

**Canadian Regional
Development**

A Critical Review of Theory,
Practice, and Potentials



**Développement régional
canadien**

Un examen critique des théories,
des pratiques et des potentiels

DRAFT

Water and Watershed Management: A Regional Development Perspective

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Introduction

It would be hard to dispute the role water plays in Canadian identity, not only in terms of everyday use, but how it relates to our economy, our recreation, our culture, and our environmental health (Environment Canada, 2012f). However, in spite of water this, or perhaps because of it, a myth of water abundance has developed in Canada and an outdated, supply-oriented approach to water management dominates (O. M. Brandes, Ferguson, M'Gonigle, & Sandborn, 2005). The OECD has stated that the crisis with water is in fact a management¹ problem, rather than a scarcity problem, meaning a great abundance of water is irrelevant without proper management (OECD Publishing, 2011).

This paper focuses on water and watershed management and its links with regional development. A watershed can be defined as a unique area of land serving as a natural management unit which captures precipitation, filters and stores water, and regulates its release (Dawe, 2007). Watersheds are defined by complex relationships between human and natural processes, encompassing the interaction between soil, vegetation, animals, people, water, and climate (O. M. Brandes et al., 2005). The study of watershed management includes all relevant characteristics, often with the overall goal of *sustainable* distribution of water and other watershed resources (O. M. Brandes et al., 2005).

Watersheds are nested in terms of scale, from single creeks to agglomerations of rivers flowing into different oceans (Vodden, 2009). As a result, from an administrative perspective watersheds can be delineated in different ways. Traditional approaches to water and watershed management have taken top-down approaches, uniform across large political areas (e.g., provinces). However, increasingly research points to the watershed as the scale where managers can account for and manage complex interactions, requiring flexibility in management design (O. M. Brandes et al., 2005). The need to rescale water management from national or provincial levels to watershed levels as has been acknowledged (Cohen, 2012). In 1987 the Federal Water Policy stated the growing preference for watersheds as the preferred spatial unit for the management of water resources (Environment Canada, 2012b). However, while the importance of management at watershed scale has been recognized across Canada, there has been a lag between this recognition and policy change. For example, much of the Federal Water Policy initiatives have never been implemented (Bakker & Cook, 2011).

The aim of this paper is not to be a comprehensive review of Canadian water or watershed management. Water is a complex and diverse topic including watershed

¹ It should be noted that management challenges also fall into a larger discussion on governance. Please see primer document for more information on “governance” at:
<http://cdnregdev.files.wordpress.com/2011/10/primercollaborativemultilevelgovernance-gibson.pdf>

management, stewardship, infrastructure, etc. This paper provides an overview of watershed actors, policy, legislation, and programs within Canada and relates these topics to rural regional development. Overviews of international, federal, and select provincial actors, legislation, and policy are provided. For each province the link between watershed management and regional development is examined and examples of regional watershed management are provided. The discussion section of the paper examines watershed management within the context of regional development; where we are versus where we may be going; and what is currently missing in Canadian water research and policy. In particular the focus is on New Regionalism, a regional development theory which is currently being explored in rural and regional development in Canada by the *Canadian Regional Development* project (Vodden et al., 2013). While this paper focuses on the role of government actors, the importance of both the non-governmental and private sector actors within this field are noted, recognizing that water and watershed governance involve multiple spheres. Governance is a key factor in water and watershed management as while “governance alone cannot correct inadequate water management...poor governance will almost certainly prevent effective management” (O. Brandes & Curran, 2009). The intent of this paper is to provide a flavor of watershed management, how it relates to regional development, particularly New Regionalism, within Canada, and how a further understanding of these linkages can aid governance options in this field.

Watershed Management, Regional Development, and New Regionalism

Watershed management and regional development are related on the basis of scale. Generally a watershed will encompass a geographic area beyond a single community, but smaller than a province. Like economic or cultural regions, watersheds can cross provincial and international borders. For both, issues and challenges are likely to be specific to the context of individual area, presenting challenges for provincial or national top-down management. That is not to say that watershed boundaries will always align with regional economic or cultural boundaries, but the scale is similar and at times overlaps. These similarities in scale provide a platform for a discussion on regional involvement in and regional-level approaches to watershed management including the integration of bottom-up and top-down management approaches.

The OECD released a report in 2011 entitled *Water Governance in OECD Countries: A Multi-level Approach, OECD Studies on Water*. This study states that, “there is no one-size-fits-all answer, magic blueprint or panacea to respond to governance challenges in the water sector, but rather a plea for home-grown and place-based policies integrating territorial specifications and concern” (OECD Publishing, 2011, p.3). This statement reflects the changing realities in watershed management from a more top-down, uniform, government oriented approach to a more bottom-up, ecosystem based, governance approach. This requires acknowledgement of systems thinking in water policy, including the integration of environmental, cultural, economic and social factors (OECD Publishing, 2011).

The theory of New Regionalism has emerged as a result of the rural restructuring that has occurred following the 1980s recession. New Regionalism suggests a more holistic planning approach that recognizes the interconnectedness of economic, environmental and social systems (Wheeler, 2002). New Regionalism focuses on governance rather than government, cross-sectoral governing, collaboration, building trust, and empowering communities, as opposed to old regionalism (circa 1950s-1980s) which was mainly concerned with administrative boundary changes (e.g., amalgamations) and top-down government structures (Tindal & Tindal, 2009). Many such characteristics of New Regionalism make it pertinent to watershed management. For example, the five New Regionalism themes being explored by the *Canadian Regional Development* project² (multi-level governance, place-based, integrated, rural-urban interdependence and innovation and knowledge flows) directly relate to the concepts of regional environmental governance in relation to watershed management (see Table 1). Watersheds do not conform to political jurisdictions, nor do watersheds separate into policy planning silos. All human activities (environmental, recreational, cultural, economic, and social) impact the watershed.

² This project explores the emergence of New Regionalism in Canadian rural and regional development (<http://cdnregdev.wordpress.com/>).

While New Regionalism emerged as an economic theory, the principles remain relevant to watershed management. For example, it was stated by Savitch and Vogel in regard to the concept of New Regionalism that, “this approach is closest to the ideal of governance without government. It advocates envisioned large numbers of independent governments (voluntarily) cooperating through multiple, overlapping webs of interlocal agreements. A large number of horizontal connections among localities are emphasized” (2000, p. 164). Provincial and federal government recognition that the watershed model is the superior watershed planning technique opens the door for the use of a New Regionalist approach like that describe by Savitch and Vogel (Christensen, 2011). Specifically inter-governmental agreements and integration of problem solving techniques are required for a watershed management model to reflect a regional perspective. New Regionalism provides one approach with which to direct these new horizontal and inter-jurisdictional relationships (Savitch & Vogel, 2000).

Other academics are exploring the environmental management claim that New Regionalism is “a focus on specific geographic regions and place making; an active approach based on improved governance arrangements; the adoption of more holistic and integrated frameworks that incorporate environmental concerns; inclusion of normative approaches; acknowledgement of the importance of regional design and physical planning” (Peterson, Mcalpine, Ward, & Rayner, 2007). These New Regionalist concepts are exemplified to a certain extent in the water policies emerging in Canada both provincially and federally.

New Regionalism theme	Link to water and watershed management
Governance	Reflects the trend toward collective action and decision-making in multi-level and multi-sector networks.
Integration	Consideration of ecosystem relationships, a range of human activities, values and governance actors at multiple scales.
Place-based	No two watersheds are the same. Consideration of place and the biophysical, social, cultural and economic factors surrounding a watershed is critical for sustainable planning.
Innovation and knowledge flows	As watershed management is increasingly complex, innovations in practice and policy should be solicited and learned from. Includes mobilizing knowledge exchanges, promoting water networks, and a focus on long term evaluations of new governance structures and legislation.
Rural-urban relationships	While the focus of regional development policy is often on urban areas, urban centres require rural resources – including water supplies. Watershed management provides a policy arena for facilitating collaborative governance arrangements involving rural and urban communities.

Table 1 Watershed management from a New Regionalist perspective (Ferreyra, de Loë, & Kreutzwiser, 2008; Grigg, 2012; Pahl-Wostl, Gupta, & Petry, 2008; Peterson et al., 2007; Reimer, 2009)

Watershed management can be approached regionally, as a management approach that requires public buy in, place-based knowledge, the interaction of rural and urban residents, as well as the sharing of knowledge through all levels of government. This approach follows the recent trend in water management that is seeing “hierarchical, top-down, central government approaches being replaced by more fluid notions of environmental governance. This has involved coordination and collective action of multi-level networks of public, private and civil society from different policy fields” (Ferreyra et al., 2008). These kinds of interactions are breaking down traditional political boundaries and are helping to create a multi-disciplinary approach to water policy. This shift should not be viewed as unproblematic or without challenges, as new governance structures within water management can be seen as “fragmented, mobius-web arrangements” (Pahl-Wostl et al., 2008). Collaborations in water and watershed management have been criticized for having: high transaction costs; potential implementation gaps and problems with translating plans into policies; issues ensuring commitments to long term goals; and challenges in making sure benefits and costs of collaborations are fairly distributed (Fish, Ioris, & Watson, 2010). However, the practice of watershed management is not a new phenomenon, and is in fact one of the oldest and most widespread forms of collaborative governance in North America (Lubell, Schneider, Scholz, & Mete, 2002; Vodden, 2009). A further understanding of New Regionalism in relation to watershed management is needed to not only help manage these New Regional environmental governance structures but to also anticipate and mitigate problems faced by these regional watershed management arrangements.

Jurisdictional Overview

1. *International*

Protecting the quality and supply of water has been recognized as a prominent international issue. This has been demonstrated through a longstanding emphasis on water by the United Nations (UN) in relation to human life, sustainable development and other environmental and conservation initiatives. Water related targets were recognized beginning in 1977 at the United Nations Water Conference (United Nations, 2003). This was followed by a myriad of initiatives and declarations including the 1986 Declaration on the Right to Development where water was recognized as a basic human need; the 1992 International Conference on Water and the Environment; the 1992 Earth Summit, and the resulting Agenda 21 where water and water quality were featured topics of discussion and UN Members including Canada agreed to voluntarily commit to the action plan made under this agenda (United Nations, 2003, 2013). Again in 2012 the United Nations General Assembly recognized the human right to water and sanitation (United Nations, 2013). Furthermore, the protection of sustainable and clean sources of water has been found to be closely intertwined with the achievement of the UN's Millennium Development Goals. UN activities focused on freshwater resources stress the reduction of negative impacts on these sources due to population growth and demands from agricultural and industrial uses. This commitment towards clean water was emphasized in the decision to make 2003 the international year of Freshwater, and for the UN General Assembly to name 2005-2015 as the International Decade for Action 'Water for Life' (United Nations, 2013). The United Nations Environment Programme, as part of the water and sanitation goals, has also embraced an integrated watershed management approach (United Nations Environmental Programme, 2004). However, it should be noted that UN programs and agendas are non-binding.

On the international scale, non-governmental organizations (NGO's) and global water firms are key actors in global water governance. This includes the International Network of Basin Organizations and the Global Water Partnership, which both recognize an ecosystem approach that requires a framework of holistic and integrated systems management of land and water resources (Global Water Partnership & the International Network of Basin Organizations, 2009). This approach is supported by other global initiatives and networks such as the UN Convention on Biodiversity and the European Union Water Framework Directive (Convention on Biological Diversity, 2012; European Commission, 2009). International conferences, such as the World Water Forum, are additional venues where global water issues are discussed and international commitments are made (World Water Forum, 2012).

Specific to the Canadian context a number of US-Canada cross-border initiatives exist. Cooperation between the two countries dates back to the 1909 establishment of the Boundary Waters Treaty and its associated International Joint Commission (Bakker &

Cook, 2011). Since that time there have been many examples of the two countries working collaboratively over water, some examples of which are discussed below.

The premiers of Quebec and Ontario and the Governors of the eight Great Lakes States (Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania and Wisconsin) are all signatories of the Great Lakes Charter (1985), the Great Lakes Charter Annex (2001), and the Great lakes St. Lawrence River Basin Sustainable Water Resources Agreement (2005) (Gouvernement du Québec, 2002a; Ontario Ministry of Natural Resources, 2012). These agreements address cooperative management issues and are intended to protect and manage the basin waters. The agreement also applies to all surface and underground water within the watersheds of the Great Lakes and the St. Lawrence River upstream from Trois-Rivières, Quebec (Ontario Ministry of Natural Resources, 2012). It is implemented in Ontario and Quebec through provincial law and in the United States through the Great Lakes-St. Lawrence River Basin Water Resources Compact (The Living Water Policy Project, 2011d). Other agreements pertaining to the Great Lakes between the two countries include the St. Lawrence Seaway Project (1952), the Great Lakes Water Quality Agreement (1972, Amended 1978, 1987 and 2012), Water Supply and Flood Control in the Souris River Basin (1989) and the Great Lakes Binational Toxics Strategy (1997) (Environment Canada, 2012c).

Another example of US-Canadian initiatives is the Columbia River Treaty. This treaty between the two countries, signed in 1964, focuses on flood control and power generation on the Columbia River (U.S Army Corps of Engineers & Bonneville Power Administration, n.d.). On the Canadian side the Columbia Basin Trust was established in 1995 to benefit the regions adversely affected by the construction of the dams (Columbia Basin Trust, 2011). Starting in 2014 it is possible for either side to pull out of the treaty with 10 years notice, resulting in a revived public consultation process occurring at present time (Columbia Basin Trust, 2011; U.S Army Corps of Engineers & Bonneville Power Administration, n.d.).

2. Canada-Wide

Within Canada there is no clear authority on water management (Bakker & Cook, 2011). Rather than a national policy framework for watershed management, there is a suite of related policies and programs, as well as the involvement of multiple federal agencies (Vodden, 2009). Complications arise from competition between water users, coordination at multiple scales, and conflict and mismatching between watersheds and administrative boundaries (Bakker & Cook, 2011). The federal government's jurisdiction focuses on fish, navigable waters, and international waters, while the provinces focus on water resources and water supply, jurisdiction which is also shared with the municipal level (Bakker & Cook, 2011).

This section focuses on the agencies, policies, and programs of the federal government. It should be noted that there are other national-level organizations within the arena of watershed management. For example, within the field of education there are institutions and projects such as University of Victoria's POLIS Project on Ecological Governance and the Lawrence National Center for Policy and Management, both of which specialize in water and watershed resources. Since the 1980s and 1990s there has been an increase in collaborative approaches to watershed management, increasing the level and participation of different stakeholder groups, NGOs and ENGOs (Bakker & Cook, 2011; Vodden, 2009). Groups such as the Council of Canadians, the Canadian Environmental Law Association, and many others also have mandates that include water and have added to the research, education, information, and advocacy surrounding water issues (Bakker & Cook, 2011). Additionally, industry works with every level of government and is subject to legislation and policy at all levels. While there are industry best practices, this is on a case by case basis.

Federal ministries and departments involved in managing water resources include: Agriculture and Agri-Food Canada, Environment Canada, Fisheries and Oceans Canada, Health Canada, Aboriginal Affairs and Northern Development Canada, Industry Canada, Infrastructure Canada, Natural Resources Canada, Parks Canada, and Public Works and Government Services Canada (The Living Water Policy Project, 2011b). Environment Canada plays a central role, dealing with governance, legislation, management, quality, etc. (Environment Canada, 2011). In addition to the ministries and departments involved in water management, are those federal agencies that support watershed management at a provincial, regional, or municipal scale. For example, Service Canada and ACOA provide funding to watershed management groups (Vodden, 2009). A critical issue surrounding water management, federally and across the country, is this fragmented approach to management wherein there is a lack of harmonization, as well as competing mandates both within and between ministries (Bakker & Cook, 2011).

Despite limited federal jurisdiction, there are many relevant pieces of federal legislation and policies surrounding water. The key pieces are the Canadian Water Act and the Federal Water Policy (Environment Canada, 2012a). The Canadian Water Act calls for

joint consultation between the federal and provincial government in matters relating to water (Department of Justice, 2012). The Federal Water Policy sets up the federal philosophy and goals towards freshwater resources, however, as mentioned previously much of the Federal Water Policy has not been implemented (Bakker & Cook, 2011; Environment Canada, 2012a). There is no specific policy for watershed management, however watershed stewardship contributes to the implementation of numerous national and provincial level policies (Vodden, 2009).

The federal government does stress integrated water management, however the integration is focused on relationships between federal and provincial governments. In terms of government bodies illustrating this, there is both the Canadian Council of Ministers of the Environment (CCME) and the Council of Federation. CCME brings together the ministers of environment for the country, while the Council of Federation brings together Canada's premiers, both have adopted goals surrounding water, primarily clean drinking water (The Living Water Policy Project, 2011b). In particular the CCME has attempted to address issues of jurisdiction and establish collaborative protocols, however the impact has been less than expected (Bakker & Cook, 2011).

There are also federal policies on toxic chemicals, water quality, and many other water related issues. Of these, the quality of drinking water is the top priority. Health Canada has published a Guideline for Canadian Drinking Water Quality, however this is not legally enforceable, and excepting cases such as federal lands, water quality and source water protection is primarily a provincial responsibility (The Living Water Policy Project, 2011b).

3. British Columbia

The majority (~94%) of the land base in British Columbia is owned by the province. As a result the Province has traditionally been the primary manager for natural resources, including water (Baltutis, Brandes, & Riordan, 2012). This is well illustrated in Figure 1 where all legislation pertaining to water in BC is shown, the majority of which is provincial. However there are limits to the effective management of water by the province as a result of the fragmented and varied approaches to water governance (O. Brandes & Curran, 2009). In the 1990s BC started focusing attention on watershed stewardship, with an emphasis on the restoration of fish-bearing watersheds impacted by forestry (Baltutis et al., 2012). In terms of jurisdiction, the Ministry of Environment (MOE) has nine regions, of which the Kootenay Region studied for the *Canadian Regional Development* project is one (British Columbia Ministry of Environment, n.d.-a). The Water Stewardship Division within BC's Ministry of Environment administers water rights and legislation, as well as developing non-regulatory tools, involvement in sustainable water resource planning and management, and other functions including research and information gathering (British Columbia Ministry of Environment, n.d.-b; The Living Water Policy Project, 2011a). Within the Water Stewardship Division there are fewer administrative regions, with the MOE's nine having been merged into five, wherein the Kootenay Region is merged with the Okanagan (British Columbia Ministry of Environment, n.d.-b). Other relevant ministries and departments include the Integrated Land Management Bureau, Ministry of Forests, Lands, and Natural Resource Operations, Ministry of Health, and the Ministry of Community and Rural Development, as well as BC Hydro (The Living Water Policy Project, 2011a).

The BC Water Act is the primary provincial statute regulating water resources. It makes no mention of the term watershed, but includes the development of water management plans and establishing water user communities (Government of British Columbia, 2012; The Living Water Policy Project, 2011a). BC's Water Act is considered to be outdated, particularly in the face of issues such as climate change, urbanization, and intensification of water use (O. Brandes & Curran, 2009). As a result of these and other factors a process modernizing the Water Act began in 2008. The Water Smart BC proposal was released for comment in 2010, recognizing the importance of watershed management and potentially opening the door for watershed sustainability plans (Government of British Columbia, 2010).

The strategic plan for the Ministry of Environment's Water Stewardship Division is also supportive of community watershed management (British Columbia Ministry of Environment, 2008). Community water supply watersheds have existed in BC since 1980, however the 1993 imposition of the Forest Practices Code incorporated many of the Community Watershed Guidelines (British Columbia Ministry of Environment, n.d.-c). A Community Watershed Guidebook was released in 1996, to explain the links between resource development practices and water quality, addressing community participation in land and resource management plans, as well as integrated watershed

management plans (British Columbia Ministry of Environment, n.d.-c). Much of the provincial focus on watersheds is on restoration plans and watershed management relative to forestry and fisheries activities (British Columbia Ministry of Environment Water Stewardship Division, 2008; British Columbia Ministry of Environment, 2004). Other water relevant policies include an agriculture policy framework, a freshwater strategy, and a water conservation strategy (Environment Canada, 2012e).

There is no direct source water protection policy in BC, although this is being considered within the Water Smart process (The Living Water Policy Project, 2011a). BC Health Districts have taken a lead role in source water protection. Under the Ministry of Health, the Drinking Water Protection Act (2001) allows drinking water protection plans to be developed, although these are neither required nor funded, and are to be developed on a scale determined by the Minister (The Living Water Policy Project, 2011a). Drinking water officers, employed by the water supplier (generally a municipality) provide surveillance and monitoring of drinking water systems (British Columbia Ministry of Health, n.d.). Drinking water protection regulation was established in 2003 and governs the standards for potable water in BC (The Living Water Policy Project, 2011a). Additionally, the Environmental Management Act regulates industrial and municipal waste, pollution, preparation of environmental plans for flood control, water resource management, waste management, etc. (Government of British Columbia, 2003).

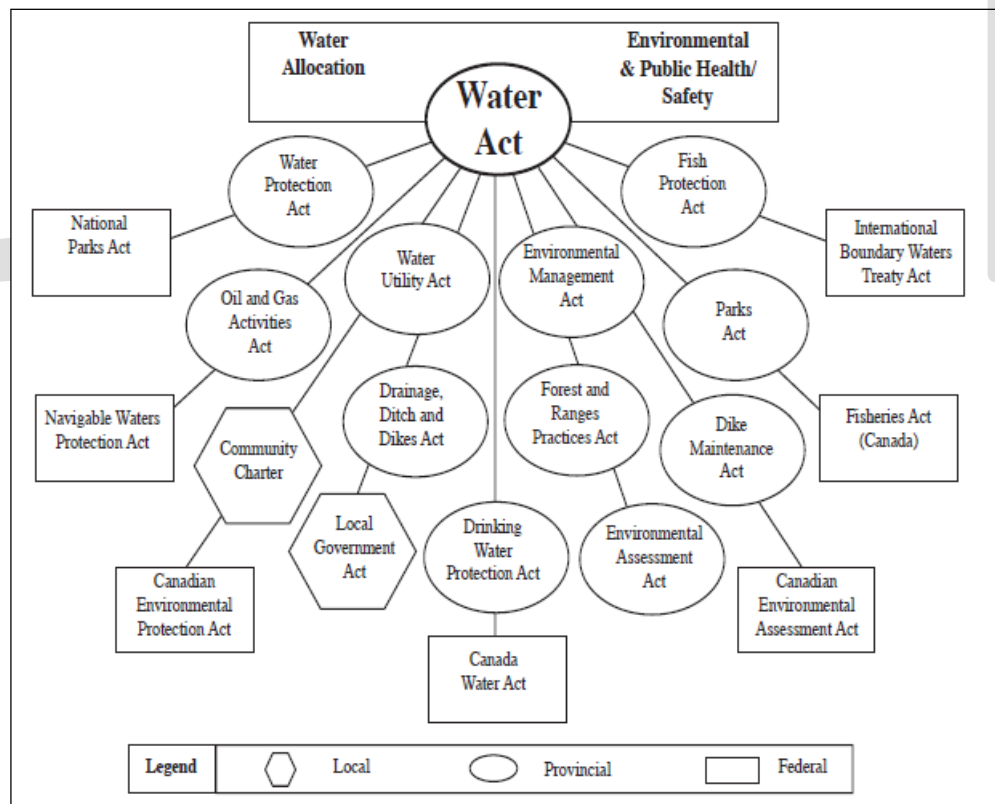


Figure 1 Water Legislation in BC (O. Brandes & Curran, 2009)

4. Newfoundland and Labrador

As with BC, water rights in Newfoundland and Labrador are mostly owned by the Crown, which allocates rights to license applicants (The Living Water Policy Project, 2011c). Within Newfoundland and Labrador the Water Resource Management Division of the Department of Environment and Conservation is the main provincial body associated with water, managing: conservation, development, control, improvement, proper utilization, protection, and enhancement of water quality (Newfoundland Department of Environment and Conservation, 2012; The Living Water Policy Project, 2011c). Additional departments involved include Government Services (health and safety), Natural Resources (climate change, forests, oil and gas), Municipal Affairs (community requests for water infrastructure), and Health and Community Services. Because the mandate of the importance of water runs across departmental jurisdictions a technical working group including the Departments of Environment and Conservation, Government Services, Municipal Affairs, Health and community Services, and the province's regional health Authorities was formed (The Living Water Policy Project, 2011c; Water Resources Management Division, 2010).

Administratively, the Water Resource Management Division has four regional offices and there are many programs and policies surrounding water (Newfoundland Department of Environment and Conservation, 2012). The primary piece of legislation is the Water Resources Act (WRA), which legislates management and control of water resources, encompassing both water protection and resource management (The Living Water Policy Project, 2011c). Unlike BC, under the WRA the Province of NL is mandated to protect source water, surface and well, in Newfoundland and Labrador (The Living Water Policy Project, 2011c). Other high level pieces of legislation that have precedence over the Water Resources Act include the Labrador Inuit Land Claims Agreement Act, the Environmental Protection Act, the Health and Community Services Act, and the Municipalities Act. The common ground among this legislation is drinking water quality, indicating this is a top priority for the province.

Other evidence of drinking water being a priority is that between 2008 and 2011, \$20.9 million was spent on the Drinking Water Safety Initiative to address water quality issues in rural systems (The Living Water Policy Project, 2011c). The provincial government utilizes a three leveled Multi-Barrier Strategic Action Plan to ensure clean and safe drinking water (Water Resources Management Division, 2010). One level focuses on source water protection and drinking water treatment and distribution. The second focuses on monitoring, data management and reporting, inspection and enforcement, operator education, training, and certification, and corrective measures. The third focuses on legislation and policy frameworks, public involvement and awareness, guidelines, standards, and objectives, and research and development. The WRA requires that the construction of water infrastructure, operation of water districts, water treatment systems, drilling of a municipal wells, or other development activities relative

to water all require provincial approval, indicative of a strong top-down approach (The Living Water Policy Project, 2011c).

Municipalities can identify their source water and apply to the province for protection. Those municipalities looking to be proactive can reduce or avoid excessive water treatments and boil water advisories through the protection of drinking water quality at the source (Hearn, 2007). Communities are encouraged by the Department of Environment and Conservation to protect their water supply, a responsibility that rests with municipal authority (Newfoundland Department of Environment and Conservation, 2004). Provincial documents, such as a report entitled Management of Protected Water Supply Areas (Natural Resources) and the Municipal Guide to Developing a Watershed Management Plan (Department of Environment and Conservation) provide guidance and instruction to communities looking to develop source water protection plans (Newfoundland Department of Environment and Conservation, 2004; The Living Water Policy Project, 2011c).

While examples are given there does not appear to be much detail surrounding the communities that have established a watershed management plan. It is unclear whether these management committees are single community, multiple communities acting through a Joint Council, or regional level, nor is it clear how the committees function, although these committees are considered to be non-governmental. These committees are formed to oversee land use management, issues around development and other activities and include community council members, residents, industry representatives and other concerned parties (Water Resources Management Division, 2010). A report from the Department of Environment and Conservation listed 279 protected water supplied in the province, 34 communities with groundwater protection zones around wells, and 12 watershed management committees (Dawe, 2007). However, a 2010 report indicated that in 2009-2010 there were five *active* management committees in the province: Clarenville, Corner Brook, Gander, Grand Falls–Windsor, and Steady Brook. Water sources can be designated as protected without the presence of a committee (Water Resources Management Division, 2010).

In addition there are a number of watershed management groups in the province. The National River Conservation program cares for the Main River, named Canada's First Heritage river in 2001, preserving the watershed (Environment Canada, 2009). The Northeast Avalon - Atlantic Coastal Action Program (NAACAP) is intended to promote healthy water systems through citizen and government participation. The Indian Bay Ecosystem Corporation is another example that will be discussed later in this paper. Funding for groups such as these come from government sources like Environment Canada, ACOA, DFO, Service Canada, provincial economic development departments, and stakeholder contributions (Vodden, 2009).

While the drive for water quality in NL is provincial, the standards used are from the Federal Government, which is again different from BC's provincial legislation. All

drinking water in Newfoundland and Labrador must meet the voluntary Federal Guidelines for Canadian Drinking Water Quality to be considered potable³. There is also a federal-provincial Canada-Newfoundland water quality monitoring agreement along with BC, Manitoba, New Brunswick, and PEI (Environment Canada, 2012d; Newfoundland Department of Environment and Conservation, 2012).

Beyond the core of water legislation and drinking water protection there are other groups and other policies and programs wherein water plays a role. For example, the Integrated Community Sustainability Plans have a role for both water protection as well as water infrastructure, and the Department of Municipal Affairs is the contact for funding for water infrastructure (Department of Municipal Affairs Newfoundland and Labrador, 2009; Newfoundland Department of Environment and Conservation, n.d.). Additional water mapping tools are provided as resources within the province.

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³ The Bakker & Cook, 2011 article indicates that NL is not one of the four provinces using the voluntary federal water standards

5. Ontario

Similarly to Newfoundland, water policy design in Ontario places the responsibility for policy design surrounding water resources and supply on the provincial government. Municipalities and Conservation Authorities are then required to enact provincial legislation and incorporate the overarching provincial mandates in their own Official Plans and by-laws (OECD Publishing, 2011). There are several prominent pieces of legislation governing water management in Ontario. Firstly, the Clean Water Act (CWA) was enacted by the Ontario Ministry of Environment (MOE) in 2006. Under the CWA, there are 19 Source Protection Regions in Ontario (discussed further below). The Great Lakes are not included under the CWA, even though these are sometimes used as municipal water sources. The MOE is currently in the process of drafting a Great Lakes Strategy which will help restore and protect the Great Lakes so they remain drinkable, swimmable, fishable (Ontario Ministry of Environment, 2012). The Safe Drinking Water Act (2002), complements the CWA and sets out treatment and testing requirements for water systems and addresses matters concerning the distribution of drinking water (The Living Water Policy Project, 2011d).

The Ontario Water Resources Act originated in the 1950s and focuses on the technical management issues of Ontario's waters such as discharge of pollution, well construction and sewage works (1990) (Ontario Ministry of the Environment, 2011). The Safeguarding and Sustaining Ontario's Water Act (2007), brought amendments to the Ontario Water Resources Act based on the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement as discussed in the international section above. Other significant legislation that impacts the management of water in Ontario include: the Drainage Act (1990); the Environmental Bill of Rights (1993); the Green Energy Act (2009); the Lakes and Rivers Improvement Act (1990); the Municipal Water and Sewage Transfer Act (1997); the Oak Ridges Moraine Conservation Act (2001); the Nutrient Management Act; the Provincial Policy Statement (2005); the Planning Act (1990); the Greenbelt Act, (2005), the Places to Grow Act (2005); and upper and lower tiered municipalities Official Plans and By-Laws (The Living Water Policy Project, 2011d). In conjunction with local municipalities and the 36 Conservation Authorities (CA's) in Southern Ontario, these policies are implemented by the Ministry of the Environment, the Ministry of Agriculture, Food and Rural Affairs, the Ministry of Natural Resources and, to a lesser extent the Ministry of Health and Long-Term Care (as it relates to regulated water through the Health Protection and Promotion Act, 1990) (The Living Water Policy Project, 2011d).

Other important agencies in relation to watershed management in Ontario include the Ontario Clean Water Agency and the Ontario Drinking Water Advisory Council, a Crown Agency established under the Capital Investment Plan Act, 1993 (The Living Water Policy Project, 2011d). The Ontario Water Opportunities Act (2010), allows for the creation of new regulations and establishes capacity with the Water Technology Acceleration Project which will encourage collaboration between government, academia and civil

sectors with the intent of creating new jobs in Ontario related to the development and sale of new technologies, service for water conservation and treatment, pushing Ontario forward as a leader in water technologies, conservation and management (The Living Water Policy Project, 2011d). It was found in the regional interviews conducted that integration between provincial ministries and provincial programs usually takes place at the project level.

The thirty-six CA's in Ontario are based on watershed jurisdictions, and emerged in 1946 out of the Conservation Authorities Act. The Act highlights the importance of providing conservation efforts on a local level that involves cost sharing between municipalities and the Provincial government (Conservation Ontario, 2009b). These CA's are presently involved in a wide array of activities including: outdoor recreation, fish and wildlife management, forestry, water quality monitoring, flood warning systems, watershed strategies, natural area preservation, etc. (see <http://www.conservation-ontario.on.ca/about/history.html> for a full list of activities). As of 2006, the CA's in Ontario were also granted the responsibility of being the "source protection authorities" (SPA's) in the source protection planning process under the Clean Water Act, 2006. These SPA's act as the liaisons between the Province and the local source protection committees and also serve as technical expertise (Conservation Ontario, 2009c).

6. Quebec

In 2002, after a five year planning process, the Government of Quebec released the Water Policy, with the overarching mandate of ensuring the protection of water through principles of sustainable development, improved management of water services and the recognition of water as an economic, social, cultural and environmental resource (Gouvernement du Québec, 2002b). This policy holds an emphasis on a watershed-based management system, especially in relation to the management of the St. Lawrence, by granting this important watercourse a special status. In addition to the Great Lakes Charter 1985, the 2001 Annex and the Great lakes St. Lawrence River Basin Sustainable Water Resources Agreement (2005), other water related legislation includes the Environmental Quality Act (1972); the Regulation on Potable Water Quality Act (2001); The Sustainable Development Act (2006); and the Water Resource Preservation Act (2009) (The Living Water Policy Project, 2011e).

The Act to Declare the Common Nature of Water Resources and to Reinforce their Protection was adopted in 2009. This law confirms the legal status of water as a common resource of the people of Québec and specifies the responsibilities of the Province as the responsible “guardian” of this resource. The Water Information Office within the Ministry of Sustainable Development, Environment and Parks takes on this guardian role as the primary department in Quebec of managing water resources. Their mandate is to “to promote sustainable development through keeping the environment healthy within the confines of economic development and social progress” (The Living Water Policy Project, 2011e). Other important ministries involved in water management are the Ministry of Natural Resources and Wildlife, Ministry of Health and Social Services, Ministry of Agriculture, Fisheries and Food and the Ministry of Municipal Affairs, Regions and Territorial Occupation (The Living Water Policy Project, 2011e).

On the local and regional level, there is a commitment from the Province to implement watershed-based management for thirty-three major watercourses located largely in the St. Lawrence plain area. Local and regional watershed organizations are responsible for preparing and implementing a master plan for water (MPW), which will include the watercourses, lakes, wetlands and aquifers. These watershed organizations are expected to evolve through public consultation and include the expertise and knowledge of municipalities, regional county municipalities, ministries and other government agencies. All plans are expected to comply with relevant guidelines, directives, standards, regulations, and legislation on the provincial, national and international level (Baril, Maranda, & Baudrand, 2006). Many of the priority watercourses covered under the Quebec Water Policy are also covered under international agreements such as the International Joint Commission and are jointly managed with areas in the United States (International Joint Commission, 2013) and the International Network of Basin Organizations (Gouvernement du Québec, 2002b). Below is a summary of Quebec’s water legislation in a timeline format (see Figure 2).

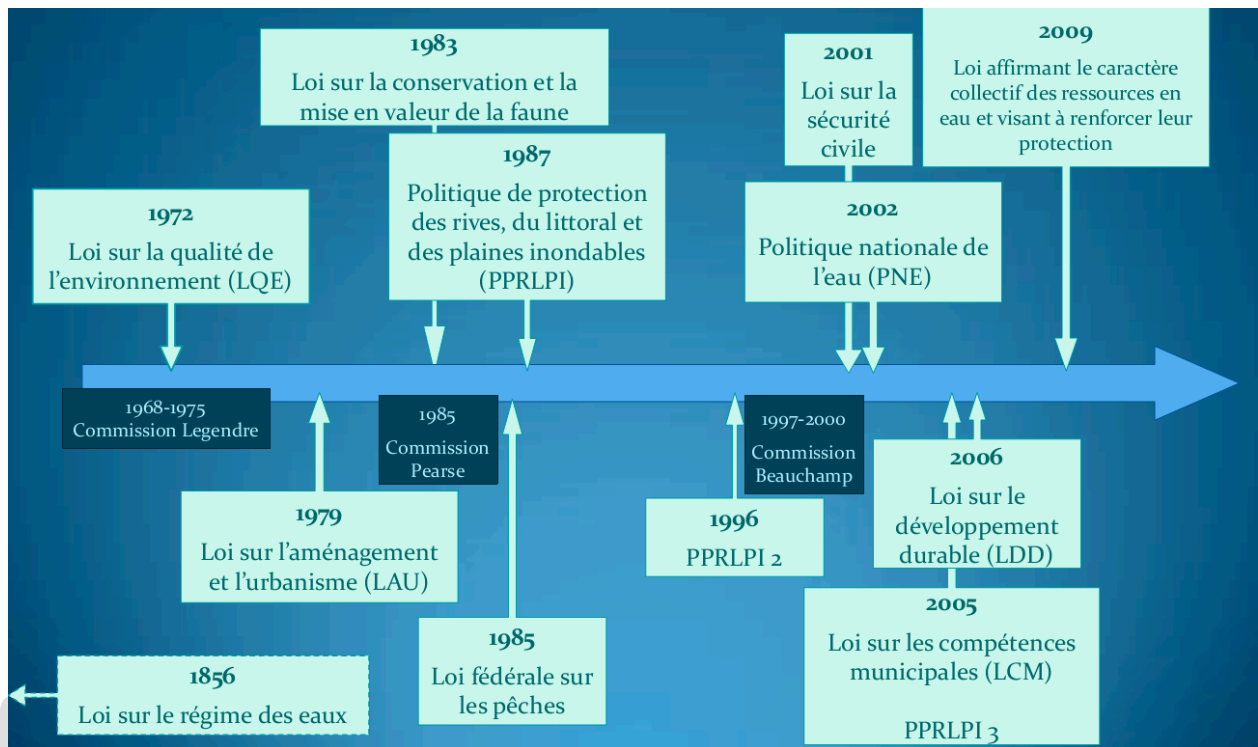


Figure 2 Quebec's Public Policy and Legal Framework Timeline (Olsen, n.d.)

Quebec's identification of water as a common public good for which the province is responsible as the steward for all residents and future generations has been praised by policy analysts and environmentalists across Canada. However, with only the thirty-three watersheds chosen for the creation of MWP's that leaves less than 10% of water sources covered by a plan (Christensen, 2011). It has been said in a study released by "Ecojustice" (formerly known as Sierra Legal Defense Fund) that Quebec still has improvements to make on their source water protection efforts, however their standards for water treatment, testing and reporting still remain very strong (Christensen, 2011).

Regional Case Studies

Previous sections of this paper illustrate relationships between the federal and the provincial governments and the provincial and municipal governments. While jurisdiction and responsibility is complex, there are clear roles for these three levels. The role of the fourth level, the region, is less clear, excepting the case of the conservation authorities, which, while funded municipally, are regional in nature. From a provincial perspective, “official” (administrative) regions are generally service-based government units focused on functions such as economic development, delivery of local services, and enforcement of policy and legislation in rural areas. Unofficial regions, be those cultural, environmental, or economic are largely unrecognized. Water resources and watersheds appear to remain, for the most part, a provincial responsibility, or at least a provincially directed one.

The review of the key ministries and legislation surrounding water and watersheds make it appear as though there is no regional level activity. However, despite the lack of overt policy and programs supporting it, from the ground-up local actors have collaborated regionally, both official regions and unofficial, to tackle relevant issues of which water is one. Part of the disconnect between these regional level efforts and existing policy and legislative frameworks is that the ministries and departments dominating the water arena are not necessarily those that link to the regional levels of government. Furthermore, there are emerging new governing arrangements in relation to water that are creating different governance efforts at varying regional scales. These scales are not necessarily the same as formal administrative or legislated boundaries.

As part of the *Canadian Regional Development* project semi-structured interviews were completed with various officials and stakeholders across case study regions within each of the four provinces examined within this paper. A portion of these interviews related to water and watershed management. The case study examples detailed in the following sections were some of the examples shared by interviewees. These examples are used to illustrate different aspects of water and watershed management at a regional level.

7. The Kettle River Management Plan and the Kootenay Lake Partnership

The regional level government is formalized in British Columbia via the regional districts, twenty-nine across the province providing region wide services, inter-municipal or sub-regional services, and general local government, and services for electoral areas (BC Stats, 2011; Bish & Clemens, 2008). It is through the Ministry of Community, Sport, and Cultural Development (Local Government Department) that the Province connects to the regional districts, playing a role primarily focused on service reviews, regional growth strategies, and some bylaw approvals (British Columbia Ministry of Community Sport and Cultural Development, n.d.). When it comes to the issue of water, this link focuses on water infrastructure, including funding for infrastructure related to health and environment, not watershed management. While regional districts are involved with land use planning, the former Ministry of Municipal Affairs (now Community, Sport, and Cultural Development) has purposefully reduced their involvement, leaving the regional districts to collaborate with other provincial ministries such as the Ministry of Forests, Lands, and Natural Resource Operations (FLNRO) (British Columbia Ministry of Community Sport and Cultural Development, n.d.; British Columbia Ministry of Forests Lands and Natural Resource Operations, n.d.).

The provincial government has regional offices, however these are for other ministries, as the Ministry of Community, Sport, and Cultural Development is housed in Victoria. The provincially designated regions for Interior Health, the Ministry of Environment, and FLNRO do not necessarily correspond to the regional districts or watersheds (and are often larger). There is no apparent evidence of a clear policy directing interaction between provincial water management field offices and the regional level of government. However, it should be mentioned that there does not appear to be anything precluding interaction, simply that there is no official policy or support for these interactions.

Canadian Regional Development project work and general searches revealed that despite the absence of a policy framework for watershed management regional districts and other regional groups are currently involving themselves in watershed management activities, including partnerships with the province. In large part these initiatives are coming from the local level, when specific regional or sub-regional issues are identified. For example, in 2010 the Kootenay-Boundary regional district began action on the Kettle River Management Plan (Regional District of Kootenay Boundary, 2011). One interviewee pointed out that, *“the Kettle River, for the second year in a row has been ranked the most threatened river in BC...We have recognized for a long time the concern there and have been trying to get the province to undertake a watershed management plan for the Kettle River and came up against some brick walls as far as that went...So the regional district, on the Boundary side particularly, the local representatives that sit on our board...have been able to access funding through the gas tax revenues...”* – *Canadian Regional Development Interviewee*. With their initial studies complete, a stakeholder advisory group, the steering committee, project coordinator, and Regional

District continue to collaborate on goals, issues, and solutions surrounding the management of the Kettle River (Regional District of Kootenay Boundary, n.d.).

Another regional example is the Kootenay Lake Partnership. This partnership was officially formed in 2012 to deal with issues surrounding increasing growth and development pressure around Kootenay Lake (Kootenay Lake Partnership, n.d.). This partnership, includes the Regional District of Central Kootenay, municipal governments (e.g., the City of Nelson), the federal Department of Fisheries and Oceans, the government of British Columbia, First Nations (Ktunaxa Nation and the Lower Kootenay Indian Band), and the Canadian Columbia River Inter-Tribal Fisheries Commission. Funding for the initiative has come from the Columbia Basin Trust and the Columbia River Fish and Wildlife Compensation Program. The mandate for the group is to develop integrated and collaborative approaches to lake management planning. There is a recognized need for a healthy and productive lake that sustains environmental quality, cultural importance, recreational uses, and aesthetic values. This partnership, while regional in nature, does not match any official region, but a sub-region surrounding the lake that fits with the mandate. In the case of the Kootenay Lake Partnership, the federal Department of Fisheries and Oceans (DFO) played an important role, *“it was DFO who had observed over time the development going on [around the lake] and recognized the issues...So then DFO decided to move forward and create a partnership. So they brought everybody together.”* – Canadian Regional Development Interviewee. This partnership, and its varied members, helps to illustrate the importance of multi-level governance in water management.

The partnership currently has a three-part study underway to identify ecologically significant areas. This study is divided into three phases: 1) foreshore inventory mapping, 2) aquatic habitat index creation, and 3) archaeological overview assessment. The information generated will lead to an improved scientific knowledge of the lake processes and form a baseline for improved decision making. The intent is that this information will be used to develop lake management guidelines that will lead to a Kootenay Lake Management Plan, which would also result in changes to existing community plans and zoning bylaws.

From a benefits perspective this partnership aims to improve understanding of the lake’s ecological and cultural values, as well as leading to a reduction of risk to natural resources caused by current activities on and around the lake. The partnership is producing best practices brochures, newsletters, and educational materials, as well as holding volunteering lake keepers training (Kootenay Lake Partnership, n.d.).

This initiative appears to have come from an identified necessity to address growth and development pressures which were going unaddressed. And while their future looks promising there are risks associated with this type of initiative. As there is no official mandate coming from the province, there is no official process of support. Jurisdictions and mandates of partnering groups can overlap and clash. While funding has been won

at this point, there are no guarantees it will continue in the future. Additionally, the number of interest groups and stakeholders involved in such a collaborative process are likely to have differences of opinions resulting in group management difficulties.

The Kootenay Lake Partnership is not the only example of regional and sub-regional level water and watershed management initiatives. Other examples include the groups participating in the Columbia Basin Trust's Water Quality Monitoring Project: Slocan River Streamkeepers, Salmo Watershed Streamkeepers Society, Mainstreams Environmental Society, Upper Columbia Program-Wildsight, Lake Windermere Project, Arrow Lakes Environmental Stewardship Society, Friends of the Lardeau River, and St. Mary's Residents Association (Columbia Basin Trust, 2008).

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8. Indian Bay Ecosystem Corporation – Indian Bay, NL

The Department of Municipal Affairs links the province to the community level with respect to local government matters. Similarly to BC, infrastructure and sustainable planning are where water is applicable within this ministry. However the regional level in Newfoundland is different. At the local level there are local service districts and municipalities which function at a community level, but no regional or sub-provincial level of government exists. That is not to say that there are not regional level initiatives. Since the mid-1990s Regional Economic Development Boards (REDBs) have operated in each of the province's twenty designated economic zones⁴ (Department of Innovation Business and Rural Development, 2012). These REDBs have an economic focus, with their core functions including development of strategic economic plans, fostering partnerships with municipalities, developing partners outside of local government (e.g., CBDs, Chamber of Commerce), building capacity and providing stakeholder support, and linking federal, provincial, and municipal governments (Department of Innovation Business and Rural Development, 2012). There are also joint councils, an initiative of Municipalities Newfoundland and Labrador, where groups of municipalities come together and collaborate (Municipalities Newfoundland and Labrador, 2010). Direction on watershed management is primarily provincial, with the ability to develop community level responsibilities. And while there is nothing stopping communities from working together on regional level watershed management, there does not appear to be a policy encouraging it. Although, as in BC, that does not mean it is not happening.

For example, the Indian Bay Ecosystem Corporation (IBEC) exists as a non-profit community organization with the goal of protecting the Indian Bay watershed "through research, community engagement, and sound stewardship" (IBEC, n.d.). While Indian Bay is one community located at the mouth of the watershed, the watershed also includes neighbouring Centreville-Wareham-Trinity and is used for recreation and subsistence activities by several other communities and IBEC does outreach work accordingly. Unlike the recent Kootenay examples, IBEC was established in 1988 by the Gambo-Indian Bay and Cape Freels Development Associations, another form of regional level group operating in the province, as well as various ministries and developers. At that time a community-based resource management initiative was uncommon (Vodden, 2009).

IBEC has built partnerships with government at many levels, as well as with academic institutions. In addition to their successful inclusion of Indian Bay in the provincial watershed management pilot program, IBEC has completed clean-ups of the waterways within watershed, increasing public awareness, habitat restoration, changes to the brook trout fishery, and construction of science-based facility within the watershed

⁴ Nineteen boards have operated since the formation of Nunatsiavut government, which took over economic development responsibilities in northern Labrador. The majority of these boards are in the process of closing their operations as of early 2013 due to funding cuts.

(IBEC, n.d.; Vodden, 2009). Currently the group is undertaking a water quality monitoring project within the watershed, including surface water and roadside springs, and conducting consultations with local residents to capture their perspectives on drinking water sources and related concerns. While IBEC cannot make management decisions without approval from higher levels of government, they have had successes. For example, one interviewee highlighted that *“basically DFO gave us the right to manage our trout stocks so where our zone is a special area for trout, so our season is two weeks shorter than the rest of the province and we have a smaller bag limit which is 6 fish or 2 lbs plus one, and that’s why we had our own enforcement officers because we have our own special rules.”* – Canadian Regional Development Interviewee.

The group is also active with newsletters and local education. As with other examples of regional level initiatives, despite the successes achieved there remains concern over resources, *“Resources are definitely depleted, like money, we used to be getting money from different government organizations for either building the facilities or doing monitoring and different activities, we’re currently down to just one government fund...and that’s about to run out next year so then we’re going to be searching for new monies.”* – Canadian Regional Development Interviewee.

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9. Source Protection Committees- Eastern Ontario, Ontario

Source protection planning under the aforementioned Clean Water Act (CWA) has been designed by the Ontario government (Ontario Ministry of Environment, 2006a). The CWA was a response to the Walkerton tragedy of 2000 where a small Ontario municipality's water source was contaminated, resulting in serious illness and seven deaths. The Province of Ontario decided to approach source water protection with a "multi-barrier" method, which included not only stricter water treatment but stricter management of water at the source (de Loë & Kreutzwiser, 2005). The Clean Water Act mandates an integrated, multi-level governance strategy, which involves stakeholders from the municipality, the conservation authorities, industry, agriculture and the general public. The involvement of the Ontario government under this act includes setting out the rules and approving the terms of reference, assessment reports and the Source Protection Plans (SPPs) created by the Source Protection Committees (SPCs) (Ontario Ministry of Environment, 2006b).

Under the CWA, there are nineteen Source Protection Regions in Ontario, with five located in Eastern Ontario. The Eastern Ontario Source Protection Regions include: Raisin Region South Nation; Cataraqui; Mississippi-Rideau; Quinte; and the Trent Conservation Coalition (Conservation Ontario, 2009c). Interviews with regional informants found that there has been significant sharing and collaboration across the region on source protection related issues. The associated Conservation Authorities are expected to work with the Province and associated municipalities to initiate the SPCs. The CAs are required to act as scientific experts and provide the technical and administrative support that the SPCs need in order to respond to local conditions and develop new partnerships to address problems (Ontario Ministry of Environment, 2006b; Shrubsole, 2004). A major role the CAs had in this process was suggesting appointments for the SPCs, to be approved by the Ministry of Environment. The SPCs were composed of 10-22 members. The SPC members must consist of $\frac{1}{3}$ municipal sector, $\frac{1}{3}$ commercial, agriculture or industry and $\frac{1}{3}$ from the academic, professional, NGO sectors or the general public. In the case that there is one or more First Nation communities in the source protection area, committees of 10, 16 or 22 must have one, two or three (respectively) of First Nation representation (Ontario Ministry of Environment, 2006b). The chair of the SPC is appointed by the Minister of Environment. Furthermore, certain appointed representatives from the Source Protection Authority (generally the CA), the Ministry of Environment, and Public Health Units are expected to attend SPC meetings as liaisons (Ontario Ministry of Environment, 2006b).

These committees were intended to create an environment of open flows of communication and mutual learning. It has been claimed by one key informant in Eastern Ontario that in the source protection planning process, *"There was a lot of learning and development and mutual respect at the table. So even if I didn't agree with your opinion, I could say 'I do not agree, I want to see this'. For the most part it was consensus based. There were very few times there had to be an actual vote at the table..."*

I think the success is based on the communication between the members around the highly technical and legislatively heavy information and complex program” (Minnes, 2012)⁵.

Municipalities are to act as the local experts, sharing data about their own source protection, existing local planning, wellhead protection, and water treatment. Municipalities are responsible for the implementation and enforcement of the SPPs, as they have control over land use planning, water supply and wastewater treatment (Ivey, de Loë, & Kreutzwiser, 2006). For example, municipalities must update their Official Plan in accordance to the source protection plans for their area as well as hire a risk management official to monitor the enforcement. Furthermore, municipalities do have the option of delegating enforcement authority to the board of health, planning board or source protection authority (the CA) (Ontario Ministry of Environment, 2006b). In regards to actions already taken, some municipalities have made operational/infrastructure changes to protect source water such as upgrading wastewater plants, reducing road salting and improving and replacing out of date water infrastructure (Ivey et al., 2006).

As of September 2012 most source protection plans have been submitted to Ministry of Environment for approval. Implementation and, more importantly, funding for implementation to municipalities is largely unknown. Once the source protection plans are approved by the Ministry of Environment, all municipal councils, official plans and by-laws must conform with the significant threat policies under the source protection plans (Ontario Ministry of Environment, 2006b). This first round of source water protection planning focused only on municipal systems of water, however it is the hope of rural source protection areas that there will be a next round of planning that will include private wells and wellhead zones outside of municipal drinking water systems (Minnes, 2012). With the SPP’s regional plans are made on a watershed level (arguably through a regional approach), however implementation will be done by the municipalities (Conservation Ontario, 2009a). Funding for and specifics on implementation and the potential for inter-municipals agreements have not yet been solidified. It has been explained by a key informant that, *“We have the act, we have the purpose and we in good faith did all the stuff we have to do but at the end of the day there has been no provincial commitment to provide funding post 2012. And that is the most serious issue to be raised by many stakeholders and particularly municipalities who are going to be the major important implementing mechanisms”* (Minnes, 2012). As successful implementation is the litmus test of an effective policy, the success of source protection planning in Ontario remains unknown.

⁵ Extracted from Sarah Minnes’ Master of Science research.

10. *Conseil de bassin de la rivière Rimouski (CBRR), MRC-Neigette of Rimouski, Quebec*

After the adoption of the Quebec Water Policy in 2002, Quebec has taken an integrated watershed management approach. This management style incorporates a holistic approach to the watershed including soil, vegetation, animals and humans. This water management technique incorporates a whole ecosystem approach that considers cumulative impacts on the entire watershed and aquatic ecosystems.

Watershed organizations are intended to enhance consensus building and accountability among multiple stakeholders and the public. To realize this mandate technical and financial support has been provided to basin organizations made up of representatives of all basin-scale water management governance players, such as regional county municipalities (RCM), municipalities, environmental groups and the public, with provincial government representatives being non-voting members. The purpose of these watershed organizations is to create master water plans (MWP) which include an overview and baseline study of the watershed, outlining the issues, priorities and goals for the watershed. These plans also include an action plan to be implemented through the signing of basin contracts (Gouvernement du Québec, 2002b). These contracts are voluntary and are intended to mark the commitment of signatories to building awareness among users about the importance of watershed management and the dynamic structure of an ecosystem approach (Ducks Unlimited Canada, 2006).

The Rimouski River, located near New Brunswick and flowing into the St. Lawrence River, was identified by the Quebec Government as one of the thirty-three priority watersheds under Quebec's Water Policy (Gouvernement du Québec, 2002b). The *Conseil de bassin de la rivière Rimouski* (CBRR) consists of indirect and direct stakeholders surrounding the watershed. These stakeholders include representatives from municipal and community sectors and economic committees who help identify local issues and create a unified position across the watershed. This committee was established in 2001 following a public meeting where stakeholders and the public were invited to discuss the preservation and enhancement of the Rimouski River. The CBRR meets at least three times per year and all participants are actively invited to participate in the implementation of the MWP, however legally implementation is the responsibilities of the municipalities (L'Obv du Nord-Est du BSL, 2012).

These watershed based councils reflect the Province's attempt to create a form of regional governance. This can be seen as an adoption by Quebec of the "New Regionalistic" approach towards integrated watershed governance. It recognizes that formal government is no longer the only decision maker in water and watershed management (Pahl-Wostl et al., 2008). Improvements could be made to this water management approach, such as including a greater amount of watersheds under the policy. Furthermore, there have been criticisms to Quebec's Water Policy and Water Act, for lacking the appropriate resources for municipal implementation (Olsen, n.d.).

Discussion

After examining the selected provinces in relation to regional watershed management drinking water and water source protection appears to be the top water-related priority of both the Federal and Provincial governments. However, what is also apparent is that there are often conflicting mandates within government, and at times water-related priorities conflict with other priorities such as natural resource development. In terms of integrated water management there is progress in this direction in various ways, through differing approaches. This is prominent between the federal and provincial government, as well as through the federal government and international partners. At a provincial level, while integrated watershed management systems are being employed to some extent, integration with the regional and local levels require additional attention. Further, in terms of management and administration, provincial administrative regions do not necessarily match with regional boundaries, demonstrating some conflict in terms of scale (watershed, official, functional, or otherwise).

It is evident that watershed based approaches are being increasingly adopted in Canada. It was stated, “the single model of top-down provincial authority over water and watersheds needs to be reformed to better address emerging pressures and challenges, such as a changing climate, resource development, urbanization, the demand for increased engagement by a range of players and actors, and the constitutional rights of First Nations” (The Living Water Policy Project, 2011a). As mentioned in some of the case studies the top-down approach from higher level government is not addressing issues identified at a local and regional level, resulting in various bottom-up attempts. But even with approaches such as source water protection planning in Ontario, which is meant to be a more bottom-up process, in reality it is seen as downloading from the province to the municipalities. It seems that regional watershed management is a recognized need and is possible, but on the whole it is not supported with programs or policies. A dichotomy between dominantly provincial or local community orientations to watershed policy is evident. However, it does seem as if these dichotomies are changing with more municipal and provincial government partnerships emerging such as those created in the source protection planning process in Ontario.

The presence of bottom-up projects and cooperative groups is indicative that top-down, blanket approaches are not meeting all the watershed management needs. Ministries and agencies dealing with water and agencies dealing with regional levels of government (e.g., regional districts and conservation authorities) are separated at the provincial level, especially in British Columbia and Newfoundland and Labrador. In all provinces it seems there is a disconnect in theoretical support for more regional watershed approaches and the actual policy and commitment of financial resources for implementation of these kind of governance networks and processes. It is evident that cross-jurisdictional initiatives need to be supported both in legislation, enforcement, capacity and funding.

For example, Newfoundland has a watershed management guide, but no apparent (consolidated) provincial tracking mechanism for these committees or source protection measures. The local or regional role is small in comparison with those key elements that remain under provincial control. Additionally, the guide is aimed at municipalities, which, depending on the watershed system, can be an inappropriately small scale. This indicates a lack of incentive to truly involve the local/regional actors, suggesting a tokenism level of participation.

Another major challenge for regional watershed management is regional level continuity. Even when there may be consistent regional plans throughout a province, since funding at the regional level for implementation is unknown and these regional actors are often working outside or at the least below the provincial system the ability to put plans into action and to sustain regional watershed management organizations and processes in long-term. Fostering a more genuine recognition of these groups could be beneficial. At the moment BC is revising the provincial approach to water, providing an opportunity for change. While the watershed itself is becoming more important, the connection to regional government and regional development appears to be largely absent.

This paper has provided examples of a sliding scale of regional watershed management. Some provinces are further ahead than others, such as the source protection efforts of Ontario and the integrated watershed management approach of Quebec. Although even in those provinces where the provincial government may be behind, there are examples of action on the ground stepping forward to address the issue, even if upper level government is not. Changes to traditional ways of doing things require alignment of relevant factors (Lowry, 2009). In many provinces this push for change seems to be coming from the local/regional level, as opposed to the provincial/federal levels. Amongst all provinces it is evident that without the “teeth” of provincial or federal legislation regional water approaches seem to be inconsistent. Legislation must also be paired with the proper funding for implementation, enforcement, and monitoring to ensure the continuity and effectiveness of regional watershed plans.

Connection to regional development and New Regionalism

As discussed in this paper, new regionalism can be found to be based on five main themes: place based development; multi-level governance; rural/urban interdependency; knowledge flows and innovation; and integration. It has been realized that in Canada, regional water initiatives must address place-specific issues within the regional/sub-regional context. This suggests a focus on the New Regionalism theme of place-based development. Furthermore, as outlined in this paper the interplay of multiple agencies and multiple levels of government is crucial for watershed management. From a multi-governance perspective, currently, in some places, there appears to be a drive for citizen involvement as well as a window for policy change. Furthermore, the increasing interaction between citizens on a watershed platform suggests a realization of a rural-urban interdependency.

Water lends itself well to considering economic development and the environment, as well as the social element. There is a growing understanding of the complexities of watershed management and the need for a regional watershed model approach as seen in both Ontario and Quebec, with an emphasis on the use of local knowledge and context (Ivey et al., 2006). Watershed organizations and source protection committees are becoming increasingly aware of the benefits of knowledge sharing and the building of knowledge capital from both formal and informal sources. Ongoing realization of the connection (especially in Quebec) of water with the health of the environment, public health, economic viability and social and recreational purposes is occurring, suggesting an integration of policy fields. It is evident that the pillars of New Regionalism are beginning to guide water and watershed management, as well as the new emerging governance structures surrounding this field. It can be argued that the understanding of New Regionalistic principles, and the opportunities and challenges of this approach, can in fact improve future policy design for regional water and watershed management efforts. Future research to understand how New Regionalism can benefit water and watershed management is needed.

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**Canadian Regional
Development**
A Critical Review of Theory,
Practice, and Potentials



**Développement régional
canadien**
Un examen critique des théories,
des pratiques et des potentiels

The *Canadian Regional Development: A Critical Review of Theory, Practice and Potentials* project is a multi-year research initiative funded by the Social Sciences and Humanities Research Council of Canada. The project is investigating how Canadian regional development has evolved over the past two decades and the degree to which Canadian regional development systems have incorporated ideas, policies and practices associated with “New Regionalism” into their policy and practice.

The project is conducting an empirical assessment of Canadian regional development using a multi-level, mixed methods case study approach in four provinces: British Columbia, Newfoundland and Labrador, Ontario, and Québec. The assessment of regional development across the case studies is based on the five key themes of New Regionalism: i) collaborative, multi-level governance; ii) integrated versus sectoral and single objective approaches; iii) fostering knowledge flow, learning and innovation; iv) place-based development; and v) rural-urban interaction and interdependence.

Kelly Vodden (Environmental Policy Institute, Grenfell Campus and Department of Geography, Memorial University) is leading the project, together with co-investigators David Douglas (School of Environment Design and Rural Development, University of Guelph), Sean Markey (Geography, Simon Fraser University), and Bill Reimer (Sociology and Anthropology, Concordia University). In addition, graduate students at all four universities are engaged on the project.

Further information on the project can be obtained at <http://cdnregdev.ruralresilience.ca>. The project has been financially supported by the Social Sciences and Humanities Research Council of Canada and the Leslie Harris Centre for Regional Policy and Development.



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