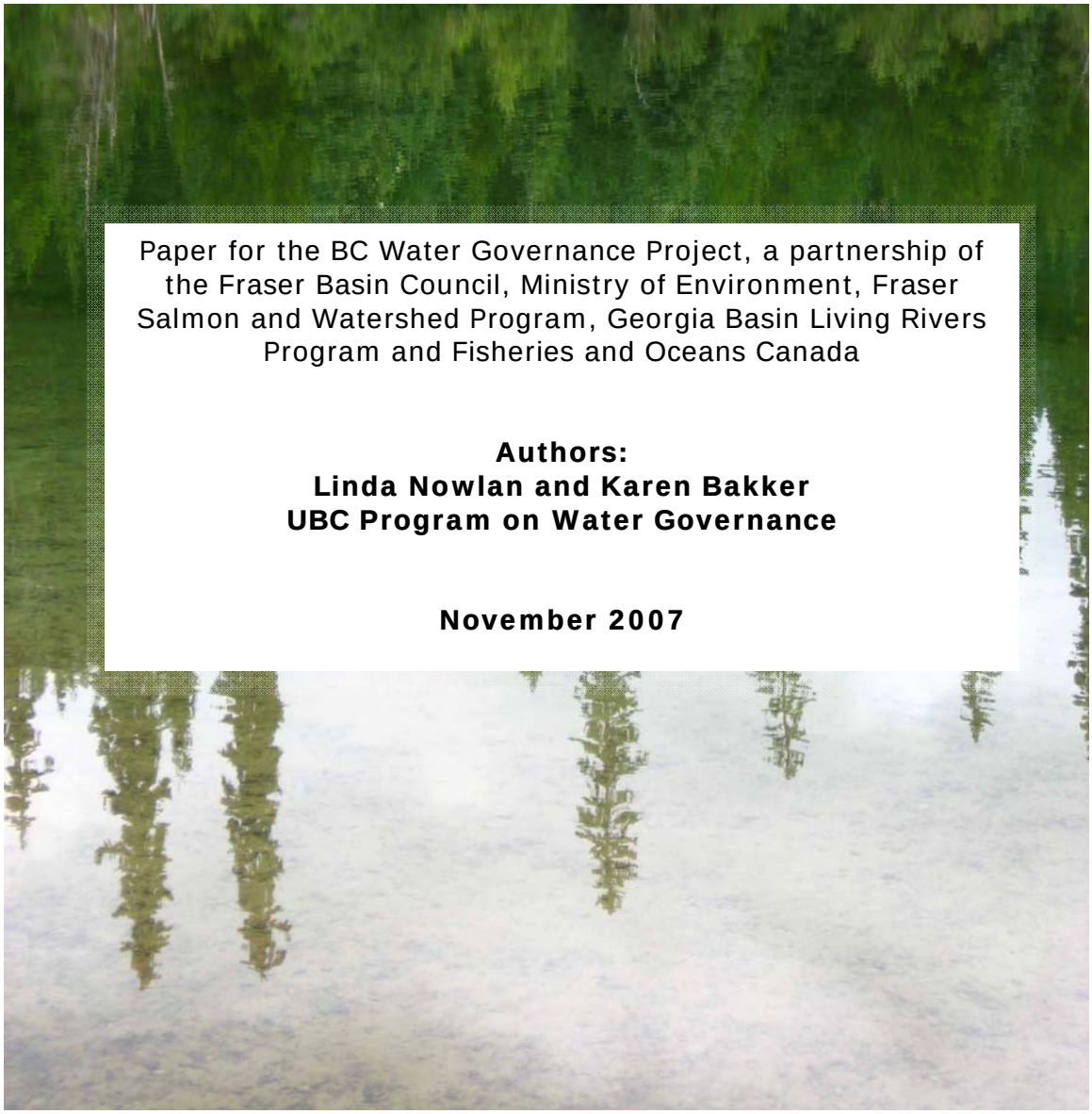
Delegating Water Governance: Issues and Challenges in the BC Context



Paper for the BC Water Governance Project, a partnership of the Fraser Basin Council, Ministry of Environment, Fraser Salmon and Watershed Program, Georgia Basin Living Rivers Program and Fisheries and Oceans Canada

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November 2007

UBC PROGRAM ON WATER GOVERNANCE

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF BOXES

GLOSSARY

Delegated governance: Delegated (or 'shared' or 'collaborative') water governance may be broadly defined as the involvement of non-state actors in decision-making for water management; this frequently (but not always) implies the delegation of decision-making to lower scales of governance such as the watershed, municipality, or region.

Governance: the process through which decision-makers are chosen, stakeholders (including citizens and interest groups) articulate their interests, decisions are made, and decision-makers are held accountable. Governance is distinct from management.

Harmonization: the process of achieving regulatory efficiency, effectiveness and clarity through legislative and policy standardization and centralization.

Management: operational, on-the-ground activity to regulate a resource and conditions of its use.

Subsidiarity: the principle whereby a central authority does not take action (except in the areas which fall within its exclusive competence) unless it is more effective than action taken at lower scales.

Water governance: The range of political, organizational and administrative processes through which interests are articulated, input is absorbed, decisions are made and implemented, and decision makers are held accountable in the development and management of water resources and delivery of water services.

Watershed governance: Water governance (see above definition) at the watershed scale, covering the full range of watershed issues: water resources and delivery of water services, as well as the protection and conservation of water and aquatic ecosystems including their associated riparian area, and land use issues as they impact water.

Watershed groups are typically smaller than watershed partnerships, are not initiated by government, and are composed of like-minded individuals (such as landowners or environmentalists).

Watershed partnerships are made up of a broad range of stakeholders with diverse views. Delegated water (shed) governance partnerships are the focus of this report (as opposed to watershed groups).

Watershed plan: A watershed plan is a document that results from the watershed planning process and provides assessment and management information for a geographically defined watershed, including the analyses, actions, participants, and resources related to development and implementation of the plan.

Water management plan: A water management plan is a plan established under Part 4 of the BC Water Act designed to address or prevent (a) conflicts between water users, (b) conflicts between water users and instream flow requirements, or (c) risks to water quality.

Water use plan: A water use plan is a technical document defining the proposed operating parameters to be applied in the day to day operations of all BC Hydro hydroelectric facilities, which recognizes multiple water use objectives, and is based on the outcomes of advisory consultative processes.

LIST OF ACRONYMS

ASASG	Abbotsford Sumas Aquifer Stakeholder Group
AWC	Alberta Water Council
BCUC	British Columbia Utilities Commission
BRBC	Bow River Basin Council (Alberta)
CA	Conservation Authority (Ontario)
CBT	Columbia Basin Trust
CBWAC	Cowichan Basin Water Advisory Council
CCME	Canadian Council of Ministers of the Environment
CORE	Commission on Resources and the Environment (BC)
CRB	Central Regional Board (Clayoquot Sound)
CVRD	Cowichan Valley Regional District
CWA	Clean Water Act (Ontario)
DFO	Department of Fisheries & Oceans , now Fisheries and Oceans Canada
DWPA	Drinking Water Protection Act
FBC	Fraser Basin Council
FCM	Federation of Canadian Municipalities
FITFIR	"First in Time, First in Right"
FN	First Nations
GTA	Gas Tax Agreement Revenues
ICS	Integrated Community Sustainability
IPP	Independent Power Producer
IMEA	Interim Measures Extension Agreement (Clayoquot Sound, BC)
LBH	Local Board of Health
LRTF	Living Rivers Trust Fund
LWMP	Liquid Waste Management Plan
MDBI	Murray-Darling Basin Initiative (Australia)
MOE	Ministry of Environment
MVLWB	Mackenzie Valley Land and Water Board
NGO	Non-governmental Organisation
OBWB	Okanagan Basin Water Board
OWSC	Okanagan Water Stewardship Council
PHO	Provincial Health Officer (BC)
SCC	Supreme Court of Canada
SCRD	Sunshine Coast Regional District
TDML	Total Daily Maximum Load
TLUWMP	Trepanier Landscape Unit WMP
UBCM	Union of BC Municipalities
WJWC	Westside Joint Water Committee

WMP	Water Management Plan (Quebec)
WPAC	Watershed Planning & Advisory Council
WQO	Water Quality Objectives
WUP	Water Use Plan

1. EXECUTIVE SUMMARY

This report on evolving approaches to water governance in Canada, focusing on BC, was commissioned by the BC Water Governance Project, a partnership of the Fraser Basin Council, BC Ministry of Environment, Fraser Salmon and Watershed Program, Georgia Basin Living Rivers Program and Fisheries and Oceans Canada.

The paper is intended to provide useful information and tools for government and other stakeholders participating in the ongoing dialogue on water governance in the province of British Columbia. It presents an independent, academic analysis of select water governance issues, focusing on 'delegated' (also known as 'devolved' or 'shared' or 'distributed') water governance. The analysis is based on research conducted by the University of British Columbia's Program on Water Governance in the latter half of 2007. It will be published in the public domain, as mandated by UBC's Ethics Review Board.

The analysis is predicated upon a recognition that water governance has undergone dramatic changes in Canada over the past decade, characterized by three key trends: the introduction of **new watershed-based delegated governance management models** in a number of Canadian provinces; legislative and policy reform setting **higher standards for drinking water supply** in a number of Canadian jurisdictions; and **greater citizen involvement** in environmental policy-making and environmental management. These trends have occurred for several reasons: **a shift in the view of the role and mandate of governments**; **new legal requirements** (particularly with respect to First Nations, and also mandated by a new generation of environmental laws); awareness of the **expertise** available outside of government, particularly in the context of decreased government resources; **new approaches to citizen participation**; increased emphasis on **integrated management of environmental issues** and **watershed based management**; and concern over the implications of **climate change** for both water resources and supply.

With this context, the paper examines the advantages and disadvantages of delegated water governance, and discusses the questions:

- What are the barriers to delegating water governance?
- Do the potential advantages of delegating water governance to lower scales outweigh the disadvantages?
- Which issues/aspects of decisions about water should be delegated, and which should not?

The paper seeks to provide information that will enable the sponsors of the BC Water Governance Project to effectively answer these questions.

- Section 2 outlines new approaches to and trends in water governance.

- Section 3 outlines a conceptual framework for water governance to facilitate discussion of the three key questions listed above, including principles of good governance.
- Section 4 applies this conceptual framework and these principles to specific cases of delegated water governance in BC, Canada, and internationally.
- Section 5 discusses the wide range of water governance models currently used in BC.
- Section 6 outlines potential models and principles that may be used as pathways for legislative and policy reform, and discusses factors to consider in making decisions about new governance processes.

Key Findings

- **The current provincial approach to delegated water governance is fragmented and ad hoc:** Currently, delegated water governance arrangements in the province are characterized by a patchwork of jurisdictions, legal authority, differing governance models, and mandates. This situation has resulted because most of the models have evolved in an ad hoc fashion, with little coordination between different levels of government or governmental bodies. Consequently, two other important issues to consider when debating new delegated water governance models in BC are: how do they relate to existing models, and how can productive synergies (rather than unproductive compartmentalization or duplication of effort) be produced?

- **Policy and legislative gaps exist on key issues:** There are a number of factors to consider in making decisions about new governance processes, such as how these new governance structures respect and include First Nations water rights, and the geographic areas of the province to be covered. The biggest gaps that exist today in water governance in the province are:

    - the absence of an overall provincial water strategy including management measures and implementation targets, and clear delineations of authority
    - an uneven patchwork of governance arrangements throughout the province
    - a lack of transparency about the requirements for initiating the planning provisions which would allow greater local level involvement
    - regional inequities in water management
    - a lack of funding mechanisms available to local governments or regional bodies to use for water management activities,
    - limited public participation opportunities in the existing water governance framework in general and with the water licensing framework in particular.

- **Performance of the delegated governance partnerships which have been created is mixed.** Accountability is one of the good governance principles associated with effective leadership. Using this principle to evaluate the BC models, performance was mixed. No provincial policy or law guides the efforts of these different collaborative efforts. Most models are outside the *Water Act* licensing and allocation process. Two good governance principles associated with the formation of interpersonal trust are transparency and respect for the rule of law. The BC models are mixed in terms of transparency. General data on enforcement and compliance with the BC *Water Act*, and provincial environmental legislation is no longer routinely compiled and released to the public in the form of non-compliance reports and summaries of enforcement actions. The models respect the rule of law, though respect for First Nations rights and enforcement remain issues. Though most models include public involvement, the primary legislation, the *Water Act*, does not allow for broad public participation in the licensing or allocation process, or in appeals to the Environmental Appeal Board. Financial sustainability is a concern for almost all the BC models. Providing water governance bodies with a manageable geographic area, a manageable time frame in which to carry out their activities, and a manageable scope of activities are factors of success. Some of the governance models have built in policy feedback processes, but as there is no overall provincial water strategy, it is difficult to judge the success of all the disparate implementation efforts.

- **Significant barriers exist to devolved water governance:** There are a number of barriers to devolved governance. One barrier in BC is a lack of strong provincial standards to protect drinking water quality and aquatic habitat and species. There are few tools available to protect groundwater or instream flows, to name two examples. Another barrier may be reluctance to form governance bodies which could recommend changes to the current licensing and allocation system because of the implications of paying compensation to existing licensees. Financial support for new governance processes may also be a barrier to greater devolved governance. The creation of bodies which will require both direct financial support for the processes and implementation of the plans, as well as indirect support through devoting staff time to participate in and enforce the plans will have considerable financial implications.

- **Constructive pathways for legislative and policy reform are available:** Specifically, the province could use the following pathways for legislative and policy reform :
    - *Identify and Remove Barriers to Greater Use of Existing Governance Structures:* The relatively new and as yet untested planning procedures available under the *Water* and *Drinking Water Protection Acts* may assist communities who seek

additional control over their water resources, and want to develop localized plans to address water protection. Clarifying the criteria for initiating these planning procedures will assist local communities interested in making use of these options.

- *Reform of Existing Allocation, Licensing, and Funding Policies:* Problems with the current licensing, allocation and funding of water could be addressed through the usual policy routes, retaining the single government decision maker governance model, and perhaps changing the procedures for public participation of non-state actors.
- *Reform Laws and Policies to Provide a Unified Structure for Watershed Councils*: Another option for greater devolved governance in BC could be the adoption of a provincial position on province-wide or geographically limited (for example, to the most populated parts of the province) watershed councils.

- **The province should retain decision-making authority in key areas:** A major issue is which issues should be delegated and to whom. Once the decision has been made to delegate governance in a particular region, the province is then faced with the task of deciding which topics should be addresses by a multi-government or multi-stakeholder group. While there are no universal rules to assist with this decision, the guidance from other jurisdictions suggests that the province should retain decision-making authority in certain areas such as water quality and quantity standards for both surface and groundwater, licensing and allocation, in order to provide a level playing field across the province and avoid the problem of jurisdictions using lower standards to attract business, ensure there is no undue influence from a local powerful interest, and most importantly, to maintain its duty to protect public and environmental health as trustee of the water resource.

Appropriate topics for delegation include:

- Deciding broad categories of allocation between different user groups, once an overall allocation decision respecting ecological limits has been made for all the water bodies in the watershed in question,
- Making recommendations on restoration or water improvement projects that should proceed,
- Proposing local water protection, conservation, recycling or reuse bylaws to be adopted by a number of different jurisdictions in the region the group operates in, such as a watershed which could include sprinkling restrictions, detergent or pesticide bans, rebate programs for low-flow appliances or rainwater collection barrels.
- Proposing integrated solutions for difficult problems that traditional command and control programs have been unable to address such as

nonpoint source pollution and the control of urban runoff, agricultural practices reform, or integrated land and water use planning.
- Non-regulatory activities, such as public education and awareness.

The final section of the paper provides observations, describes a potential provincial government process to investigate and explore policy development, and points out possible directions for substantive reforms.

2. INTRODUCTION

2.1 New approaches to water governance: New actors at new scales

Water governance is the range of political, organizational and administrative processes through which interests are articulated, input is absorbed, decisions are made and implemented, and decision makers are held accountable in the development and management of water resources and delivery of water services. It is distinct from water management, which is the operational, on-the-ground activity to regulate water and impose conditions on its use.

> Simply put, 'water governance' refers to the decision-making process we follow, whereas 'water management' refers to the operational approaches we adopt. Governance refers to how we make decisions and who gets to decide; management refers to the models, principles and information we use to make those decisions. (Bakker, 2006)

Water governance has undergone dramatic changes in Canada over the past decade, characterized by three key trends:

1. The introduction of **new watershed-based delegated governance management models:** A number of Canadian provinces have amended their laws and introduced new policies to promote delegated governance, which involves delegating decision-making over water management to the local (usually watershed) level. Alberta's Watershed Planning and Advisory Councils, Ontario's source protection committees, and Québec's Basin Organizations are three examples. Section 3.5 of this report provides a chronology of the key legislative and policy developments in Ontario and Alberta. Of course, long-standing examples such as Ontario's Conservation Authorities and River Basin Boards in various parts of the country continue to operate. BC's variety of delegated governance arrangements have emerged organically, and are not directed by an overall provincial law or policy.
2. Legislative and policy reform setting **higher standards for drinking water supply:** Post-Walkerton, several provinces have amended water quality legislation and reporting policies. Ontario's legislation is the most wide-ranging and stringent in Canada. BC's Drinking Water Protection Act was passed in 2003.
3. **Greater citizen involvement:** In many instances, governments have sought greater involvement of citizens in decision-making over water management. In other instances, citizens' groups (such as Water Keepers) have emerged independently. BC has been at the forefront of shared governance initiatives in resource management and land use planning, exemplified by the now defunct Commission on Resources and the Environment, land and resource management plans, and stream stewardship initiatives.

These changes have occurred for several reasons:

- **a shift in the view of the role and mandate of governments**, sometimes associated with a lack of confidence in the unilateral actions of public institutions;
- **new legal requirements** (particularly with respect to First Nations, and also mandated by a new generation of environmental laws);
- awareness of the **expertise** available outside of government, particularly in the context of decreased government resources;
- **new approaches to participation**; acknowledgement of the need to incorporate a range of values and perspectives in order to secure political legitimacy and successful water management outcomes;
- increased emphasis on **integrated management of environmental issues** (with respect to water, particularly nonpoint source pollution, water quality management, coastal estuary protection, and protection of aquatic species);
- increased acceptance of the legitimacy of **watershed based management** ('integrated water resources management'), implying the need to integrate land use planning and water resources management at a local scale;
- concern over pressures on both water resources and supply related to anthropogenic climate change, driving improved water conservation and management, particularly in areas of high rates of population growth; and
- a growing appreciation by water managers that they can no longer manage water resources and watersheds in isolation of other relevant interests.

These trends parallel changes in water governance internationally. For example, the European Union's Water Framework Directive mandates the creation of local watershed councils (including transboundary watersheds) for all rivers within the European Union. The trend is also present in numerous other countries, such as Australia, New Zealand and a wide range of less developed countries (Kemper et al 2005). In the United States, multi-stakeholder water governance partnerships receive financial support from state agencies in at least six states: Massachusetts, Oregon, Washington, Wisconsin, Pennsylvania, and California (with Washington and California respectively having approximately 60 and 150 collaborative watershed partnerships). The growth of collaborative models of water governance, involving non-state actors and multiple levels of government has been most notable in the western US, where it has been called, both "one of the most dramatic and potentially significant changes to the West's institutional landscape"(Kenney, 2001), and "seriously, if not fatally flawed"(Coggins, in Brick et al 2001).

These trends also parallel changes in environmental governance more generally over the past few decades in Canada, and internationally. In Canada, numerous initiatives have involved citizen participation in environmental governance, and/or have sought to involve local actors; many, of course, have done both simultaneously. These initiatives have occurred in two phases:

- The **first phase of citizen participation in environmental governance** in the 1970s and 1980s tended to emphasize citizen consultation, centered on project-review processes of mega-projects (sponsored by both federal and provincial governments) such as the James Bay Hydro Project. A water-related example is the federal government-sponsored river-basin planning initiative initiated in 1967 (through which intergovernmental cost-sharing agreements were negotiated for the Okanagan, Qu'Appelle and Saint John basins), and subsequent major basin planning studies which took place across Canada in the 1970s.
- The **second phase** emphasized the integration of citizens into decision-making through either consensus-building consultation processes or shared decision-making processes. Examples in British Columbia include the BC Round Table on the Environment and the Economy, and the BC Commission on Resources and the Environment. A water-related example is the Remedial Action Plans prepared by local stakeholder groups under the authority of the Great Lakes Water Quality Agreement.

This second phase, also known as 'delegated' environmental governance, is the focus of the remainder of this paper.

2.2 Delegated (or shared) water governance partnerships: Definition, advantages, disadvantages

Delegated (or 'devolved' or 'shared' or 'collaborative') water governance may be broadly defined as the involvement of non-state actors in decision-making for water management; this frequently (but not always) implies the delegation of decision-making to lower scales of governance such as the watershed, municipality, or region. Watershed partnerships, which are made up of stakeholders with diverse views, are the focus of this report (as opposed to watershed groups, which are typically smaller, initiated by private individuals rather than government, and composed of like-minded individuals, such as landowners or environmentalists).

Delegated water governance partnerships often involve:

- delegation by government (or the relevant authority) of water governance to a lower scale;
- greater involvement of a wide variety of non-state actors;
- the use of a hydrographic boundary, such as the watershed, rather than political boundaries;

- collaborative decision-making processes, often emphasizing consensus and trust-building;
- science-based decision-making, often requiring extensive fact-finding.

Various aspects of delegated governance have been incorporated into earlier water management initiatives (such as watershed based agencies like the Tennessee Valley Authority). Perhaps the most novel aspects of delegated water governance partnerships are the involvement of a large number of stakeholders representing diverse interests who treat each other more or less as equals, and the principle that decision-making should not be left solely to government experts.

The possible advantages of delegated water governance include:

- access to 'local' expertise which can improve the quality of decision-making;
- the ability to adapt regulatory programs to meet local conditions;
- empowerment of stakeholders (particularly those traditionally marginalized);
- reinforcement of 'social trust' between stakeholders, and reduction of conflict over competing uses;
- greater cooperation in information-sharing;
- greater political legitimacy (and thus enforceability) of water management planning outcomes; and
- more positive outcomes that have the 'buy-in' and support of influential interests.

The possible disadvantages include:

- focus on local environmental interests to the exclusion of regional or national environmental concerns;
- emphasis on consensus may lead to politically workable solutions, rather than environmentally optimal solutions;
- unequal representation of stakeholders at the local level;
- long-term sustainability undermined by large amounts of volunteer time required ('burnout');
- greater overall costs, and more time required to produce outcomes, such as water use or watershed plans.

In addition to weighing these advantages and disadvantages, proposals for delegated decision-making also need to address three key questions:

- What are the barriers to delegating water governance?
- Do the potential advantages of delegating water governance to lower scales outweigh the disadvantages?
- Which issues/aspects of decisions about water should be delegated, and which should not?

The remainder of this paper seeks to provide information that will enable the sponsors of the BC Water Governance Project to effectively answer these questions. Section 3 outlines a conceptual framework for water governance to facilitate discussion of the key questions (above), including principles of good governance. Section 4 applies this conceptual framework and these principles to specific cases of delegated water governance in BC, Canada, and internationally.

3. DELEGATED WATER GOVERNANCE: CONCEPTUAL FRAMEWORK

3.1 Types of delegated water governance partnerships

Delegated water governance partnerships occur in many forms. Two key characteristics differentiate them: (1) duration (short versus long term) and (2) decision-making power (advisory versus authoritative). On this basis, the four most common types of delegated water governance partnerships are:

- **Collaborative engagement processes** (short-term, advisory) These processes employ techniques for conflict resolution amongst diverse stakeholders, and usually consist of project-specific planning exercises of relatively limited duration. Techniques include collaborative learning, conflict resolution and mediation, and the National Research Council's analysis and deliberation framework. BC Hydro's Water Use Plans developed through Collaborative Committees are examples.
- **Collaborative watershed partnerships** (long-term, advisory) These involve a range of governmental and nongovernmental stakeholders over a relatively long time period (e.g. five years or more). Typically, these partnerships provide a forum in which information is shared and management actions are discussed and negotiated, but formal government agencies retain decision-making power. Partnerships are thus intended to complement (and perhaps transform) rather than replace traditional governmental activity. The Fraser Basin Council is an example.
- **Collaborative panels** (short-term, authoritative) These are usually short-term (one to two years), expert-dominated, problem-focused governmental initiatives, intended to supply specific inputs into policy reform. Collaborative panels are characterized by more limited consultation than other types of delegated water governance partnerships. The BC Drinking Water Review Panel is an example.
- **Collaborative agencies** (long-term, authoritative). These are formalized bodies with implementation power for water management decisions. A range of governmental and private stakeholders groups are typically represented. Autonomous and requiring large budgets, this type of delegated water governance partnership is rare. The Okanagan Basin Water Board and Ontario's Conservation Authorities are Canadian examples.

Any consideration of delegated water governance partnerships should take into account the diversity of types of partnerships, and identify a preferred type based on considerations of desired duration and degree of delegation of decision-making power.

A useful way to frame the process of considering whether and how to implement a delegated water governance partnership has been pioneered by the European Union in its work on water governance, which has dealt with the issue of delegated water governance through balancing subsidiarity and harmonization. Harmonization may be defined as the process of achieving regulatory efficiency, effectiveness and clarity through legislative and policy standardization and centralization. Subsidiarity is defined as the principle whereby a central authority does not take action (except in the areas which fall within its exclusive competence) unless it is more effective than action taken at lower scales.

The principles of harmonization and subsidiarity are also used in Canada. Provincial and federal governments have harmonized procedures, such as environmental assessment. The Supreme Court of Canada has endorsed subsidiarity in a case upholding a municipality's authority to pass a pesticide reduction bylaw, stating that: "The case arises in an era in which matters of governance are often examined through the lens of the principle of subsidiarity. This is the proposition that law-making and implementation are often best achieved at a level of government that is not only effective, but closest to the citizens affected and thus most responsive to their needs, local distinctiveness and population diversity." [1] The court also was clear in this case that if a local government body exercises a power, a grant of authority must be found somewhere in the provincial law.

Delegated governance must achieve an appropriate balance, which will be different in each jurisdiction, between harmonization and subsidiarity.

Scale versus delegation of decision-making power In considering these questions, it is important to note that delegated water governance partnerships need not necessarily occur solely at the watershed scale. The question of the **scale** of the partnership (which may entail decentralization of a degree of decision-making authority from a higher level of government) can be considered separately from the question of the appropriate delegation of decision-making power. The simple graph, below, demonstrates this point visually. When delegating decision-making power, the two key issues to consider are:

1. Distribution of Decision-Making Power: Relative degree of delegation of power and accountability by government (from a consultative role on one extreme, to shared decision-making on the other) (horizontal axis)
2. Participation: Number and type of participants, from single primary stakeholder (usually the state) at one extreme, to multiple stakeholders (including non-state actors) at the other (vertical axis)

In other words, new approaches to the two key questions of 'who participates?' and 'who decides?' can result in delegated water governance partnerships at a variety of scales. Both conventional approaches in which

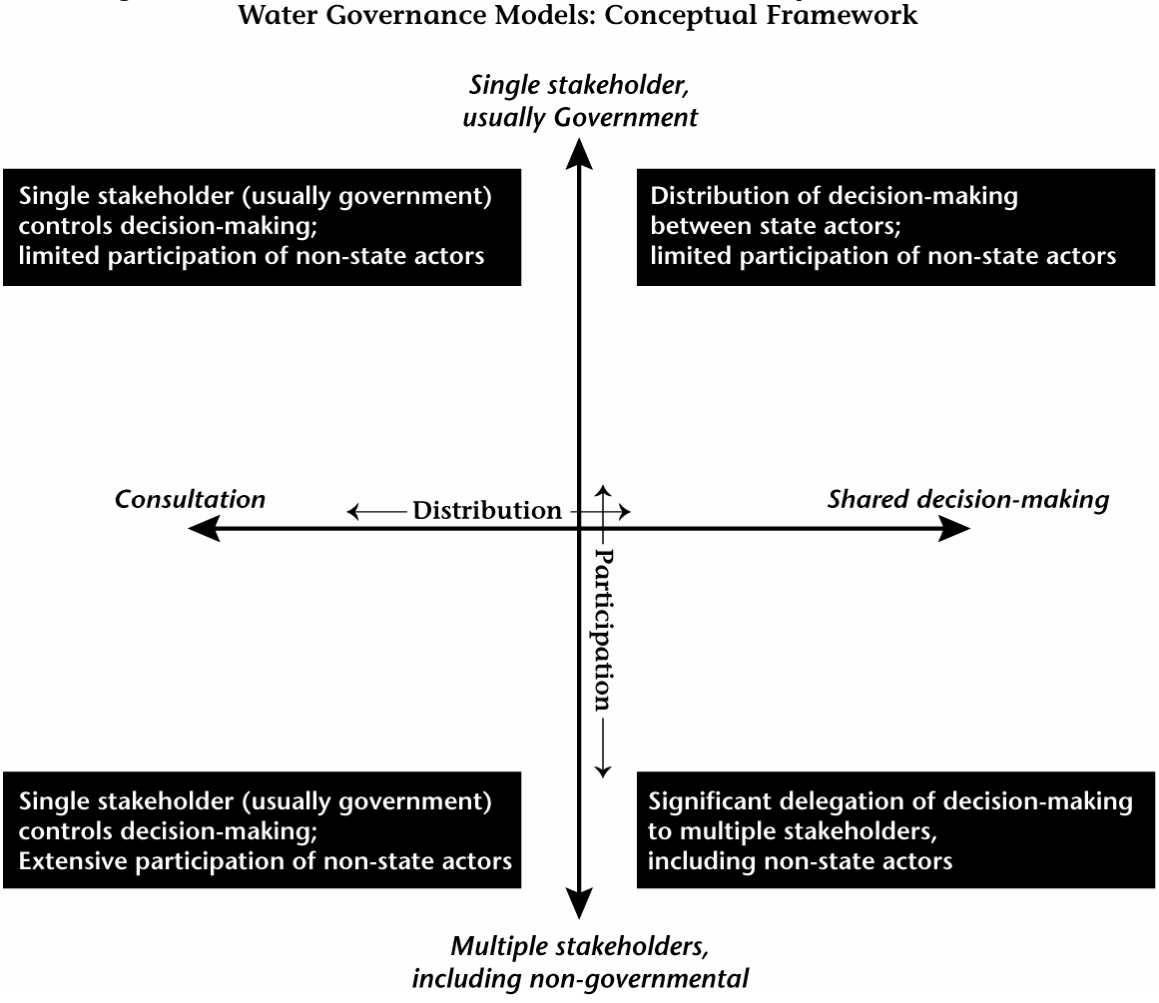
[1] 11495 Canada Ltee (Spraytech) v. Hudson (Town) [2001] 2 SCR 241.

little or no delegation takes places (upper left hand quadrant), and highly delegated approaches (bottom right hand quadrant) can take place at the watershed scale. This suggests that effective watershed governance need not necessarily involve delegation of decision-making power, and highlights the salience of the two key questions outlined earlier in the report.

Our analysis suggests that in addition to the critical questions outlined in the previous section, the question of delegation of decision-making power thus needs to be posed as follows:

- On which issues and to what degree should decision-making power be shared or distributed (distribution); and who should it be shared with (participation)?

Figure 1: Water Governance Models: Conceptual Framework



3.2 Successful delegated water governance partnerships

Delegated water governance partnerships are a new approach to water management and are thus inherently experimental. Because of the local nature of water as a resource and jurisdictional variation (even within Canada), it is impossible to provide a generic model or template of a successful partnership. Rather, this section provides an overview of factors in success and good governance principles that may be used both when considering whether (and how) to delegate, and when implementing partnerships.

Factors in Success: The academic literature suggests that there are numerous criteria which increase the chances of success of delegated water governance partnerships: sustainable funding; effective leadership and management; interpersonal trust amongst participants; and committed, cooperative participants were the four factors most frequently mentioned in one of the largest studies to date of US delegated water governance partnerships (Leach & Pelkey, 2001). Additional factors included: broad and inclusive membership; adequate time; well-defined process rules; formal enforcement mechanisms; effective communication; adequate scientific and technical information; adequate monitoring; low or medium levels of conflict; limited (manageable) temporal and geographical scope of activities; training in collaborative skills; and adequate community resources. Not all of these factors of success can be provided or managed by governments, even where governments initiate the partnership. This suggests that the process for engaging in delegated water governance partnerships should acknowledge that the conditions do not always exist for collaborative approaches to work, and hence these approaches are not always appropriate.

Guidelines for practitioners

If the decision is made to implement a delegated water governance partnership, several recommendations can be made regarding the process[2]:

- The approach should be designed to be collaborative, to foster trust and a culture of cooperation, and to decrease uncertainty through analysis and deliberation over the full range of best available scientific evidence;
- Sustainability – of funding and sufficient time commitments – is critical; the process must be maintained until the decision process has fully occurred (this may take several years);
- Participation of stakeholders, and the collaborative process, must be perceived to be representative and fair in order for it to be credible and legitimate over the long term; this also assists with the prevention of conflicts escalating to other venues;

[2] These recommendations are based on the US experience with delegated water governance partnerships, as most relevant examples in Canada are too recent for similar conclusions to be drawn.

- Training in collaborative decision-making processes will increase success.
- The successful application of principles of good governance, applied to the watershed partnership, will lead to better outcomes.

This last point merits further discussion. Good governance is important for the effective performance of organizations, underpinning important functions such as: enforcing rules, and adapting rules as required; mediating conflict; building trust and legitimacy; and ensuring accountability (Table 1). Improving governance can lead to more efficient and cost-effective service provision, create services more attuned to users' preferences, and increase responsiveness to changing conditions and public needs. Different criteria for good water governance have been defined by different groups (Bakker and Cameron 2002), but common criteria include: inclusiveness, participation, accountability, the rule of law, and transparency. Consistent application of these criteria is likely to increase not only legitimacy, but also to improve the quality of decision-making. Accordingly, these principles constitute the basis upon which examples of delegated water governance partnerships are evaluated in subsequent sections of the paper.

Table 1.
Delegated water governance partnerships:
Examples of factors of success and associated good governance principles

Factor of Success	Good Governance Principle (example)	Example of Application
Effective leadership	Accountability	Management of water adheres to standards set by elected officials, through statutory requirements. Decision-making authority is matched to responsibility for implementation. Policies are matched by effective operational management.
Interpersonal trust	Transparency	Making results of raw and treated water quality testing publicly available.
	Respect for the rule of law	Compliance with license conditions; enforcement of reporting requirements. First Nations title, rights, and treaty rights respected.
Committed participants	Equitable participation	Involving affected users in the decision-making process, through notice and comment provisions and appeal rights; Ensuring that the duty to consult First Nations is fulfilled
Sufficient scientific information	Access to (funding for) best available scientific data	Groundwater hydrology studies are funded as part of the mandate of a water governance partnership process focused on source water protection in a rural area heavily dependent on groundwater for drinking
Sufficient funding	Financial sustainability	Revenues from water related regulatory processes support water governance processes.
Manageable scope of activities	Sufficient time to complete process and optimal geographical scope	Allowing open-ended or long-term governance processes to take sufficient time (this may frequently result in processes taking 4 to 5 years to arrive at a result); constraining the geographical scope to an optimal scale for implementation of decision-making (this may imply a sub-watershed scale)
Policy feed-back	Shared decision-making	The water policy process includes a formal mechanism whereby decisions by watershed councils may result in changes to specific policies in clearly specified areas, under specific conditions

Adapted from Joe, O'Brien et al (2002) and FCM (2003)

3.3 Pitfalls in delegated water governance

Pitfalls to avoid when designing delegated water governance initiatives are no less important than the factors of success outlined above.

The absence of any of the seven key factors of success- sustainable funding; effective leadership and management; interpersonal trust amongst participants; committed, cooperative participants; sufficient scientific information; manageable temporal and geographical scope; and policy feedback - may jeopardize the partnership's chances of success.

Several examples illustrate these pitfalls.

- *Lack of sustainable funding*- Québec's newly authorized basin organizations are funded by the province for 33 listed priority watersheds as defined by Québec's Minister of the Environment , but for other basin organizations in non-priority watersheds, funding must be sought from outside sources, and many groups are unable to secure the necessary funding, or spend a considerable proportion of staff and volunteer time on securing funding, resulting in significantly delayed progress on water governance activities.

- *Effective Leadership and Management*: An example of a pitfall in this area is the absence of an Alberta Water Planning and Advisory Council (WPAC) in the Peace or Athabasca regions. Multi-stakeholder water planning in the areas where oil sands and other fossil fuel resource extraction activities are concentrated are arguably the most important areas for this type of planning in the province. A regional water management approach that integrates groundwater and surface water over the scale of the oil sands is not in place. In fact, in Alberta, no WPACs have yet developed a groundwater management plan. Though WPACs are envisioned for every major river basin in the province, the fact that no WPACs have yet been formed in the oil sands areas, where both surface and groundwater resources are under heavy stress, has been explained as due to the absence of a local initiative to start and maintain a WPAC. Leadership from the government agencies charged with protecting water resources in these areas is so far lacking.

- *Interpersonal Trust among Participants*. When this trust is absent, partnerships flounder and dissolve. An example of a failed multi-stakeholder and multi-government watershed council is For The Sake of the Salmon, which began as a voluntary group with no legal status or statutory authority, and later became a registered US charitable organization, focusing on restoring salmon streams in 3 states: California, Oregon and Washington. The former executive

director of this group wrote that the process was stymied when junior staff from forestry and other industries with no decision making authority were sent to Board meetings after the first six months, and that the consensus process was used by these industry representatives 'solely to protect their turf and stop any effective substantive policy advances which would have protected and/or led to the restoration of endangered salmon stocks." (Lavigne, 2004) The group was dissolved in 2004 when funding from the states dried up. A similar example in BC is the Skeena Watershed Committee which instituted strong salmon harvesting conservation measures through a consensus process led by DFO, and was considered a success for the years it operated, but disbanded when the commercial fishing interests decided to withdraw.

- *Committed, cooperative participants*. This factor of success is not entirely within government control, but processes can be designed to increase the level of commitment from participants, and avoid the pitfall of losing steam due to disinterest from participants. For example, processes with a strong outcome orientation are more likely to be served by enthusiastic participants: "the first element of successful watershed groups is that they must focus on a clear objective" (Getches, 2001). Sometimes an objective will be clear from a legal mandate, as with Ontario's source protection authorities and committees, who are required by the *Clean Water Act* to prepare drinking water source protection plans, or from an upcoming event, such as the Columbia Basin Trust Water Initiatives program's goal of ensuring that Basin residents are involved in the renewal, termination, or re-negotiation of the Columbia River Treaty.

3.4 Brief History of Delegated/Devolved Water Governance in Canada

The constitutional responsibility for water belongs primarily to the provinces, and is shared with the federal government which has played a varying role in direct water management over the years, based on federal responsibilities for fisheries, navigation and other integrally water related areas. One of the pillars of the 1987 Federal Water Policy was 'integrated planning at the watershed level' based on watersheds as the preferred spatial unit for water management.

Provinces too have espoused the watershed approach, often for many years. Local level management has been a feature of water governance in western provinces in the form of irrigation districts since the 1930s, and in Ontario in

the form of Conservation Authorities (CAs) based on watershed boundaries, established by law in 1946.

Few provinces have implemented a comprehensive watershed regulatory and policy approach to both water quality and quantity, which integrates surface water, groundwater, and land management. Arguably Ontario is the only province which has fully instituted a province-wide watershed program, and is perhaps the prime innovator in this arena through the recent passage of the *Clean Water Act* authorizing the creation of source protection authorities. (Source protection authorities will for the most part use the existing watershed boundaries of the Conservation Authorities.)

Many, though not all, provinces refer to watersheds in their water policies. Alberta's Water for Life identifies three tiers of "Partnerships" for managing watersheds: the Alberta Water Council, the Watershed Planning and Advisory Councils (WPACs) which are regional organizations working on a watershed scale to raise awareness of the state of Alberta's major river basins, and watershed stewardship groups, more local level groups. Manitoba's conservation districts, formed in 1972, are based on partnerships of local communities, landowners, non-government groups, industry and government, and the province's Water Strategy, embodied in the *Water Management Act* is based on watershed planning. Integrated watershed management, carried out by Basin Organizations composed of representatives from the province, regional county municipalities, municipalities, users, environmental groups and citizens, is a major component of the 2002 Québec Water Policy. These groups are responsible for developing a master water plan for each basin.

BC embarked on major experiments with shared decision making in resource management in the 1990s with the formation of the BC Commission on Resources and the Environment (CORE), created to "end the war in the woods." CORE did extensive research and reporting on shared decision making, and used these techniques at its regional tables to develop land use plans.

In BC, a number of local level water governance bodies exist, though there is no formal law or policy at the provincial level promoting the watershed approach. In 1993 the British Columbia Ministry of Environment, Lands and Parks issued "Stewardship of the water of British Columbia: a review of British Columbia's water management policy and legislation: a vision for new water management policy and legislation", a series of ten discussion papers for a new water law for BC. The paper on water management planning recommended that a new Water Act should enable a systematic approach to watershed planning. For various reasons the comprehensive amendment and rewrite of the BC water law did not proceed as outlined in the 1993 papers.

The most recent iteration of provincial policy, the 1999 Freshwater Strategy for BC, does not mention watersheds. (MOE, 1999)

Two new types of water planning provisions have been introduced in BC in recent years. The first is the water management plan (WMP) under Part 4 of the *Water Act*. The *Act* gives the Minister the discretion to establish the process for preparation of a plan, including establishing who is responsible for the plan, and does not specify a particular level of government or a particular set of individuals to develop or implement the plan. The second is the drinking water protection plan under the *Drinking Water Protection Act* (DWPA). Both planning provisions are new and untested, though a pilot WMP is underway in Langley. As discussed in Section 5, the water management plan in particular creates new possibilities for delegated water governance in BC, while the more limited scope of drinking water protection plans means they will be used to address serious intractable threats to human health only in rare circumstances.

3.5 Chronologies of Devolved Water Governance in Ontario and Alberta

Ontario and Alberta have both recently reformed their water laws and policies. The chronologies in Appendix 1 explain the steps taken in each province on the issue of delegation of decision-making power.

The key lessons from the experience of these two provinces on devolved water governance are: the importance of a comprehensive consultation process; the time and resources needed for such consultations; and the benefit of focusing consultations on specific water outcomes.

In both provinces, a lengthy process of policy development and public consultation occurred before the changes were made. In both provinces, the consultations continue. Undertaking such comprehensive consultation prior to adoption and implementation is an important means of gaining political legitimacy from affected users. The consultation with experts, regulators, users, and members of the public also improves the model that is eventually adopted.

These chronologies demonstrate the length of time it takes to complete a broad-based consultation. Ontario's reforms started in 2000 after Walkerton, and key pieces of the new regulatory and policy approach were completed in July 2007. Alberta's Strategy took eight years to develop, and the province has made a commitment to review the Strategy at regular intervals. The financial and human resources devoted to consultation and policy development were significant in both cases.

The costs of funding collaborative water governance bodies are high. For example, the government of Alberta allocated $206,429,000 for Water for Life programs for the 2007-8 fiscal year. These funds were divided among a number of Ministries. Alberta Environment's share of these funds was $13.8 million. The Table below shows the distribution of these funds. Approximately $4.5 million was devoted to the three tiers of collaborative partnership in the Strategy for this fiscal year.

Table 2.
Relative breakdown of Alberta Environment's Water for Life Spending for 2007-2008

Alberta Water Council	**$900,000**
Watershed Planning and Advisory Councils	**$3,247,000**
Watershed Stewardship Groups	**$250,000**
Drinking water	**$1,750,000**
Reliable supplies	**$460,000**
Water conservation	**$980,000**
Research (mainly for groundwater)	**$4,980,000**
Work toward healthy aquatic ecosystems	**$1,230,000**

Source: Pembina Institute et al, 2007.

Ontario's budget for devolved water governance bodies is also substantial. Under the *Clean Water Act*, the province committed approximately $120 million from 2004- 2008 to support source protection planning, which includes funding for municipalities and conservation authorities.[3] Financial support to Ontario's Conservation Authorities is shared between different levels of government, according to the provisions of the *Conservation Authorities Act*. The most recent breakdown of CA funding from 2004 lists the shares as: "provincial (11%), municipal (40%), self-generated (47%) and federal (2%)". During the last two decades the Ministry of Natural Resources (MNR) dramatically cut their contribution to CAs, from a total transfer payment of $58,900,000 in 1992, to $7,600,000 in 2004. This change has been difficult for the CAs and they have asked the province to re-establish a 50/50 cost sharing arrangement with municipalities for the operation of CAs.

In both examples, the provinces chose to focus their new partnerships on achieving specific outcomes: in Ontario, the focus is drinking water source protection, while in Alberta, WPACs are meant to build long-term

[3] Ontario Ministry of the Environment, Fact Sheet #5971e01, The Clean Water Act: Facts. 2007.

partnerships that examine watershed issues, make recommendations to the appropriate water and land use decision-making authorities, and undertake actions to benefit Alberta's watersheds.

4. APPLICATION OF CONCEPTUAL FRAMEWORK TO WATER GOVERNANCE MODELS

In this section, the conceptual framework developed in Section 3 is applied to a number of water governance models in BC, Canada, the US, and Australia in order to assess the effectiveness, advantages, and disadvantages of the widest possible range of existing water governance models that might be applicable to BC. The models have been classified according to the relative degree of distribution of decision-making power and breadth of participation, as set out in the graphic on the next page.

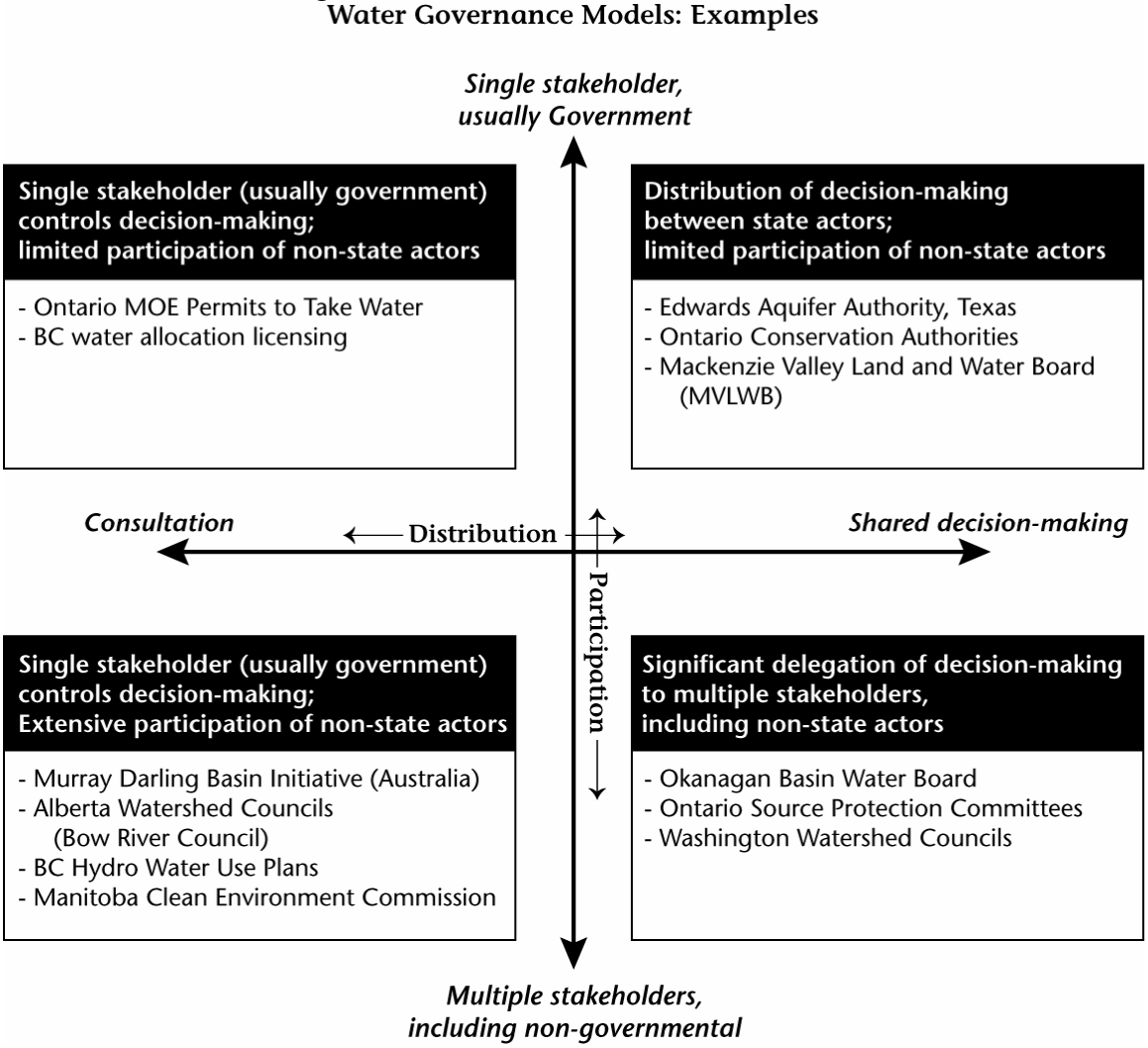
A table listing descriptive information[4] for each of the twelve primary models is attached as Appendix 2.

4.1 Drivers and mandate

Two common drivers behind the creation of all the models are relatively obvious: to improve water management, and to involve a wider variety of voices and perspectives in the decision making process. Crisis prompted the formation of several models: the Walkerton tragedy was the impetus for source protection committees and Ontario's *Clean Water Act*; the Murray Darling Basin Initiative was formed to deal with severe water and land degradation and over allocation of the water sources for a region supporting 40% of Australia's agricultural industries; and Hurricane Hazel in 1954 caused major flooding which spurred the creation of the Toronto and Region Conservation Authority.

[4] Start date, number of examples, mandate and primary activities, motivation/driver for creation, relevant legislation and/or policies creating/enabling the organization, scale/spatial unit of organization, funding, operational management, focusing on the degree to which sustainable water resources management (three pillars of sustainability: environmental, social, economic) is formally integrated and assessed.

Figure 2: Water Governance Models



The mandate and scope of the issues addressed by each model varies significantly. Two examples are at the 'macro-watershed' level. The mandate of the Murray-Darling Basin Initiative (MDBI) in Australia is set out in its governing Agreement:' to promote and co-ordinate effective planning and management for the equitable, efficient and sustainable use of the water, land and other environmental resources of the Murray-Darling Basin'. This is the largest integrated catchment management program in the world, covering an area of over one million square kilometers, and among the many activities undertaken by this Initiative are a salinity management strategy, pilot interstate water trading, and environmental flow option development. The Seine-Normandy water basin agency, advised by its 'water parliament', prepares a management plan for a basin which covers close to 18% of the French territory.

Most of these delegated water governance models have developed a formal plan or strategy, ranging from the Columbia Basin Trust's (CBT) Water

Initiatives Strategy, the Bow River Basin Council's developing water management plan, the Nisqually watershed management plan, and BC Hydro's water use plans (WUPs) for the area of each hydroelectric facility. This is consistent with findings from the Natural Resources Law Center at the University of Colorado which tracks watershed initiatives in the western United States. It has prepared statistical snapshots based on surveys completed by 118 watershed groups between 1998 and 2000 (Kenney, 2001). The activities most frequently cited were the preparation of publications and the development of management plans.

No systematic compilation of the activities of multistakeholder, multigovernmental water governance bodies has yet been carried out in Canada.

4.2 Factors of success associated with different delegated water governance models

4.2.1 Effective leadership

Effective leadership in devolved water governance can be demonstrated in a number of ways: by setting clear parameters for a collaborative process, supporting the process both financially and with human resources, and undertaking to implement the recommendations from the process while retaining the ultimate authority on whether or not to implement.

Distributed decision making is common to many models for a preliminary stage of decision, such as preparing a watershed management plan (Washington Councils and Alberta WPACs, Ontario Conservation Authorities in their role as source protection committees) or water use plan (BC Hydro WUPs). None of the models examined in this report devolved the ultimate decision-making authority to participants in the distributed process[5]. This is consistent with legal principles for devolved or distributed governance. If the ultimate decision-making authority was to be placed in hands other than the constitutionally authorized level of government (the provincial government, for most water management decisions in Canada) then legislation would need to be passed to give the devolution legal effect.

In most of the examples involving a single or multiple government stakeholders controlling decision-making, (the top half of the quadrant) accountability is clear. Where an authorizing statute set out the requirements for decision-making, judging whether those requirements are followed is straightforward. This is the case for the Manitoba Clean Environment Commission, Ontario's permit to take water system, BC's water allocation

[5] The Okanagan Basin Water Board and the Edwards Aquifer Authority Board are the possible exceptions: both Boards have authority over a limited range of water management decisions.

licensing system, the Edwards Aquifer Authority, Ontario's Conservation Authorities, and the Washington watershed councils.

Accountability was less clear where the model was created by policy rather than statute. For plans recommended by these models, such as the BC Hydro WUPs and the WPACs in Alberta, the respective provincial governments were expected, but not required, to approve the plans. If approval is not forthcoming, participants would have no method to implement the plan, and no mechanism to appeal any failure to implement.

Establishing models that are outcome oriented like Ontario's source protection committees and BC Hydro's WUPs is an indicator of leadership. In both these cases, the collaborative groups work to achieve a specific outcome with defined parameters, a water use or source protection plan.

Box 1. Leadership Success in Washington's Watershed Councils

The Washington state government has demonstrated leadership in its passage of the Watershed Planning Act, which makes funds available to councils, repayable if the council does not develop a watershed plan within a specified time frame. A study of water partnerships in Washington state identified the leadership abilities of two of the chief representatives of opposing viewpoints (the agricultural community concerned about adequate water for irrigation, and the tribe whose concerns centred on adequate water for fish) as a significant factor in the case of the success of the Dungeness River watershed plan (Singleton, 2002). Other key elements in explaining the success of this watershed council was that the relatively small size of watershed meant participants felt responsible, and could see consequences of their actions or inactions.

4.2.2 Interpersonal trust

This factor of success is linked to the good governance principles of transparency and the rule of law.

Transparency for many of the case study examples was mixed. It was difficult to obtain information on the Mackenzie Valley Land and Water Board. Distribution of funds is not explicit in the Board's annual reports. This issue was addressed by the 2005 Auditor General Report, which stated that "the annual reports of each board contain little information to demonstrate the board's accountability for managing their responsibilities in the best interests of the residents of the Mackenzie Valley and all Canadians. Nor has the Department requested that they do so" (OAG, 2005).

The Ontario examples both exhibit high degrees of transparency, in part because of the requirements of Ontario's Environmental Bill of Rights and Environmental Registry which require public posting of regulatory decisions. The province has published a Permit to Take Water Manual and numerous documents explaining the requirements of the source protection regime.

Respect for the rule of law can be evaluated by a number of criteria. For resource management in Canada, a critical issue is to ensure that aboriginal rights and title and treaty rights are respected.

Box 2. First Nations Participation in BC Hydro's Water Use Plans (WUP)

This example demonstrates the challenges and benefits of establishing interpersonal trust. First Nations (FN) involvement was an integral part of the WUP process, as many hydroelectric facilities are located on FN traditional territory and affected FN interests, primarily fisheries. To integrate the FN perspective into the process, a representative of the BC Aboriginal Fisheries Commission was on the WUP Management Committee. A number of FN representatives participated on the FN Water Use Planning Committee, chaired by the FN representative on the WUP Management Committee. BC Hydro built many relationships with different First Nations throughout the WUP processes. FN agreed with consensus recommendations of the Collaborative Committees in many of the WUP processes as improvements for fish over the status quo, even if not the optimal solution they sought. However, as this process specifically exempted redress of historic FN grievances from its purview, and treated First Nations water uses on the same footing as other uses, such as recreational or commercial uses, lingering concerns remain.

4.2.3 Committed Participants

The questions of who participates, how they are recruited, and how they make decisions recur throughout the literature evaluating watershed partnerships in the United States. One study of watershed partnerships in Oregon showed that diverse participation may overcome resistance to change in the management of water resources, and that "Without such diversity, partnerships in Oregon seem inclined to serve only the narrow interests of a select few constituents potentially leading to little difference compared to status quo programs" (Bidwell and Ryan, 2006).

One of the findings from a 'statistical snapshot' of US watershed partnerships was that only 53% of the groups featured a member from an environmental organization. (Kenney, 2001) If a major reason for collaborative structures is to improve environmental quality in a particular watershed or river basin, this is one group of stakeholders that should not be omitted. Yet not all the models had requirements for representation from an environmental organization. For example, the Bow River Basin Council as the WPAC for the Bow River Basin in Alberta lists many members from federal, provincial and local governments and from industry groups such as TransAlta, the Canadian Association of Petroleum Producers, and the Urban Development Institute, but few representatives from environmental groups. Environmental issues are often key factors in collaborative water partnerships. Balancing

ecosystem needs with other human water needs for domestic, agricultural, industrial purposes is often a key goal for these partnerships.

Water governance partnerships must choose whether to limit membership, or keep it open. An 'open-door' policy is in effect at the Bow River Basin Council, and in other WPACs in the province. A more structured approach is taken with the composition of the Ontario source protection committees. A regulation governing their appointment process, composition and decision making authority has been passed under the *Clean Water Act.*[6]

The trend for newer models is to show increased participation from a greater range of interests. One example of this evolution contrasts an early plan under the BC allocation system, the Coquitlam River Watershed Management Plan of 1970, which included a single public group – the Port Coquitlam Fishing and Hunting Club – with the BC Hydro Consultative Committee for the Coquitlam-Buntzen Water Use Plan in 2004, which included nine societies, four First Nations, a half-dozen private citizens and all levels of government (Harvey, 2004).

Who is paid to participate? A common concern in collaborative decision making models is that the non-state actors must volunteer their time to sit at a decision-making table with salaried government and industry representatives. One of the models has addressed this issue through the payment of modest amounts to those who would otherwise be classified as volunteers. Payment will be made to members of Ontario's new source protection committees to cover expenses and an honourarium will be paid for those who are not municipal employees and those who do not receive payment from their employer to attend to be $2500/year (Ontario MOE, 2007).

The models show a variation in decision making procedures. In the single government decision maker examples, the government representatives used their unilateral authority to make decisions, while in almost all the other examples, consensus, (with a fallback position of voting if consensus was not possible) was the norm. An advantage of the consensus approach is that governmental and nongovernmental stakeholders participate as equals. However, if consensus alone is used for decisions, stalemates may result and action prevented, and/or preserving consensus may become more important than realizing water management goals. The CBT Water Initiative's variation on the consensus model is:" Where it is possible, try to reach consensus among interested parties. However recognize that situations may occur where positive action may need to be taken in the absence of consensus." The Nisqually Watershed Plan committed all parties to try to reach consensus, but if that was not possible, then the decision making power

[6] Source Protection Committees, O. Reg.288/07.

would be weighted towards the governmental stakeholders with consensus among governmental members and a 2/3 majority vote by non-governmental members.

4.2.4 Sufficient Scientific Information

The need to base resource management decisions on sound science is unarguable. There is some evidence from these models that participatory and distributed governance approaches increases the quantity and quality of the scientific information underpinning decisions, as the first step in many processes is often compilation of all sources of information, followed by identification of data gaps and commissioning research to fill gaps. These models also increase all participants' scientific knowledge, as regulators are forced to translate data into accessible information. For example, detailed background technical information was produced to provide the context for the recommended actions addressing growth and land use, groundwater resources, water rights, instream flows and water quality for the Nisqually Watershed Plan. Similarly detailed scientific information was a feature of all the models.

Box 3. Scientific Data a Necessary, but Not Sufficient Condition for Improved Environmental Outcomes – Abbotsford – Sumas Aquifer

To reduce nitrate contamination in the Abbotsford- Sumas Aquifer (discussed in s.5.4.3) a number of coordinating groups have been formed, and a wealth of scientific data has been collected over a period of decades. This data was most recently canvassed in a Groundwater Science forum in April 2007 convened to "provide a venue for exchange of scientific information and a discussion on data gaps toward understanding why groundwater nitrate is not declining to a level below the drinking water standard". Presenters at the forum hypothesized that the worsening trend may be due to a substantial increase in intensive poultry production, or an inadvertently driven shift to greater use of inorganic more easily leached nitrate sources such as fertilizers. A second forum will produce recommendations for improvements to policy based on the compilation of scientific evidence.

The missing element for improved management of the Abbotsford-Sumas aquifer does not appear to be the availability of scientific information, as there is abundant information. What could be missing is a strategy to translate the accumulated scientific knowledge into changes on the ground. There is currently no institutional framework for managing cumulative effects on the aquifer. Water managers are interested in piloting new governance mechanisms for the aquifer. Models that have been suggested include the geographically similar, agriculturally dependent Southern Willamette Valley Groundwater Management Area, though the legal backdrop in Oregon is markedly different than in BC. An enforceable plan was developed for the Southern Willamette region because the 1989 Oregon Groundwater Quality Protection Act required the Department of Environmental Quality to prepare a multistakeholder, multigovernment plan after confirming that the region's groundwater exceeded regulatory triggers. BC has no equivalent to this law.

4.2.5 Sufficient Funding

A common, though not universal, problem for water governance bodies is financial sustainability. The most common funding source is general government revenues, usually from provincial coffers. (The MVLWB was unique in receiving all its funding from the federal government.) Some models have user-pay systems for generating revenue, and some, like the MDBI, are experimenting with pilot water rights trading mechanisms. Many models employ cost-sharing.

The Canadian examples from BC, Ontario and Alberta rely primarily on general revenues from the province. The provinces vary in their application of the user-pay principle. Most provinces charge for the issuing of permits, though the fees are generally low. BC charges a water rental fee, which can be significant for major water users, such as BC Hydro, but neither Alberta nor Ontario charge for water withdrawals. Similarly, in Washington, the state funds watershed councils and the implementation of watershed management plans.

Ontario has devoted significant attention to the issue of funding, as can be seen in Appendix 1 and in the discussion in Section 3 on Ontario's history of devolved water governance. The most recent report on administration of the Water Stewardship Fund created by the *Clean Water Act* recognizes the special cases of rural communities whose residents receive water from private wells, and the difficulties this group will have in raising funds for source protection activities.

Box 4. Financial Sustainability Through Cost-Sharing

Many of the models employ cost sharing agreements between different levels of government to ensure financial sustainability for water governance bodies. The Ontario *Conservation Authorities Act* contains cost sharing obligations. The MDBC is funded by the Australian federal and three state governments, as well as the Australian Capital Territory. In BC, federal, provincial and local governments provide core funding support through annual contributions to the Fraser Basin Council's budget, which accounted for 95% of the Council's revenue in 1998, and declined to 51% in 2003, due to increased project funding. In Alberta, the WPACs receive provincial funding, which may be augmented by funding from other partners. To date, the most significant source of outside funding for WPACs has come from local governments. For example, the Red Deer Watershed Alliance, the WPAC for the Red Deer watershed, lists 34 local government partners, but no industry partners, despite the presence of two petrochemical plants on the river.

4.2.6 Manageable Scope of Activities

Limiting the devolution of decision-making to a relatively small geographical area, such as a sub basin, or breaking down the tasks and actions required and setting reasonable (usually lengthy) time limits for the achievement of objectives, such as preparation of a plan, are two techniques many models

employ to keep the process manageable. In the Murray Darling Basin Initiative, for example, numerous catchment boards, committees or authorities (the name varies with each state) coordinate water quality protection and riparian and floodplain management, and feed information back to the higher level bodies established by the Initiative.

Box 5. Okanagan Basin Water Board Focal Areas and Successes

The OBWB has been successful in addressing the two issues which prompted creation of the Board: the control of the invasive aquatic plant Eurasian milfoil, and funding for sewage infrastructure. Having these focal areas concentrated the Board's actions in concrete areas. As the Board embarks on a new water initiative, tentatively called a Sustainable Water Strategy, the Board has approached the task in incremental steps. First, it created a Stewardship Council, with expanded membership to beyond the regional government representatives. It has also initiated a focused water supply and demand assessment with partners from senior levels of government and universities, which includes a groundwater assessment. It has also addressed the climate change issue head on, prompted by a major drought in BC in 2003, and has been a supporter of the participatory assessment of climate change risks (Cohen et al 2006). Tackling information needs at the start of a new strategy is commendable, and breaking the strategy development into discrete steps should help make the process manageable.

4.2.7 Policy Feedback

To make the recommendations arising from multistakeholder processes meaningful, a successful water governance model will include a formal mechanism whereby decisions by watershed councils may result in changes to specific policies in clearly specified areas, under specific conditions. For example, in the Nisqually watershed management plan, to maintain clear lines of accountability, government participants provide written approval of all Watershed Management Plan elements that would create an obligation to the government entity. In another example, the government of Manitoba must provide written reasons if a recommendation from the Clean Environment Commission is not followed.

Box 6. Implementing Watershed Plans developed by Alberta's WPACs

A key feature of the Alberta "Water for Life" strategy is the use of partnerships, including Watershed Planning and Advisory Councils. One of the tasks these Councils may undertake is the preparation of a watershed management plan (Alberta Environment, 2003, 2006).[7] The government's obligations to implement the plans remains unclear. NGOs have remarked on the lack of implementation obligations: "the government has failed to make any commitment that these watershed plans will play a role in the day-to-day decisions of government ministries" (Pembina Institute et al, 2007), a renewed strategy should include "a watershed plan implementation strategy that outlines relative authority, responsibility and legal or policy tools for plan implementation" (Environmental Law Centre, 2007). To address these concerns, the Alberta Water Council has formed a Shared Governance and Watershed Framework Project Team, which is preparing two documents: a Shared Governance Framework which describes the roles, responsibilities, accountabilities and relationships involved in shared governance and the process by which shared governance can be established and maintained, and a Watershed Management Planning Framework which describes the contents of and how to develop watershed management plans, who is involved, the relationships to other planning, approval and implementation of plans, and the integration with shared governance.

[7] Alberta's *Water Act* allows, but does not require, the development of water management plans, which are not the same as the advisory watershed plans contemplated by the Water for Life and Enabling Partnerships documents.

5. CURRENT RANGE OF WATER GOVERNANCE MODELS IN BC

This section discusses the wide range of water governance models currently used in BC, in addition to the examples discussed in the first section above, and examines in summary form where they fit in the conceptual framework presented in Section 3, and how they measure up to the criteria of good governance.

Diversity is the hallmark of these groups. Water governance bodies differ in terms of their genesis, legal status, mandate, type of decisions made, reporting requirements, user fee structure, revenue raising powers (the Okanagan Water Board is the only provincial example of a multigovernment , multistakeholder water governance body with a taxing power), staffing, budget, and organizational structure.

A number of different water planning exercises and water management bodies have been created in BC in the last twenty years, which can be roughly categorized according to the level of government or other group that initiated the plan:

- The province has several specific water planning tools available under existing legislation, primarily in the areas of water and forestry.
    - Drinking water protection plans are authorized under the *Drinking Water Protection Act,* administered by the Ministry of Health. This tool has not yet been used.
    - Water management plans (WMP) are a new tool available under the *Water Act*, administered by the Ministry of the Environment and the first pilot project WMP is underway in the Township of Langley.
    - The province tasked BC Hydro to develop water use plans in areas where its hydroelectric facilities operate, and 23 plans have now been created. These plans follow the provisions of the *Water Act* and other laws but are not mandated or authorized under that *Act*.
    - Provincial legislation created two specialized water governance bodies, the Columbia Basin Trust and the Okanagan Basin Water Board, described in s.5.2.
    - Watershed plans are a feature of forestry planning. There are currently 461 community watersheds in BC, designated under forestry legislation, by forestry decision makers. One of the steps in community watershed planning is to form a round table composed of appropriate agencies, licensees and resource

specialists, which is a technical working group that provides technical opinion to the district manager on the watershed assessment procedure, and is not intended to be a full public-involvement committee. [8] Also, a number of Clayoquot Sound Watershed Plans have been established after being endorsed by the two parties of the Clayoquot Sound Interim Measures Extension Agreement (IMEA), i.e. the Nuu-Chah-Nulth Central Region Chiefs and the Province of British Columbia. Eleven official watershed plans, covering over 77 per cent of Clayoquot Sound, have been developed in accordance with the principles and recommendations set out by the Scientific Panel for Sustainable Forest Practices in Clayoquot Sound.

- Local governments in BC have also engaged in water planning.
  - Preparing integrated watershed management plans, for example by the Capital Regional District for the Bowker Creek area.
  - Participating in or leading multisector water planning in, e.g., the Cowichan valley, Nicola Valley, Salmon River, and Peace River.
  - Developing floodplain management plans
  - Developing liquid waste management plans (LWMPs), and
  - Developing integrated storm-water management plans, a subcomponent of LWMPs.

- The federal government, primarily through Fisheries and Oceans, with a focus on fisheries management, has initiated water governance models like the Skeena Watershed Committee and the West Coast Vancouver Island Aquatic Management Board.[9]

- Multiple levels of government have informally created water governance bodies, described in s. 5.3 and 5.4.

Water governance bodies also differ in terms of the functions they fulfill. Some groups advise on changes to water licence arrangements (WUPs), some focus on demand management strategies and groundwater protection tools (Langley WMP), some address single issues such as flood control, waste management or drought; while some look at the watershed

[8] BC Ministry of Forests, Community Watershed Guidebook (Victoria: Queen's Printer) 1996.

[9] Fisheries governance models are outside the scope of this paper but there are many examples of governance models in this area which could provide lessons for water governance.

as a whole, preparing integrated watershed management plans for community watersheds. In BC, the Fraser Basin Council, a unique organization which began as a water governance body designed to improve conditions on the Fraser River, now addresses a wide range of sustainability issues, including (but not limited to) water governance activities. Water decisions are also part of the mandate of regional resource boards such as the Clayoquot Central Region Board and the Mackenzie Valley Land and Water Board.

Currently, delegated water governance arrangements in the province are characterized by a patchwork of jurisdictions, legal authority, differing governance models, and mandates. This situation has resulted because most of the models have evolved in an ad hoc fashion, with little coordination between different levels of government or governmental bodies. Consequently, two other important issues to consider when debating new delegated water governance models in BC are: how do they relate to existing models, and how can productive synergies (rather than unproductive compartmentalization or duplication of effort) be produced?

5.1 Legislative models applicable province-wide

5.1.1 Water Act

The BC *Water Act* is the primary water governance mechanism in BC. The Province owns rights to all water in BC – including ground and surface waters – and the right to use this water is granted through the licensing process. Water rights are appurtenant (tied to) the land and licensees cannot transfer allocations to other land holdings without the approval of the province. The historic basis of water management was to encourage settlement and provide certainty for economic uses of water such as irrigation and mining. Protection of water for its role in nature, and for the ecological services it provides was not a priority when the *Water Act* was first drafted. Changes to water laws, policies and governance structures will likely place greater emphasis on these other roles for water in future.

5.1.1.1 Water Allocation and Licensing

Under the *Water Act*, provincial officials make decisions on water licence applications for purposes enumerated in the Act. The *Act* requires 'beneficial use' – as defined by the Ministry of Environment. The *Act* sets up a system of water rights which are acquired through the issuance of licences, for the purposes enumerated in the Act. Water allocation is done only for surface water, and not integrated for both surface and ground water. The rights are allocated on a 'first come first served' basis except where water has been reserved or is subject to the existence of other rights such as aboriginal water rights or the vestiges of riparian rights. So, a licence obtained before another will prevail over the newer right.

A licence entitles its holder to do a number of things, such as: divert and use beneficially, for the purpose and during or with the time stipulated, the quantity of water specified in the licence; to store water; to construct, maintain and operated the works authorized under the licence; to alter or improve a stream or channel for any purpose; and to construct fences, screens and fish or game guards across streams for the purpose of conserving fish or wildlife.

Domestic users do not need to apply for a water license, but if the rights to the water are given to another user through a license, the domestic user will have no recourse. Licenses are issued in perpetuity, although they can be cancelled in whole or in part for failure to make "beneficial use" of the licenced quantity. In practice, this power has been used infrequently.

Information about water allocations and water restrictions is recorded by the Ministry of Environment (MOE) through the Water Rights Information system.[10] Restrictions are placed on streams by the provincial government if it determines that sufficient water is no longer available to be allocated for human use. Restrictions either prohibit or restrict the issuance of new licenses. There are over 43,000 active licences in BC on more than 17,000 water sources. More than ¼ of those sources have recorded restrictions. The southern interior and the East coast of Vancouver Island have the most restrictions on water.

One of the strengths of the existing system is that the priority system of water licenses protects agricultural uses of water, who usually have older licenses in rapidly growing, yet vitally important areas for agriculture, such as the Okanagan.

A drawback is the Act's ability to protect instream flows. Conservation is one of the listed purposes in the Act, and there is a limited number of existing "conservation" licences. However, provisions allowing for stream flow protection licenses introduced in the 1997 *Fish Protection Act* have never been brought into force. Provincial agencies, working in collaboration with the Department of Fisheries and Oceans, have developed two guideline documents related to the evaluation of instream flow needs for fish as they relate to proposals to develop small hydroelectric projects. The drivers for the development of the Instream Flow Guidelines were sensitive stream designations under the Water Act, drought management in areas such as Trout Creek, Hydro's Water Use Planning processes, and the increasing number of applications for small hydro IPPs. Specific mechanisms to protect instream flows are not available under the *Water Act,* exacerbating conflicts between people and fish for water (Rosenau and Angelo, 2003).

[10] The Ministry has issued a 95 page document titled "Water Allocation Restrictions registered in the Water Rights Information System - as at January 18, 2007" http://www.env.gov.bc.ca/wsd/water_rights/reserves_restrictions/cabinet/restrictions.pdf

The province listed the limitations of the allocation system in 1993, which remain relevant today:

- Limits the roles of those responsible for water allocation to a reactive one, does not provide for planning water uses to address increasing conflicts (new Part 4 of Act added in 1996 added planning provisions for designated areas),
- No express requirement to consider instream uses, water quality and the need to protect aquatic ecosystems in allocation decisions,
- Minimal consideration of conservation,
- No provisions to require existing licenses to meet new standards
- First Nations interests are not properly accommodated (this has been addressed to some degree by a provincial government policy on consultation),
- Licensing provisions do not apply to groundwater (MOE, 1993).

Monitoring of licences was revealed as a problem by 1996 reports which showed that BC Hydro routinely violated the terms of some of its water licences, using more than its allocated share (Ward, 1996).

5.1.1.2 Water management plans

Amendments to the *Water Act* in 2004 introduced a new process for developing a water management plan. The plans are meant for critical areas of the province when the Minister considers that such a plan would assist in addressing or preventing identified problems. Approved plans can be made legally enforceable and are intended to help communities deal with conflicts between users, risks to water quality, or conflicts between water users and in-stream requirements. Plans must be approved by Cabinet.

The minister may, by order, designate an area for the purpose of developing a WMP to address or prevent: conflicts between water users; conflicts between water users and instream flow requirements; and risks to water quality. Preparation of these plans must consider provincial or local government strategic, operational and land use or water use planning processes. The plans are noteworthy in their potentially far reaching impacts. When implemented by the Lieutenant Governor in Council, the plans may affect other statutory decisions other than forestry and range decisions, and/or place restrictions on well drilling, options not available under most other water planning tools (with the exception of the as yet unused drinking water protection plans.)

The Minister of the Environment decides which communities qualify as a water management area. Some communities have unsuccessfully requested this designation, and there are no policies guiding the choice of communities, though there is some evidence that these planning areas will be limited. The Langley Project Charter states: “Plans will likely only be developed in critical areas of the province when other regulatory and non-regulatory tools have been insufficient to successfully address specific water resource problems.”

The Charter also notes that the preparation of a guidebook for other communities in the province based on the Langley experience was proposed. If the guidebook proceeds, it may contain additional criteria to assist communities in determining whether they will be successful in a request to develop a WMP. Many communities in BC now meet the criteria set out in the Water Act of conflicts and water quality threats. Many regions, such as the Okanagan, the Gulf Islands, Abbotsford, and the Cowichan and Nicola Valleys, either have already or are likely to soon approach the province with a request for designation as a water management planning area.

5.1.1.2.1 Township of Langley Water Management Plan

The most closely watched process which is now under development is the Township of Langley Pilot Water Management Plan (WMP). This area was designated in July 2006 as the first area in BC to undertake the preparation of a water management plan under Part 4 of the BC *Water Act*. The plan is to be submitted to the Minister by Dec 31, 2007, and is subject to Cabinet approval.

The planning area is a heavily groundwater-dependent agricultural and growing bedroom community on the urban/rural edge of the Lower Mainland. About three-quarters of the residents rely on the municipal water supply of which more than half is local groundwater, and the remaining residents rely on groundwater from approximately 5,000 domestic wells. There are about 700 kilometres of streams and numerous wetlands that provide habitat for seven salmonids and two endangered species in the area of the proposed plan. Regulators know that groundwater over-extraction has caused declines in some base flows in perennial salmon-bearing streams. Water supply and quality problems include declining groundwater levels and aquifer contamination from septic systems and agricultural activities. The Township receives many complaints each year from frustrated property owners over poor land use activities, dry wells, and water contamination. Since 1998 the Township has spent more than $500,000 to develop strategies and conducting studies to protect water resources. In 2002 the Township Council endorsed a “Water Resource Management Strategy 20 Year Action Plan”, which includes monitoring and adaptive management.

Until the new Part 4 Water Act plan was initiated, the Township had advanced water resource protection through its own initiatives. Recognizing its limited authority, and inability to implement measures that cross political boundaries, the Township entered into a partnership with the province to develop the plan. The goals of the plan are to: “identify measures that promote: sustainable use of groundwater; environmental protection for ground water including protection for aquifer recharge areas and the adequacy of recharge; and preservation of base flows in fish bearing streams recharged by ground water”(Township of Langley, 2002).

The Interagency Steering Committee includes representatives from the Ministry of the Environment, Ministry of Agriculture and Lands and the Township of Langley, with a high level of distribution or sharing of decision making powers between the three government bodies on the Steering Committee. The planning process has been participatory as the Steering Committee also receives input from an Interagency Planning Team which, in turn, seeks input from a Stakeholder advisory committee, First Nations input, scientific input from an Expert Group and broad public input, but these additional groups have not directly participated in decisions on the Langley WMP, so are providing a secondary level of consultation advice. The stakeholder advisory group consists of local representatives from the residential, agricultural, industrial, environmental and health sectors.

The water management plan is the primary responsibility of the Township. However, as the Township currently has no authority to regulate private well development, groundwater extraction, or conflicts over water use, its' Action Plan on water and water shortage response bylaw may not be sufficient to protect water. Provincial actions will likely be necessary. The implementation regulations for a Water Management Plan may provide local authority for groundwater regulation.

The Township has also consulted an expert group to assist with decision making and has prepared a list of options for consideration, which, when complete, will be the subject of public consultation. The list of options is being evaluated according to the multi- attribute decision making process set out in the WUP Guidelines. The facilitators of the WMP process are consultants with extensive experience in development of BC Hydro WUPs.

Governance of the Plan has not yet been addressed, although it is clear that provincial-municipal collaboration will be required to manage the agricultural, groundwater and fish protection issues which are outside the Township of Langley's jurisdiction. The Township has asked the province to specify the governance arrangements which may be used to implement the plan. Though the final governance model for the plan has not yet been established, it is likely that this distributed governance approach will continue for the final phase of decisions.

5.1.2 Drinking Water Protection Act and Drinking Water Protection Plans

There are 4,500 drinking water systems in BC, and more than 500 systems throughout the province remain on boil water advisories.

The *Drinking Water Protection Act* was brought into force May 16, 2003, and provides a comprehensive legal framework for drinking water protection. It operates independently of the *Water Act*. Authorizations under one Act are

not a substitute for an authorization under the other, so that if a licence under the DWPA is required to operate a water supply system, an additional licence will also be required under the Water Act to draw water for the system from a surface source.

The Provincial Health officer (PHO) may recommend that the Minister of Health designate an area for a drinking water protection plan , which must consider local government and provincial land use planning , be reviewed by PHO and approved by Cabinet. No people other than drinking water officers may request the provincial health officer to recommend that a plan be developed.

Drinking Water Protection Plans have the potential to be very powerful and effective, but there would have to be significant impairments to source waters to trigger a planning effort by the Ministry of Health or a health authority. “Drinking water officers must consider all other options available under the Act before requesting the provincial health officer to consider recommending a drinking water protection plan. A drinking water officer should, however, make such a request in circumstances where he or she considers it appropriate.” (Drinking Water Leadership Council, 2007) No drinking water management plans have yet been prepared. These plans may not be suitable for smaller systems, and alternatives for smaller scale plans are not available under the current regulatory and policy framework.

One concern is that small water purveyors facing the most risk have the least resources available to perform watershed assessments and are the least well equipped to address drinking water risks. Another concern raised by water purveyors is that they are responsible for protecting drinking water quality, but they do not control activities which affect water quality such as range cattle and recreational lake use. Their powers are limited to calling for a formal water source assessment by the health officer. (Okanagan Water Sustainability Council, 2006)

5.1.3 Health Act - Local Boards of Health

Under the *Health Act*, local governments may constitute themselves as local Boards of Health under certain circumstances. The Sunshine Coast Regional District used this power in June 2007 to investigate the cause of an alleged health hazard to a local drinking water supply, after receiving a public complaint. The Board held public hearings and issued a stop work order (under s. 59 of the *Health Act*) to a logging company to stop road building and logging activities which it had determined created health hazards to the public drinking water. The order was overturned by the BC Supreme Court which decided that the logging activities did not pose a health risk to residents in the circumstances of this case. Before this case was publicized, this avenue for local control over drinking water was not well known. Local

governments may now decide to make greater use of these *Health Act* provisions.

5.1.4 Environmental Management Act

The chief provincial law controlling pollution has a number of regulations which prescribe standards or guidelines for activities such as agriculture and coal bed methane extraction; and for pollution threats such as hazardous waste and contaminated sites. The Act focuses primarily on point source pollution. The Act allows for area-based plans to control pollution.

5.1.4.1 Liquid Waste Management Plans and Integrated Stormwater Management Plans

Local governments have been delegated authority to make decisions on water pollution, and may prepare a Liquid Waste Management Plan for approval by the Environment Minister. The Plan consists of operational certificates; a strategy to ensure liquid waste disposal conforms to Ministry objectives; an implementation schedule; and measures to accommodate future development. Plans must be developed through advisory committees and include a public consultation plan. A subcomponent of these plans may be integrated stormwater management plans, and the Greater Vancouver regional District (now Metro Vancouver) in particular has devoted time and resources to developing these plans.

5.1.5 Local Government Act

5.1.5.1 Floodproofing delegated to local governments

Numerous agencies are responsible for different aspects of flood management. The provincial government has delegated greater authority to local governments to manage this issue, through changes to the *Local Government Act* in 2004 which enabled local government to develop flood hazard area bylaws without ministry approval if the provincial “Flood Hazard Area Land Use Management Guidelines” were followed. Local governments were also given the new authority to grant site-specific exemptions.

Local governments remain concerned about funding for their programs. At the 2006 Union of BC Municipalities Convention a resolution was passed expressing concern over insufficient funds available to communities situated on or near floodplains to maintain and improve dikes and flood prevention measures and requesting that the provincial and federal governments develop a comprehensive and sustainable program for funding dikes and flood protection measures for communities in British Columbia. Concerns over provincial delegation of flood management have been noted by the BC Real Estate Association, the Canadian Water Resources Association, and others.

5.1.5.2 Drought Management

The province faced a major drought in 2003, and climate change projections indicate an increased probability of more frequent future droughts. While the province has not formally delegated any additional decision-making powers to local governments to deal with drought, it has encouraged local governments to develop and execute drought plans implemented through bylaws, based on the principle that managing community water supplies is a local government and local supplier responsibility. Drought management is meant to be carried out through the formation of a local drought management team, including representatives from each of the major users served by the supplier. This informal governance model involves a high degree of participation from different sectors.

Two examples in the Okanagan illustrate governance models which have been formed to address drought through the implementation of water use plans.

The Trepanier Landscape Unit WMP (TLUWMP) is an approved water plan, initiated by the provincial environment agency and the regional district, and includes the communities of Westbank and Peachland. The area has four major water purveyors, and faces water stress from existing allocations, limited future water storage options, aquatic environment needs, and strong population and economic growth, and climate change. A number of groups formed the Westside Joint Water Committee (WJWC), to oversee the plan's implementation, including regional governments, irrigation districts, and a First Nation. The WJWC is a nonprofit, nonpartisan, public education partnership dedicated to informing Okanagan Westside residents about water needs and water resources. In an example of a policy feedback loop, as of spring 2007, the Regional District of Central Okanagan adopted Outdoor Irrigation Guidelines recommended by the WJWC.

Another example is a water use plan prepared for the Trout Creek area in Summerland, prompted by DFO's concerns about low flows for fish from Trout Creek a major tributary flowing into Okanagan Lake. In 2003 the Department ordered the town of Summerland to release additional water from its storage reservoirs, and the Town asked farmers to voluntarily reduce their water use. In order to prevent a repeat of this episode, a WUP was prepared using the process pioneered by BC Hydro to set rules for summer operation of the reservoir. The consultative committee included representatives from the District of Summerland Council; agricultural water users; the Province of BC; DFO; and First Nations. The goal of the plan was to determine the amount of water that can be diverted from the creek, while providing flows for fish. As it was not possible to meet all the needs expressed by water users, the committee agreed to a number of steps, including a 10% permanent reduction in water use, compared to 2002 levels.

5.2 Models with individual legislative base

5.2.1 Columbia Basin Trust, Columbia Basin Trust Act 1996

The *Columbia Basin Trust Act* created the Columbia Basin Trust (CBT) in recognition of the impacts associated with the construction of multiple large hydroelectric dams in the region. The Trust is governed by a 12-member Board of Directors, composed of an appointee from each regional government in the Basin (Five regional districts and Ktunaxa/Kinbasket Tribal Council). The other six Directors are appointed by the Province, all of whom must reside in the Columbia Basin as outlined in the *Columbia Basin Trust Act*.

The CBT has prepared a Columbia Basin Management Plan. The Trust has a Water Initiatives Strategy focusing on public education, and support for the 22 community based watershed groups in the Basin. The Water Initiatives Strategy is guided by a Water Initiatives Advisory Panel, composed of academic experts.

The Columbia Basin Management Plan has a unique status in BC water governance arrangements. The *Water Act* places a mandatory duty on the comptroller of water rights or water manager to consider the long term Basin Management Plan when considering licence applications in the region.

5.2.2 Okanagan Basin Water Board, established under the Municipalities Enabling and Validating Act, 1969

The Okanagan Basin is one of BC's fastest growing areas, and is the heart of agriculture in the province, an industry which accounts for as much as 70% of water use in the Basin. It is an arid area, and faces water shortages in summer months. The number of streams that are fully recorded is 235 (out of a total of 300), making groundwater an increasingly attractive option for water supply (Allen, 2007). Knowledge about the region's aquifers and their susceptibility to contamination is not comprehensive, and there is increasing anecdotal evidence that wells are being drilled beside streams, to avoid the necessity of obtaining a licence for water use. The region's groundwater resources are under increasing stress. Five of the province's aquifers are classified as IA (heavily developed, highly vulnerable); about 25% of the province's IA aquifers are in the Okanagon.

The Basin has a management plan based on watershed boundaries developed in a seminal 1974 study. Of the original eleven recommendations from this study, only three remain outstanding: to create one regional district for the basin, to establish effective water management strategies for tributaries and to implement an effective monitoring program for the framework plan. The Act created the Okanagan Basin Water Board (OBWB) to coordinate actions

to eradicate weeds, and provide grants to improve local water waste treatment.

The Board is composed of representatives from each of the three Regional Districts in the Okanagan Basin: Okanagan- Similkameen, Central Okanagan, and North Okanagan. Recently the Board was expanded to include representatives from First Nations, the Water Supply Association of B.C., and the newly-formed Okanagan Water Stewardship Council (OWSC). These new members vote and participate in all but financial decisions of the Board.

The Board is unique in its powers to tax and to pass bylaws, and is funded through annual property tax assessments on lands within the Okanagan Basin watershed. However, despite these powers, water management is still primarily carried out by province and the three regional districts. For example, the Board exercises no control or management responsibility over groundwater.

Numerous proposals have been made to increase the Board's powers in the past thirty years. The Okanagan Partnership has recommended changing the Board's structure and powers, renaming it as a Water Management Council, and giving it a wide range of powers to: implement and coordinate basin-wide management policies, license purveyors and private water users (there are currently 200 different water utilities operating in the region); coordinate, develop and manage upper level reservoirs, control works, and aquifers; and institute conservation practices (i.e., flow restrictors, improved irrigation practices, low flush toilets and metering) to minimize water waste. (Okanagan Partnership, 2005) The Ministry of Community Services is considering combining the three regional districts into one Okanagan District, which would follow the watershed boundary.

The OWSC has requested presentations on key water issues in the Basin from all levels of government, other jurisdictions and university specialists. The Council and Board together are engaged in the early stages of a Sustainable Water Strategy. There is, as yet, no consensus on what issues the Strategy may cover, and what new powers, if any, a reconfigured Board would seek over water management. The Board is likely not interested in assuming water licensing powers, and does not have the expertise or resources to undertake more enforcement and monitoring of water quality, which it views as a provincial responsibility. The Board may decide to use the Strategy, once it is developed, as a basis for requesting designation from the province as a water management planning area, in order to take advantage of the greater local government powers to protect groundwater, among other reasons. The Board would require either direct provincial funding for implementation of a water management plan, and/or reform of funding mechanisms available to local government to implement the plan, as a precondition for proceeding.

5.3 Community Based planning models

5.3.1 Nicola water use management plan

Efforts to prepare an integrated plan for water in the Nicola Valley date back to the 1983 BC MOE Nicola Basin Environment Strategic Plan. Stressed water supplies continue to be a concern for fish managers as irrigation and development-related groundwater depletion are already harming fish stocks (Douglas, 2006).

The current Nicola Water Use Management Plan began at the initiative of the Nicola Stockbreeders' Association, and includes community representatives from a variety of backgrounds: ranchers, town people, rural dwellers, First Nations, municipal and regional government representatives, as well as representatives from provincial ministries and Fisheries and Oceans Canada. Participation is open to anyone. The effort began in 2004 and will address water, fish flows and the Nicola dam. As surface water supplies are fully allocated in the region, all users are turning to unregulated groundwater for new uses.

The group has developed an internal structure and decision making process, and is filling information gaps related to: 1) present and future water demand, 2) additional storage sites, and 3) groundwater and surface water supply and interaction. It has commissioned studies on completion of a dam project on Nicola Lake, present and future water demand management, and instream flow needs for fish. Like a number of other multistakeholder water partnerships in BC, it has also examined the issue of potential governance models, and has sought guidance from the province on structures available to implement their water use management plan.

Funding to date has been provided through a number of sources: the Fraser Salmon and Watersheds Program, British Columbia Ministry of Environment, Highland Valley Copper, City of Merritt, Thompson Nicola Regional District , BC Federation of Fly Fishers, and the Steelhead Society. If the entire WUMP process is carried out as planned, the total cost is expected to be $1.3 Million.

5.3.2 Cowichan water use management plan

Another example of a water use planning process is the Cowichan Water Use Plan process, a partnership between the Cowichan Valley Regional District, BC Ministry of Environment, Fisheries and Oceans Canada, Catalyst Paper Corporation, Cowichan Tribes, and the Pacific Salmon Commission

The Cowichan River is entirely contained within the Cowichan Valley Regional District boundaries, making watershed based decision-making relatively easy in this region. In the Cowichan Basin, flows are lower in summer when

demand is high. The health of the Cowichan River is threatened by low flows and higher water temperatures, and water quality is reduced due to lower dilution of effluent from smaller flows. Lake levels are falling. Water shortages means aquifer recharge is reduced, affecting local wells and agricultural operations. The economic impacts are substantial: the Crofton Mill's operation is affected by the low flows. The mill provides about 1,000 jobs, and $117M annual wages to the community. Fish survival and the commercial, sport, and First Nations fishery (valued at about $6-10M/year) is also threatened. Municipal water supply is also affected. The water supply situation in the Cowichan valley reached a state of crisis in October 2006, when spawning Chinook had to be moved by truck due to inadequate river flow, and the Chinook escapement was the lowest on record. In 2003, the lake storage was within 5 days of being totally exhausted and the mill shut down.

Consequently, a number of partners joined forces to develop a plan due to their recognition that the problems were getting worse, there was a need to engage broad interests in water, residents wanted action to protect water, all desired to move beyond "crisis decision-making" .

The process of developing the plan began in 2004. A Water Management Forum forum of 26 people was created in 2005, and a plan analyzing technical supply options and community and expert input was released in 2006. The Plan has a context and rationale for water management, six goals for water management; 23 objectives that support the goals; and 89 actions to achieve the objectives; and an implementation strategy. The Plan examined a number of supply alternatives, and rejected a number of options (small or upland reservoirs transfers from the Nitinat or Chemainus Rivers; relying only on conservation) and came up with a number of viable alternatives. Pumping plus 30 cm weir raising was the compromise deemed acceptable to most Forum members.

The total cost of implementing the plan has not been determined. The capital cost for the Preferred Supply Alternative (weir and pumps) was estimated at $3 million, and the development of the Plan cost approximately $500,000.

The Plan recommends that the province create and provide funding for, a Cowichan Basin Water Advisory Council (CBWAC) to guide water management in the basin, including decisions of water regulatory agencies. The Plan includes a draft terms of Reference and proposed composition for the Council, recommended to be advisory in nature only ("with the intention of periodically examining the potential to assume increasing levels of authority and responsibility"), and to function as an Advisory Committee to the Regional Board.

The detailed plan also includes an implementation plan based on existing legal roles and responsibilities, and an analysis of 3 questions:

1. Who has legal authority over the resource or topic that is the subject of the action?
2. Who benefits most from the action?
3. Who has the financial or staff capacity to implement the action?

The Plan includes a table which summarizes the primary water-related authority or responsibility of likely participants in the Cowichan Basin's water management program.

In September 2007 the plan suffered a setback when the Cowichan Valley Regional District Board (CVRD) partially approved the plan but decided not to accept several of the plan's key recommendations. The Board decided not to alter the amount of water stored in the reservoir, not to approve raising the weir by 30 cm, and refused to endorse the proposed structure of the Advisory Council. The carefully constructed plan which had found water to meet the needs of all parties could only proceed if the extra water was released.

There are now concerns that this costly plan will remain on a shelf. If the plan is not implemented, the role for the CVRD and the public in water decisions will remain limited, there will be no response to climate change, there is a potential loss of Cowichan fish stocks, and the crisis decision-making status quo will prevail. Other risks of not implementing the plan include: continued uneven water management in terms of pricing, metering, conservation; risks to economic activity; worsening effluent dilution in dry seasons; no coordinated flood management, and it will disappoint the majority who support the Plan (Anderson, 2007). Both the regional district and the pulp mill owner of the dam are looking at options for implementing the plan.

In both the Nicola and Cowichan Valleys, regional governments are wary of intervening in water management, an area where they have limited legislative powers and limited abilities to fund water management activities. Those close to the process believe that the plan may have met with more success if it had been developed with greater guidance from the province at the outset, as in the case of the BC Hydro WUPs, which did not begin until the province and Hydro had jointly developed comprehensive guidelines.

5.4 Other Models in BC

5.4.1 BC Hydro Water Use Plans

The water use planning (WUP) process evolved from an initial collaborative planning process called the Alouette River Management Committee. BC Hydro convened a multistakeholder group charged with the task of recommending a new operating plan for water flows at its hydroelectric power facilities on the river. The eventual success of this effort led to an

expansion of structured decision-aiding processes into most of BC Hydro's hydroelectric facilities (McDaniels 2004).

Collaborative Committees composed of federal, provincial and local government agencies, First Nations, environmental, fisheries and other groups were formed in each location. These Committees prepared plans in accordance with the process set out in the Provincial WUP Guidelines developed by an interagency committee including the Province, DFO, and BC Hydro after two years of extensive consultations.

The proposed plans are advisory only. They are non-binding, voluntary agreements by water users on how to manage water. However, a WUP usually resulted in a recommendation for a voluntary diminishment of BC Hydro's water rights at a particular facility in order to increase flows for fish, and the Comptroller of Water Rights accordingly changed the terms of the applicable Hydro license. From an analysis of seven WUP outcomes, the recommended flow alternatives were characterized as "sometimes, although not always, the best choice for fish conservation, but they were usually better than the status quo" (Quadra 2004).

The process used in the WUPs was explicit in ensuring that existing legal and constitutional rights and responsibilities remained unchanged, and that plans were consistent with existing laws such as the provincial *Water Act* and the federal *Fisheries Act*. Draft WUPs were submitted to the Comptroller of Water Rights who would then make any licence or operational changes, through decisions under the *Water Act*.

An example of how the WUP methodology has been adopted outside of Hydro's facilities is in the Trout Creek WUP initiated by the District of Summerland following the droughts in 2003, described in s. 5.1.4.3 above. The WUP methodology has also been adapted for use in the Township of Langley WMP.

5.4.2 Clayoquot Central Region Board

The Board was established under an Interim Measures Agreement between the Hereditary Chiefs of the Nuu-chah-nulth Central Region and the Province of British Columbia 1994. It has responsibility for resource management and land use planning in Clayoquot Sound. One of its functions is to receive resource referrals, such as water licence applications, for example from the town of Tofino or from wilderness resorts located within the region. The Clayoquot Sound Central Regional Board (CRB) consists of 12 members: five appointed by the Province, five appointed by the Central Region First Nations, one co-chair appointed by the Province, one co-chair appointed by First Nations, and one Elder Advisor. The co-management Board has a number of other responsibilities.

5.4.3 Abbotsford-Sumas Aquifer Task Force and Abbotsford-Sumas Aquifer Stakeholders Group

The Abbotsford-Sumas Aquifer is approximately 260 sq-km in area, underlies both British Columbia and Washington State, and is an important source of water for domestic, municipal, agricultural and industrial uses on both sides of the border. The aquifer plays a pivotal role in drinking water as it supplies approximately 110,000 people in Canada and the United States. The chief concerns relate to the high concentrations of nitrate in many hotspots around the aquifer. Contamination of the aquifer has been evident since the 1950s, regular groundwater sampling and monitoring has been carried out since the mid-1970s, and monitoring efforts have intensified since the mid 1990s.

A number of coordinating committees have been formed to improve aquifer management, including:

- The Abbotsford Sumas Aquifer Stakeholder Group (ASASG) active since 1995, composed of representatives from federal, provincial and local government agencies, agricultural and industry groups, NGOs and Washington State participants from the City of Sumas, the regional board of health and the department of ecology. The ASASG has sponsored a public education campaign involving signage, environmental pledge booklets, and school presentations, has sponsored the development of industry best management practices, and has taken a lead in creating a Science Group to look at information gaps, and the translation of science into on-the-ground policy measures.
- A Canadian federal provincial groundwater coordinating committee active since 1992.
- The BC provincial-industry Partnership Committee on Agriculture and the Environment designed to reduce agricultural impacts on the environment.
- A binational multisectoral advisory body, the Abbotsford-Sumas Aquifer International Task Force, established in 1992, under the terms of the Environmental Cooperation Agreement between British Columbia and Washington. Its goals are to collect and coordinate scientific data; manage activities threatening the aquifer; and assist with legislation and policy advice. Each jurisdiction maintains decision-making authority and responsibility to implement recommendations of the Task Force.

Despite the numerous scientific studies, and number of coordinating groups, nitrate contamination persists. Many involved with management of the aquifer acknowledge that voluntary programs alone will not abate the problem. Best management practices have been successfully developed for certain sectors, such as, for example, auto recyclers, with lower levels of success for other sectors, notably agricultural producers. Regulators note that there are few cases where the implementation of BMPs has improved groundwater quality at the scale of an aquifer, that enforcement of the provincial Code of Agricultural Practice is minimal and that the voluntary

environmental farm plans do not as yet appear to be having an impact. Stricter controls on agricultural producers, industrial operations, and individual households may be necessary as a result of the observed trends, but there is currently little momentum for stricter regulation at the provincial level, and few resources for enforcement of existing controls.

A governance gap also exists. Numerous agencies are charged with different aspects of aquifer management. Environment Canada is responsible for the overall management of the cross-boundary effects of Canadian practices on the US, the provincial and regional health and environment ministries and agencies and boards also share responsibility. The BC Ministry of Environment is responsible for pollution prevention and control, Fraser Valley Health Authority is responsible for drinking water and community health, the City of Abbotsford is responsible for land use allocation and planning, and also as a water purveyor manages drinking water provision, and both the provincial Ministry of the Environment, together with Fisheries and Oceans Canada and Environment Canada manage the environmental impacts of groundwater withdrawals and contamination. This division of responsibilities for the aquifer was noted in a recent comparative report on water governance arrangements in Canada (Hoover et al 2006).

The need for coordination has long been recognized and, as noted, several coordinating groups have been formed, but there is no institutional framework for managing cumulative effects on the aquifer. Neither of the province's new governance models, water management plans or drinking water management plans, has been used in the Abbotsford-Sumas aquifer, though the City of Abbotsford, the Science Group, and the ASASG are exploring these options.

5.4.4 Fraser Basin Council

The Fraser Basin Council (FBC) was established in 1997 and is guided by its *Charter for Sustainability* whose vision is to create a Fraser River Basin *"where social well-being is supported by a vibrant economy and sustained by a healthy environment*". This not-for-profit, non-governmental organization is a successor to the 1992 Fraser Basin Management Program created by and involving federal, provincial and local governments.

The FBC's governance model is the first of its kind in Canada, and has served as an example for other organizations in the Basin, throughout the province, nationally and internationally. It has a two tier structure consisting of a society and a 36 member Board of Directors, made up of federal, provincial, local and First Nations government representatives, as well as sectoral representatives, the private sector and civil society.

The Fraser Basin Council has played a leadership role in more than 50 major projects, has resolved conflicts, and has been a catalyst in helping to solve

interjurisdictional issues affecting the Basin. Examples of some FBC programs related to water management are:

- Facilitating the development of a five year gravel removal plan for the lower Fraser River meant to clarify the decision-making process for gravel removal proposals,
- Coordinating multiple government agencies responsible for flood hazard management, through formation of the Joint Program Committee on Flood Hazard Management,
- Working with local governments and federal and provincial agencies to prepare for the next Fraser River flood and its impact throughout the Basin.
- Working on a program to bring all parties together to develop a plan to restore Fraser River fish and fisheries.

It also works on a wide range of other issues such as tackling the rapid spread of invasive plant species, working with First Nations to improve Aboriginal and non-Aboriginal relations, and helping to strengthen and diversify the economies of smaller communities throughout the Basin.

The FBC does not have any formally delegated decision-making powers, and decides its own priorities for action. When the Council reaches consensus on an issue, the government representatives seek to implement the solutions over issues under their control. Its influence on water management issues is considerable, given its membership, and the individual decision-making powers of Council members.

Many studies have been completed on the Fraser Basin Council (FBC) (e.g., Blomquist et al, 2005), and it is a widely acknowledged leader in forging relationships between different levels of government, and especially for integrating First Nations government representatives in collaborative dialogue. Its achievements can be characterized as relationship building, and raising awareness about the economic, social and environmental health of the Fraser Basin. To date, it has not focused on specific watershed management plans or on attaining measurable improvements in water quality or quantity.

Contributions from all four levels of government were the base of the FBC's core funding when it started in 1997. Its funding has since evolved to include funding for projects from other sources.

5.4.5 Nechako Water Council

This Council was formed in 1998 through the suggestion of the BC Utilities Commission (BCUC) after a set of BCUC hearings in which Alcan sought to obtain approval for the Kemano completion project. Through the leadership of the Fraser Basin Council, the Nechako Council was formed. The purpose of the Council was: " … to enhance the long-term health and viability of the Nechako Watershed with consideration for all interests, and to provide a forum to address water management and related issues in the Watershed and to work toward cooperative resolution".

Membership is open. The Council originally had representatives from 18 groups in 1998 and now has representatives from 25 groups. All three levels of government are represented. The Council works by consensus and has addressed a number of issues, such as creation of a cold water release facility and revised reservoir operations to improve fish habitat. Alcan, one of the prime instigators and beneficiaries from the Council's actions has called the work of the Council the 'way of the future" (Prokopanko, 2002). The Council was also cited favourably as an example in a recent report on water governance in Canada (Hoover 2006).

5.4.6 Salmon River Roundtable

This community-led Roundtable grew out of an environment committee of the local government, the town of Salmon Arm, starting in 1994, and later grew to include a membership of provincial and federal agencies, and community members, including ranchers, an important constituency due to the high percentage of privately owned land in the area. Part of the Roundtable's success can be attributed to its status as a pilot project for Environment Canada on community based development of ecosystem goals, objectives and indicators, and funding from a variety of now defunct federal programs. Its initial focus was on protecting the river and fish habitat, and its activities evolved to encompass broader planning and restoration, and landowner education. It is considered to be a successful management model. The Roundtable continues to be active, and has recently partnered with the Canada-BC Environmental Farm Plan program to implement environmental farm planning from a watershed perspective, an evolution from the initial individual farm focus of the program. Stable funding for this group, like many others, has been an ongoing problem. Recent sources of funding include grants from the Fraser and Salmon Watershed Program, co-managed by the Pacific Salmon Foundation and the Fraser Basin Council.

5.4.7 Peace River Watershed Council

This Council was started in 2000 through a grant from Fisheries Renewal BC, and served as a delivery partner for FRBC. Its membership structure evolved to consist of 13 seats with representation from the public including

conservation groups, private sector interests, First Nations/aboriginal organizations, and local/regional government. It is currently inactive, due to a lack of funding.

5.5 Funding Water Governance in BC- Current Practice

The main sources of provincial revenue related to water are licence application fees, and water rental rates. Application fees are relatively small. The fee for major industrial users is $10,000.

Annual fees for water consumption are paid by license holders to the Ministry of Finance. Water rental rates have been incrementally raised over the past few years and were to simplify the rate structure. The new rent structure is intended to have a minimal impact on domestic users, and more of an impact on industrial users.

Water rentals are a significant source of income for the province: water rental revenues from one of the province's major users, BC Hydro are approximately $300 million a year.

A trust fund held by the Vancouver Foundation also supports water programs in BC. The province established the Living Rivers Trust Fund (LRTF) in 2002 and has now contributed $21 million to this Fund. The purpose of the Fund is to preserve and restore BC's rivers and support programs in the areas of watershed restoration and fish recovery.

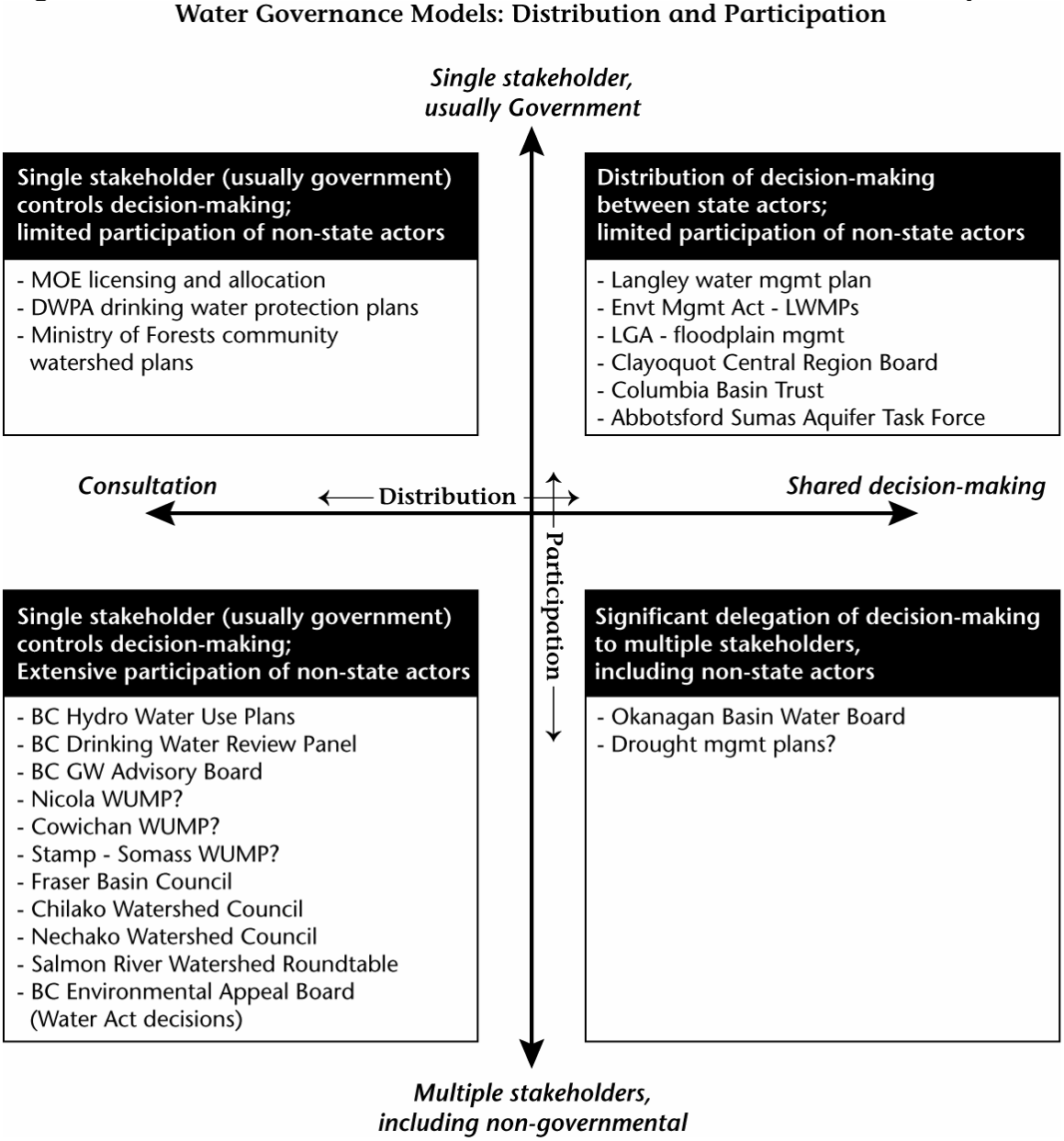
Collaborative groups require funding mechanisms to enable them to stay solvent. This is a current concern of many of the collaborative water governance processes now underway in the province. Equitable cost-sharing between different levels of government is an issue in many of these processes. Some collaborative bodies, such as the Fraser Basin Council, have annual contributions from different levels of government, as well as other sources of funding.

5.6 Current BC Water Governance Models- Relation to Factors of Success

A Table categorizing BC water governance models into the framework of distributed and participatory governance models is set out below. Many of the BC examples fall into the category of a single government decision maker acting with extensive participation of non-state actors. The sole example of a model which featured non-state actors in the formal decision making process is the Okanagan Basin Water Board, which recently added three new members to the Board, who may vote on all but financial matters.

The following sections evaluate how well the different models used in BC incorporate the factors of success and good governance principles identified in earlier sections of this paper.

Figure 3. BC Water Governance Models: Distribution and Participation



5.6.1 Effective Leadership

Accountability is one of the good governance principles associated with effective leadership. Using this principle to evaluate the BC models, performance was mixed.

No provincial policy or law guides the efforts of these different collaborative efforts. Most models are outside the *Water Act* licensing and allocation process.

The most significant water governance change in BC was initiated by, run by and largely paid for by the hydroelectric industry, in the form of BC Hydro, a provincial Crown corporation and a public utility.

In terms of process, many of the models are collaborative and based on consensus decision making principles. They do not attempt to usurp the government's role in resource management and decision making but seek to inform that decision making with advice that captures the full range of local knowledge and input.

In many of the more recent examples (Langley WMP, Nicola Valley WUMP, Cowichan Basin WMP, Columbia Basin Trust) participants actively seek more guidance from the province about baseline provincial standards for water quality, environmental flows, and ecosystem integrity. The participants in these processes also seek guidance on governance structures and relative degrees of authority and accountability between multistakeholder partnerships and provincial regulators.

In terms of substance, the chief provincial regulatory models are not explicitly based on sustainability principles. The *Water Act* contains no purposes section (unlike for example, the newer *Water Protection Act* which states: "The purpose of this Act is to foster sustainable use of British Columbia's water resources in continuation of the objectives of conserving and protecting the environment"). Licensing decisions are not now guided by statutory sustainability principles. The *Water Act* does not adequately address protection of aquatic ecosystems or source water, and contains very few provisions to deal with scarcity, drought, or the adaptive management that will be required to deal with climate change.

5.6.2 Interpersonal Trust

Two good governance principles associated with the formation of interpersonal trust are transparency and respect for the rule of law.

The models are mixed in terms of transparency. General data on enforcement and compliance with the BC *Water Act*, and provincial environmental legislation is no longer routinely compiled and released to the public in the form of non-compliance reports and summaries of enforcement actions. Information on water rental rates, aggregated by industry, or on application fees, is also difficult to determine. BC does not require licensees to report on actual water consumed, and there is in general a lack of publicly accessible data on water use, either surface or groundwater. Information on

stream allocations is compiled, and made publicly available, but is difficult to interpret, unless it is consolidated into environmental indicator reports.

Many of the water management planning exercises now underway, in Langley, the Nicola and Cowichan Valleys, the Okanagan and Columbia Basins, are transparent in terms of their planning activities, budgets, and decision-making processes. They have built public communication and dissemination of information into their activities.

The models generally exhibit respect for the rule of law, though historically there have been problems with compliance with water licence conditions (e.g., Ward, 1996) and practitioners in the field have observed problems with enforcement of environmental statutes.

Water managers have developed policies to respect First Nations title, rights and treaty rights and to fulfill their duty to consult on resource development activities that could harm these rights. Co-management of resources is still rare in the province, though progress has been made on completed treaty negotiations. One study of a resource board based on shared authority between First Nations and other levels of government in the Clayoquot Sound region found that the First Nations participants did not believe that they were equal partners with the government decision makers as they did not share in the statutory decision making authority (Mabee and Hoberg, 2006)

5.6.3 Committed Participants

Though most models include public involvement, the primary legislation, the *Water Act*, does not allow for wide public participation in the licensing or allocation process, or in appeals to the Environmental Appeal Board. Participation rights are restricted to licencees, applicants, and riparian property owners. Many other provinces extend participation rights to a broader segment of the public, such as 'generally affected' individuals.

The presence of primary resource interest holders and water licensees, such as Alcan at the Nechako Watershed Council table, and BC Hydro at the water use planning processes were important factors in the ability of these processes to resolve contentious issues and make consensual recommendations on changes to the existing regimes.

Environmental representation (from outside the government) on many water governance models is minimal or nonexistent, as these examples illustrate:

- the Fraser Basin Council 's 36 member Board of Directors has reserved one spot for a Basin-wide environmental representative, and one of ten sectoral spots for a representative from civil society,
- the Trout Creek WUP is composed of representatives from the District of Summerland, Ministry of Water, Land and Air Protection, Ministry of Agriculture, Food and Fisheries, Fisheries and Oceans Canada, Agricultural Water Users and the Penticton Indian Band,

- the Langley WMP is being developed by a Planning Committee of local government and two provincial agencies,
- the Nicola Valley WUMP has no mention of a designated place for environmental NGOs,
- The Columbia Basin Trust has no specific environmental seat on its 12 member Board, and the CBT's Water Initiative Committee's Advisory Panel has five representatives four from academia, and one from industry.

The presence of involved regulators from all levels of government is also a key for success. DFO's inconsistent participation in Nechako Watershed Council was noted as a drawback, as that area and that process involved important fisheries issues (Prokopanko, 2002).

5.6.4 Sufficient Scientific Information

Many of the BC governance models are predicated on sound science. The decision making processes usually start by amassing all available scientific information, then identify gaps in the knowledge base, and seek to fill the gaps.

However, scientific knowledge is not always available and its absence can be a detriment to governance bodies. For example, aquifer capacity, recharge rate, and the relationship of ground water pumping to base flows in areas such as the Township of Langley and the Cowichan River are not well documented or understood, which will affect the decision-making capability of governance models in these areas.

Climate change will have major impacts on water management in the province. Experts predict warmer temperatures, wetter winters, and less snowpack. There will likely be more frequent extreme events, such as droughts, avalanches, and floods. The full effects are unknown, and new water governance models will need to account for the potentially significant effects of climate change.

5.6.5 Sufficient Funding

Financial sustainability is a concern for all the BC models, with the possible exception of the Columbia Basin Trust, endowed with $285 million from the BC government and the owner and operator of electrical generating stations in the Basin, and the BC Hydro WUP process in which both BC Hydro and the province invested tens of millions of dollars to achieve consensus water use plans at 23 out of 24 hydroelectric facilities. This high level of funding was one of the reasons for the WUPs' success: there was funding for professional facilitators, travel fees for participants, data gathering, and conversion of data into accessible presentations.

Funding from water rentals and water application fees are not solely devoted to support water governance, and collaborative models rely on year to year allocations in an uncertain overall provincial budget process.

The costs of a water partnership vary considerably. The Township of Langley Water Management Plan received a grant of $200,000 to prepare the plan. Decisions on funding of implementation of the plan have not yet been made, but the expectation is that implementation will be 'revenue-neutral' for the province. The Cowichan Basin WMP cost approximately $500,000 to develop, and the costs of implementation are significant.

Distribution of costs between users is another concern. The Okanagan Basin Water Sustainability Council notes this issue: "Providing sufficient return flows to the mainstem lakes is of interest to all residents of the Basin, yet the costs of water use planning and infrastructure improvements are placed on local communities. The Province makes planning tools available – such as WMPs or even Drinking Water Protection Plans – but provides little funding. In the end, this policy may result in inequitable resource management, with management and regulatory opportunities based on access to funds rather than on need. There are also ongoing concerns about the fairness of local communities having to bear the costs of planning and infrastructure expansion to address the needs of fisheries. The burden of preserving fish stocks (which is of national interest) is placed on the local community. It would be much more equitable if DFO contributed funding for water planning and infrastructure improvements" (OBWB, 2006).

Other concerns about BC's funding for water are its lack of transparency. The Living Rivers Trust Fund is not entirely transparent, and it is difficult to find out the objectives of the program, how the money is spent, and which groups or projects qualify for funding.

Funding for water infrastructure and planning are available through programs such as the Canada – BC – UBCM Agreement on the Transfer of Federal Gas Tax Revenues (GTA) which delivers federal funding to local governments for infrastructure projects that contribute to cleaner water, and for capacity building projects, including Integrated Community Sustainability (ICS) planning. Funding for infrastructure projects is more common than for governance activities.

5.6.6 Manageable Scope of Activities

Providing water governance bodies with a manageable geographic area, a manageable time frame in which to carry out their activities, and a manageable scope of activities are factors of success.

Some of the BC models- for example, the Okanagan Basin Water Board and the Columbia Basin Trust Water Initiative – are interested in focusing

activities at a smaller scale, for example by preparing sub-basin plans, to overcome the large geographic area of their mandate. The Fraser Basin Council has also set up regional offices to address this issue.

The pilot WMP process in Langley was given a year in which to complete its mandate. This can be contrasted with the Cowichan Valley WMP, which developed its plan in 3 years, and BC Hydro's WUPs, which took several years each to complete.

Many of the BC water governance bodies have broad scopes. The Fraser Basin Council is committed to achieving sustainability according to its *Charter for Sustainability* and lists fifty issues of concern to the Council. The Okanagan Basin Water Board has four main goals for 2007, the first of which is to "Improve water management policy in the Okanagan by working with local governments and organizations and First Nations in the Basin, connecting people and programs, identifying needs and opportunities." Similarly, two of the Columbia Basin Trust's Water Initiative's broad goals are to "work with Basin residents to build an understanding of and capacity to deal with water related issues in the Basin" and "support the development of a network of organizations working on water initiatives in the Basin."

5.6.7 Policy Feedback

Some of the governance models have built in policy feedback processes, but as there is no provincial water law applicable to all the governance models and no overall provincial water strategy, it is difficult to judge the success of all the disparate implementation efforts.

The province is often implicitly but not explicitly bound to adopt the recommendations from any one of the advisory processes. For example, the *Water Act* requires WMPs prepared pursuant to the Act to be submitted to the Minister, and the Minister must place the plan before the Lieutenant Governor in Council, who then may approve all or part of the proposed plan. There are no provisions related to the community's options if only part of the plan is approved.

Many of the other models, in which the province consults and accepts advice from a variety of stakeholders, do not contain any obligations on the government to accept or reject the advice and also are silent on procedures to be followed if the advice is not implemented. The situation in BC can be contrasted with Ontario's Environmental Bill of Rights and Environmental Registry which not only gives the public extensive opportunities to participate but also requires the government to report back to the public on its decisions on how the consultation and other advice was incorporated.

6. DELEGATING WATER GOVERNANCE IN BC: ISSUES AND CHALLENGES

Water management in BC is challenging due to the variable terrain, biogeoclimactic zones, rapid expansion in arid areas like the Okanagan Basin, and the land ownership structure. In BC, 94% of the land base is provincial Crown land with multiple land use tenures; 5% privately owned; and 1% federal. British Columbia has 25% of the flowing freshwater in Canada. Drinking water, water to support aquatic life, wildlife, recreation, and industry all rely on a high water quality. It is also challenging because of the number of water use systems: there are approximately 4,000 operational water systems in B.C. (everything other than a single family dwelling).

Water management has been criticized by for example, the Auditor General who reported a decade ago that neglecting source protection can be costly, water source management was not integrated in BC, better management of managing effects of other resource users on drinking water sources was needed, the absence of ground water management was a problem, and that small water systems were particularly vulnerable. (BC Auditor General, 1998-98).

Water quality concerns persist. Nongovernmental organizations have focused on the high number of water related sickness and boil-water orders endemic in the province. Currently, B.C. has one of the highest reported incidences of intestinal illness in Canada, with 29 waterborne disease outbreaks reported from 1980-2004. As of July 2007, there were approximately 500 'Boil Water Advisories' in effect in the province.

Water quantity issues also pose challenges. Many surface water sources are oversubscribed, as fully a quarter of the surface waters in the province have recorded restrictions. Groundwater declines are also evident in many heavily populated areas of the province.

Governance reforms may help solve some, but not all , of these management challenges. For example, more localized control of water decisions could help improve source protection. The ability of governance reforms to help solve water management challenges is one of the many questions that would benefit from a wide consultation with regulators, experts, and the public.

The remainder of this section addresses issues pertaining to the questions raised at the outset of the paper, in the BC context:

- What are the barriers to delegating water governance? (Section 6.1)
- Do the potential advantages of delegating water governance to lower scales outweigh the disadvantages? (Section 6.2)

- Which issues/aspects of decisions about water should be delegated, and which should not? (Section 6.3, esp. 6.3.3)

6.1 Barriers to Devolved Governance

Many Tools, No Overall Framework
As this report demonstrates, there are many existing examples of delegated water governance in BC. Water governance bodies can be creatures of statute, such as the Columbia Basin Trust and the Okanagan Basin Water Board, the result of a formal policy process such as the BC Hydro WUPs, the response of multiple levels of government to a particular set of water issues, such as the Abbotsford Sumas Aquifer Stakeholder Group, or the product of local government or community initiative, such as the Cowichan and Nicola Valley water use planning processes. Representatives from these bodies have expressed the desire for greater provincial guidance on issues such as balancing needs of different water users and fitting their efforts into an overall framework for protecting water resources and the aquatic environment, and creating governance structures that work in tandem with provincial authorities.

And though there are a number of legal and policy tools available to communities who wish to create new governance structures, there are drawbacks associated with many of these tools. The two relatively new legal tools under the *Water* and *Drinking Water Protection Acts* appear destined for use in only a very limited number of communities. A drinking water management plan has not yet been used and is unlikely to be used soon, and the water management plan, now in the pilot stage in one community, may not be replicated in other communities until key governance issues of accountability, authority, resources and implementation have been addressed. Local governments may be unwilling to take on greater responsibility for water decision making unless they are provided with additional resources. In an interview for this paper, one water expert at the local government level commented that 'shared governance' was another way of saying 'downloading'.

A related obstacle to greater use of the authority provided to local governments under statutes such as *Water* and *Drinking Water Protection Acts,* but also under the *Local Government Act, Community Charter* or *Health Acts* is lack of guidance about which issues the provincial government is in the end willing to have addressed through a delegated body. Communities that have tried to use these powers to, for example, refuse independent power production proposals or curtail logging activities on the basis of impacts to water resources have had their efforts stymied.

Lack of Strong Provincial Environmental Standards
One barrier in BC is a lack of strong provincial standards to protect drinking water quality and aquatic habitat and species. There are few tools available to protect groundwater or instream flows, to name two examples. Most watershed councils operate within the constraints set by strong environmental standards, and decide how those standards should best be implemented at the local level. Legal action or the threat of legal action has been a major driver for the formation of collaborative governance models in the US, such as the Washington watershed councils and the Texas Aquifer Authority.[11] BC does not have strong standards in place, other than the federal *Fisheries Act* which was a motivating factor in at least one BC example. In the Trout Creek water use plan, described in s. 5.1.5.3, DFO ordered water use reductions from irrigators to achieve greater flows for fish, prompting the local irrigators and other water users to devise a consensual plan for water sharing and voluntary reductions in use by some sectors.

Potential Need for Compensation for Changes to Existing Licensees
Another barrier may be reluctance to form governance bodies which could recommend changes to the current licensing and allocation system because of the implications of paying compensation to existing licensees for curtailment of their water rights. An important issue in any revision to the allocation system is whether or not compensation will be paid for cancelling licences, and what the criteria will be for cancellation or reallocation.

Need for Additional Financial and Human Resources
Financial support for new governance processes may also be a barrier to greater devolved governance. The creation of bodies which will require both direct financial support for the processes and implementation of the plans, as well as indirect support through devoting staff time to participate in and enforce the plans will have considerable financial implications. Ontario and Alberta's budgetary figures in s.3 related to devolution of water governance show that the scale of the resources required is extensive.

Lack of Public Concern about Water Resources
Residents of BC are generally complacent about water supplies, and subscribe to the myth of water abundance common to many Canadians. In the more arid regions of the province such as the Okanagan and Gulf Islands, attitudes are starting to slowly shift. Some water managers believe that a crisis such as a major drinking water health scare, another drought, or continued major boil-water advisories (such as those instituted in the Lower Mainland in 2006) will need to occur before the public's attention is caught. In some areas where water shortages are becoming more common, there is

[11] In the US, many water collaborative models have been created as an alternative to or as an attempt to forestall the consequences of endangered species listings under the Endangered Species Act, or the need to prepare a total daily maximum load plan (TDML) under the Clean Water Act.

greater public awareness. In the Cowichan Valley, the Crofton mill came very close to a shut down due to a lack of water, which was a major impetus for the development of the Cowichan water management plan, whose status is now uncertain after the Regional District Board failed to adopt all of its provisions.

Evolving Aboriginal Water Interests Creates Uncertainty

Introducing new delegated water governance arrangements in BC may be complicated by unresolved aboriginal water interests, which include legally recognized rights, such as those in treaties, and unresolved claims. Recent Supreme Court of Canada (SCC) cases involving BC disputes have affirmed the significant leverage that Aboriginal peoples have on the environmental regulatory process, and a new confluence between Aboriginal and environmental law (Cassidy and Findlay, 2007). The Haida and Taku River cases both arose in the context of environmental regulations related to forestry, mining and environmental assessment. In the decisions, jointly released in 2004 the SCC held that the government had a duty to consult and accommodate First Nations' interests before Aboriginal rights and title were finally determined.[12] A subsequent case involving the Mikisew Cree and Treaty 8 held that the duties of consultation and accommodation also applied in a treaty context.[13]

Existing regulatory frameworks such as permitting or environmental assessment may be used to fulfill the duty to inform and consult. If the government decides to institute a broader range of delegated water governance arrangements across the province, the issue of protection of Aboriginal interests will be an essential element both of a consultation strategy, and of a delegated governance policy.

The evolving interest of Aboriginal peoples may be a barrier to greater delegation of water governance if one or more First Nations opposes being treated as one among many stakeholders, rather than as a group with significant legal entitlements beyond those held by the general public. However, as s. 6.3.1 demonstrates, many First Nations are currently actively involved in delegated water governance arrangements around the province.

Accommodating Aboriginal interests is a key element in the balancing act that regulators must consider in all resource management decisions.

[12] Haida Nation v. BC (Minister of Forests) [2004] 3 SCR 511, Taku River Tlingit First Nation v. BC (Project Assessment Director) [2004] 3 SCR 550.

[13] Mikisew Cree First Nation v. Canada (Minister of Canadian Heritage). [2005] SCC 69.

6.2 Pathways for legislative and policy reform – Potential models and principles

6.2.1 Identifying and Removing Barriers to Greater Use of Existing Governance Structures

The relatively new and as yet untested planning procedures available under the *Water* and *Drinking Water Protection Acts* may assist communities who seek additional control over their water resources, and want to develop localized plans to address water protection.

Many communities such as the Columbia Basin, the Gulf Islands, the Okanagan, Nicola Valley, Cowichan Valley, Abbotsford are enthusiastic about the possibilities of being designated to prepare a water management plan under Part 4 of the *Water Act*. Additional guidance from the province would assist those communities that want to undertake a plan for a defined geographical area on issues such as:

- Criteria and a process for choosing communities to do the plans,
- a common framework for preparing plans,
- a commitment to funding a certain number of plans a year,
- which participants need to be involved,
- which areas receive priority for this type of plan,
- which are the priority issues that need to be addressed by a plan, and
- Which issues the province is willing to devolve.

The *Water Act* framework is more likely to be used than the drinking water protection plan under the DWPA. These plans are meant to have limited application, and none have yet been prepared. The *Drinking Water Protection Act* specifies that the plans are only to be ordered as a last resort.[14] Amendment to both these statutes to remove the barriers that now prevent their use is one option for the province to consider.

[14] s. 31 (1) The minister may, by order made on the recommendation of the Provincial health officer, designate an area for the purpose of developing a drinking water protection plan for the area.

(2) The Provincial health officer may only recommend that an order be made under this section if

(a) based on monitoring or assessment results, the Provincial health officer is satisfied that a drinking water protection plan will assist in addressing or preventing a threat to drinking water that the Provincial health officer considers may result in a drinking water health hazard, and

(b) no other practicable measures available under this Act are sufficient to address or prevent the drinking water health hazard.

6.2.2 Reform of Existing Allocation, Licensing, and Funding of Water

Problems with the current licensing, allocation and funding of water could be addressed through the usual policy routes, retaining the single government decision maker governance model, and perhaps changing the procedures for public participation of non-state actors.

Key changes to the existing system such as extending licensing to groundwater, reforming the beneficial use requirement to construct structures, applying water conservation objectives to the province as a whole, and legislating in-stream flow protection may be relatively low-cost and simple policy options, compared to other options.

To increase participation and meet the good governance principle of effective participation, the provisions regarding public participation in licensing, allocation and appeals could be amended.

6.2.3 Watershed Councils

Another option for greater devolved governance in BC could be the adoption of a provincial position on province-wide or geographically limited (for example, to the most populated parts of the province) watershed councils. This could be done through the development of a policy, as Alberta did in the creation of its WPACs, as discussed in Section 3, or through legislation, either under a revised *Water Act* or though separate watershed planning legislation, as in Washington or Oregon. This is the most common form of governance structure adopted to improve water management in the US.

It should be noted, however, that watershed governance councils do not necessarily lead to better environmental conditions. The literature from the US questions whether environmental quality, ecosystem health, water availability and cleanliness will improve through collaborative efforts. There is some evidence that one of main benefits of these programs is the 'feel-good' factor - studies sometimes measure the satisfaction of participants (Kenney, 2001) rather than on-the ground improvements. A number of authors note the difficulties of measuring success, due to an absence of baseline data, and imperfect information on the causal links between council's efforts and environmental improvement.

Moreover, introducing watershed councils entails a number of risks and opportunities. Some of the perceived risks are:

- Volunteer burnout
- Local processes may pay too much deference to powerful interests (e.g. there is a common perception that land developers exercise a greater degree of power in local government)

- Abdication of government responsibility, as local control may be inappropriate for the public resources of water owned by the province[15]
- Unfunded mandates may result in councils acting as 'forums for inaction'
- Broad-based participation may lead to compromise on politically lowest common denominator solutions rather than more optimal solutions
- Formation of these bodies may be perceived to "shift the definition of success from one of an improvement in environmental conditions to one of reduced social conflict" (Singleton, 2002)
- Participation is time-consuming. For governments, it is also expensive, involves a possible loss of control, depending on who participates, can distort public views. For citizens, participation may be difficult if they are the only ones unpaid to attend meetings, and there is no guarantee they will influence the final decision.

Similarly, this approach involves numerous challenges:

- Persuading major tenure holders it is in their interest to participate
- Sustainable funding
- Making selection of representatives democratic
- Accommodating non-local interests, such as migrating species like salmon, preservation of biodiversity
- Role of different levels of government in these processes needs to be clearly outlined, and commitment made to take recommendations forward for implementation, otherwise distrust is the result
- Ensuring adequate representation from environmental interests, especially of one of the major goals of these councils would be improving water quality , ensuring sufficient water quantities for all users, and protecting the aquatic environment and the terrestrial species dependent on a healthy aquatic environment
- Maintaining consistent participation from state and federal agency employees who may have more than one watershed in their jurisdiction, as noted in an Oregon study of watershed partnerships (Bidwell and Ryan, 2006).

These risks and challenges are offset, and perhaps outweighed, by the opportunities for introducing a broader system of watershed councils in

[15] S**.** 2 (1) The property in and the right to the use and flow of all the water at any time in a stream in British Columbia are for all purposes vested in the government, except only in so far as private rights have been established under licences issued or approvals given under this or a former Act. Water Act RSBC 1996, c.423. Also s. 3, Water Protection Act RSBC 1996c.484, similar provision related to groundwater.

BC. It is important to emphasize that the benefits will only outweigh the disadvantages in those cases where resources – financial and otherwise – are guaranteed and sustainable over the long-term. With this caveat, a province-wide system of councils could:

- Capitalize on the energy that exists in favour of these councils
- Build on strengths of most innovative processes
- Use the WUP framework already in place as a process to develop plans, as the WUP guidelines are widely used, e g, most recently in the Langley WMP
- Recognize the need for structures that require different levels of government to communicate
- Recognize the need to combine scientific knowledge, traditional knowledge and local knowledge and synthesize and disseminate these types of knowledge.

Additional benefits include:

- For citizens, participation educates, empowers, can help build trust, leads to influence over policy and helps build collective wisdom. For governments, these same benefits exist, and can legitimize policy, avoid conflicts and administrative and legal challenges.
- Involving a greater range of groups in water governance can harness a wider range of resources including local government participation, industry support, volunteers etc, resulting in more comprehensive management compared to sole reliance on senior governments who have been cutting budgets and staff over the last ten years.
- Existing models could be rolled into a new provincial watershed council framework.

6.3 Factors to consider in making decisions about new governance processes

The analysis conducted in this report suggests that any process of decision-making about new governance processes should be consultative, transparent, and accountable. The process should include broad-based consultation, and build on the government's vision to create a list of good governance principles to which new delegated water governance partnerships should adhere (the set used in this report is conventional, but by no means exhaustive or comprehensive). These may or may not be standardized across the province (e.g. included in the proposed provincial water strategy); the degree of standardization should also be a matter of public consultation and debate.

With this general recommendation, the report also recommends that the process for decision-making about new governance issues address the following issues:

6.3.1 Aboriginal water rights

Aboriginal rights to water are an undecided and significant issue that will affect new governance models. There are several aspects to this issue:

- Treaty negotiations and completed treaties which may affect water allocations. There are currently 46 active treaty tables, where representatives of approximately half of BC's 198 bands, along with negotiators from the federal and provincial governments, are working towards agreement. In BC, treaties include Treaty 8, which includes eight First Nations bands in the northeast corner of the province, the Douglas Treaties on Vancouver Island, and the Nisga'a Treaty. For example, the 2000 *Nisga'a Final Agreement*, in relation to water, provides that the province retains full ownership and regulatory authority over water, existing water licences remain in place, the Nisga'a have a water allocation equal to one percent of the annual average flow from the Nass Valley watershed for their domestic, industrial, and agricultural needs, and the Nisga'a also have a reservation for the purpose of conducting studies to determine the suitability of streams for hydropower purposes. Any hydro development will be subject to provincial approval and regulation.

- The Provincial government's legal duty to consult in good faith with First Nations about decisions that may impact the First Nation's interests in land before the First Nations have proven title or rights.

- As yet unresolved Aboriginal rights and title to water. Aboriginal rights are those rights held by Aboriginal peoples that relate to activities that are an element of a practice, custom or tradition, integral to that Aboriginal group's distinctive culture. Aboriginal title is a separate Aboriginal right to the land.

Proceeding with new governance models needs to be carefully done, fulfilling the duties of consultation and accommodation. The province now has an explicit policy to guide decision makers on these duties when making decisions under the *Water Act*, and the BC Hydro WUP processes also contained guidance on how this issue should be addressed. Currently, First Nations are actively involved in delegated water governance structures in the Okanagan and Columbia Basins, whose Boards include a First Nations representative, in the Cowichan and Nicola Valley water management planning tables, and in other decision making bodies around the province.

Aboriginal water rights and treaty rights continue to evolve. Policy makers need to be cognizant of the changing landscape and engage Aboriginal

leaders in policy reform and the development of new governance models at the earliest possible stage. Reforms in water governance may be guided by the 'new relationship' the Province has announced for First Nations, which is based on shared governance principles:

> We agree to establish processes and institutions for shared decision-making about the land and resources and for revenue and benefit sharing, recognizing, as has been determined in court decisions, that the right to aboriginal title "in its full form", including the inherent right for the community to make decisions as to the use of the land and therefore the right to have a political structure for making those decisions, is constitutionally guaranteed by Section 35. These inherent rights flow from First Nations' historical and sacred relationship with their territories. [16]

6.3.2 Participation in new governance models, and water governance in areas with no delegated model

There are a number of factors the government may consider when deciding which communities, if any, should be delegated additional powers over water, such as:

- Population density
- Resource and water uses
- The degree of water stress, overuse or overallocation
- Threats to water and the aquatic environment
- Existence of conflicts over water
- Willingness of the community to assume a greater role in decision-making
- Availability of committed representative from all stakeholder groups to participate in new governance models

Guidance from the province on these key policy questions is necessary. Other provinces have defined their priority areas for delegated water governance bodies. The Alberta Water for Life Strategy lists the watersheds in which WPACs will be established and the Alberta Water Council is currently developing guidance for WPACs on the process and content of water management plans. Québec chose to proceed with watershed organizations in 33 priority watersheds based on defined criteria. Ontario aligned the source protection regulatory framework to complement the Conservation Authorities framework, augmented by new structures in areas without a Conservation Authority.

For example, it may not be practicable to have watershed councils or water management planning processes in areas of low population density, and

[16] Province of BC "The New Relationship" (Victoria:Government of BC) 2005.

where few resource managers work. A possible solution for the under-populated areas of the province is regional Water Boards.

6.3.3 Which issues should be delegated and to whom?

Once the decision has been made to institute distributed governance in a particular region, the province is then faced with the task of deciding which topics should be addressed by a multi-government or multi-stakeholder group.

In making the decision on which topics to delegate, the province must address protection of the overall public interest in the water resource. Decisions on water law and policy reform must strike a balance between giving weight to local and/regional interests and the broader provincial public interest in water sustainability. There are no hard rules about how to achieve this balance. Other provinces continue to grapple with these questions, and any consultation process in BC on water law and policy reform should carefully consider whether the solutions that have been adopted elsewhere are appropriate for BC. For example, Alberta has decided that multistakeholder partnerships are essential to water governance, and is still working on the relationship of these partnerships to government regulators and managers. Its reformed *Water Act* does not give the partnerships any statutory authority. In contrast, Ontario in its drinking water source protection reforms has produced an elaborate regulatory structure for source protection advisory committees.

While there are no universal rules to assist with this decision, the guidance from other jurisdictions suggests these possibilities:

The province should retain decision-making authority in certain areas in order to provide a level playing field across the province and avoid the problem of jurisdictions using lower standards to attract business, ensure there is no undue influence from a local powerful interest, and most importantly, to maintain its duty to protect public and environmental health as trustee of the water resource.

Appropriate areas for provincial standards are:

- Water quality
  These standards may be adjusted by multi-governmental or multi-stakeholder groups to define more targeted standards for particular substances or particular areas. In Alberta, WPACs are tasked with developing water management plans which may adapt provincial standards to local conditions. The Bow River Basin Council, for example, is preparing the Bow Basin water management plan, which will focus on surface water quality and will recommend site- specific water quality objectives (WQOs) for defined parts of the watercourses in the Basin in

accordance with the CCME definition of a WQO – a numerical concentration limit or narrative statement which has been established to support and protect a designated water use at a specific site.[17]

- Water quantity
  Licensing and allocation decisions which balance human and ecosystem needs are best addressed by the province, as the jurisdiction primarily responsible for resource management.
- Aquatic species protection
- Enforcement and compliance

Distribution of power between different levels of government and multistakeholder groups (which may or may not include government representatives) may be appropriate for a number of other topics, depending on the region, water issues, stakeholders and other factors.

One key potential function for these groups is to decide broad categories of allocation between different user groups, once an overall allocation decision respecting ecological limits has been made for the watershed in question. Locally based groups, aided by the scientific and managerial expertise of regulators, are well situated to make trade-offs between different water uses, as in the examples of BC Hydro's WUPs, in which participants made trade-offs between fish flows and power production, or drought management plans, which often involve trade-offs between agricultural, municipal or domestic, and environmental uses, as in the Trout Creek WUP example described in s. 5.1.5.3. The Okanagan provides another example. If surface water in the Okanagan Basin is closed to further surface water allocations, a local level body such as the Okanagan Basin Water Board may be best situated to make decisions on licence trades and transfers and conversions of land use with water use implications, in conjunction with the Agricultural Land Commission.

Other potential functions that could appropriately be addressed by delegated water governance partnerships include:

- Making recommendations on restoration or water improvement projects that should proceed,
- Proposing local water protection, conservation, recycling or reuse bylaws to be adopted by a number of different jurisdictions in the region the group operates in, such as a watershed which could include sprinkling restrictions, detergent or pesticide bans, rebate programs for low-flow appliances or rainwater collection barrels
- Proposing integrated solutions for difficult problems that traditional command and control programs have been unable to address such as

[17] WQOs are typically based on generic Water Quality Guidelines, which may be modified to account for local environmental conditions or other factors. In general, WQOs are prepared only for those water bodies and water quality variables that may be significantly affected by human activities, either now or in the future.

nonpoint source pollution and the control of urban runoff, agricultural practices reform, or integrated land and water use planning.

Many delegated water governance partnerships focus their efforts on non-regulatory activities, such as:

- Public education
- Recommending voluntary stewardship actions by local landowners. An example is the Salmon River Roundtable's work on encouraging and assisting ranchers to install fences near streams to keep livestock out.
- Integration of implementation activities
- Setting targets for water conservation
- Establishing programs for water conservation to be implemented by different levels of government
- Collaborative watchdog role in monitoring and enforcement (but strong standards are needed for this to work)

All of these non-regulatory activities would be appropriate for delegated water governance partnerships in British Columbia.

6.3.4 Funding and financial sustainability

Increased devolution cannot proceed without stable and continual government funding. The most common institutional problems of a statistical snapshot of 118 groups surveyed in the US were inadequate attention/funding paid to the resource (Kenney, 2001).

Financial sustainability is a major concern of new processes and is identified as key factor in many governance models. The report from the Rosenberg Forum in Alberta in 2006 which reviewed Alberta's Water for Life Strategy reinforced this point:

> A review of world water initiatives confirms the quality and competitive advantages accruing from Alberta's *Water for Life* strategy but reinforces the need for robust and sufficient fiscal investment support to match the timescale of the strategy. There are numerous examples in the world of well-designed strategic plans that have failed because of inadequate organizational and fiscal support. Most similar state level strategies fail to deliver on all but short-term objectives due mainly to conflicts in priorities of participating agencies. Those few strategies that have succeeded have all gone beyond standard budgeting and appropriation approaches to make long cycle fiscal commitments, supported by legislative instruments to secure the funding. (Rosenberg Forum Review of *Water for Life*, emphasis in original)

Many steps in the evolution of Ontario's *Clean Water Act* have been concerned with financial sustainability, as the CWA requires municipalities to participate in source protection planning and implementation. The province has provided funds to municipalities to assist with these goals, through a

Drinking Water Advisory Panel and Drinking Water Stewardship Program. In this fiscal year the province of Ontario will spend $7 million to protect drinking water sources and to support local education and outreach projects. The Panel addressed affordability for municipalities for instituting source protection programs, such as where municipal water systems may already be financially unsustainable, and where a municipality did not have the ability to generate "water related revenue" to offset source protection costs, for example, in a community dominated by private wells not covered by water charges. In that situation additional support from the province might be justified.

In BC, the Community Charter requires the province to match the delegation of additional responsibilities to municipalities with the provision of additional resources. Section 2(2) (b) states that the Provincial government must not assign responsibilities to municipalities unless there is provision for resources required to fulfill the responsibilities.

7. CONCLUSIONS AND OBSERVATIONS

The final section provides conclusions and makes observations on how the provincial government could proceed with water governance reforms. It describes a potential provincial government process to investigate and explore policy development; and points out possible directions for substantive reforms.

The central conclusion is that one of biggest gaps that exists today in water governance in the province of British Columbia is:

- the absence of an overall provincial water strategy including:
  - a definition of the provincial interest in water, accompanied by management measures and implementation targets
  - an integrated provincial framework for collaborative governance bodies, based on watershed boundaries,
  - clear delineations of authority between the province, local governments and collaborative governance bodies.

Stemming from the absence of a provincial water strategy, gaps in water management include:

- The lack of effective links between surface water and ground water protection;
- Absence of incorporation of ecological values into water policy;
- Regional inequities in opportunities for participation in delegated water governance;
- Lack of funding mechanisms available to local governments or regional bodies to use for water management activities; and
- Limited public participation opportunities

These issues, and associated recommendations for action, are elaborated below.

7.1 A provincial water strategy

7.1.1 Provincial Interest in Water

The province has a vision for water management: “Water for B.C. – Safe, sustainable and valued by all”. But it does not have a strategy to achieve that vision, nor does it have an inclusive portfolio of management measures or specific implementation targets to translate the strategy into implementation outcomes. Targets could be numeric values, such as “percent

reduction in water used to produce one unit of output" while other targets on participation, satisfaction of participants, etc., could be expressed in qualitative terms (Rosenberg Forum, 2007).

The provincial interest in water also requires definition through an amended *Water Act* and/or a provincial water strategy. The primary implicit purpose of the BC *Water Act* is to provide an orderly system for managing human uses of water through the establishment and administration of a water rights system. This *Act* does not currently identify other provincial interests in water management, such as protecting ecosystems, or balancing access to the use of water for humans and ecosystems. Other provincial governments provide more guidance on the purpose of water management: for example, the purpose of the Alberta *Water Act* is to: "support and promote the conservation and management of water, including the wise allocation and use of water".

Similarly, there is a lack of provincial guidance on which level of government retains the authority to make water decisions, exemplified in the recent Sunshine Coast legal decision regarding the conflict between the locally constituted Board of Health and the provincial Ministry of Forests. The judge in that case said: "Here, the SCRD sitting as the LBH was attempting to carry out one of its public health duties. In doing so it started from the position, which it had stated publicly, that a regional district should have the authority to determine what activities can take place within its watershed. It does seem somewhat anomalous that a regional district does not have that authority. However, that was not the issue before the LBH, nor was it the issue before this court."[18] The Minister of the Environment did not intervene in this case.

The recurring conflict between forestry and community watersheds is unlikely to disappear. Some community watersheds, such as Victoria and Vancouver, prohibit logging, while in other watersheds, the Ministry of Forests permits logging. Only drinking water management plans can override decisions under the *Forest and Range Practices Act*. As discussed in s.5.1.2, these plans are considered a last resort, and are therefore unlikely to be used. The water management plans under Part 4 of the *Water Act* cannot restrict any authorizations or the exercise of any powers under forest or range laws.[19]

7.1.2 Integrated provincial framework for collaborative governance bodies

There is currently an uneven patchwork of governance arrangements throughout the province, with no common standards, levels of accountability, decision-making authority or public involvement. The various bodies do not necessarily respect watershed boundaries – the now commonly accepted and scientifically justified scale for water management. Moreover, the two recent

[18] Western Forest Products Inc. v. Sunshine Coast Regional District, 2007 BCSC 1508.
[19] s.65(2) Water Act, RSBC 1996, c. 483.

major governance innovations in the province on water governance have had very different background parameters from the province:

- In the case of WUPs, a provincial framework document guided the efforts of each consultative committee, and the objective of achieving acceptable trade-offs between different water uses was explicit. BC Hydro's WUPs produced many positive results, though the process lacked legal safeguards, and failed to address First Nations historical grievances over dam construction.
- In the Township of Langley's water management plan, the province provided no initial guidance to the project team in the form of objectives for healthy aquatic ecosystems, prevention or mitigation of agricultural impacts, or tools to protect groundwater.

Many plans and strategies are being developed across the province in differing ways yet most communities are trying to meet very similar goals and objectives with respect to protecting the resource, minimizing conflict, and establishing an efficient management system. The province should take the lead in managing its resources, and establish a basic set of rules province-wide. Water management plans could then be used to create site specific customization to solve local issues.

The current lack of an integrated framework for collaborative governance bodies has some advantages, most notably flexibility. For example, some communities like the Cowichan and Nicola Valley have started water management planning outside the legislative framework, though both groups may eventually ask to be designated as water management plans. In the absence of a provincial framework, these communities have been free to innovate in terms of participation and scope of water management planning. However, the advantages conveyed by flexibility are outweighed by the disadvantages of uneven and arguably inequitable application of water management, and an ad-hoc approach to management of an essential provincial resource, particularly given the fact that Cabinet level approval is currently required for water management plans.

7.1.3 Clear delineations of authority between the province, local governments and collaborative governance bodies

Currently in British Columbia, the relative authority, responsibility and accountability of each group that participates in water governance is not defined. Moreover, the requirements for initiating the planning provisions which would allow greater local level involvement are not transparent. The *Water Act* gives the Minister of the Environment the authority and sole discretion to designate a water management planning area and establish the process for developing the plan. The result is that, although many

communities would like to be designated as water management planning areas, they are stymied by an unclear process of designation.

This report recommends that authority over water decisions should not be delegated in the absence of a set of provincially applicable rules for water management developed under a provincial water strategy. However, once delegation does occur, to avoid frustrating the efforts of local groups who invest substantial time, energy and money into collaborative planning processes, the provincial government either needs to give the bodies decision-making authority, or if that is not feasible (and it may not be for constitutional as well as logistical reasons) needs to commit to implement the results from these processes in an accountable and transparent manner.

The government of Alberta is now addressing this set of issues through its Shared Governance and Watershed Framework Project Team, four years after the introduction of the Water for Life Strategy.

7.2 Key management 'gaps'

7.2.1 Lack of integrated management of surface and groundwater

BC's regulatory system for water applies to surface but not groundwater. This anomaly causes problems for managers at all levels of government. Groundwater protection will only grow in importance as the effects of climate change are felt, as groundwater not only provides essential base flows for streams but moderates water temperatures. Cold water fisheries are threatened by excessive extraction, and regulators have no regulatory tools to respond to this threat.

7.2.2 Absence of incorporation of ecological values into water policy

This is one of the key components of the "changing water paradigm" described by Peter Gleick:

> Minimum water requirements must be determined, provided, and protected for natural ecosystems. Determining the nature and characteristics of these requirements can be very difficult; sometimes they are related to minimum flow requirements, or temperature limits, or a need for peak flows during certain periods, or water of a certain quality. But these requirements must be met as a fundamental condition of water resources development or we risk impoverishing ourselves of our natural resources and undermining the natural support structures on which we depend. (Gleick, 2000)

There is a lack of overall provincial standards for water quality, quantity or ecosystem management. BC has no equivalent to, for example, the Alberta government's legislative duty to prepare an aquatic environment protection

strategy[20], no provincial wetland policy, and no groundwater strategy or action plan. While there are guideline documents for instream flow needs for fish as they relate to proposals to develop small hydroelectric projects, there is no general duty to identify and protect instream flow needs on rivers or streams.

7.2.3 Regional inequities in opportunities to participate in delegated water governance

The province has not made a policy decision about which geographical areas of the province will be eligible to engage in delegated governance arrangements. In the current situation, only those areas with greater financial resources, such as the Okanagan (as its Water Board has property taxation powers), have the ability to engage in proactive water management planning. This raises the issue of social justice and equity.

The two major choices are to either leave the current arrangements in place- the 'one size does not fit all' model; or to target the more urbanized or pollution prone areas of the province, similar to the approaches used in Alberta (WPACs will be created in 'major watersheds' throughout the province) , Ontario (source protection regions under the *Clean Water Act* coincide with conservation authority boundaries), and Québec, which has chosen to set up watershed organization in 33 priority watersheds out of a total of 400 watersheds in the province, based on environmental issues such as pollution, protection and conflicts over use, and the need to make strategic choices due to limited public funding. These priority watersheds are situated primarily in the most settled southern section of the province (Baril et al 2006).

This choice should be made through extensive public dialogue and consultation.

7.2.4 A lack of funding mechanisms available to local governments or regional bodies to use for water management activities

The review of water governance conducted in this paper illustrates the need for sustained and significant funding to implement devolved governance arrangements. This point is addressed in s 6.3.4. In brief, no ongoing support for water governance advisory bodies is currently available in BC.

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[20] **(2)** The Minister must establish a strategy for the protection of the aquatic environment as part of the framework for water management planning for the Province.
(3) The strategy referred to in subsection (2) may include
(a) identification of criteria to determine the order in which water bodies or classes of water bodies are to be dealt with,
(b) guidelines for establishing water conservation objectives,
(c) matters relating to the protection of biological diversity, and
(d) guidelines and mechanisms for implementing the strategy.
(4) The Minister must, in a form and manner that the Minister considers appropriate, consult with the public during the development of the strategy.

This can be contrasted with the financial support other provinces have provided to delegated governance bodies: in Québec, annual grants of $65,000 are made available for the operation of the 33 priority watershed organizations, in Alberta $3.2 million is available for WPACS as detailed in s. 3.5.2; and Ontario has committed $120 million from 2004-2008 to cover the costs of source protection planning.

Partly as a result, many local governments in BC view 'shared governance' as downloading – a transfer of responsibility unaccompanied by a transfer of resources. Even areas with unique funding arrangements for water governance, such as the Okanagan Basin Water Board, would like access to other ways of raising funds that are not dependent on property owners, a small proportion of the overall Okanagan water users, which includes increasing numbers of tourists and visitors.

Funding of the two major BC governance innovations in recent years in water management has been ad-hoc. The province gave the Township a one-time grant of $200,000 to prepare the water management plan in Langley, and has advised that implementation is to be revenue-neutral for the province. For water use plans, BC Hydro committed approximately $26 million to prepare the plans, and as of 2004, implementation of the plans was estimated to result in BC Hydro foregoing revenue of about $50 M per year, or approximately 1.5% of annual revenue (Mathews and Hill, 2004). The plans are generally agreed to be successful. Consensus was reached in 23 out of 24 Collaborative Committees. The degree of financial support is likely a key factor in the WUPs' success.

7.2.5 Limited public participation opportunities in the existing water governance framework in general and with the water licensing framework in particular

The government of BC has not conducted broad-based public consultation on an overall water strategy since the 1993 "Stewardship of the Waters" initiative. A gap in the current governance framework is the need to examine policy and legislative reform in a dialogue with citizens and all levels of government. Provinces with recently updated water laws and policies took action only after extensive public consultation. The timelines for Ontario and Alberta show the time and resources devoted to these efforts. Québec followed a similar path, as its Water Policy was developed over a period of five years from 1997-2002.

BC's current water licensing framework lacks public participation opportunities available elsewhere across the country. Participation in appeal processes is similarly limited. As groundwater is not licensed, there are only very minimal opportunities for public participation in the rarely used environmental assessments of major projects.

Other issues identified as problems in water management but not specifically related to governance include a lack of regulatory or policy tools to protect groundwater; no ability for water purveyors, who have the legal responsibility to provide safe drinking water, to control land use activities that may be harmful to their water supply; a lack of public awareness of the links between climate change and water, coupled with few mechanisms to address climate change adaptation under the current regulatory structure; and funding shortfalls for provincial water management activities, resulting in inadequate monitoring, compliance and enforcement of water quality and environmental protection legislation.

The decision about which features should be incorporated into changes to water governance structures is a policy question for the provincial government, which ideally will be made after extensive public consultation.

This paper has reviewed advantages and disadvantages of different approaches. There are numerous benefits of greater public participation and more localized decision-making following the principle of subsidiarity. Yet collaborative decision making is invariably more expensive and time consuming than the single government decision maker model. Collaborative decision making is not appropriate for routine, simple or urgent decisions. It may be effective to use collaborative processes for complex policy questions that affect multiple, interdependent interests, where all the diverse parties affected have compelling reasons to engage with one another in a search for a joint policy or program outcome, and where sufficient time and resources are available to support the process. These complex policy questions in the field of water include allocation between different uses, implementation of conservation obligations, and the use of economic instruments in water management. The collaborative models used in the Hydro WUP processes are an example. The Langley WMP is another example.

Table 3 suggests potential reforms. Any reforms ideally will proceed after a full and public consultation with all levels of government, water users, and the public. Introducing a new shared governance system for water in the province should follow the same good governance principles described in this report: accountability, transparency, respect for the rule of law, equitable participation, access to the best available scientific information, financial sustainability, and sufficient time to complete the process and shared decision-making.

Table 3.
Delegated water governance partnerships: Examples of factors of success and associated good governance principles, and potential avenues for reform in BC

Factor of Success	Good Governance Principle (example)	Recommendations for Potential Reform
Effective leadership	Accountability	Building on BC's Vision for water, the province should develop a provincial water strategy, which should include definition of the provincial interest in water, accompanied by management measures and implementation targets. This strategy should include effective links between surface water and ground water protection; and systematically incorporate ecological values into water policy. This may imply modifications to the Water Act. For example, consideration should be given to the possibility that water management plans under Part 4 of the Water Act be empowered to restrict authorizations or the exercise of powers under forest or range laws
Interpersonal trust	Transparency	The process of delegated water governance should be refined to improve transparency. This could be facilitated through increasing the currently limited public participation opportunities in the existing water governance framework in general and within the water licensing framework in particular. Moreover, consideration should be given to increasing transparency in the Water Management Plan approval process (which may entail changing the current Cabinet-level approval requirement).
	Respect for the rule of law	Clear delineations of authority between the province, local governments and collaborative governance bodies, enshrined in an amended *Water Act*.
Committed participants	Equitable participation	The province should create an integrated provincial framework for the creation and funding of collaborative governance bodies. This should include clear specifications regarding which geographical areas of the province will be eligible to engage in delegated governance arrangements.
Sufficient scientific information	Access to (funding for) best available scientific data	The provincial strategy for delegated water governance should include a strategy for the provision of effective, comprehensive scientific information to decision-makers. While some of these activities might be delegated, the province should maintain a high degree of involvement in information-gathering, standard-setting, monitoring, and enforcement.
Sufficient funding	Financial sustainability	The integrated provincial framework for collaborative water governance should include specific funding mechanisms available to local governments or regional bodies to use for water management activities. This funding should enable sustainable governance processes; accordingly, the funding mechanism should need to take the different capacities of specific jurisdictions to mobilize resources.
Manageable scope of activities	Sufficient time to complete process and optimal geographical scope	The geographical scope of the various delegated water governance bodies should correspond to watershed boundaries, the now commonly accepted and scientifically justified scale for water management.
Policy feed-back	Shared decision-making	Authority over water decisions should not be delegated in the absence of a set of provincially applicable rules for water management. However, once delegation does occur, to avoid frustrating the efforts of local groups who invest substantial time, energy and money in collaborative planning processes, the delegated governance bodies should be granted decision-making authority as appropriate. Where the province retains decision-making power, it must commit to implement the results from these processes in an accountable and transparent manner.

APPENDIX 1. CHRONOLOGIES OF DEVOLVED WATER GOVERNANCE IN ONTARIO AND ALBERTA

ONTARIO

Ontario has a long history of watershed management, through establishment of watershed based organizations called Conservation Authorities (CAs) in the 1940s, to endorsement of a watershed based approach by an influential Commission of Inquiry in 2002, to the enshrinement of watershed based plans in recent laws and regulations. Ontario has made many changes to its water laws and policies in recent years; only those changes related to devolved governance are listed in this Chronology.

1930-late 1940s Poor land, water, and forestry practices led to environmental degradation in Ontario in the 1930s and 1940s. A group of eight municipalities banded together to form the Grand River Conservation Commission in 1932, the first example of a Conservation Authority type organization in Ontario.

1946 The *Conservation Authorities Act* was passed by the Ontario government. It provided the means by which the province and the citizens and municipalities of a watershed area could undertake programs for natural resource management.

1993 The Province published a set of 3 documents that recognized the importance of watershed management and encouraged, but did not require, municipalities and CAs to undertake a water management plan.

1995 By 1995, 87 watershed management projects had been initiated in Ontario.

May 2000 Drinking water contaminated with ***E.coli*** and ***campylobacter*** bacteria killed seven people and made over 2,300 ill in Walkerton, Ontario.

2000- 2002-Walkerton Inquiry:

Following the Walkerton tragedy, the government of Ontario established the Walkerton Inquiry, led by Justice Dennis O'Connor. In Part 1 of the Inquiry, which examined the physical causes of contamination, the Commission heard testimony from 114 witnesses during 95 days of hearings spread over nine months.

Part 2 of the Inquiry focused on recommendations for the future safety of drinking water in Ontario. There were altogether three types of meetings in Part 2: town hall meetings, expert meetings, and public hearings. A number

of steps were taken to ensure a broad and inclusive process: 36 parties were granted formal standing, 25 research papers were commissioned, which were all peer reviewed, a Research Advisory Panel was appointed consisting of leading practitioners and academics in fields relating to the issues being examined by the Inquiry, and expert opinions were obtained from 2 drinking water veterans who had no stake in the Ontario system, and who toured 27 water facilities around Ontario.

Commissioner O'Connor's findings were released in two volumes. ***The Report of the Walkerton Inquiry, Part One: The Events of May 2000 and Related Issues*** reported on the events in Walkerton and the causes of the tragedy. It was released in **January 2002** and contained 28 recommendations. ***Part Two: A Strategy for Safe Drinking Water*** was released in **May 2002** and contained 93 recommendations.

The final budget estimate for the Inquiry was approximately $9,458,200.

In chapter 4 of Part 2 of the report, Justice O'Connor discussed the watershed approach as "the ecologically practical unit for managing water" and suggested watersheds were the appropriate level for planning to help balance the competing needs of local decision makers and the province's need for consistency across the province. Justice O'Connor also recommended that source protection plans should be a subset of broader watershed management plans, and that these should be carried out under the jurisdiction of Ontario's Conservation Authorities.

2002- 2004 Following the Walkerton Inquiry, consultation began on the development of Ontario's *Clean Water Act*. The Act was based on three years of extensive stakeholder consultations with over 300 associations and individuals and close to 600 written submissions.

November 2002 The Ministry of the Environment established the Advisory Committee on Watershed-based Source Protection Planning.

April 2003 The Committee's report, *Protecting Ontario's Drinking Water: Toward a Watershed-based Source Protection Planning Framework*, was released, with 55 recommendations addressing a range of topics on source protection, including: fundamental issues (accountability, principles, legislation, gaps, new powers and responsibilities), the planning process, risk management, and information management. This report also recommended the establishment of additional multistakeholder expert advisory Committees.

December 2003 The government acted on the recommendation of the Advisory Committee and established two expert committees to provide

advice in a number of areas that required research before the province continued with the development of its source protection legislation:

- A 16-member Technical Experts Committee to provide advice on a process for assessing threats to sources of drinking water; and,
- A 21-member Implementation Committee to provide advice on how best to implement strategies to protect watersheds, and to examine innovative funding mechanisms and approaches.

February 2004 The White Paper on Watershed-based Source Protection Planning, was developed by the Ontario Ministry of Environment. The three purposes of this white paper were a) To inform Ontarians of the proposed approach for the development of a watershed- based source water protection program, including how stakeholders and the public would be involved; b) To describe the legislative framework proposed for the development and approval of source water protection plans; and c) To examine ways of ensuring Ontario has a sustainable supply of water by enhancing its management of water takings, including improvements to the Ministry's water takings program and the development of a framework governing how those who take water should be charged.

March 2004 The Ministry held a series of eight consultation sessions on the White Paper across the province. Two information sessions were held with First Nations.

June 2004 The Ministry developed draft legislation for source protection planning, posted on the Environmental Registry for public comment in June 2004.

November 2004 Two extensive reports from the Technical and Implementation Committees were delivered to the Minister of the Environment.

November 2004- February 2005 The ministry held seven sectoral roundtables on the two reports from the technical and implementation committees between November 2004 and February 2005.

December 2005 The Ministry introduced Bill 43 (the proposed Clean Water Act), and a notice discussing: 1) the establishment of Source Protection Areas/Regions and lead Source Protection Authorities, 2) Source Protection Committees and 3) Terms of Reference, to be addressed in regulations implementing the Clean Water Act was posted on the Environmental Registry for public comment. As a result of that Proposal Notice, the Ministry received 37 comments.

February – March 2006 The Ministry held eight sectoral roundtables with respect to Bill 43.

May 18, 2006 Following Second Reading on May 18, 2006 the Bill proceeded to the Standing Committee on Social Policy.

August 21-25, 2006 Public hearings of the Bill were held in Walkerton, Toronto, Cornwall, Bath and Peterborough.

September 11-12, 2006 Clause by clause review of the Bill took place.

October 18, 2006 The Clean Water Act, 2006 passed third Reading.

October 19, 2006 The Act received Royal Assent. The **Clean Water Act** is available online at http://www.e-laws.gov.on.ca/DBLaws/Source/Statutes/English/2006/S06022_e.htm.

Fall 2006- winter 2007 The ***Clean Water Act, 2006***, establishes the Ontario Drinking Water Stewardship Program (Stewardship Program), a new program that will help farmers and small rural businesses take action to reduce threats to local drinking water sources. To help create the framework that will govern this program, the Ontario government established an eleven member advisory panel to provide expert advice on how the funding program should be administered and allocated in future years. The advisory panel met for six full-day meetings throughout the fall of 2006 and winter of 2007.

June 14, 2007 The Final Report of the Advisory Panel on the Ontario Drinking Water Stewardship Program was posted on EBR website.

July 2007 The *Clean Water Act* and an associated set of five regulations were proclaimed into force by the Lieutenant Governor of Ontario.

ALBERTA

Alberta similarly has experience with devolved water governance at a regional scale based on its long history with irrigation districts. The introduction of watershed based management and governance partnerships are more recent developments, and grew out of an overhaul of the provincial water law, through a review process which began in 1991 and was completed in 1996. This was followed by a comprehensive strategy, *Water for Life: Alberta's Strategy for Sustainability,* designed to put a new water management approach into effect, with a specific focus on partnerships.

1996 Alberta *Water Act*. The Alberta *Water Act* includes several key provisions, including an obligation for the Minister to establish a framework for water management planning for the Province by December 31, 2001, (s.7(10)) based in part on consultations with the public. The Act also requires the Minister to establish a strategy for the protection of the aquatic environment as part of the framework for water management planning for the Province, and contains details on the content of water management plans.

1999 Alberta Environment, Framework for Water Management Planning. This document states that effective integrated resource management is: comprehensive and integrated, proactive and predictable, responsive and flexible, consultative, fair, knowledge-based, timely and results-oriented, accountable, clear, and understandable. This document and the *Water Act* are the foundation from which the "Water for Life" strategy was later developed.

2000 Lorne Taylor was appointed as the Minister of Environment. One of his priorities was to increase awareness of water issues in the province and to put the tools in the *Water Act* to use. The first public consultation was with the 'ideas group' - a group of Albertans who were invited to identify ideas for a broad public discussion on water, and included representatives from aboriginal groups, environment, business, hydropower, agriculture, municipal government, water reclamation technology, fisheries, academia, water treatment, and wildlife. Governance at the watershed level was a concept that emerged during the 'ideas group' discussion, remained in subsequent consultations, and eventually became of one of the Water for Life principles. The concept also met with support from consulted participants, who were enthusiastic about the consultation process and wished to have more influence in local decision-making around water; this was one way to meet that demand. In addition, at the time of the consultation the Bow River Basin Council already existed, so there was a model to work from.

2001 Alberta's Water Strategy: A Summary of Ideas, December 2001. This report based on issues raised by the "ideas group" recommended concepts for future consultations

May 2002 Water For Life: Pooling Your Ideas. Summary of Consultation Results This document summarized the results of a six week consultative process involving fifteen community workshops, over two thousand surveys, and one thousand random phone calls. Participants were asked to comment on four proposed strategy objectives: 1) healthy, sustainable ecosystems (e.g. watersheds, rivers, streams, lakes, wetlands and groundwater); 2) a safe, secure drinking water supply; 3) reliable, quality water supplies for a sustainable economy; and 4) the knowledge necessary to make effective water management decisions. Areas of

particular concern to participants included the possibility of water diversions and concerns about the prioritization of water allocation over ecosystem protection.

August 2002 Water for Life: Minister's Forum on Water. Summary Report of Advice Received This report summarizes input from a two-day workshop involving 100 participants, and has nine recommendations: 1) There should be significant emphasis on education and involvement of both stakeholders and the public in water management planning and implementation; 2) There should be significant emphasis on watershed planning and management; 3) The provincial government must specifically define the quality and quantity of water required in natural water systems to ensure environmental sustainability and must ensure this allocation is maintained; 4) The provincial government must ensure that Albertans are not exposed to unsafe drinking water; 5) Albertans must implement improved water conservation practices; 6) The provincial government should continue to prevent pollution and contamination of water. Improved regulations, monitoring and enforcement are recommended; 7) A long-term forecast of supply along with improved demand and risk management approaches are needed to ensure good management in the future; 8) The provincial government must assure that "First in Time, First in Right" (FITFIR) allocations are secure, and yet must also improve allocation criteria and ensure flexibility to account for future needs and conditions; and 9) The provincial government must be accountable for the safety and sustainability of water in Alberta. Increased staff and skills are essential to future success.

November 2003 Water for Life: Alberta's Strategy for Sustainability. Available online at: http://environment.gov.ab.ca/info/library/6190.pdf The Strategy is the result of these consultations. It has three goals: 1) Safe, secure drinking water supply; 2) Healthy aquatic ecosystems; and 3) Reliable, quality water supplies for a sustainable economy. To meet these goals, the following key directions and actions are outlined in the strategy: knowledge and research, partnerships (between citizens, stakeholders, municipalities, regions, and the province), and water conservation. Success will be measured by assessing drinking water safety, water quality, and water use efficiency and productivity.

2005 Enabling Partnerships: A Framework in Support of Water for Life: Alberta's Strategy for Sustainability. Available online at: http://www.waterforlife.gov.ab.ca/docs/EnablingPartnerships.pdf

The purpose of this document is to "describe how landowners, communities, organizations, industry, and governments can get involved in timely and effective actions for the sustainable management of Alberta's watersheds." It describes the overall concepts of partnerships, and outlines roles for

watershed stewardship groups, WPACs, the Alberta Water Council, and Alberta Environment.

2006 Alberta Water Council Shared Governance and Watershed Planning Framework Project Team. The Alberta Water Council identified in their 2006-07 Operational Plan the need to develop a shared governance framework and a watershed management planning framework to define the relationship of these three levels of partnerships to each other, their relationships to existing decision-making authorities (including all orders of government) and the relationship of watershed planning to other resource and development planning. The AWC Project Team prepared Terms of Reference for this project. The outcome will be a document that describes the roles, responsibilities, accountabilities and relationships involved in shared governance and the process by which shared governance can be established and maintained. A budget of $120,000 was allotted for preparing the document, which is scheduled to be completed by the end of 2007 and released in 2008.

2007 The Alberta Water Council starts public consultation for the renewal of ***Water for Life: Alberta's Strategy for Sustainability***. March 2007 marked the end of the short-term (three-year) time frame set in the 10-year implementation plan for the strategy.

APPENDIX 2. DESCRIPTION OF WATER GOVERNANCE EXAMPLES

Alberta Watershed Planning and Advisory Councils (Ex: Bow River Council)	
Start date	Alberta's *Water for Life* Strategy was initiated in 2003 and encouraged the creation of Alberta Watershed Planning and Advisory Councils (WPACs). However, some watershed councils existed prior to the *Water for Life* strategy, such as the Bow River Basin Council (BRBC), which has been in existence since 1992. The BBRC is a multi-stakeholder, charitable organization dedicated to protecting the waters of the Bow River Basin. In December 2004, the Council was recognized by the Provincial Government as the Watershed Planning and Advisory Council (WPAC) for the Bow Basin.
Number of Examples	There are currently eight WPACs; more may be formed as the *Water for Life* Strategy continues.
Motivation/Driver for creation	The BRBC was established in 1992 in response to recommendations from the Bow River Water Quality Task Force, which was created to respond to concerns of several agencies and water users regarding deteriorating water quality in the Bow River. The government made partnerships a key part of the Water for Life strategy, based on its belief that to be effective at watershed management, governments "need to engage all interests that use or impact our water resources." (Enabling Partnerships, 2006)
Governance Structure:	
• Decision-making process	WPACs are overseen by the Alberta Water Council, which is a provincial-level group of 25 volunteers who provide advice to the provincial government on water-related issues. Among other things, WPACs are charged with creating 'Watershed Management Plans', which, once approved, are legally binding. WPACs do not have regulatory authority, but can make recommendations to those bodies that do. The BRBC is one of two WPACs - the other is the North Saskatchewan Watershed Alliance – that is progressing in development of their Watershed Management Plans; the other six are relatively new and have only recently begun the process. The BRBC has a decision-making procedure, which sets quorum at 51% of the Committee's membership, strives fro consensus, but in the event that consensus is not reached, a vote will be taken by a show of hands.
• Spatial unit of organization	*Water for Life* is province-wide. WPACs are watershed-based. The Bow River Basin is home to more than one million Albertans, and is the most highly populated river basin in Alberta. It includes Calgary, Banff and Lake Louise.
• Which stakeholders are included?	Membership in the Bow River Basin Council is open to any interested individual or organization, and is categorized as follows: • Commercial/Industrial • Individual Public Members • Licensees • Municipal Government

	• Non-profit/Academia • Regulatory/Administrative/First Nations There is no membership fee although a voluntary contribution is appreciated. Each WPAC is expected to be multistakeholder. The Bow River Basin Council is a multistakeholder group. Membership is open to the public and there is a voluntary membership fee of between $30 and $100 dollars.
• How are stakeholders included?	Members elect the Board of Directors. Any member may seek election to the Board of Directors within his or her membership sector. The Council is governed by a 12 member Board of Directors, with two directors elected from each of the six membership categories. The Board elects the Chairman and the First and Second Vice Chairs from its members. Members of the Bow River Basin Council are expected to take an active role in the organization. The BRBC has an Education and Communications Committee, and a Policy and Legislation Standing Committee. For preparation of the Watershed Management Plan, the BRBC has formed a 21 person Steering Committee, with defined Terms of Reference, a mandate to oversee the development of the plan, and directing the plan's coordinator, a time frame for delivering a draft of the Plan by the end of November 2007. It has also formed a 21 person Technical Committee with similar decision-making powers, whose role is to among other things identify water quality objectives for critical rivers, reaches and/or tributaries. The WQOs will include thresholds (i.e., values not to be exceeded), targets (i.e., values to strive for longer-term), and associated timelines. This Committee reports to the Steering Committee.
• Mandate and primary activities (consultation, planning, etc)	• River Basin Planning and Management: The Bow River Basin Council has recently begun developing a watershed management plan for the Bow Basin. • Production of State of the Basin reports which address water quality and quantity as well as vegetation, wildlife and human use of the land, linking the river to its watershed. • Expansion of monitoring programs • Greater awareness and control of both rural and urban runoff: Other localized projects include the Upper Elbow project (a series of open houses generating recommendations for Alberta Environment in 2000) and the Urban Stormwater Management project (which culminated in a web-based document on stormwater management in Southern Alberta).
• Funding (gathering and distribution of revenues)	Provincial funding is available to start up and sustain WPACs At the WPAC level, projects are eligible to apply for funding to the BRBC as long as they are registered as a not-for-profit organization. The BRBC will fund up to 50% of a project, to a maximum of $10,000. The annual budget of the BRBC is The budget for preparation of the watershed management plan is $140,000.
• Relevant legislation and/or policies creating/enabling the organization	The Alberta Water Act does not refer to WPACs. It does require the Minister of Environment to establish a framework for water management planning for the province, which must include a strategy for the protection of the aquatic environment. The framework that has been put in place is the *Water for Life* Strategy (2003)

	which identifies three types of partnerships integral to achieving stewardship of Alberta's water: • Provincial Water Advisory Council • Watershed Planning and Advisory Councils • Watershed Stewardship Groups WPACs recommend Watershed Management Plans to the province. Once the province (MOE) approves the plan, it is legally binding.
Resources:	Bow River Basin Council: http://www.brbc.ab.ca/ BRBC, 2005 Report on the State of the Bow River Basin BBWMP Steering Committee Roles and Responsibilities BBWMP Technical Committee Roles and Responsibilities Enabling Partnerships – A Framework in Support of Water for Life, (Alberta Environment, 2006) Water for Life Strategy: http://www.waterforlife.gov.ab.ca/docs/strategyNov03.pdf Water for Life site: http://www.waterforlife.gov.ab.ca/ Meghan Beveridge's MA thesis, "The Strengths of, and Barriers to, and Recommendation for, Alberta's *Water for Life*", pages 195-200. Available online at: http://etd.uwaterloo.ca/etd/mbeverid2006.pdf Wenig, Michael. "Thinking Like a Watershed", LawNow , 2004 Wenig, Michael. "Making Sense of New Terms" LawNow, 2005
Drivers/barriers, benefits/disadvantages	WPACs are considered to be inclusive, participatory collaborative models. They use local involvement to generate local knowledge, and combine this with scientific and expert data. The BRBC has produced important reports about the state of the basin, compiling data on water licence allocations and water quality objectives. Its work on the watershed management plan focuses on setting water quality objectives, and making recommendations to regulatory agencies responsible for implementing these WQOs. The disadvantages is that these councils have not been established province-wide, especially in areas of key ecological concern, like the northern part of the province where oil sands activity is concentrated.
Other	

BC Hydro Water Use Plans	
Start date	The WUP Program began in 1998.
Number of Examples	As of 2004, BC Hydro had completed consultation on 23 plans, and 20 of these had been submitted to the Water Comptroller for review (Matthews and Hill 2004)
Motivation/Driver for creation	The Water Use Planning Program is the result of challenges (increasing public and government concern and pressure) and opportunities (the success of the initial experimental water management reviews) in the 1990's stemming from a shift in public opinion that previously supported a primarily economic view but later shifted to include environmental and social concerns (Matthews and Hill 2004).
Governance Structure:	
• Decision-making process	A multi-stakeholder consultative committee was established for each area. Consensus on the committee is desirable but not required. The Committee's report forms the basis of BC Hydro's draft Water Use Plan. This WUP is submitted to all relevant provincial and national regulatory authorities for review, revision (if necessary), and acceptance. The final outcome is a WUP, which is a detailed set of operational instructions for a specific facility, focusing on the reservoir storage, timing and amount of water releases through various dam or power generation structures (Matthews and Hill 2004).
• Spatial unit of organization	All those affected by a single hydroelectric facility.
• Which stakeholders are included?	Participants on each [WUP] committee include federal, provincial and municipal government agencies, First Nations, environmental interest groups, local citizens and other public interests. Unlike most traditional consultation, this process has BC Hydro management represented at the table on an equal basis to all other participants (Matthews and Hill 2004),
• How are stakeholders included?	Stakeholders were invited by BC Hydro to participate. Public notice about the process was issued, and representatives from different sectors invited to take part.
• Mandate and primary activities (consultation, planning, etc)	"The overall goal of the Water Use Planning program is to *find a better balance between competing uses of water that are socially, environmentally and economically acceptable* to British Columbia. The intent was to create agreements (water use plans) that are sustainable both in terms of: a) *Outcome* – each Water Use Plan balances water uses across all three bottom lines, and b)*Process* - the agreements are expected to be successfully implemented and receive continued regulatory and public support over time because they were developed using a participatory process based on solid science (Matthews and Hill 2004).
• Funding (gathering and distribution of revenues)	Over six years from 1998-2004, BC Hydro's Water Use Planning program cost approximately $26 million. Funding came from provincial and federal government partners who supported the program through staffing and other resources. The plans' implementation will cost BC Hydro $50 M per year – or about y 1.5% of annual revenue (Matthews and Hill 2004).
• Relevant legislation and/or policies creating/enabling the organization	- BC *Water Act* (1996) - Canada Fisheries Act (1985) The BC WUP guidelines list relevant legislation as follows: BC:

	B.C. Environmental Assessment Act (BCEAA) *Fish Protection Act* *Water Protection Act*8 *Park Act* *Wildlife Act* *B.C. Utilities Commission Act* *Conservation and Heritage Act* Forest Practices Code Land and Resource Management Plans (LRMPs) Liquid Waste Management Plans Federal: *Canadian Environmental Assessment Act* *Navigable Waters Protection Act* *International Rivers Improvement Act* Columbia River Treaty Boundaries Water Treaty
Resources:	G. Matthews and E. Hill (2004), *Balancing Water Use: Water Use Planning at BC Hydro* - available online Province of British Columbia Water Use Plan Guidelines (1998) – available online Quadra Planning Consultants Ltd., Regional Consulting Ltd. and L. Nowlan (2004), *Preliminary Review of Fisheries Conservation Gains within BC Hydro's Water Use Planning Process.* Report prepared for Watershed Watch Salmon Society, British Columbia.
Drivers/barriers, benefits/disadvantages	A 2004 report concluded that WUPs appear to be better than the system that was in place before, but that it was too early to tell if the process was adequate for protecting fish resources (Quadra and Nowlan 2004)
Other	

BC Water Act Allocation and Licensing	
Start date	The Water Act was first passed in, and has been updated many times since that date, but not comprehensively overhauled.
Number of Examples	As of 2004, the number of surface water licences in the province was approx. 40,000.
Motivation/Driver for creation	The Water Act licensing system was developed to ensure the orderly allocation of surface water for the economic and social development of the province. (Stewardship of the Water, 1993)
Governance Structure:	
• Decision-making process	Allocation occurs when a licence application is made.
• Spatial unit of organization	All those affected by a single hydroelectric facility.
• Which stakeholders are included?	Licence applicants are the primary stakeholders. Provincial employees in Ministry of the Environment, federal Fisheries, may be involved.
• How are stakeholders included?	Licence applicants are included in the application process. The province has developed procedures to accommodate the duty to consult First Nations whose interests may be affected by an order or licence decision. Other members of the public have limited involvement. Appeals of licences and orders to the BC Environmental Appeal Board are limited to the person who is subject to the order, an owner whose land is likely to be physically affected by the order or a licensee, riparian owner or applicant for a licence who considers that their rights are or will be prejudiced by the decision. S. 92 Water Act
• Mandate and primary activities (consultation, planning, etc)	Licensing of water rights is the primary activity. The Water Act has no specific 'purposes' section.
• Funding (gathering and distribution of revenues)	In BC application fees range from $100 for a domestic use licence, to $2000 for commercial water bottling of 200 cu.m3 or more a day to $10,000 for pulp mills and power generation. The highest agricultural licence application fee is $400. When a licence is issued in BC, water rental fees are assessed.
• Relevant legislation and/or policies creating/enabling the organization	- BC *Water Act* (1996)
Resources:	Province of British Columbia, Stewardship of the Water, Water Allocation, 1993
Drivers/barriers, benefits/disadvantages	Benefits of existing system include the first-in-time, first-in-right provisions of the Water Act have provided an important part of the legal basis protecting agricultural lands in the Okanagan Basin. Water that is diverted permanently from agriculture to development is near to impossible to retrieve. The feasibility of maintaining lands in the ALR depends on adequate water reserves remaining available; reserves sufficient to support a range of crop varieties under all but extreme drought conditions, and that account for currently fallowed or unrelated fields. (OBWB,2006)

Edwards Aquifer Authority, Texas	
Start date	1996
Number of Examples	N/A
Motivation/Driver for creation	Not clear.
Governance Structure:	
• Decision-making process	
• Spatial unit of organization	The Edwards Aquifer.
• Which stakeholders are included?	Elected Officials from the County level.
• How are stakeholders included?	A seventeen member board of directors sets policy for the aquifer. Of the seventeen board members, fifteen members are elected from the region and have voting power on the board. The other two are not elected and cannot vote on the board. The EAA employs a staff made up of hydrogeologists, environmental specialists, water resource planners, information and education specialists, and support personnel. These board members and staff are divided onto seven teams: an executive team (the board of directors), an administrative team, an aquifer science team, a resource management team, a compliance team, a public affairs team, and a resource protection team.
• Mandate and primary activities (consultation, planning, etc)	Mission Statement: "The Edwards Aquifer Authority manages, enhances, and protects the Edwards Aquifer system." The EAA has set eight goals for the 2006-2009 period. These are: "1) Obtain and Comply with Endangered Species Act Permit; 2)Establish Groundwater Withdrawal Permits Amounts; 3) Implement and Expand Water Quality Initiatives; 4) Amend Demand Management/Critical Period Management Rules; 5) Permit and Build Recharge Facilities (Both Public and Private); 6) Nurture and Develop Edwards Aquifer Authority Staff; 7) Raise Public Awareness of Edwards Aquifer Authority's Mission; and 8)Identify, Prioritize, and Schedule Our Science/Technology Research Program Components." (website)
• Funding (gathering and distribution of +revenues)	Funding for all Authority programs comes primarily from an aquifer management fee. Agricultural users are charged $2.00 per acre foot; non agricultural users are charged $37.00 per acre foot. Total revenues for 2006 were $15.4 million. Each team (see above) has a specified budget, with amounts ranging from $3.4 million (administrative team) to the $322,000 (human resources team).
• Relevant legislation and/or policies creating/enabling the	Edwards Aquifer Authority Act (1993)

organization	
Resources:	Official Website: http://edwardsaquifer.org EAA 2007 Budget: http://edwardsaquifer.org/pdfs/Budget/2007%20Adopted%20Budget.pdf
Drivers/barriers, benefits/disadvantages	
Other	

MacKenzie Valley Land and Water Board	
Start date	1998
Number of Examples	One – it is a single board.
Motivation/Driver for creation	Increasing Environmental concern led to the 1995 *Canadian Environmental Assessment Act (CEAA)* – this new regulation applied to areas under Federal jurisdiction. However, the existence of Aboriginal land claim settlements have made environmental assessments in the North more complex. In the Yukon, the territory developed a process for managing renewable and non-renewable resources; in Nunavut the land claim settlement established a process for issuing land use permits and water licences as well as a process for dealing with environmental concerns (OAG 2005). In NWT, the NVLWB was the mechanism established to bridge this gap – it was established in 1998.
Governance Structure:	
• Decision-making process	The Board (see makeup below) reviews applications for land and water use requests for the development of renewable and non-renewable resources in the MacKenzie Valley. Current pending applications, for example, include applications from oil and gas exploration companies, timber harvesting companies, and mineral exploration companies.
• Spatial unit of organization	The MacKenzie Valley, although representatives to the board are chosen based on First Nations' affiliation.
• Which stakeholders are included?	Representatives from the Gwich'in Land and Water board, the Sahtu Land and Water board, and the Wek'eezhii Land and Water Board (added 2006), First Nations' representatives, a North West Territories representative, and one chairperson.
• How are stakeholders included?	The MVLWB board consists of the following: • Two permanent, five-member regional panels, the Gwich'in Land and Water Board (GLWB) and the Sahtu Land and Water Board (SLWB), and a permanent, four-member regional panel, the Wek'eezhii Land and Water Board (WLWB); • Four additional members - two nominated by First Nations, one nominated by the Government of the Northwest Territories and one other; and • A chairperson appointed by the federal Minister, nominated by a majority of the members.
• Mandate and primary activities (consultation, planning, etc)	Mandate: "To regulate the use of land and waters and the deposit of waste so as to provide for the conservation, development and utilization of land and water resources in a manner that will provide the optimum benefit to the residents of the settlement area and of the Mackenzie Valley and to all Canadians." (website) "The MVLWB has three main functions: 1) Issuing land use permits and water licenses in the unsettled claims area until the balance of the land claims are settled in the Mackenzie Valley; 2) Processing transboundary land and water use applications in the Mackenzie Valley; and 3) Ensuring consistency in the application of the legislation throughout the Mackenzie Valley" (website). In looking at the MVLWB annual reports, the board's activities consisted of issuing Land Use Permits and Water Use Permits (33 and 13 in 1996, respectively) and renewing and/or amending existing permits.

• Funding (gathering and distribution of revenues)	According to the 2005 report of the Auditor General, the MBLWB is funded entirely by the Federal department of Indian and Northern Affairs. Distribution of funds is not explicit in the Board's annual reports. This issue was addressed by the 2005 Auditor General Report, which stated that "the annual reports of each board contain little information to demonstrate the board's accountability for managing their responsibilities in the best interests of the residents of the Mackenzie Valley and all Canadians. Nor has the Department requested that they do so." (OAG, 2005)
• Relevant legislation and/or policies creating/enabling the organization	*MacKenzie Valley Resource Management Act* (1998) MacKenzie Valley Land Use Regulations (1998) *Northwest Territories Waters Act (1992)* Northwest Territories Waters Regulations (1993) *Canadian Environmental Assessment Act* (1995)
Resources:	MVLWB Website: http://www.mvlwb.com (includes annual reports) Indian and Northern Affairs Canada (2005) — *Development of Non-Renewable Resources in the Northwest Territories*. Report of the Auditor General. Available online at http://www.oag-bvg.gc.ca/domino/reports.nsf/html/20050406ce.html
Drivers/barriers, benefits/disadvantages	
Other	

Manitoba Clean Environment Commission	
Start date	
Number of Examples	N/A
Motivation/Driver for creation	To provide a forum for public participation in environmental assessment decisions on larger developments such as large water management projects, forest harvest licences and wastewater management. These hearings are often technically involved, can be lengthy and usually result in licensing recommendations to the Minister requiring public hearings, and other highly contentious or public policy issues to ensure fair airing of all relevant information to assist decision makers the Minister decides would benefit from a hearing. These hearings are usually much shorter and less involved. An example of a pipeline proposal was examined in detail.
Governance Structure:	
• Decision-making process	
• Spatial unit of organization	Political: the province of Manitoba
• Which stakeholders are included?	The entire public.
• How are stakeholders included?	The MCEC is a mechanism designed to include stakeholders, who are included through public hearing provisions. The Act also authorizes intervenor funding to help members of the public make submissions at public hearings.
• Mandate and primary activities (consultation, planning, etc)	Mandate: "to provide an avenue through which the public can participate in the decision making process regarding the environment in Manitoba." (website) Primary Activities: Public hearings, investigations, and mediation. From website: "Our principal role is to provide opportunities for the Manitoba public to play a part in ensuring the protection of our environment. This is done by providing a forum at which the public can participate in environmental assessment and decision-making, and in offering advice and recommendations to the government. As a rule, this is done at the request of the Minister of Conservation who will ask us to review any potential environmental impacts presented by proposed developments."
• Funding (gathering and distribution of revenues)	The MCEC is fully funded by the province. An average of $342,000 is spent annually on operating costs, and average hearings cost between $300,000 and $500,000. If expenditures exceed the annual budget, costs are supplemented from the province. Any unspent budget money is returned to the province. The exception to this system is 'Class 3' projects – mega-projects with billion dollar price tags. In these cases, hearings cost over $1 Million, and the province is entitled to recover the cost of hearings form the proponent (personal communication). According to annual reports from the provincial ministry of conservation, the annual budget for the MCEC in the last five years is as follows: -2005-2006: $585,500 (of which $370,900 was spent because no hearings were held that year)

	-2004-2005: $609,400 (of which $497,700 was spent because Floodway Expansion Class 3 hearing costs were billed directly to the Floodway Authority. -2003-2004: $622,800 (final amount spent: $669,300) -2002-2003: $537,300 (final amount spent: $535,200) -2001-2002: $536,100 (final amount spent: $587,200)
• Relevant legislation and/or policies creating/enabling the organization	-Enabling legislation: *The Environment Act* (1988), s. 6 -"The Participant Assistance Regulation 125/91 facilitates the provision of funds to interested parties to assist in their representation at public environmental hearings." (website) -"As prescribed in The Contaminated Sites Remediation Act, passed in 1997, the Clean Environment Commission has certain responsibilities whereby the hearing process can be invoked in order to review questions of liability for the remediation of contaminated sites" (website) -The Sustainable Development Act was proclaimed in 1997 and applies to all government departments and related activities, including Crown corporations. The act sets out Principles and Guidelines for sustainable development as well as requires the development of an implementation strategy. In reviewing proposals, the Clean Environment Commission must take into account these principles and guidelines, especially when reviewing Crown sponsored projects.
Resources:	http://www.cecmanitoba.ca Annual Reports from the Manitoba Ministry of Conservation, available online at http://www.gov.mb.ca/conservation/annual-report/conservation/index.html Personal contact with MCEC staff. Manitoba Clean Environment Commission, Pembina Valley Water Cooperative Supplemental Groundwater Supply System, Winnipeg: CEC, 2007. Manitoba Water Stewardship, Project Summary- Pembina Valley Water Cooperative Supplemental Groundwater Supply System, Winnipeg: Government of Manitoba, 2007.
Drivers/barriers, benefits/disadvantages	
Other	

Murray Darling Basin Commission	
Start date	Discussions relating to the basin started as early as 1902; the first formal agreement was written in 1915; this was amended in 1982 and again in 1984 and eventually the Murray Darling Basin Commission (MDBC) formed was created in 1992
Number of Examples	N/A
Motivation/Driver for creation	Drought, lack of water.
Governance Structure:	
• Decision-making process	Ministerial Council is the primary body responsible for providing the policy and direction needed to implement the Murray Darling Basin Initiative. These policies are carried out by the Murray Darling Basin Commission. In addition, there are a number of other inter-jurisdictional agreements in the basin (see http://www.mdbc.gov.au/about/other_agreements) that are in place and that run in parallel to the Murray Darling Basin Initiative.
• Spatial unit of organization	Murray Darling River Basin
• Which stakeholders are included?	Governments (federal, state) and the community. The community is represented by the 'Community Advisory Committee' (CAC): "a formally appointed group of people with a wide range of expertise and with networks throughout the Basin. The role of the CAC is to advise the Ministerial Council, from a community viewpoint, on critical natural resource management issues including indigenous issues within the Basin." (website)
• How are stakeholders included?	There are six governments involved: The Australian federal government and five Australian state governments. Each government has three representatives on the Murray Darling Basin Ministerial Council. The MDBC is the executive arm of the Murray-Darling Basin Ministerial Council and includes not only the ministers, but also the Community Advisory Committee. Murray Darling Basin Ministerial Council members are elected officials; CAC members are appointed for four year terms and are selected on the basis of their skills, expertise and networks; these two groups make up the Murray Darling Basin Commission. Also see helpful diagram at: http://www.mdbc.gov.au/about/murraydarling_basin_initiative__overview#fig1
• Mandate and primary activities (consultation, planning, etc)	Purpose of the enabling agreement is: "to promote and co-ordinate effective planning and management for the equitable, efficient and sustainable use of the water, land and other environmental resources of the Murray-Darling Basin" (website) The governance structure of the MDBI is the most complex of all the examples studied, and is currently undergoing a governance and finance review, which will include the future operating model for the Commission; the case for creating a new legal entity to hold and operate water entitlements; and better alignment within the

	Basin of responsibilities, asset ownership, and funding contributions with decision-making structures and authorities.
• Funding (gathering and distribution of revenues)	The MDBC is funded primarily by the Australian Government, with additional revenue coming from donations, interest, and 'other income'. According to the MCBC's 2006 financial statement, the annual budget for 2005 was $95 Million (Australian Dollars). In 2006, this was supplemented by a one-time federal grant of $500 Million.
• Relevant legislation and/or policies creating/enabling the organization	-1992 Murray-Darling Basin Agreement -The New South Wales-Queensland Border Rivers Agreement 1946 (in the Basin, but a separate agreement); -The Snowy Mountains Hydro-Electric Power Act 1949 (dictates use of water for hydropower between states); -The Victoria-South Australia Groundwater (Border Agreement) 1985
Resources:	Murray Darling Basin Commission Site: http://www.mdbc.gov.au/ Murray Darling Basin Commission Income and Expenditure Statement: http://www.mdbc.gov.au/subs/annual_reports/AR_2005-06/pdf/v5reader/financial_statements.pdf
Drivers/barriers, benefits/disadvantages	
Other	

Okanagan Basin Water Board	
Start date	1969
Number of Examples	N/A
Motivation/Driver for creation	Growing concerns about pollution in the lakes; over allocation
Governance Structure:	
• Decision-making process	
• Spatial unit of organization	Okanagan Watershed
• Which stakeholders are included?	Elected officials from regional districts are appointed to sit on the OBWB board.
• How are stakeholders included?	The Okanagan's three regional districts are each represented by three directors on the OBWB board. The board also includes representatives from the Okanagan Nation Alliance, the Water Supply Association of B.C., and the Okanagan Water Stewardship Council. These new members vote and participate in all but the financial decisions of the Board. (OBWB website)
• Mandate and primary activities (consultation, planning, etc)	"The primary work of the Board has been to deliver programs that can only be properly undertaken at a basin-scale. These programs – including the Eurasian Watermilfoil Control program, the Wastewater Treatment Grant program and the Water Quantity and Quality Improvement Grants program – are supported through annual property tax assessments on lands within the Okanagan Basin watershed." (website)
• Funding (gathering and distribution of revenues)	The OBWB receives its funding through property taxes levied by the three regional districts in the Okanagan. Local government can tax only through assessed property values and as assessments rise so does the amount generated by a given cents per $1000 of tax. (personal communication). Funds are spent on specific projects, some of which have a reserve fund. The three current projects are: sewer improvement grants, Eurasian watermilfoil control program, and water management (of these three, the latter receives 2 cents per $1000 assessed value of funding.
• Relevant legislation and/or policies creating/enabling the organization	"The Board does not have regulatory power, but seeks to improve water management by providing a basin-wide perspective and improving communications between regions to reduce fragmentation in policy and planning." (website)
Resources:	http://www.obwb.ca
Drivers/barriers, benefits/ disadvantages	
Other	Email received from Greg Armour: Greg.Armour@obwb.ca

Ontario Conservation Authorities	
Start date	Conservation Ontario: 1946. Each Conservation Authority was started separately after this date.
Number of Examples	There are 36 Conservation Authorities (CAs) in Ontario
Motivation/Driver for creation	"The Conservation Authorities Act was legislated by the provincial government in 1946 in response to the concern expressed by agricultural, naturalist and sportsmen's groups, 'that all the renewable natural resources of the province were in an unhealthy state'"(website)
Governance Structure:	
• Decision-making process	A CA can only be formed when residents of that watershed area make a request to the provincial government. The CA website maintains that this prevents 'top down' planning. Decision-making inside of each CA is varied, depending on the CA.
• Spatial unit of organization	The CAs are at a watershed scale; each CA has jurisdiction over one or more watersheds.
• Which stakeholders are included?	Each CA has a board that usually includes some elected municipal officials. Each board has one Chair and at least one Vice-Chair.
• How are stakeholders included?	Conservation Ontario is the umbrella group that includes all 36 CAs. One Chair and two Vice-Chairs are elected from the membership. The Council may appoint ad-hoc committees and appoint members to external committees as required. The Council meets bi-monthly. Each CA includes stakeholders somewhat differently. For example, the Toronto Region Conservation Authority has three separate Advisory Boards: a Watershed Management Advisory Board, a Sustainable Communities Advisory Board, and a Business Excellence Advisory Board. Smaller CAs, such as the Sault Ste. Marie Regional Conservation Authority, have only one board.
• Mandate and primary activities (consultation, planning, etc)	CAs "are mandated to ensure the conservation, restoration and responsible management of Ontario's water, land and natural habitats through programs that balance human, environmental and economic needs." (Conservation Ontario website) Authorities have become involved in a wide range of activities depending on the resource management concerns of local residents, member municipalities and the Province. The following list summarizes the range in program development, but it must be kept in mind that all Authorities do not implement all programs. Each Authority's watershed management program is geared to its own special needs and conditions.

	Range of Program Development • Community Relations • Niagara Escarpment • Erosion Control • Outdoor Recreation • Fish & Wildlife Management • Private Land Extension - reforestation - soil erosion/ sedimentation • Windbreaks and Shelterbelts • Flood Control • Floodplain Management • Flood Warning • Forest Management • Fish & Wildlife Habitat • Great Lakes Shoreline Management • Provincial Water Quality Monitoring • Ground Water Monitoring • Rural Drainage • Heritage Conservation • Streamflow Monitoring • Network Hydro Generation • Tourism • Municipal Plan Review • Urban Stormwater Management • Natural Area Preservation • Waterfront Development Flow • Wetlands • Water Supply/Low Flow • Augmentation • Environmentally Sensitive Areas • Watershed Strategies
• Funding (gathering and distribution of revenues)	Costs are shared between municipalities, the province, and in some cases through user fees. CAs collectively spend approximately $160 million annually in managing these watershed programs. "In total, sources of revenue for the 36 Conservation Authorities are: provincial (11%), municipal (40%), self-generated (47%) and federal (2%)" (Submission to the Minister of Natural Resources June 2004). Currently, the province transfers $7.6 million annually to Conservation Ontario. Conservation Ontario has stated that this funding is not sufficient and that this should be increased to $21.4 million to meet CA activities that fall within provincial jurisdiction.
• Relevant legislation and/or policies creating/enabling the organization	Conservation Authorities Act (1946) Each CA is responsible for their own budget. The majority of CA funds are spent on land and water management programs; in 2002, 87% of CAs' budgets were earmarked for this.
Resources:	http://conservation-ontario.on.ca/ (Conservation Ontario) www.tcra.on.ca (Toronto and Region Conservation Authority) www.ssmrca.ca (Sault Ste. Marie Regional Conservation Authority) http://www.nickeldistrict.ca/ (Nickel District Conservation Authority) Submission to the Minister of Natural Resources "Re-Investment in Ontario's Conservation Authorities - Now and In the Future" (2004) http://www.conservation-ontario.on.ca/news/pdf/TransPayRep.pdf
Drivers/barriers, benefits/disadvantages	
Other	

Ontario MOE Permits to Take Water	
Start date	The Water Taking and Transfer Regulation came into effect as of January 1st, 2005. The enabling legislation was enacted in 1961.
Number of Examples	N/A
Motivation/Driver for creation	Not clear.
Governance Structure:	
• Decision-making process	Permits are issued by the Ontario Ministry of the Environment and are based on the following six principles: 1) The Ministry will use an ecosystem approach that considers both water takers' reasonable needs for water and the natural functions of the ecosystem; 2) Water takings are controlled to prevent unacceptable interference with other uses of water, wherever possible, and to resolve such problems if they do occur; 3) The Ministry will employ adaptive management to better respond to evolving environmental conditions; 4) The Ministry will consider the cumulative impacts of water takings; 5) The Ministry will incorporate risk management principles into the permit application/ review process; and 6) The Ministry will promote public and local agency involvement.
• Spatial unit of organization	Province-wide and watershed-based.
• Which stakeholders are included?	None
• How are stakeholders included?	None
• Mandate and primary activities (consultation, planning, etc)	Mandate: "To provide for the conservation, protection and wise use and management of Ontario's waters, because Ontario's water resources are essential to the long-term environmental, social and economic well-being of Ontario." Presumably the primary activity is issuing permits. Permits are not allowed in 'high use' watersheds. Permits are not required for municipalities, washing vegetables, for extraction of aggregates where the water taking is incidental to the extraction, pulp and paper manufacturing, ethanol production, or for agricultural purposes. Permits are required for beverage manufacturing (including bottled water), canning and pickling, concrete manufacturing, and product manufacturing if more than 50,000 litres per day are used. All permit holders must collect and record data on the volume of water taken daily and report the data to the Ministry on an annual basis. Decisions are based on the following principles: 1) The Ministry will use an eco- system approach that considers both water takers' reasonable needs for water and the natural functions of the ecosystem; 2) Water takings are controlled to prevent unacceptable interference with other uses of water, wherever possible, and to resolve such problems if they do occur; 3) The Ministry will employ adaptive management to better respond to evolving environmental conditions;

	4) The Ministry will consider the cumulative impacts of water takings; 5) The ministry will incorporate risk management principles into the permit application/review process; and 6) The Ministry will promote public and local agency involvement.
• Funding (gathering and distribution of revenues)	Revenues collected by the Province fund the PTTW program. As of April 2005, the Ministry charges for the issuing of permits. Permits range from $750-$3000. Agriculture permits are free. *In Ontario there is no charge for the withdrawal of the water itself.*
• Relevant legislation and/or policies creating/enabling the organization	- *Ontario Water Resources Act*. Section 34 of this act dictates that anyone using more than 50,000 litres per day is required to obtain a permit. This Act enables the 'Water Taking and Transfer Regulation'. - Water Taking and Transfer Regulation - O. Reg. 387/04 Sets out the factors that the Ministry of the Environment must consider in issuing a Permit To Take Water.
Resources:	Ontario Permit to Take Water Website: http://www.ene.gov.on.ca/envision/water/pttw.htm Ontario Permit to Take Water Manual: http://www.ene.gov.on.ca/envision/gp/4932e.pdf June 2005, Green Facts: Permit To Take Water (PTTW) Administration Fees. Available online at: http://www.ene.gov.on.ca/programs/5156e.pdf
Drivers/barriers, benefits/disadvantages	
Other	Email contact with Carol Salisbury carol.salisbury@ontario.ca and Zdana Fedchun zdana.fedchun@ontario.ca

Ontario Source Protection Authorities and Committees	
Start date	Clean Water Act passed 2006
Number of Examples	11 source protection regions and 8 stand-alone source protection areas
Motivation/Driver for creation	Source protection was one of the primary recommendations from the Walkerton Commission of Inquiry
Governance Structure:	
• Decision-making process	Source protection committees have these responsibilities: - Prepares the terms of reference for the source protection area - Must consult with municipalities and public - Must advise First Nations on reserves that the source protection committee is starting to prepare the terms of reference - Must advise municipalities that the source protection committee is starting to prepare the terms of reference - Through negotiation and consultation, assigns tasks to municipalities and source protection authority to complete components of the assessment report and source protection plan. - Must have municipal council resolution from municipality agreeing to undertake the task prior to assigning the task - Must consider comments of municipalities, First Nations, public and others involved in consultations when finalizing draft proposed terms of reference - Must submit proposed terms of reference to the source protection authority - Must post proposed terms of reference on the Internet.
• Spatial unit of organization	Province-wide and watershed-based.
• Which stakeholders are included?	Source protection committees will consist of municipal representatives, and a range of other stakeholders within the watershed.
• How are stakeholders included?	Through the committees
• Mandate and primary activities (consultation, planning, etc)	Preparing source protection assessments and plans
• Funding (gathering and distribution of revenues)	Provincial- the province has committed approximately $120 million from 2004 to 2008 to support source protection planning. This includes funding to enable municipalities and conservation authorities to undertake technical studies to support their efforts to protect drinking water sources. The act also introduced a new financial assistance program, the Ontario Drinking Water Stewardship Program, for farmers and small rural businesses for activities that reduce threats to drinking water. Initially, $7 million is available in 2007/2008 for early action to protect

	drinking water.
• Relevant legislation and/or policies creating/enabling the organization	-*Ontario Clean Water Act 2006* Regulations under the Act: Source Protection Areas and Regions, Source Protection Committees, Terms of Reference, Time Limits, and Miscellaneous Regulations.
Resources:	http://www.ene.gov.on.ca/en/water/cleanwater/index.php
Drivers/barriers, benefits/disadvantages	An extensive process of consultation identified policy options and evaluated the issues related to the formation of source protection committees. See s. 3.5.
Other	

Washington Watershed Councils	
Start date	Basins started undertaking plans in 1998 with the adoption of the Watershed Management Act.
Number of Examples	As of 2004, there 37 of Washington's 62 watersheds had developed Watershed Plans.
Motivation/Driver for creation	History of conflict over water compounded by the addition of some salmon stocks to the *Endangered Species Act* (Ryan and Klug)
Governance Structure:	
• Decision-making process	
• Spatial unit of organization	State-wide, watershed-based.
• Which stakeholders are included?	The Watershed Management Act specifies that plans must include participation from, at a minimum, all counties in the watershed, the largest city or town in the watershed, and the largest water purveyor in the watershed. Indian tribes can be included, but it is not mandatory. The role of the Washington State Department of Ecology (WDOE) in the planning process is to provide funding and technical assistance, upon request from the planning groups. A wide array of government agencies and members of the public were involved through a statutory process, in the preparation of the Nisqually watershed management plan. A Memorandum of Agreement was signed between 12 agencies representing towns, counties, water districts and the Nisqually Tribe, the lead agency for the process. For example, in the case of the Nisqually River Basin Council, the Executive Council consists of representatives from three counties, the state departments of Fish & Wildlife, Parks & Recreation, and Natural Resources, the Nisqually Tribe, and a representative from the Citizens' advisory board. Another nine members are not part of the executive but sit on the board. The board is divided into six subcommittees: the Citizens' Advisory Committee, the Executive Committee, the Natural Resources Committee, the Education and Interpretation Committee, the Public Access Committee, and the Website Committee.
• How are stakeholders included?	The stakeholders listed above are involved in watershed plan formulation, and have veto power on the plan. Other stakeholders (e.g., private citizens, NGOs) may participate if they wish, but do not have veto powers. Once the plan is complete, the state must implement the recommendations and codify any resulting decisions from the planning group on instream flows through rule making. Local governments are also directed, but not required, to adopt ordinances to implement actions in the watershed plan (Ryan and Klug 2004)
• Mandate and primary activities (consultation, planning, etc)	The stated purposed of the *Watershed Planning Act* is "to establish processes and policies that will result in providing state agencies with more specific guidance to manage the water resources of the state consistent with current law and direction provided by local entities and citizens through the process established in accordance with this chapter."
• Funding (gathering and distribution of revenues)	Watershed planning units are eligible to receive up to a total of $400 000 per watershed over a three-year period to perform technical studies and develop the final plan. Amendments to the Watershed Management Act in 2003 stipulate that

	the state will provide additional funding of a total of $100 000 per planning unit over a three-year period, if the planning unit provides a 10% match. "Watershed planning groups that receive planning grant funding from the state are required to address four items in their planning processes: (1) how much water is physically available; (2) how much water is currently being used; (3) how much water is allocated through existing water rights; and (4) how much water is needed for future uses. Optional elements that may be addressed by local planning units include water quality, fish habitat, and instream flows" (Ryan and Klug 2004)
• Relevant legislation and/or policies creating/enabling the organization	*Watershed Management Act (1998)*
Resources:	Nisqually River Basin Council website: http://nisquallyriver.org Nisqually River Management Plan: http://www.nisquallyriver.org/plan.html Washington State Watershed Planning Act: http://apps.leg.wa.gov/RCW/default.aspx?cite=90.82.005 Ryan and Klug (2004), *Collaborative Watershed Management in Washington State: Implementing the Watershed Management Act*, in Journal of Environmental Planning and Management, 48(4): 491-506.
Drivers/barriers, benefits/disadvantages	A 2004 Paper (Ryan and Klug) identified some of the benefits and challenges of the Washington system of collaborative planning. Benefits identified include the establishment of relationships and trust between governments, and the increased local capacity to address water issues. Challenges identified included lack of trust at all levels, inadequate legal tools provided in the statute, timelines, funding, and technical assistance from the state (p. 449).
Other	

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