthen Canada; (2) Foster meaningful relations between governments based on respect for the Constitution and recognition of the diversity within the federation; (3) Show leadership on issues important to all Canadians.

xx. Full cost accounting includes (but is not limited to): operation and maintenance, administration, overhead, reserves, costs of complying with regulations, financial costs (debt servicing depreciation) and capital costs.

xxi. Robert Paehlke is a Professor and Chair of the Environmental and Resource Studies Program at Trent University, Canada and the author of several books, including *Environmentalism and the Future of Progressive Economics*.

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Appendix A

Contributors' organizations

A1 Contributors' organizations

Representatives for the following organizations were interviewed for this research.

In Canada:

6. Agriculture and Agri-Food Canada
7. Alberta Environment
8. Alberta Innovates
9. Canadian Council of Environment Ministers
10. Conseil de la science et de la technologie du Québec
11. Environment Canada
12. Fisheries and Oceans Canada
13. Forum for Leadership on Water
14. International Joint Commission
15. Ministère du développement durable, de l'environnement et des parcs
16. National Round Table on the Environment and the Economy
17. Natural Resources Canada
18. Ontario Ministry of the Environment
19. United Nations University, International Network on Water, Environment and Health
20. University of British Columbia
21. University of Calgary
22. University of Waterloo
23. World Wildlife Fund Canada

In Europe:

24. Arup
25. Cemagref
26. Centre national de la recherche scientifique
27. European Commission Directorate General for Research
28. European Commission Directorate General for the Environment
29. European Environment Agency
30. French Water Agencies
31. German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
32. German Institute for Regional Development and Structural Planning
33. International Commission for the protection of the Danube River
34. Lancaster University
35. Mersey Basin Campaign
36. Office International de l'Eau
37. Office National de l'Eau et des Milieux Aquatiques
38. UK Department of the environment, food and rural affairs
39. UK Environment Agency
40. University of Sheffield
41. World Wildlife Fund UK

Appendix B

Timetable for implementation of the Water Framework Directive

B1 Timetable for the implementation of the Water Framework Directive

YEAR	ISSUE
2000	Directive entered into force
2003	Transposition into national legislation Identification of River Basin Districts and Authorities
2004	Characterization of river basin: pressures, impacts and economic analysis
2006	Establishment of monitoring network Start public consultation (at the latest)
2008	Present draft river basin management plan
2009	Finalize river basin management plan including programme of measures
2010	Introducing pricing policies
2012	Make operational programme of measures
2015	Meet environmental objectives First management cycle ends Second river basin management plan and first flood risk management plan
2021	Second management cycle ends
2027	Third management cycle ends, final deadline for meeting objectives

Source: European Commission Environment (2010) WFD: Timetable for Implementation. Available at http://ec.europa.eu/environment/water/water-framework/info/timetable_en.htm