



Who Owns Regional Cumulative Effects Management? A Legal Discussion Paper



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DISCUSSION DRAFT

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Who Owns Regional Cumulative effects management?

A legal discussion paper

“Every year, the province of BC issues thousands of permits to use Crown land—permits to log, draw water from streams, build roads and pipelines, drill for oil, mine coal, or carry out a myriad of other activities. Currently, there are more than 250 000 active permits (including licences, leases, authorizations, etc.) in the province....

This occurred through a series of separate decisions rather than a coordinated effort in which the risks and benefits were understood.

Yet BC does not have a framework for managing cumulative effects and so the cumulative effect of natural resource development remains largely unknown and unmanaged. One of the most important tasks facing natural resource managers in the near future will be to find a way to manage these effects. This will be essential if we are to make sure that the resource landbase continues to provide sustainable benefits for British Columbians.”

-BC Forest Practices Board¹

“There is now a collective understanding that environmental assessment must go beyond the evaluation of site-specific, direct and indirect project impacts to also encompass regional perspectives and considerations of the sources of cumulative environmental change, and to do so at the earliest stages of regional policy, plan, and program development and decision making.”

-Canadian Council of Ministers of the Environment²

“The solution lies in a fundamental shift from blind incrementalism and fragmented decision-making to an integrated system for managing land and resource use.”

-Canadian Institute of Resources Law³

1.0 What is Regional Cumulative Effects Management?

Cumulative effects are “changes to the environment [or human well-being] that are caused by an action in combination with other past, present and future human actions.”⁴ Most resource management practitioners are familiar with the concept of cumulative effects in the context of environmental assessment, particularly under the *Canadian Environmental Assessment Act, 2012* which requires consideration of “any cumulative environmental effects that are likely to result from the project [under assessment] in combination with other projects or activities that have been or will be carried out.”⁵

However, cumulative effects management is about much more than environmental assessment. Broadly speaking, the critical elements of cumulative impacts management include the following:

1. Establishing strategic level direction (e.g., identifying targets/objectives for valued components, collaborative planning to spatially apply targets, scenario analysis)
2. Assessing, managing and regulating activities to ensure objectives are met
3. Monitoring and adaptive management (i.e., adjusting plans and actions based on outcomes of monitoring)

Furthermore, these elements must be linked together by a supportive law and policy framework that ensures that they operate as an integrated system for managing land and resource use. These elements of cumulative effects management are discussed further below.

1.1 Establishing strategic level direction

Key steps in establishing strategic level direction include:

- Identifying valued components of the environment and human well-being
- Establishing targets/objectives for valued components
- Land use planning and scenario analysis

1.1.1 Values and valued components

Historically, laws about land and resource management in BC were designed to facilitate the extraction, use and export of natural resources. For example, many of BC's rules about land and water use are embedded in laws focused on specific resource extraction industries (e.g., *Forest and Range Practices Act*, *Oil and Gas Activities Act*, *Mineral Tenure Act*, *Mines Act* etc.). This approach has contributed to fragmented decision-making that fails to address cumulative effects.

Bringing a cumulative effects lens to resource management in BC will, in effect, mean turning this approach on its head: placing the focus of assessment and management first and foremost on the needs of the land, water and people, and asking how past, present and future resource use affects them. Cumulative effects management thus involves first identifying the rights and values that need to be protected, and in turn the attributes of those rights or values (often called "valued components") that can be measured, managed and maintained over time to ensure the integrity of the value or right. For example, if the value is human health, one component that could be measured might be the abundance of particular traditional foods for First Nations.

Some values will be important to all British Columbians, while others may be specific to a region or a First Nation.

1.1.2 Establishing targets/objectives for valued components

BC is no stranger to the establishment of legal resource management objectives. A mechanism has long existed to legalize strategic land use plans through land use objectives that must be reflected in operational forest planning, and a limited scheme now exists for the establishment of "government's environmental objectives" for the oil and gas industry. However, as discussed further in section 3.3 below, BC presently does not establish targets and objectives that apply across multiple resource industries and uses, limiting the effectiveness of these objectives for cumulative effects management. The absence of a mandatory legal mechanism to link land use plans (and resulting legal objectives) with the environmental assessment process is particularly noteworthy. Furthermore, arbitrary policy caps on levels of protected areas, biodiversity and endangered species habitat protection limited the ecological impact of many historically established objectives (as did the failure to consider climate change when most existing objectives were established). Finally, the absence of meaningful government-to-government engagement with First Nations in many areas meant that Indigenous knowledge was not a major factor in establishing most existing legal objectives.

Ultimately effective cumulative effects management will depend on our willingness as a society to establish and enforce limits on specified human activities that contribute to cumulative environmental effects, before it's too late.⁶

The importance of best available science and Indigenous knowledge in this process cannot be overstated. The difference between land use plan outcomes in BC that were informed by independent science and Indigenous knowledge versus those that occurred under earlier policy caps on the level of protected areas and biodiversity protection is dramatic and telling. While social choice decisions will always be required as information about scientific thresholds is

translated into policy and legal direction, it is essential that the relative risk of the choices we make is clear, and where possible that we manage to low risk targets for valued ecosystem components.⁷

1.1.3 Land use planning (to spatially apply targets) and scenario analysis (to assist with choices about desired pace and scale of development)

One of the most profound shifts in moving to a regional cumulative effects management approach is that it involves establishing not just conditions on particular projects but also cumulative limits on impacts to a given value within a region. This requires not just identifying management targets/objectives informed by best available science and Indigenous knowledge, but finding a coherent way to apply these through time and space.

In the literature on cumulative impacts management two tools are frequently identified as highly valuable for doing so: land use planning and scenario analysis.

Multi-scale strategic land use planning is familiar to British Columbians. The variety of reasons why it has failed to more effectively manage cumulative effects in BC are discussed elsewhere in this paper. The acknowledged need for improved mechanisms for managing cumulative effects has the potential to be a driver for updating and strengthening strategic land use direction in BC, while building on the existing foundation of twenty years of planning. One of the most powerful catalysts for doing so is that the legal duty to deal honourably with First Nations constitutionally protected title and rights in the context of land use planning remains outstanding in most areas of the province.

If land use planning allows us to identify what needs to be left behind on the land to sustain valued components (e.g., desired levels of old growth retention and where old forest reserves should be located), scenario analysis is a tool that allows us to begin to grapple with the desired pace and scale of development over time, as well as the desired mix of development opportunities.

In scenario analysis, various future development scenarios are identified so that potential cumulative effects of different scenarios on valued components can be assessed and compared, and ultimately choices made about desired futures. The goal is not to predict the future but instead to identify scenarios that represent various sets of events that might reasonably take place.⁸ Scenario analysis has the potential to allow decision-makers and communities to identify future scenarios that could lead to the greatest, mutually reinforcing benefits with respect to ecological and social values, and to explicitly address trade-offs that exist between values and over different time scales.⁹

1.2 Assessing, managing and regulating activities to ensure objectives are met

Much of the heavy lifting with respect to cumulative effects management lies at the strategic level. However, to be effective as a tool for cumulative effects management, such strategic level direction must be integrated into a legal and policy framework that links plans and objectives to actual on-the-ground decisions about land and water use, e.g., project specific environmental assessment, tenuring and resource approvals, as well as the establishment of harvest levels. To be effective, objectives also need to be equally applicable across resource sectors, applied at the appropriate scale, and consistently enforced and monitored.

This will require both removing existing legal barriers to cumulative effects management (e.g., the statutory free ride that mining activities currently get from land use objectives),¹⁰ and potentially introducing new legal tools to ensure that targets and objectives are consistently applied across a range of resource decisions by a range of different agencies and actors.

1.3 Monitoring and adaptive management (i.e., adjusting plans and actions based on outcomes of monitoring)

A foundational step in cumulative effects management is understanding base-line conditions, since the impacts of past actions on these may have already been profound. Work to understand the historic range of variability in ecosystem conditions for use as a base case has occurred in many areas of the province and should be a research priority elsewhere.

Once plans have been established or projects approved, ongoing monitoring will be essential to determine the effectiveness of our actions at maintaining valued components over time. Part of this process should involve identifying “indicators of gradual change and early warning signals of loss of ecosystem resilience and possible threshold effects.”¹¹

Perhaps most importantly, the results of monitoring should be used to make adjustments to plans, policies and objectives in a process of ongoing adaptive management.

2.0 Introduction to Governance

If the elements of cumulative effects management identified above are what needs to be done to secure our collective future in British Columbia, the next question is: Who should be responsible for ensuring that they are implemented? The question of who “owns” regional cumulative effects management is fundamentally a question of governance. While historically the assumption was that government would look after these matters, a focus on “governance” more broadly, and not merely government decision-making, “reflects the fact that governments no longer are, and in many cases cannot be, the sole source of environmental decision-making authority.”¹²

Governance in this context “is broadly understood as the exercise of authority over the environment through the processes and institutions by which decisions are made.”¹³

In what has been characterized as a “global shift that is taking place around the world” many jurisdictions are beginning to explore what a shift from “government to governance” might look like.¹⁴ The pressures and demands of grappling with cumulative environmental change present fertile ground for doing so. In a world where change and uncertainty is the norm, where resource values must be addressed at multiple spatial scales and in the face of variability in ecological and social systems, we need to be sure that our institutions and processes for environmental decision-making are up to the task.

There are not only ecological drivers but also legal and social ones for doing so. The courts have made it abundantly clear that the Crown can no longer make unilateral decisions about resources that potentially impact First Nations’ title and rights,¹⁵ and it is increasingly recognized that “[t]he knowledge needed to deal with complex social-ecological systems takes different forms (e.g., scientific and local) and is held by actors outside of governments.”¹⁶

Through a governance lens it is also apparent that the process of making environmental decisions is closely connected to substantive outcomes. Indeed “[t]he normative dimension of environmental governance is typically referred to as sustainability.”¹⁷

So what is “good” environmental governance? Based on a systematic review of the adaptive co-management literature, Plummer cites sources that suggest that it is “characterized by polycentric institutions, legitimacy and transparency, empowerment and social justice, diversity of participating actors, and where multilevel institutions are matched with social-ecological dynamics.”¹⁸

The notion of “multi-level governance” is particularly important when we seek to “facilitate learning and adaptation in complex social-ecological circumstances.”¹⁹

Such arrangements should connect community based management with regional/national government-level management, link scientific management

*and traditional management systems, encourage the sharing of knowledge and information, and promote collaboration and dialogue around goals and outcomes. Governance innovations of this type can thus build capacity to adapt to change and manage for resilience.*²⁰

On the issue of cumulative effects management BC has a considerable task ahead of us. As the Forest Practices Board noted in a 2011 report, not only is there no framework for managing cumulative effects in BC, but “to the extent that there is an issue, there is no one to tell—there is no decision maker when it comes to cumulative effects of multiple developments.”²¹

Furthermore, if experience suggests that successfully managing complex systems will require multi-level governance institutions that are matched with the socio-ecological context, BC’s resource management system contains a particularly glaring hole at the regional scale. Cumulative impacts on many values of critical importance, from water to iconic far-ranging species like grizzly and salmon must be managed at a scale beyond that of an individual project. Currently, BC does not have the processes or institutions to do so.

In this paper we have drawn on legal research about best practices from around the world in collaborative decision-making to generate options for new institutional arrangements that address issues such as how to best:

- structure collaboration between provincial and First Nations governments/technical staff, and between governmental and non-governmental actors;
- integrate best available information, including independent science and Indigenous knowledge, into decision-making; and,
- take into account the diverse legal and policy regimes that are relevant to assessing and monitoring cumulative effects (i.e., which by definition cross-cut multiple resource specific legal frameworks)

in the context of regional cumulative effects management.

3.0 Legal Context

We begin by offering an overview of the legal context for regional cumulative effects management, which cross-cuts constitutional, federal, provincial and municipal law as well as rules about planning, environmental assessment, tenuring, zoning, permitting, and monitoring.

3.1 Constitutional law context

In two landmark 2004 cases, *Haida Nation v. BC (Ministry of Forests)*,²² and *Taku River Tlingit First Nation v. BC (Project Assessment Director)*,²³ the Supreme Court of Canada confirmed that the Crown may not make unilateral decisions about the use and management of natural resources, even if Aboriginal title and/or Aboriginal rights have not been formally recognized by the Canadian courts or addressed in a treaty. Instead, “depending on the circumstances...the honour of the Crown may require it to consult with and reasonably accommodate Aboriginal interests pending resolution of the claim.”²⁴ Similar duties arise when treaty land is “taken up” for non-First Nations use (i.e., for “settlement, mining, lumbering, trading or other purposes”) as an exception to the First Nation’s constitutionally protected right to “pursue their usual vocations of hunting, trapping and fishing throughout the tract surrendered” as enshrined in Treaty 8 and other numbered treaties.²⁵

If the Crown fails to uphold these duties in making environmental assessment, tenuring or resource approval decisions, a variety of remedies are possible, from injunctions, to damages, to setting aside a permit or approval that has been granted –although by far the most common is a declaration that the Crown failed to honourably consult and/or

accommodate the First Nation and should go back and do so, sometimes under court supervision.

The courts have now had some opportunity to consider what these duties mean in the context of cumulative effects. In particular, they have grappled with how the duty to consult and accommodate applies in the context of a legacy of historical impacts on First Nations' territories, and with respect to future development.

First, the Supreme Court of Canada has held that past wrongs do not themselves trigger the duty to consult unless the Crown is considering conduct or a decision today that has a potential for adverse impacts on Aboriginal title and/or rights.²⁶

The BC Court of Appeal has held that if the Crown is contemplating conduct that could have negative impacts on title and/or rights, then the "historical context is essential to a proper understanding of the seriousness of the potential impacts" on the First Nation's rights.²⁷ However, with respect to consultation on specific operational approvals, the courts have stopped short of requiring a holistic or comprehensive approach to accommodation, emphasizing that the focus of consultation is the impact "of the *current* decision under consideration"²⁸ and that the Crown is not obliged "to accommodate the effects of prior impacts."²⁹ Thus in the context of the drastically reduced Burnt Pine caribou herd in West Moberly territory, the obligation on the Crown was said to be to consult regarding protection of remaining caribou but not necessarily recovery planning or restoration.³⁰

The courts have been careful to find, however, that this does not mean that past impacts are without remedy – only that this remedy is not an order that consultation is required. An example of another potential remedy would be damages (e.g., a financial compensation).³¹

On the other hand, the BC Court of Appeal has confirmed that the potential future impacts of a land and resource decision are properly considered (e.g., the impacts of a full mine in the context of a exploration permit application).³²

While judicial review in the context of specific operational approvals or Crown decisions has not yielded a direct trigger for regional cumulative effects management, there are nevertheless a number of legal drivers in this direction that bear noting:

- The uncertainty and risk created by potential litigation surrounding multiple tenure and approval decisions (as First Nations attempt to deal with cumulative effects of different forms of development on their title and rights) has created an incentive for all parties to consider a more comprehensive (and potentially more efficient) approach to cumulative effects management. It is certainly a key factor behind current provincial policy development in this area.³³
- In particular, when a nation seeks an interim injunction to prevent resource use from occurring while they are in the court challenging the permit approving it, cumulative effects are relevant to determining whether the nation will suffer irreparable harm if the activity proceeds.³⁴
- The Supreme Court of Canada has confirmed that consultation must occur at higher, more strategic levels of planning for the use of resources,³⁵ acknowledging that without this, consultation at the operational level may be ineffective.³⁶ Regional cumulative effects assessment and management squarely falls within this category as it has been elaborated by the courts.
- The Crown is expected to use its legislative authority to uphold its honour to First Nations, and may not hide behind provincial statutes to circumvent its duties. "The government's legislative authority over provincial natural resources gives it a powerful tool with which to respond to its legal obligations."³⁷

In this manner the courts have clearly laid out a pathway in which the Crown can and should be contemplating law reform to remove legal barriers, and enable collaborative engagement with First Nations to address higher, strategic level planning for land and resource use, including legal tools required for regional cumulative effects assessment and management.

3.2 Statutory context –federal

If a project undergoes an environmental assessment under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012), section 19(1)(a) requires consideration of:

the environmental effects of the project, including the environmental effects of malfunctions or accidents that may occur in connection with the project **and any cumulative environmental effects that are likely to result from the project in combination with other projects or activities that have been or will be carried out** [emphasis added].³⁸

This aspect of CEAA was one of the few that was not affected by the repeal of the *Canadian Environmental Assessment Act* of 1995, and its replacement by CEAA 2012. It should be noted, however, that there will be dramatically fewer federal assessments going forward, due to changes to CEAA (some 3000 were cancelled just when the CEAA 2012 came into force), as well as changes to other statutes like the *Fisheries Act* and *Navigable Waters Projection Act* that will mean fewer assessments are triggered. Guidance regarding cumulative effects assessment continues to be provided by the Canadian Environmental Assessment Agency's Practitioners Guide and the operational policy statement titled Addressing Cumulative Environmental Effects under the CEAA, although these have not been updated to reflect legislative changes made through CEAA 2012.³⁹

Beyond project-specific environmental assessment there is currently no requirement in Canadian (or BC) law to conduct broad-scale assessment of the cumulative effects of multiple forms of development in a given region.

The *Cabinet Directive on the Environmental Assessment of Policy, Plan, and Program Proposals*⁴⁰ does provide for a limited form of “strategic environmental assessment” of policy, plan or programs submitted to a federal Minister or Cabinet for approval, but is widely seen as an “ad-hoc exercise” whose results are rarely adopted by federal departments and agencies.⁴¹

More promising is the policy development that has occurred around the concept of “regional strategic environmental assessment” or R-SEA. In 2009 the Canadian Council of Ministers of the Environment (CCME) released the publication *Regional Strategic Environmental Assessment in Canada Principles and Guidance*. Intended to provide a common strategic framework for R-SEA, the R-SEA *Principles and Guidance* document defined R-SEA as: “a process designed to systematically assess the potential environmental effects, including cumulative effects, of alternative strategic initiatives, policies, plans, or programs for a particular region.”⁴²

In this guidance document, the CCME acknowledges that:

After more than thirty-five years of environmental assessment practice in Canada, there is now a shared understanding that an explicitly regional and strategic approach to environmental assessment is required – an approach that addresses the cumulative environmental effects of human development actions and provides direction for planning and development decision making beyond that which is possible in project-based impact assessment.⁴³

The overall objective of R-SEA is to inform the preparation of a preferred development strategy and environmental management framework for a region. A strategic assessment is one that

ensures the full consideration of alternative options at an early stage when there is greater flexibility. In terms of decision-making, it asks “what is the preferred option?” and “what are the possible futures?” for a given region, instead of just attempting to predict what is most likely to happen. R-SEA methodology is not developed based on the need to make detailed impact predictions about environmental stressors (although this is part of it). It does seek to identify and assess the opportunities, risks and threats of opting for a particular future or development scenario, in order to assess the potential positive and negative environmental impacts associated with it, and propose measures to avoid or minimize potential cumulative impacts and interactions.

At the present time, as the *Policy and Guidance* document notes “R-SEA in Canada is still in its early stages of development and is largely untested.”⁴⁴ Nevertheless, the CCME anticipates that the benefits of an R-SEA approach will reflect the “combination of the benefits already demonstrated in regional cumulative effects assessment and strategic environmental assessment practices.”⁴⁵

Legislatively, the new *CEAA 2012* did not bring R-SEA into Canada’s legal framework for environmental assessment, but did introduce a discretionary provision for conducting “a study of the effects of existing or future physical activities carried out in a region.”⁴⁶ The following was also added to the purposes of *CEAA 2012*: “The purposes of this Act are ...(i) to encourage the study of the cumulative effects of physical activities in a region and the consideration of those study results in environmental assessments.”⁴⁷ If they occur, regional studies may be conducted in collaboration with other jurisdictions (e.g., a province). No legal mechanism is provided for implementing the results of such a study.

3.3 Statutory context –BC

Because the division of powers in the Canadian Constitution places natural resources under provincial jurisdiction, BC’s laws touch on a wide variety of matters relevant to cumulative effects management. BC’s laws about natural resources grew up first and foremost around the policy objective of encouraging exploitation of our minerals, forests and other natural resources and securing associated economic and social benefits, and many of these laws date back to the early days of our province.

Only much more recently did BC’s policy-makers begin to grapple with managing the environmental impacts of those activities on other values. Throughout most of BC’s history holders of a variety of forms of resource tenures (e.g., tree farm licences, mineral claims, mining leases) functionally operated as the primary decision-makers when it came to resource planning. With increased environmental regulation came an enhanced role for government, but one of the historical legacies of BC’s many resource-specific statutes is the continued fragmentation of resource decision-making between ministries and agencies, as well as overlapping administrative boundaries that rarely correspond to meaningful ecological units.

Tools like strategic land use planning and environmental assessment, introduced in the past twenty years, have created opportunities to more proactively assess and plan, as well as for public involvement. Yet even with these tools in place, as the Forest Practices Board put it in the passage cited at the beginning of this paper, “the cumulative effect of natural resource development remains largely unknown and unmanaged.” Why is that?

The answer lies in the finer points of BC’s laws regarding legalization of land use plans and environmental assessment.

Existing legal objectives for resource management in BC are the legacy of twenty years of strategic land use planning. These plans, which cover the majority of the land base, focused on large regional or sub-regional areas, determined areas to be added to the protected areas system, and objectives for resource management zones outside of protected areas.⁴⁸ The Province’s Biodiversity Strategy also provided for landscape level planning for priority

biodiversity values, such as old growth. Some statutes also provide for default objectives in the absence of “higher level” strategic planning.

While BC is one of the few jurisdictions in the world to have undertaken this form of land use planning, there remain significant gaps and barriers that present challenges from the perspective of cumulative effects management. For example, as noted above:

- For close to a decade it was provincial policy to design land use planning processes as “multi-stakeholder” negotiations; thus most strategic land use plans in BC were completed without government-to-government engagement with First Nations.
- Provincial policy limits on how much of the land base could be set aside from development were political, subjective, and, in many cases, limited the extent to which historical plan outcomes reflected best available science and Indigenous knowledge.
- Provincial laws did not require strategic land use plans to consider climate change in identifying management objectives, either in terms of its impact on ecological and human values, or with respect to forest carbon management.⁴⁹

As a result, even if existing legal objectives were fully enforced (see below), the overall level of development in a given region may still cause “valued components” to be significantly damaged or diminished, or see First Nations’ inherent title and rights compromised. Emerging provincial policy appears to indirectly acknowledge this in early drafts of policy documents that propose identifying and using science-based low and medium risk benchmarks for valued components that may be more precautionary than legal objectives (the Province’s discussion papers are silent on how Indigenous knowledge will be integrated into identifying these).⁵⁰

There are also notable exceptions regarding legal objectives in some geographic areas. In particular, government-to-government negotiations have relatively recently resulted in strategic land use agreements between the Crown and First Nations in several nations’ territories that have resulted, or are expected to result in more robust legal objectives.

In addition to issues associated with the substantive content of legal objectives, there are also legal barriers to their effective use in the context of cumulative effects management. In particular, land designations and management objectives flowing from strategic land use plans do not apply to all resource industries. Furthermore, even when objectives do apply, there is no legally enabled mechanism for coordinating decision-making between resource agencies and between provincial and First Nations governments at a scale appropriate for the value in question. These barriers are discussed further below.

Legal mechanisms to implement strategic plan outcomes were initially designed to apply only to forest and range use,⁵¹ and even for these industries a number of loopholes and exemptions have been hardwired into BC’s laws. For example, operational forestry plans only have to be consistent with established legal objectives flowing from land use plans “to the extent practicable,” a test which brings into play economic issues as well as other discretionary factors.⁵² Additionally, a number of regulatory provisions insulate some areas of the province from compliance with land use plan designations and legal objectives, either completely or for a period of time following plan implementation.⁵³ In many cases, this can mean up to four years of further unconstrained logging inconsistent with strategic land use plans even once they are legally implemented.

Although 2003 amendments to the *Land Act* created a mechanism through which designations and legal objectives could be made to apply to resource development other than forestry and range use, this section (s. 93.1) has never been brought into force. Furthermore, section 14(5) of the *Mineral Tenure Act* explicitly provides that land use designations or objectives do not apply to mining.⁵⁴

Very recently regulations under the *Oil and Gas Activities Act* have established “government’s environmental objectives” for values like water and old growth,⁵⁵ although many of these simply track relatively low bar default *Forest and Range Practices Act* requirements. Before issuing a permit to allow oil and gas activities the Oil and Gas Commission must “consider” these environmental objectives.⁵⁶ However the Oil and Gas Commission may also exempt a permit holder or a person from “government’s environmental objectives” (e.g., from restrictions on oil and gas activities in old growth management areas and wildlife habitat areas) on any condition the Commission considers necessary.⁵⁷

Finally, in the context of environmental assessment, both legal objectives and resource management targets identified in other ways (e.g., through provincial policies and strategies) may be considered, and it is possible, though not mandatory for conditions in an environmental assessment certificate (under the BC *Environmental Assessment Act*), or a decision statement (under the federal *CEAA 2012*) to require mitigation measures to address these. However, there is no legal requirement that they do so. In other words there is no direct legal linkage between strategic land use plans and environmental assessment in BC, which can result in conflicts between protect certification and legal objectives including those flowing from land use planning.

In summary, legal mechanisms that exist to link legal objectives to on-the-ground decision-making in BC are either non-existent, discretionary or full of loopholes, presenting a major barrier to cumulative effects management.

Table 1: Legal barriers re: linking strategic land use direction to on-the-ground decision-making in BC

Entire industries exempted	When objectives do apply, loopholes undermine effectiveness
Small projects with potential cumulative impacts exempted	Discretion (i.e., it’s legally possible to do the right thing but not required)

At the present time, BC’s *Environmental Assessment Act*, allows⁵⁸ but does not require assessment of cumulative effects in the context of project-specific environmental assessment. Where cumulative effects assessment does occur, and large projects are approved on the basis of environmental impact mitigation packages that include measures at a regional or sub-regional scale (e.g., for species with large area needs like grizzly bear), these measures may never be implemented because the proponent alone does not have authority to do so. Furthermore, provincial environmental assessment, and as of 2012 federal environmental assessment, now use a “project list” approach, which means that many smaller projects that don’t ‘make the list’ (the cumulative impact of which may be significant) are not subject to environmental assessment at all.

On very rare occasions the Minister has used the discretionary power in section 49 of the BC *Environmental Assessment Act* to direct that an inquiry or strategic assessment occur.⁵⁹ This process results in a report to the minister regarding the “policy, enactment, plan, practice or procedure of the government” under assessment, but has no legal impact.

Ultimately, in BC there is currently no legal requirement for comprehensive, integrated and proactive assessment of cumulative effects at a scale beyond that of a particular project, and an absence of legally enabled mechanisms for coordinating decision-making about different resource uses at a regional scale.

Turning to monitoring and adaptive management, on these matters BC's resource management laws are virtually silent, although legal agreements between the Crown and First Nations may establish mechanisms for these critical elements of cumulative effects management.

While there may be trends towards greater integration in land and resource decision-making in BC (e.g., restructuring within provincial ministries), integration alone is meaningless absent a serious intent by all parties to deal with cumulative effects at necessary scales. More promising are specific collaborative management or shared decision-making arrangements that have been concluded between the Crown and First Nations. These initiatives will, however, continue to face challenges arising from BC and Canada's laws, as outlined above, until legal barriers to cumulative effects management are addressed.

3.4 Statutory context – local government

Local governments (such as municipalities, regional districts and resort municipalities) are themselves creatures of statute and have only the specific jurisdiction delegated to them by the Province of BC. This can mean that towns and cities face direct and indirect impacts from resource extraction activities that they have little power to address. For example, local governments in BC have no jurisdiction over mines or minerals.⁶⁰ Because of this, the City of Kamloops cannot use its zoning or regulatory powers to stop the development of an open-pit mine right within its city boundaries. British Columbia's provincial mineral tenure laws have made it possible for a company called KGHM Ajax Mining Inc. to acquire 58 mineral claims^{61 62} in Kamloops for its proposed gold-copper mine, half of which would be located within six kilometers of several schools and seniors' residences, a hospital and a university, and hundreds of family homes.

Local governments also find themselves vulnerable to other types of resource development activities on lands within or near to municipal boundaries, or on Crown lands in rural areas of regional districts. Some examples include:

- local governments are specifically prohibited from adopting any bylaw or issuing a permit that would restrict forest management activity on private managed forest land;⁶³
- local governments do not have decision-making powers with respect to independent power producer (IPP) projects on Crown land within the geographical boundary of regional districts or municipalities in most cases, following an amendment to the provincial *Utilities Commission Act*⁶⁴ in May 2006;⁶⁵
- local governments do not have the ability to restrict or prohibit forestry activities or oil and gas exploration on provincial Crown lands within their geographic boundaries;⁶⁶ and,
- local governments do not have any jurisdiction over the issuance of water licenses or approvals related to watercourses under the *Water Act*.

In addition, while the *Community Charter*⁶⁷ appeared to give municipalities in BC broad powers with respect to environmental protection, in fact those powers are significantly curtailed by the *Spheres of Concurrent Jurisdiction – Environment and Wildlife Regulation*.⁶⁸

Despite the exceptions noted above, local governments do have the power to zone lands for use and density, and to designate permit areas where new developments and redevelopment activities must meet certain guidelines aimed at protecting natural features, avoiding natural hazards, or to achieve energy or water conservation goals.⁶⁹ Local governments may also designate areas where project developers must provide information setting out the environmental impacts of proposed developments.⁷⁰

Local governments in BC are also able to develop forward looking policy plans that consider land use and key local government policy objectives in an integrated fashion, i.e. Official

Community Plans and Regional Growth Strategies. Once adopted as bylaws all subsequent local government bylaws and policies must be consistent with the plans. However, these plans do not have any direct impact on activities that are not subject to local government jurisdiction as described above.⁷¹

4.0 Model analysis – Options for Regional Governance Mechanisms

In this research project, West Coast Environmental Law analyzed approximately 40 models that exemplified potential options for different aspects of regional management of cumulative effects, as follows:

- options for structuring collaboration between levels of government, including First Nations governments and between responsible agencies in the context of regional cumulative effects management;
- options for stakeholder and public engagement in the context of collaborative management of cumulative effects;
- options for acquiring and integrating scientific and Indigenous knowledge into collaborative management cumulative effects;
- options for giving effect to information/recommendations/decisions of collaborative management bodies; and,
- options for funding collaboration in regional cumulative effects management.

In each of these areas we draw on the literature as well as our analysis of replicable innovations and best practices to: a) identify potential effectiveness criteria (“success factors”); and b) discuss options identified from among the models analyzed.

We conclude by offering a matrix of options for new institutional arrangements for structuring collaboration in regional cumulative effects management.

4.1 Structuring collaboration between levels of government, including First Nations governments and between responsible agencies in the context of regional cumulative effects management

“The complexity and persistence of environmental problems have confirmed the limitations of traditional modes of governing over environmental issues, leading to new approaches.”⁷²

As discussed above, questions about who is responsible for which aspects of cumulative effects management are fundamentally ones of governance. Governance in this context can be thought of as “the structures and processes by which people in societies make decisions and share power.”⁷³ Given the distinct constitutional and statutory roles and responsibilities of different levels of government in BC related to cumulative effects management, one fundamental objective in designing new institutional mechanisms for regional governance is to effectively and efficiently structure collaboration between different levels of government to make decisions at a regional scale. The constitutional recognition of existing Aboriginal title and rights, including governance rights, creates a legal imperative to fully involve First Nations governments in this collaboration.⁷⁴

The term co-management⁷⁵ encompasses both “the problem-solving process involved in sharing management power across organizational levels,”⁷⁶ and approaches that embody a move away from top-down, centralized decision-making by the federal and provincial governments, to more decentralized and collaborative decision-making involving Aboriginal Peoples and/or

community level bodies. Models for sharing power and responsibility between government and local resource users/civil society groups are discussed in section 4.2 below.

The Royal Commission on Aboriginal Peoples notes that in Canada:

[C]o-management has come to mean institutional arrangements whereby governments and Aboriginal entities (and sometimes other parties) enter into formal agreements specifying their respective rights, powers and obligations with reference to the management and allocation of resources in a particular of....lands and waters.⁷⁷

While much of the literature on co-management focuses on community-level resource management, over time, as understanding of the importance of managing for resilience in complex systems has deepened, there has been increased attention to the need for “multi-level institutions” (i.e., not just community level but regional as well, with linkages to provincial and national levels) in order to achieve a good match with social-ecological systems, and to implement what is often referred to as “adaptive co-management.”⁷⁸ “The ability to use institutions effectively, at organizational levels appropriate to the ecological scale, has been referred to as scale-matching or institutional fit.”⁷⁹ Simply put, regional environmental governance is a complex systems problem, where the “social and ecological system properties [are] not amendable to conventional, top-down decision-making.”⁸⁰

The concept of adaptive co-management reflects the evolution of co-management practice and theory over the past twenty years from collaborative resource management of natural resources to “the management of people within complex social-ecological systems.”⁸¹

*Adaptive comanagement relies on the collaboration of a diverse set of stakeholders, operating at different levels, often through networks from local users to municipalities, to regional and national organizations, and also to international bodies. The sharing of management power and responsibility may involve multiple institutional linkages among user groups or communities, government agencies, and nongovernmental organizations (NGOs). In addition, adaptive comanagement extends adaptive management into the social domain and is a way to operationalize adaptive governance.*⁸²

Adaptive co-management is “frequently described as an approach or strategy for the governance of social-ecological systems in the face of complexity and uncertainty.”⁸³

The remainder of section 4.1 explores models that present different approaches to structuring collaboration between levels of government, including First Nations’ governments, to make decisions at a regional scale, while section 4.2 explores models that highlight approaches to sharing power and responsibility with non-governmental actors. In practice a desirable approach for BC would combine best practices in both areas.

Summary: Criteria for success

- Involve all responsible parties and levels of government
- Recognize and give effect to First Nations governance rights
- Align the authority and responsibilities of new institutions with the relevant ecological and cultural context (i.e., multi-scale assessment, planning, decision-making & monitoring).
- Several related institutions (e.g., co-management bodies) may function together to achieve goals

Related success factors discussed elsewhere in the paper:

- Process and decision-rules should “balance” the power of participants (e.g., consensus-based)
- Ensure that management requirements and decision rules are enshrined in formal agreements within a supportive law and policy framework
- Unite science-based western resource management systems with Indigenous and local knowledge

Model 1: Co-management Board (Various under *Mackenzie Valley Natural Resource Management Act*⁸⁴)

In the Mackenzie Valley a number of interconnected institutions cover off key elements of cumulative effects management. Collaboration between levels of government is formally institutionalized through co-management boards with balanced representation of First Nations and other levels of government. Typically, of one half of the members of the board (other than the chairperson) must be appointed on the nomination of First Nations,⁸⁵ with the other seats split between nominees of the territorial and federal governments. A chairperson is appointed after being nominated by the other board members. Where the board is regional in nature (i.e., for the whole Mackenzie Valley), each Aboriginal group⁸⁶ has representation on the board.

Co-management boards of this nature in the Mackenzie Valley covering off different elements of cumulative impacts management include:⁸⁷

Land Use Planning Boards: These co-management boards undertake collaborative planning for each First Nation’s territory (settlement area). Among other things resulting plans describe and map permitted and prohibited uses of land, waters and resources. Plans must be approved by three levels of government: the First Nation, the territory and the federal government. Once approved, all licences, permits or other authorizations relating to the use of land or waters or the deposit of waste in the region must be in accordance with the applicable land use plan.

Mackenzie Valley Environmental Review Board: The Review board is responsible for environmental assessment in the Mackenzie Valley, either directly or through an Environmental Impact Review Panel appointed by it. This includes a statutory responsibility to consider the cumulative effects that are likely to result from the development under assessment in combination with other developments as part of all environmental assessment and environmental impact reviews.

Land and Water Boards: Distinct land and water co-management boards for each First Nation’s territory are responsible for the administration, review and approval of all land and water use applications, and preliminary screenings to determine whether full environmental assessment is required of larger projects prior to permitting. The licensing and permitting role of these boards ranges from small projects to major oil and gas pipelines. Applications that relate to unsettled regions or for land/water uses that will span more than one settlement area, come under the jurisdiction of the regional Mackenzie Valley Land and Water Board.⁸⁸

Collaboration in terms of cumulative effects monitoring is also provided for in the *Mackenzie Valley Resource Management Act*, but is not implemented through a formal co-management structure.

Across the north, these and similar co-management bodies serve as “institutions of public government” that exist “at the intersection of three orders of government (aboriginal, territorial, and federal).”⁸⁹ Once appointed, board members are supposed to act independently to carry out the mandate entrusted to them and not to take political direction from the government or organization who nominated them. That said, it is understood that the views of board members are likely to be similar/compatible with those of the government’s that nominated them.

Model 2: Elected Regional Body + Joint Management Agreement (Regional Councils under the New Zealand Resource Management Act⁹⁰)

In New Zealand, regional cumulative effects management is the responsibility of a distinct order of elected government, the “Regional Council”, whose role is set out in the New Zealand *Resource Management Act* (RMA). New Zealand is divided into 16 regions consistent with major watershed boundaries, most of which are governed by Regional Councils. Regional size ranges from only 445 km² to over 45,000 km². Some Regional Councils have jurisdiction over the ocean – the Horizon’s Regional Council’s jurisdiction, for example, extends 12 nautical miles off the coast.⁹¹

Regional Councils are required to prepare various land use and resource management plans to assist in the implementation of the RMA. These include a regional policy statement and regional coastal plans. Regional Councils are also responsible for making “resource consent” decisions under the RMA, which are required for most forms of resource use or development in New Zealand. The RMA establishes a framework for integrated resource management, and requires that cumulative effects be considered both in evaluating the potential impacts of regional plans and policies, and when specific approvals (“resource consents”) are granted.

Although some resource consent decisions rest with territorial councils (more akin to Canadian municipalities) Regional Councils have jurisdiction over the majority of environmental values/effects under the RMA. By vesting the primary decision-making power with these councils, the RMA espouses the principle of subsidiarity – that decisions are best made at the level closest to the resources affected. However, the central government does have the authority to intervene in local decision-making where the proposed development has national significance. If the decision made by the district or Regional Council is disagreed with, the proponent can appeal to the Environment Court.

Decisions at the Regional Council level are made by a group of councilors, for which elections (by postal ballot) are held every 3 years. The number of councilors ranges from 6 to 13. In 2005 the RMA was amended, to give local authorities (i.e. Regional Councils) the authority to make joint management agreements with iwi (tribe) authorities and groups representing hapū (sub-tribes) of Maori peoples.⁹² Via these agreements, the joint management entity is able to jointly exercise any of the local authority’s functions, powers or duties under the RMA. The primary purpose of these provisions is to encourage collaboration and co-management between Regional Councils and Maori.⁹³

These joint management provisions have enormous potential for Māori. They are progressive provisions that recognise the dual heritage of New Zealand and the special status that Māori have as *tangata whenua* (the indigenous people of the land). They have the potential to restore to Māori a degree of *mana* (prestige) and also *tinorangatiratanga* (self-determination). They can also result in an improved relationship between *iwi* and local authorities.⁹⁴

Though these provisions represent significant potential for robust co-management arrangements, to date only a handful of such arrangement has been established.⁹⁵⁹⁶

Model 3: Intergovernmental cooperation through delegated authority – Murray Darling Basin Authority, Australia

Australian Commonwealth (federal) legislation has established a basin-wide planning framework to set an integrated annual sustainable diversion limit on groundwater and surface water extraction from the Murray Darling basin, in an attempt to provide a holistic solution to uncoordinated management decisions among different government authorities in the Basin and perennial over-allocation of water resources, exacerbated by drought from 1997-2009. State level governments (similar to Canadian provincial governments) “referred” or delegated some of their authority to the Commonwealth government in order assemble the legal jurisdiction

necessary to establish the Murray Darling Basin (MDB) Authority, which is responsible for developing the Basin Plan.⁹⁷

The MDB Authority is intended to be an expert body, relatively independent from government. A Ministerial Council, made up of state and commonwealth ministers, provides input to the development of the Basin Plan (with the first Plan being issued in November 2012).

The Basin Plan can only impose legal obligations on state governments in state territories where specific Commonwealth jurisdiction exists. However, the role of the Ministerial Council is to develop, by consensus, policies to implement the Plan, following which implementation of policy decisions will be undertaken by individual states, in the form of Water Resource Plans. Water Resource Plan Areas for surface water and ground water are defined by the Basin Plan.⁹⁸

The final decision-maker for the Basin Plan is the responsible Commonwealth minister under the *Water Act 2007*. Amid some criticism that the MDB Authority lacked experts from outside government, the Authority decided to appoint an Advisory Committee on Social, Economic and Environmental Sciences to provide strategic advice with respect to the development of a science and knowledge strategy, science priorities to support implementation of the Basin Plan, and outreach to Basin stakeholders and community members on science-related matters. The MDB Authority is also committed to peer review of its science.

The Basin Plan acknowledges that Indigenous peoples have interests within the Basin, referring to these as “cultural flows”, without (yet) fully acknowledging any Indigenous rights but requiring a certain level of consultation with Indigenous peoples:

The Authority recognises and acknowledges that the Traditional Owners and their Nations in the Murray-Darling Basin have a deep cultural, social, environmental, spiritual and economic connection to their lands and waters. The Authority understands the need for recognition of Traditional Owner knowledge and cultural values in natural resource management associated with the Basin. Further research is required to assist in understanding and providing for cultural flows.⁹⁹

The MDB Authority also consults with a Basin Community Committee, made up of stakeholders from throughout the region.

Model 4: Intergovernmental cooperation through strategic agreement – Southeast Florida Climate Change Compact

Faced with significant and long term impacts due to climate change, including sea level rise and extreme weather events, four counties in Florida with divergent politics that had traditionally competed against each other for state and federal funding decided to focus on regional cooperation to achieve common goals. In 2009 Miami-Dade, Broward, Monroe and Palm Beach counties signed the Southeast Florida Climate Change Compact, and committed to work together to promote sustainability and resilience to climate change at a regional scale.

Collaborative work is guided by a staff-level steering committee that includes two seats for each county, and one municipal representative from each county. The four counties adopted a five-year plan for regional climate action in October 2012. The development of the plan included broad consultation that involved more than 100 stakeholders and experts.

The counties are working together to develop joint positions with respect to funding for vulnerable areas from Congress and state agencies. The counties have successfully lobbied Florida State to define “Adaptation Action Areas” which are prioritized for funding, study and action, and are proceeding to define “Restoration Areas” that should be set aside for protection, as well as “Growth Areas” where new development could be undertaken safely and efficiently. The counties have also proposed Regional Water Management Plans to address drought issues and protection of the Everglades, and have developed unified sea level rise projections for planning purposes.¹⁰⁰

4.2 Stakeholder and public engagement in the context of collaborative management

“Meaningful public participation is both fair and essential. The principles of administrative fairness require that those affected by decisions have the opportunity to take part in making them; and sustainability requires that all interests be heard.”¹⁰¹

Public participation ranges along a spectrum from mere notification to shared or delegated decision-making. For example, stakeholders who have a substantive interest in the geographic area or the values in question may be directly integrated into co-management structures or engaged through a consultative model regarding cumulative effects management.

On the substantive side, stakeholder and community engagement has been recognized as requisite to ensuring that decisions about resource and land use are adequately informed by economic and social realities. For example, in an analysis of governance issues related to the Murray Basin in Australia, it was observed that:

The problems facing the river have social and cultural causes and demand social and cultural solutions...the current state of the Murray can be seen as part of a continuing social problem dating back to settlement rather than a recent environmental problem.¹⁰²

In other words, engagement of stakeholders and communities supports policy outcomes that are more responsive to the root causes of at least some of the problems that those policies likely seek to address. It has been suggested, as well, that community engagement can help provide a lens on policy development and decision-making that offers a more integrated and realistic view of the impacts on the ground of policies and decisions, a sort of antidote to overly linear and technical decision-making.¹⁰³

This may be one of the reasons, for example, behind an innovative provision of the *Mackenzie Valley Natural Resource Act*, which makes public concern an explicit trigger for more in-depth environmental assessment.¹⁰⁴ This statutory provision gives citizens an important say in ensuring that the environmental impacts, including cumulative impacts associated with a development, are assessed.

In a procedural sense, studies have indicated that citizen engagement in the policy process can lead to greater community ownership of both the issue and the solution, i.e. it supports community buy-in,¹⁰⁵ which will presumably have benefits with respect to more effective implementation.¹⁰⁶

In practice, there is significant variety in the type of stakeholder and community engagement, but for engagement to have a meaningful impact on policies, it needs to be linked somehow to the decision-making process.¹⁰⁷ Some commentators highlight the usefulness of involving stakeholders and communities in the deliberation of policy, as a way to arrive at and implement solutions to complex problems.¹⁰⁸ In terms of timing, engagement at the stage of policy development may also reduce the risk of antagonistic responses that can occur when engagement begins at the latter stages of planning and implementation.¹⁰⁹

Summary - Criteria for success

- Ensure opportunities for meaningful community and stakeholder participation linked to decision-making and policy development
- Enhance resilience and legitimacy of decisions through strong communication between co-management bodies and communities and by demonstrating tangible benefits to community members

Model 1: Calgary Greenfield Case Study Charrette¹¹⁰

In 2006 the City of Calgary set out to develop an integrated Land Use and Mobility Plan that would sustainably accommodate 2.5 million people and 1.3 million jobs within the city by 2075. Part of the process involved a series of design charrettes, including the Greenfield Case Study Charrette. A design charrette is a type of workshop that typically brings together local government planners, engineers, architects, interested community members and other stakeholders to work together to develop a practical, integrated solution or set of solutions to achieve a sustainable neighbourhood.¹¹¹ In this case the neighbourhood was a new greenfield community. Diverse perspectives and viewpoints are welcomed.

Over four days the Calgary charrette participants agreed, by consensus, on design indicators, and developed four different design strategies. Participants also considered how the design strategies could be implemented. They emphasized that a common understanding (between policymakers and community members) of the long-term vision for the community was critical, along with ongoing engagement of the community throughout the development phase. This would ensure effectiveness and adaptability. Participants also identified key policy and funding barriers, and potential solutions.

Taking broad community goals as a point of departure, and bringing together participants with a range of perspectives and expertise, but a shared interest in a particular site or neighbourhood, design charrettes can produce practical, integrated strategies that will helpfully inform policy and decisionmaking for the community. While design charrettes are generally designed to take issues down to the neighbourhood scale, the integrative, practical and participatory approach of a design charrette would seem to offer insight into the development of public participation processes at a regional scale.

Model 2: Land and Resource Management Planning Tables

In this example, well known to resource managers in British Columbia, interest-based negotiations among stakeholders from diverse backgrounds resulted in sub-regional land use plans for most of British Columbia. These plans identified new protected areas and defined resource management zones and objectives for vast areas outside of protected areas. While a number of factors constrained the effectiveness of outcomes from these processes (not least the absence of any distinct government-to-government role for First Nations), they remain an important example of in-depth public and stakeholder participation that remains cogent in the context of regional cumulative impacts management.

LRMP processes were guided by a 1993 policy document *Land and Resource Management Planning: A Statement of Principles and Process*,¹¹² which characterized them as “an integrated, sub-regional, consensus building process.” There was an explicit expectation that if consensus was reached, plans would be approved by Cabinet. Key characteristics of the LRMP process included the following:

- All parties with a key interest or stake in the plan were invited to participate. This included “all levels of government and all members of the public with an interest in land use and resource management; and, the public directly affected by the outcome.”
- Each participating sector selected a person or persons to represent them in negotiations and consensus building. Provincial policy provided that: “Representatives must be selected to reflect the full range of land use and resource interests for an area. Periodic consultation with the general public is also required.”
- The primary objective of land and resource management planning was to develop consensus between public participants and government agencies at each stage of the planning process.

- The planning table then submitted a consensus plan or option report for approval by the Province, and legal implementation.¹¹³

The approach to consensus-building, interest based process used in the LRMP process (and in their precursor regional plans facilitated by the Commission on Resources and Environment) was referred to by the Province at the time as “shared decision-making” which was defined as:

A framework approach to participation in public decision-making in which, on a certain set of issues for a defined period of time, those with authority to make a decision, and those affected by that decision are empowered jointly to seek an outcome that accommodates rather than compromises the interests of all concerned.¹¹⁴

The degree of ownership and buy-in felt by stakeholders to these plans, even many years later was exemplified recently in submissions made by many British Columbians to the BC Legislature’s 2012 Special Committee on Timber Supply, which expressed concerns about proposals to allow logging in reserved areas under these plans.

A change in provincial policy with respect to strategic land use planning occurred in 2001 shifted away from a participatory model of planning to a ‘consultation’ model for strategic land use planning.

Model 3: Clayoquot Sound Central Region Board

Note: This model is also noteworthy for its important government-to-government aspects, but is highlighted here re: the role of local community representatives on the board. The CRB represents a potential approach for integrating stakeholder participation with constitutionally-appropriate government-to-government decision-making roles for First Nations.

Enabled by the Clayoquot Sound Interim Measures Agreement (IMA), and subsequent Extension Agreements, from 1994-2009, the Clayoquot Sound Central Board was charged with ensuring that the recommendations of the Clayoquot Sound Scientific Panel for ecosystem-based management were reflected in all resource management plans and approvals in Clayoquot Sound. The Board did so by exercising its authority under the IMA to review all strategic and operational resource management plans as well as decisions regarding alienation of land and water resources, land tenures, wildlife management and mining in Clayoquot Sound, and recommending rejection, approval, or modification to the originating ministry/proponent.

The CRB was very similar in many respects to the northern co-management boards discussed in the previous section, in that it was made up of equal representatives from the First Nations and provincial governments. In the CRB’s case First Nations representation came from each of the five Central Region Nuuchahnulth Nations, and the board had a First Nations’ and a provincial co-chairs. However, the model is noted here to highlight that in practice, provincial representatives on the CRB were typically appointed from among local community members, for example representatives of local government, and conservation and resource interests. In this manner, the Province in effect chose to ‘share’ its decision-making power with diverse stakeholders but within a balanced government-to-government co-management arrangement.

Decision-making within the CRB was by consensus, and if consensus couldn’t be reached, a double-majority vote occurred where the majority of board members and the majority of the First Nations members had to approve a decision. This approach thus allowed both for consensus building among diverse provincial stakeholders/local government representatives but also provided for a distinct and more powerful First Nations role in decision-making.

While in theory the CRB’s decisions were recommendations only, in practice implementation was the norm. The CRB had to resort to a vote only a handful of times in its history. If the CRB’s

decisions were not implemented to its liking in 30 days by the proponent or originating ministry, it was able to appeal disputes to Cabinet, a process that was required exceedingly rarely.

It should be noted that because the provincial approach to appointing its members of the board was not formalized in any way, concerns were sometimes expressed about the balance or representativeness of those appointed. This could have been remedied by formalizing the expectations regarding the local community interests with whom the Province agreed to “share” its decision-making role in board deliberations.

4.3 Acquiring and integrating scientific and Indigenous knowledge¹¹⁵ into collaborative management

It has been said that one of the “expected benefits of multi-level governance... is the linking of formal science and local or indigenous knowledge systems.”¹¹⁶ This is important because “[n]o individual actor –state or non-state—will have the full range of knowledge required to support effective environmental governance.”¹¹⁷

“Science-based decision-making” or a similar formulation is not infrequently stated as a goal of collaborative management bodies, with the often explicit understanding that equal weight and value is to be placed on Indigenous knowledge –based on millennia of direct experience and observation of the ecosystems subject to collaborative management –and linked to First Nations culture and spirituality. “There is a growing literature on the potential in combining local knowledge systems with scientific knowledge to cope with change in resource and ecosystem management.”¹¹⁸

Even where statutory provisions and formal decision rules require that co-management bodies apply or incorporate Indigenous knowledge, there is considerable critical commentary questioning whether this is occurring. At a minimum, ensuring that Indigenous knowledge-holders themselves are involved at all stages of environmental decision-making is critical, because knowledge “is not a stand-alone element, and ... the holders of knowledge must be engaged in the resource management process in ways that are truly meaningful to them.”¹¹⁹

Many of the most successful examples of integrating scientific and Indigenous knowledge into collaborative management and decision-making appear to be those that establish a form of independent or jointly managed science or technical body to provide relevant information to policy and decision-makers. In this way the possibility of “dueling” scientific interpretations or fuzziness about technical questions versus policy issues is lessened, and decisions that are based on social or economic values can be recognized as such and dealt with as matters of policy. This form of “knowledge co-production” has been emphasized as a primary concern in governance processes.”¹²⁰

Because available scientific or Indigenous knowledge may evolve over time, it is important that policy frameworks for co-management bodies provide for flexibility and updating at regular intervals, and a recommending a process for doing so (for example, an adaptive management approach) may be part of the advice and input provided by the experts engaged.

Summary - Success criteria:

- Commitment to use of best available scientific and Indigenous knowledge and giving equal weight to each
- “Firewall” between science and social choice decisions
- Ability to incorporate updated scientific and Indigenous knowledge
- No one party should have exclusive control over research and data analysis

Model 1: Independent science body (Coast Information Team)

The Coast Information Team (CIT) operated between 2002 and 2004 with the mandate of providing independent information and analysis, based on best available scientific, traditional, and local knowledge, to inform development and implementation of ecosystem-based land use planning and management on the North and Central Coast and Haida Gwaii.

The CIT was formed through a joint Memorandum of Understanding between the BC provincial government, First Nations governments, the forest industry, environmental groups, communities and later the federal government as part of the implementation of the 2001 CCLCRMP (Central Coast Land and Coastal Resource Management Planning) Phase I Framework Agreement. The intention of the Parties was to provide a common set of scientific and Indigenous knowledge resources to various land use planning and decision-making processes in the region.

The CIT was overseen by a five-person management committee made up of representatives of the provincial government, First Nations, environmental NGOs, forest products companies, and the community at large and supported by a secretariat (including an executive director, a project manager and other part-time staff). Provincial (58%), federal (6%), ENGO (18%) and forest products companies (18%) contributed financially to the \$3.3 million budget of the CIT.

The work of the CIT sought to embody the principles of credibility, independence and transparency. Transparency and credibility were supported by peer review of most products and ensuring their public availability, while the management committee structure helped ensure that scientific, local, and traditional knowledge experts retained to do work for the CIT were seen as credible by all parties involved. Examples of CIT products include: the Ecosystem-based Management Framework, the EBM Planning Handbook, the Hydroriparian Planning Guide, the wellbeing assessment, and institutional analysis.¹²¹

Another excellent example in this vein was the **Clayoquot Scientific Panel**.¹²² The Clayoquot Scientific Panel was an expert panel of Elders, Indigenous knowledge holders and scientific experts that made extensive findings and recommendations for “sustainable ecosystem management in Clayoquot Sound” that were adopted in 1996 as the basis of decisions about tenure, planning and practices in the region through an Interim Measures Agreement between the Provincial Government and the Ha’wiih (Hereditary Chiefs) of the Nuuchah-nulth central region.

Model 2: Science Panel of the Puget Sound Partnership

The Puget Sound Partnership (PSP) is an agency of the Washington State government, created by statute.¹²³ It has no regulatory authority, but develops action agendas for all levels of government aimed at the ecological recovery of Puget Sound by 2020. Its Leadership Council consists of seven representatives appointed by the Governor, and it is advised by a 27-member board with representation from tribal and local governments, business and environmental communities, and state and federal agencies.

The Science Panel is made up of nine members chosen from among the top scientists in the State of Washington, nominated by the Washington Academy of Sciences and elected by the Leadership Council of the PSP. The mandate of the Panel is to provide independent, nonrepresentational scientific advice to the Council, including the identification of environmental indicators and benchmarks for incorporation into the action agenda of the PSP. Duties of the Panel are specified in the enabling legislation for the PSP. The Science Panel does not provide advice on Indigenous knowledge.

Of particular note is the Strategic Science Plan developed by the Panel¹²⁴, which outlines a process for developing and incorporating scientific information into PSP activities, including two-way engagement between the Panel and PSP policymakers, the development of an adaptive management framework and performance management system, and periodic peer review of Panel activities, as well as an education and outreach plan to build public awareness of the value and role of science in the recovery of Puget Sound.

Model 3: Using Trusts to Get Impartial Resource-Use Information¹²⁵ (Babine Watershed Monitoring Trust)

Land use planning involves social choice decisions that are often based on uncertain information. Overstall proposes that the trust is “a useful legal device to enable competing interests to agree on a common process to assess uncertainty and risk” surrounding land use plan outcomes. The Babine Watershed Monitoring Trust was established in 2005 to implement a monitoring program in the Babine River drainage (a sub-drainage of the Skeena). One of the catalysts for the trust was negotiations leading to the West Babine Sustainable Resource Management Plan, in which the parties agreed to accept a “less than ideal plan if there was an agreed upon process to modify the plan if it failed to meet its stated objectives.”

An ad hoc Governance Design Group with representatives from the angling/tourism industry; the timber industry; Bulkley Valley Community Resources Board; the then Ministry of Forests; the then Ministry of Agriculture and Lands (Integrated Land Management Bureau); and Ministry of Environment (Fish and Wildlife Branch). First Nations peoples with territories in the Babine watershed declined to participate. Overstall reports that:

What emerged from the design group’s initial discussions was the need for a governance structure that would satisfy three conditions:

1. allow diverse and conflicting interests to participate in monitoring, assured that no one of them could control the decision-making or results;
2. insure that the selection of monitoring projects and their results would be impartial, reliable, transparent and freely available;
3. apply scarce monitoring resources to those plan objectives that were most at risk.

After a year of monthly meetings facilitated by the Bulkley Valley Resource Centre, a trust was selected as the legal form that could best meet these conditions. In a trust arrangement the owner of property (in this case funding for monitoring activities and the resulting information) draws up rules, and then hands over the property to a trustee, who has a legal obligation to follow the rules. In turn the trustee’s duties may be enforced in court.

In the case of the Babine Watershed Monitoring Trust the trust is for the benefit of a charitable purpose, namely “to conduct impartial monitoring research on the effectiveness of land use plans in the watershed,” rather than a specific named individual. The applicable rules are embodied in the Babine Watershed Monitoring Trust Agreement,¹²⁶ which was signed in 2005 by the parties who had participated in the Design Group. Among other things the Agreement incorporates an agreed to Monitoring Framework designed by scientific consultants, as well as decision-making rules and procedures. The Monitoring Framework provides a key mechanism for trustees to prioritize projects impartially.

The annual budget of the Monitoring Trust is about \$50,000 of combined public and private funds. Private funds have come from the tourism industry and its clients, and are matched by government funds at a 1:2 ratio.

Overstall highlights as a key strength of this trust mechanism its ability to “separate the science of effectiveness monitoring from the politics of determining plan objectives,” thus allowing it to produce objective information about how strategies in the land use plans are meeting land use

objectives and goals. Ultimately, the impact of the trust's activities will depend on whether the results of monitoring, where necessary, trigger changes to plans and activities to better protect valued components of the ecosystem and human well-being.

Model 4: Direct involvement of Indigenous knowledge-holders supported by constitutional and statutory requirements

In the north there are a wide variety of co-management boards involved in various aspects of resource management. In these models, the principal mechanism used to integrate Indigenous knowledge into decision-making (as is constitutionally and statutorily required) is the direct participation of Indigenous knowledge holders as decision-making members of the various boards. Examples include:

- Mackenzie Valley Land and Water Board¹²⁷
- Gwich'in Land and Water Board¹²⁸
- Sahtu Land and Water Board¹²⁹
- Wek'eezhii Land and Water Board¹³⁰
- Gwich'in Land Use Planning Board¹³¹
- Sahtu Land Use Planning Board¹³²
- Dehcho Resource Management Authority and the Deh Cho Land Use Planning Committee¹³³
- Gwich'in Renewable Resource Board¹³⁴
- Sahtu Renewable Resources Board¹³⁵
- Wek'eezhii Renewable Resources Board¹³⁶
- Mackenzie Valley Environmental Impact Review Board¹³⁷
- Joint Secretariat – Inuvialuit Renewable Resource Committees¹³⁸
- Fisheries Joint Management Committee¹³⁹
- Inuvialuit Game Council¹⁴⁰
- Joint Secretariat – Inuvialuit Renewable Resource Committees¹⁴¹
- Fisheries Joint Management Committee¹⁴²
- Inuvialuit Game Council¹⁴³
- Nunavut Water Board¹⁴⁴
- Nunavut Wildlife Management Board (NWMB)¹⁴⁵
- Nunavut Impact Review Board (NIRB)¹⁴⁶

Northern land claims agreements and enabling legislation explicitly provide for use of Indigenous knowledge. For example, *Mackenzie Valley Resource Management Act*, s. 115.1 reads: "In exercising its powers, the Review Board shall consider any traditional knowledge and scientific information that is made available to it." Furthermore, the Review Board's Guidelines for incorporation traditional knowledge in environmental impact assessment provide that: "In order to ensure that aboriginal cultures, values and knowledge play an appropriate role in its determinations, the Review Board is committed to fully consider any traditional knowledge brought forward in its proceedings."¹⁴⁷

The impact of this is shown by examples where the Review Board recommended that proposals be rejected based on Indigenous knowledge evidence (e.g., a diamond exploration project at Drybones Bay on Great Slave Lake in 2004, and a small, uranium drilling operation proposed for the Upper Thelon basin in 2007).¹⁴⁸

Nevertheless, the role played by Indigenous knowledge in land claims boards has been the subject of a number of critiques.¹⁴⁹ Much of this centres on the fact that while the northern land-claims boards by all accounts do a reasonable job of incorporating factual "local environmental knowledge", e.g., of species migration patterns, they have had a more challenging time coming

to terms with the more deeply spiritual or philosophical underpinnings of Indigenous norms regarding interactions between people and between people and their environment. Anthropologist Paul Nadasdy for example, goes so far as to argue that “by ensnaring participants in a tangle of bureaucracy and endless meetings” land-claims boards impede “meaningful change” for Aboriginal Peoples, because “to participate...they have to accept the rules and assumptions of the state management game.”¹⁵⁰

Based on extensive interviews of northerners involved in land-claims boards as well as Aboriginal governments Christensen and Grant found that, however:

[I]nterview respondents were more concerned that co-management arrangements give local Aboriginal people greater representation and participation in the process, so that their knowledge would be contributed to decision making on resource management. For respondents, the issue was not so much how to integrate two different ‘ways of knowing’: it was to ensure that decisions would no longer be made for the people, but rather by the people.¹⁵¹

Overall, many commentators point to the substantially greater influence over environmental decision-making “than was possible, or even imaginable under the state system” concluding that “if ‘the alternative’ is the state management system that largely excluded aboriginal people and their TK [Traditional Knowledge], land-claim boards may be judged a success in securing aboriginal influence over land and wildlife decisions,” despite the fact that the board’s “essentially bureaucratic nature” has meant that sincere efforts to incorporate TK “have been only partially successful.”¹⁵²

Finally a word should be said about the various secretariats and dedicated staff that support the northern co-management boards. From the perspective of “co-production of knowledge” it is significant that these technicians, science and Indigenous knowledge experts, and administrators are responsible to the boards they serve, including implementing their commitments to e.g., incorporating TK.

A BC example of this approach is found in the former Clayoquot Sound Central Region Board, which had its own technical and administrative staff. The approach may be contrast to a situation like Land and Resource Management Planning in BC where line ministry staff provided technical support, or even to bodies where technical duties are filled by employees or members of the parties (see below). The latter situations can present circumstances where technicians have other responsibilities, duties and priorities to their employer that influence how they perform their roles beyond the mandate of the co-management body.

Model 5: Joint Technical Body

A common feature of many emerging “shared decision-making” agreements between the Crown and First Nations are joint technical bodies who are responsible for collaboratively reviewing and making recommendations to decision-makers on land and resource applications in the nations’ territories according to an agreed-to “engagement” or “shared decision-making” process framework. In a number of cases the work of joint technical bodies (and related political government-to-government forums) is closely linked to strategic land use agreements that also provide substantive direction to the joint work of the parties with respect to subsequent resource approvals.

These bodies, such as the Haida Gwaii Solutions Table, the Gitanyow Joint Resources Council, Coastal First Nations “Technical Teams”, or the Tsilhqot’in Joint Resources Council involve technical or scientific staff of the parties to Reconciliation Agreement or Strategic Engagement Agreements. In a less formal manner than the northern examples, this approach counts on the balanced involvement of First Nations individuals to ensure that their perspectives and knowledge are brought into a consensus-seeking process. One distinction, however, is that technical and scientific staff involved in shared decision-making in BC remain representatives of their government employer/nation, and independence from that affiliation is not expected.

Indeed the process of negotiation between parties is hoped to produce outcomes that accommodate the needs of both. A further difference is that legal mechanisms that result in deference to recommendations from co-management bodies in the north are largely absent in the BC context (with the exception of Haida Gwaii, see section 4.4 below), although consensus recommendations are assumed to have a greater likelihood of implementation by the parties' respective decision-makers.

Ultimately, “[b]uilding social-ecological resilience requires understanding of ecosystems that incorporates the knowledge of local users,¹⁵³ and questions of governance and knowledge generation are closely linked. As the Clayoquot Scientific Panel acknowledged in one of its key recommendations for ecosystem-based management, the answer may lie in “co-management based on equal partnership and mutual respect as a means of including indigenous people and their knowledge in planning and managing their traditional territories.”¹⁵⁴

4.4 Giving effect to information/recommendations/decisions of regional co-management body

“If co-management is to proceed, government[s] must take action to enact supportive policies, legislation and authority structures, which define jurisdiction and control, give legitimacy to decision-making arrangements, clarify the rights and responsibilities of partners and communities, and uphold local enforcement and accountability mechanisms.”

—Sherry and Fondahl, Criteria Affecting Success of Co-management¹⁵⁵

The composition, mandate and authority of regional co-management bodies may be enabled in a variety of ways. Often bodies are established through government-to-government agreements between the Crown and one or more First Nations (including formal treaties but also other types of agreements and MOUs). Some are established through legislation and others through trust agreements. Regardless of how they are established, the critical question for the purposes of our analysis is how the outcomes of their work can and should be integrated into decisions about resource use and allocation in order to manage cumulative effects.

As the Forest Practices Board noted in its recent report on assessing and managing cumulative effects: “the real issues are not about methods of assessment; they are about the development and implementation of a decision-making framework that can be informed by those assessments.”

Current discretionary (e.g., no mandatory consideration of cumulative effects in environmental assessment; no requirement to follow land use plans in project-specific environmental assessment), incomplete (e.g., legal objectives flowing from land use plans don't apply to most resource industries) and voluntary (e.g., occurs only an ad hoc basis if market or social license concerns arise) approaches to cumulative effects management in BC have landed us in the untenable situation we now find ourselves.

It has thus been suggested that “the establishment and enforcement of regulatory *limits* on specified human activities that contribute to cumulative environmental effects” is a key success factor in effective cumulative effects management.

Summary - Criteria for success

- Remove legal barriers to cumulative effects management
- Legal mechanisms that ensure that outcomes from regional cumulative effects assessment, planning and monitoring are implemented and enforced

- Decision-making authority of co-management bodies is enabled by legislation

In this case we have grouped examples provided by element of cumulative effects management.

4.4.1 Establishing strategic level direction (i.e., identifying targets/objectives for valued components, collaborative planning to spatially apply targets)

Model 1: Legislation provides that plans are binding

The *Mackenzie Valley Resource Management Act*, for example, provides that:

46. (1) The Gwich'in and Sahtu First Nations, departments and agencies of the federal and territorial governments, and every body having authority under any federal or territorial law to issue licences, permits or other authorizations relating to the use of land or waters or the deposit of waste, **shall carry out their powers in accordance with the land use plan applicable in a settlement area** [emphasis added].

Similarly, Ontario's *Far North Act*¹⁵⁶ provides that:

14. (1) If there is a community based land use plan for a planning area, no person shall make any decision under an Act respecting the allocation, disposition or use of public land and natural resources in the area or carry on any activity in the area that is related to that allocation, disposition or use unless the decision or the activity, as the case may be, is consistent with the land use designations and permitted land uses specified in the plan and the permitted activities prescribed for the purpose of the plan.

In addition, no new industrial activities (mining, oil and gas development, commercial logging etc.) are permitted in areas without community based land use plans, until such plans are developed and approved under the *Far North Act*.

Model 2: Stand alone legislation provides management direction for a specific region

BC examples include the *Muskwa-Kechika Management Area Act*¹⁵⁷ and the *Flathead Watershed Area Conservation Act*.¹⁵⁸

Model 3: Delegated legal authority exercised by local body subject to an approved management plan.¹⁵⁹

The California Coastal Commission (CCC) is one of the agencies designated to administer the federal *Coastal Zone Management Act* in California, and as such manages development activities along the California coast except for San Francisco Bay. Local governments along the coast are mandated to prepare Local Coastal Programs, which they submit to the CCC for approval. Once approved the CCC delegates its permitting authority for the area in question to the local government that prepared the Plan, with certain limitations. The CCC also acts as the appeal body for certain local government permitting decisions.¹⁶⁰

Model 4 Cabinet or ministerial orders establish zones/designations and legal management objectives for them (BC)

As noted above, presently in BC, the province's preferred mechanisms for legalizing resource management objectives/targets (*Land Act*, s. 93.4 orders and *Government Actions Regulation*

orders) do not apply to most resource uses, limiting their effectiveness from the perspective of cumulative effects management. However, *Land Act*, s. 93.1 (if brought into force) would create a legal mechanism to make objectives for various land designations applicable to a range of industries (or more properly to statutory approvals and tenure decisions made under statutes regulating these industries). *Environment and Land Use Act*, s. 7 orders may also be made applicable despite the provisions of any other act.

4.4.2 Assessing, managing and regulating activities to ensure objectives are met

Once objectives/targets for different values are established, cumulative effects management still requires decision-makers to decide whether any specific project or decision is within those limits, and manage the complexity of trade-offs between activities that compete for “space” within the limits established.

There are many models where elements of these environmental assessment, tenuring and permitting decisions rest with co-management bodies. We note that although most co-management arrangements in Canada provide that “ultimate” authority rests with the Crown, co-management may be structured so that, in practical terms the co-management body has considerable authority. One example of this, the **Clayoquot Sound Central Region Board**, was discussed earlier in this paper.

Model 5: Nunavut Wildlife Management Board.

The Nunavut Wildlife Management Board, a co-management body established under the Nunavut Land Claims Agreement, is the main regulator of access to wildlife in the Nunavut Settlement Area. Although the Crown is said to retain “ultimate” responsibility for wildlife management in the area, the Board is the main instrument of management and the main regulator of access to wildlife. Its functions include:

- establishing, modifying or removing levels of total allowable harvest;
- allocating resources to residents and to existing operations in the territory;
- approving plans for management and protection of particular wildlife or habitats; and,
- establishing wildlife management zones and conservation areas.

Decisions of the Nunavut Wildlife Management Board must be accepted and implemented by the Minister, unless specifically disallowed according to legally entrenched “decision-making criteria” (e.g., to give effect to a valid conservation purpose/to provide for public health or safety) within a set time frame.

Model 6: Haida Gwaii Management Council

The *Haida Gwaii Reconciliation Act* and a resolution of the Haida Nation jointly establish the Haida Gwaii Management Council, consisting of two members each appointed by the Haida Nation and provincial Cabinet, and a jointly appointed chair. The *Haida Gwaii Reconciliation Act* places legal authority for certain strategic land and resource decisions with the Council: the establishment of forest and range practices objectives, determining the allowable annual cut, approving protected areas management plans, and establishing policies and standards for the identification and conservation of heritage sites.

In addition the Kunst’aa guu – Kunst’aayah Reconciliation Protocol between the Haida Nation and the Province of British Columbia provides for establishment of a technical level Solutions Table that engages in consensus-seeking deliberation on other forms of land and resource decisions, with the intention of presenting consensus recommendations to the respective

decision-makers of the parties. If the Solutions Table is unable to reach consensus, all relevant information, including about areas of disagreement are forwarded to the decision-makers. Dispute resolution mechanisms if the Parties reach different decisions are not clear from the Protocol itself.

4.4.3 Adjusting plans and actions based on outcomes of monitoring

Few jurisdictions that we examined provided legislative triggers for adaptive management, although there are some places where monitoring is specifically provided for:

The Nunavut Land Claims Agreement (NLCA) makes monitoring a constitutional requirement, but does not specifically provide for how monitoring information is to be integrated into decision-making.

Article 12.7.6 - General Monitoring

There is a requirement for general monitoring to collect and analyse information on the long term state and health of the ecosystemic and socio-economic environment in the Nunavut Settlement Area. Government, in co-operation with the Nunavut Planning Commission (NPC), shall be responsible for developing a general monitoring plan and for directing and co-ordinating general monitoring and data collection.

The monitoring of cumulative effects is also a constitutional obligation contained in the Sahtu, Gwich'in and Tlicho comprehensive land claim agreements and a statutory requirement of Part 6 of the *Mackenzie Valley Resource Management Act*, which provides:

146. The responsible authority shall, subject to the regulations, analyze data collected by it, scientific data, traditional knowledge and other pertinent information for the purpose of monitoring the cumulative impact on the environment of concurrent and sequential uses of land and water and deposits of waste in the Mackenzie Valley.

One of the innovations of Part 6 of the *Mackenzie Valley Resource Management Act* is that it also requires the federal Minister to have an independent environmental audit conducted at least once every five years.¹⁶¹ The terms of reference for the audit including the key components of the environment to be examined must be fixed in consultation with the Gwich'in First Nation, the Sahtu First Nation, the Tlicho Government and the territorial government. The *Mackenzie Valley Resource Management Act* further provides that:

148 (3) An environmental audit shall include

- (a) an evaluation of information, including information collected or analyzed under section 146, in order to determine trends in environmental quality, potential contributing factors to changes in the environment and the significance of those trends;
- (b) a review of the effectiveness of methods used for carrying out the functions referred to in section 146;
- (c) a review of the effectiveness of the regulation of uses of land and water and deposits of waste on the protection of the key components of the environment from significant adverse impact; and
- (d) a review of the response to any recommendations of previous environmental audits.

It is noteworthy that the most recent independent environmental audit found that:

INAC has not fulfilled its mandate under the *MVRMA* to implement an effective Cumulative Impact Monitoring Program (CIMP). CIMP has been chronically underfunded and underresourced. Community capacity building and environmental monitoring programs are largely occurring on a one-off basis. The lack of progress in implementing CIMP has hindered land use planning and the ability of MVRMA Boards, regulators and the public to properly assess the cumulative impact context within which project-specific decisions need to be made. CIMP data are rarely relied upon by participants in the regulatory system.... INAC should develop, properly fund and carry out a program to monitor cumulative impact in the NWT.¹⁶²

Beyond statutory requirements for monitoring, there are a number of boards and trusts that do excellent work in generating either research and/or monitoring information (e.g., Okanagan Basin Water Board, Babine Watershed Monitoring Trust), but have no legal authority to ensure that decision-makers act on the information.

That said, the funding capacity of some bodies, like the Columbia Basin Trust or the Okanagan Basin Water Board mean that in some cases they can support activities that directly give effect to learnings from knowledge generated.

4.5 Options for funding collaboration in regional cumulative effects management

This section will examine approaches used currently in BC, as well as models from other jurisdiction, for funding regional co-management bodies or other institutional arrangements for cumulative effects management.

Summary: Criteria for success

- Ample, stable and apolitical funding
- Objective and mutually agreed-to criteria for prioritizing among uses of limited resources
- Funding arrangements that are flexible enough to address emerging priorities

Model 1: Coast Opportunities Funds

Government-to-government strategic land use agreements on the Central and North Coast and Haida Gwaii have resulted in implementation of an ecosystem-based management framework for managing human activities, particularly forestry, in what is often referred to as the Great Bear Rainforest. One of the innovations of the approach implemented in this region was the creation of the Coast Opportunities Funds. The two funds, The Conservation Fund and The Economic Development Fund are sustained by funds that were provided by Province of British Columbia (\$30 million), the Government of Canada (\$30 million), and six philanthropic foundations (\$60 million). Both funds may be accessed only by participating First Nations (First Nations with territories in the Great Bear Rainforest who signed land use planning agreements with the provincial government) by application to the fund and approval by the board of directors.

The Economic Development Fund is “a shorter-term fund designed to create sustainable businesses and community-based employment opportunities over seven years.”¹⁶³

The Conservation Fund is a permanent endowment fund of \$56 million. Each year income earned from the fund (anticipated to be in the range of 1.5 to 2.5 million) is used to pay for eligible conservation management projects and activities that support the goals of the fund. These goals are directed at the long-term conservation of the region, and include things like habitat restoration and educational programs.

Of particular interest, however from the perspective of governance and regional cumulative effects management is the Conservation Fund's focus on enhancing capacity for ongoing conservation planning, research and monitoring. Many grants made to date from the Conservation Fund have gone to sustain innovative monitoring and enforcement programs such as the Guardian Watchman Program, as well as to build capacity among First Nations resource management and stewardship departments.

Model 2: Property Taxation Power (New Zealand Regional Councils)

Property tax on residential and business properties is the primary source of funding for New Zealand's Regional Councils (referred to as "rates" in that country). While the types of rates charged and means of calculation vary in each region, rates are generally calculated as a function of property value. One of the primary purposes of the *Local Government (Rating) Act 2002* is to ensure that rates are set in a "transparent and consultative manner" and that information is readily available to taxpayers to ensure that they understand their liability for rates.¹⁶⁴ Certain rates are only charged to those constituents that benefit from a particular service. For example, the Horizons Regional Council charges a biodiversity rate to those constituents that benefit from pest animal control.¹⁶⁵ Funding also comes from government subsidies, fees and user charges and investment income.¹⁶⁶

The New Zealand *Local Government Act* imposes requirements on Regional Councils to have balanced budgets, and stipulates that the central government is not responsible for their debt.¹⁶⁷ Annual budgets must be published in an annual plan that is subject to public consultation, and at the end of each year, the Regional Council must publish an annual report revealing whether and to what extent the budget was adhered to.¹⁶⁸

Model 3: Property taxation power (Okanagan Basin Water Board)

Established by Supplementary Letters Patent pursuant to the *Municipalities Enabling and Validating Act*¹⁶⁹, the Okanagan Basin Water Board (OBWB) is a unique BC entity that delivers programs related to water management in the Okanagan Basin. Representation on the OBWB consists of three directors from each of the three regional districts, one director appointed by the Okanagan Nation Alliance, one director from the Okanagan Water Stewardship Council, and one director from the Water Supply Association of BC.

The Supplementary Letters Patent¹⁷⁰ specify tax rates that the OBWB can collect through the Regional Districts for each of its approved programs based on assessed property values for residents and businesses within the Okanagan Basin. The OBWB itself has a program that provides grants for projects related to water conservation and water quality impacts.

In addition to the revenue generated through taxation, the OBWB has pursued a model of leveraging project-based funding from different levels of government, universities and foundations, with an emphasis on collaborative work that provides relevant input for local governments in the Basin.

Model 4: Property taxation power (Columbia Valley Local Conservation Fund)

In 2006 the Regional District of East Kootenay (RDEK) learned through a survey that residents would be willing to pay up to \$20 per property per year to support conservation initiatives in the Columbia Valley region. The survey was followed by community consultation and a referendum, which confirmed support for the measure. In 2009, by means of a service establishment bylaw, the RDEK created a conservation fund supported by a property tax levy from participating areas within the regional district. Funds are allocated by the RDEK Board, based on the advice of a volunteer Technical Review Committee that examines project proposals following terms of reference decided by the Board. The Fund is administered through an agreement with the East

Kootenay Conservation Program, made up of more than 50 partners including conservation and agricultural organizations, forestry and business, education, First Nations, and all levels of government.¹⁷¹

Funds awarded through the Conservation Fund have reportedly been used to leverage funds from other sources.¹⁷² To support public commitment to the Fund, selected proponents report out to the community at annual town hall meetings.

Model 5: Trust endowment (Columbia Basin Trust)

The Columbia Basin Trust (CBT) is created by statute¹⁷³ and has a \$321 million endowment whose investment returns provide funding for its programs. According to its enabling legislation the CBT is required to use its funds for the “ongoing economic, environmental and social benefit of the region.” The twelve directors of the CBT (including 5 Board members from each of the Regional Districts within the CBT defined region and one representative from the Ktunaxa-Kinbasket Tribal Council, plus six other directors appointed by Cabinet) are charged with developing a long term Columbia Basin Management Plan, and allocating funds to meet the objectives of the plan. Before making any changes to the plan, the directors “must solicit input on the proposed amendments from residents of the region in the manner and to the extent the directors consider appropriate.”

The CBT was created in response to public outcry about the lack of public consultation carried out by government before the Columbia River Treaty was signed in 1964, when a number of communities and First Nations suffered significant negative impacts as a result of the creation of three reservoirs and the associated permanent flooding of land, that led to loss of agricultural and traditional First Nations lands, loss of habitat and harm to ecosystem values. At this time it is not clear if the CBT, despite its substantial funding and resources, has successfully engaged in the community regarding watershed impacts and address long-standing concerns. A recent symposium held in the region, organized and hosted by the Columbia Basin Watershed Network, and widely attended by grassroots organizations and First Nations representatives, explored the need to develop a watershed strategy for the region.¹⁷⁴

Model 6: Proponent Funded Independent Environmental Monitoring Agency - NWT¹⁷⁵

The Independent Environmental Monitoring Agency (IEMA)¹⁷⁶ was formed through a legally binding Environmental Agreement¹⁷⁷ signed in 1997 by BHP Billiton Diamonds Inc., the Government of Canada and the Government of the Northwest Territories. The IEMA was established as a public watchdog for a single project--BHP-Billiton's Ekati diamond mine. Seven directors are appointed by the parties (4 appointed by Aboriginal Peoples, 3 joint federal-territorial-BHPB appointees, who may not be employees of any of the parties) to monitor environmental performance by the company and government regulators. The company is required to fund the agency for entire life of the project, including reclamation and closure. The Environmental Agreement provides that the IEMA “shall operate at arms length from, and independent from” the company, Canada and the Government of the Northwest Territories. The IEMA itself is a non-profit society incorporated under the Northwest Territories *Societies Act*.

The agency participates in all regulatory reviews and licensing hearings, and ensures that Aboriginal community concerns are effectively communicated to the company or government as required. The IEMA has no enforcement capability, but it does produce an annual report and can resort to informing the responsible minister if there are unresolvable issues emerging at the mine.

Because of the technical capacity of the appointed directors, IEMA has become a significant player in management of the Ekati mine. It produces solid scientific work, and has eased the burden on regulatory agencies and the Aboriginal communities who have grown to trust it as a

reliable and object source of environmental information about the mine. The success of IEMA has led to proposals for a regional, multi-project oversight agency, although this has not been accepted to date by some of the mining companies who would need to be a part of it.

Extrapolating from this experience, it seems conceivable that at a regional scale, funds from a range of all proponents could form part of a fund for ongoing monitoring of cumulative impacts on valued components in the region, potentially structured as a trust in order to create a legal firewall between proponents and the agency. This would allow for efficiencies and cost-sharing for monitoring programs that might otherwise been required on a project-by-project basis.

Model 7: Payment for Ecosystem Services (Carbon Benefit Sharing)

Status quo logging in BC is a massive source of greenhouse gas emissions.¹⁷⁸ Projects that avoid these greenhouse gas emissions through permanent, additional conservation measures create a carbon benefit that may have a market value in voluntary or regulated carbon markets. In a handful of recent government-to-government reconciliation agreements between First Nations and the province of BC¹⁷⁹ the parties have reached innovative arrangements to share the carbon benefits of agreed to conservation and improved forest management practices.

In each case the parties had also concluded strategic land use agreements with the province that provided for new protected areas, and management objectives implementing more ecosystem-based forest management. The parties agreed to quantify the tonnes of carbon in avoided emissions or enhanced carbon sequestration associated with these measures each year and to apply them as follows: as a first priority to cover the costs of the First Nation in administering the Offset Sharing Agreement; as a second priority to cover the costs of the First Nation in meeting its obligations under the reconciliation agreement (e.g., protected areas management); and as a third priority the remaining tonnes of each year's "qualifying offsets" are to be shared 50-50 between the parties, and then may be sold in carbon markets.

5.0 Analysis: Multi-level Institutional Options for Cumulative Effects Management

"Adaptive governance of ecosystems generally involves polycentric institutional arrangements, which are nested quasi-autonomous decision-making units operating at multiple scales."¹⁸⁰

The models highlighted in this paper represent a number of different institutional forms, at different scales, for example:

- Elected regional governance bodies
- Trusts
- Legislatively enabled tribunals or co-management bodies
- Boards established by government-to-government agreement or other form of legal agreement or non-legal memorandum of understanding
- Time limited planning teams or committees

Our analysis suggests that different institutional models or approaches to governance may be most appropriate for different elements of regional cumulative effects management. The following matrix illustrates our findings.

All of the governance approaches identified below would require adequate funding and secretariat/staff support to function effectively. Options for addressing these issues are discussed in sections 4.3 and 4.5 above.

A brief note about the multi-level nature of the governance approaches proposed below. Throughout this paper we have used “regional” to denote a scale which is above that of an individual project, and depending on the value in question, one that is often larger than any one First Nations territory and that may cross-cut local government, provincial and federal administrative boundaries (regional districts, timber supply areas, political ridings etc). Choices will need to be made in the context of regional cumulative effects assessment, management, and monitoring regarding the precise nature of the “regions” in question, balancing a number of factors, and we have not commented on that issue here (aside from the need to align governance institutions with appropriate ecological scales). However, we stress that for our purposes the First Nations territorial level (which may be sub-regional or at a landscape level geographically) still remains very much in play, given that First Nations’ decision-making authority is inextricably linked to the land and resources associated with their specific title and rights. Thus, in the matrix below we have attempted to propose potential linkages between the regional and territorial level based on our research and analysis.

Element of Cumulative Effects Management	Recommended Governance Approach	Comments
<i>Establishing strategic level direction</i>		
Identifying valued components of the environment and human well-being	Broad public engagement process + government-to-government engagement with First Nations	While many values of importance to ecological integrity and human well-being in BC are highlighted in existing legislation, plans and policies, because this element of cumulative effects management is the foundation for the legitimacy of the whole process, it is one that recommends itself to an inclusive public process with multiple different types of opportunity for engagement. Because constitutionally protected title and rights have special legal protection a distinct process of engagement with First Nations is also required. Engagement process could be jointly overseen by Province and First Nations Leadership Council (provincial level values) and by local governments, Province and local First Nations re: local and regional level values.
Establishing targets/objectives for valued components	1. Who: Independent science body. What: Develops low risk targets as input to social choice decisions for key valued components and as a benchmark for monitoring 2. Who: Stakeholder and public engagement process. What: Peer review and comment on proposed targets 3. Who: Regional co-management team or body. What: Negotiates objectives/targets and a framework/principles for their application at a territorial level	Science body should embody both Western scientific knowledge and Indigenous knowledge Steering committee overseeing science body should be structured so that through their involvement in setting the terms of reference and selecting experts the results of the science body's work are seen as widely credible by all actors. Co-management team/body should reflect best practices re: structuring collaboration between levels of government and with stakeholders (see models discussed above); may involve value specific sub-committees or teams.
Land use planning	Who: Territorial co-management body or team: What: Spatially applies targets within a given First Nations territory and formalizes outcomes in a	May be occurring concurrently with scenario analysis While considerable scientific and technical work on key values may be done at a regional scale, the actual spatial

Element of Cumulative Effects Management	Recommended Governance Approach	Comments
	government-to-government agreement	application of zones and management direction must directly involve Aboriginal title and rights holders. Co-management team/body should reflect best practices re: structuring collaboration between levels of government and with stakeholders (see models discussed above).
Scenario analysis	Who: Independent expert body What: Develops scenarios of “possible futures” re: pace and scale of development Who/what: Governments conduct broad public engagement on scenarios. Who: Regional co-management body or team. What: makes social choice decision about scenario that is anticipated to generate maximum mutually reinforcing benefits for sustaining valued components of the environment and human well-being over time.	“Expert body” should be understood broadly to involve all necessary forms of technical expertise, including social and economic as well as ecological and Indigenous knowledge. Novel legal mechanisms and financial incentives may be required to enable desired scenarios.
<i>Assessing, managing and regulating activities to ensure objectives are met</i>		
Environmental assessment	Who/What: New provincial agency + Co-managed (First Nations-Province) assessment panels for proactive regional cumulative impacts assessments and project specific assessments	Although not yet in place (and thus not highlighted as part of model analysis in this paper) the First Nations Leadership Council has proposed that a new provincial level Sustainability Authority that would oversee environmental assessment in BC that could be adapted for the regional cumulative effects management context
Tenuring and regulatory approvals	Who: Territorial co-management body, consistent with regional targets/objectives	Note that some authors have proposed a legislatively-enabled “ecosystem trust” model that could also play this role.
<i>Monitoring and adaptive management</i>		

Element of Cumulative Effects Management	Recommended Governance Approach	Comments
Monitoring	Monitoring trust	Has the potential to provide an effective mechanism to ensure objective, science-based monitoring to understand risks associated with plans, objectives and policies adopted.
Enforcement	Not fully examined in research.	The possibility for replication of novel programs like the Guardian Watchman Program that involve First Nations directly in enforcing the outcomes of planning should be considered, as should approaches in other jurisdictions used for environmental tribunals and courts.
Updating plans and policies to reflect outcomes from monitoring	Regional and territorial co-management bodies, at applicable scale	Legislative trigger may be required to ensure that results of monitoring are acted upon.

6.0 Conclusion

Existing and projected industrial growth in northwest BC, coupled with existing and projected climate change, has resulted in a heightened and growing need to consider the cumulative environmental, social and economic outcomes of developments. Efforts to take a more integrated approach to assessing, managing and monitoring cumulative effects raise not just scientific, but important governance and institutional questions. As part of an ongoing research project on cumulative effects, West Coast Environmental Law has built on our long experience with BC's regulatory framework for environmental assessment, land use planning and resource use, as well as legal research about best practices from around the world in collaborative decision-making, to generate options for new institutional arrangements that address issues such as how to best:

- structure collaboration between provincial and First Nations governments/technical staff, and between governmental and non-governmental actors;
- integrate best available information, including independent science and Indigenous knowledge, into decision-making; and,
- take into account the diverse legal and policy regimes that are relevant to assessing and monitoring cumulative effects (i.e., which by definition cross-cut multiple resource specific legal frameworks).

We offer the analysis and recommendations in this paper in the spirit of adaptive co-management. That is to say, as part of “a process by which institutional arrangements and ecological knowledge are tested and revised in a dynamic, ongoing” way.¹⁸¹

Active adaptive management views policy as a set of experiments designed to reveal processes that build or sustain resilience. It requires, and facilitates, a social context with flexible and open institutions and multi-level governance systems that allow for learning and increase adaptive capacity without foreclosing future development options.¹⁸²

-- Carl Folke et al, *Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transformations*

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NOTES

¹Forest Practices Board, Board Bulletin, volume 13, “The Need to Management Cumulative Effects” (February 2013), online: <http://www.fpb.gov.bc.ca/INFORMATION_BULLETIN_013_The_Need_to_Manage_Cumulative_Effects.pdf> [FPB Cumulative Effects Management Bulletin].

² Canadian Council of Ministers of the Environment, *Regional Strategic Environmental Assessment in Canada Principles and Guidance* (Winnipeg, MB: CCME, 2009), online: http://www.ccme.ca/assets/pdf/rsea_in_canada_principles_and_guidance_1428.pdf [*R-SEA Principles and Guidance*].

³ Steve Kennett, “From Science-based Thresholds to Regulatory Limits: Implementation Issues for Cumulative Effects Management” (Paper prepared for Environment Canada, Northern Division, March 2006) at 10.

⁴ Cumulative Effects Assessment Working Group and AXYS Environmental Consulting Ltd, *Cumulative Effects Assessment Practitioners Guide* (Ottawa, ON: Canadian Environmental Assessment Agency, 1999) at 3.

⁵ *Canadian Environmental Assessment Act 2012*, SC 2012, c. 19, s. 19(1)(a) [*CEAA 2012*].

⁶ Kennett at 7.

⁷ See e.g., D. Cardinall et al, *Ecosystem-Based Management Planning Handbook* (Coast Information Team, 2004), online: <http://www.citbc.org/c-ebm-hdbk-fin-22mar04.pdf>.

⁸ Peter Duinker and Lorne Greig, “Scenario analysis in environmental impact assessment: Improving explorations of the future” (2007) 27 *Environmental Impact Assessment Review* 206 at 214.

⁹ See e.g., Robert Gibson, *Specification of sustainability-based environmental assessment decision criteria and implications for determining “significance” in environmental assessment* (Ottawa: Canadian Environmental Assessment Agency Research and Development Monograph Series, 2000).

¹⁰ See text accompanying note 51.

¹¹ Carl Folke, Steve Carpenter, Thomas Elmqvist, Lance Gunderson, CS Holling and Brian Walker, “Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transformations” (2002) 31 *Ambio* 437 at 440 [Folke et al., “Resilience and Sustainable Development”].

¹² Rob de Loë, “From Government to Governance: A State-of-the-Art Review of Environmental Governance” (Paper prepared for Alberta Environment, Environmental Stewardship Environmental Relations, 22 May 2009), online: <<http://environment.gov.ab.ca/info/library/8187.pdf>>.

¹³ Ryan Plummer, Derek Armitage and Rob de Loë, “Adaptive Comanagement and Its Relationship to Environmental Governance” (2013) 18 *Ecology and Society* 21 at 22 [Plummer et al., “Adaptive Comanagement”]; World Resources Institute, *World Resources 2002-2004*, at viii, online <http://pdf.wri.org/wr2002_fullreport.pdf>.

¹⁴ de Loë at iii.

¹⁵ See section 3.1 below.

¹⁶ *Ibid* at v.

¹⁷ Plummer et al., “Adaptive Comanagement” at 22.

¹⁸ *Ibid* at 21.

¹⁹ Derek Armitage, “Governance and the commons in a multi-level world” (2008) 2 *International Journal of the Commons* 7 at 7 [Armitage, “Governance”].

²⁰ *Ibid*

²¹ FPB, *Cumulative Effects Management Bulletin*.

²² 2004 SCC 73 [*Haida*].

²³ 2004 SCC 74 [*TRTFN*].

²⁴ *Haida* at para 27. “The duty to consult arises when a Crown actor has knowledge, real or constructive, of the potential existence of Aboriginal rights or title and contemplates conduct that might adversely affect them. This in turn may lead to a duty to change government plans or policy to accommodate Aboriginal concerns”: *TRTFN* at para 25.

²⁵ *Mikisew Cree First Nation v Canada (Minister of Canadian Heritage)*, [2005] 3 S.C.R. 388.

²⁶ *Rio Tinto Alcan Inc. v Carrier Sekani Tribal Council*, 2010 SCC 43 at para 45: “Past wrongs, including previous breaches of the duty to consult, do not suffice” [*Rio Tinto Alcan*].

²⁷ *West Moberly First Nations v British Columbia (Chief Inspector of Mines)*, 2011 BCCA 247 at para 117 [*West Moberly*].

²⁸ *Rio Tinto Alcan* at para 53.

²⁹ *West Moberly* at para 181.

³⁰ Note that this was in the context of a specific operational approval. The courts have said that there is also a duty to consult at higher more strategic levels.

³¹ *Rio Tinto Alcan* at para 54.

³² *West Moberly* at para 125.

³³ The province has produced a discussion paper on a ‘Cumulative Effects Assessment and Management Framework’ (March 2012).

³⁴ *Taseko Mines Limited v Phillips*, 2011 BCSC 1675 at para 65.

³⁵ At para 44 in *Rio Tinto Alcan* the Supreme Court of Canada summarizes court decisions on this point:

Thus, the duty to consult extends to “strategic, higher level decisions” that may have an impact on Aboriginal claims and rights (Woodward, at p. 5-41 (emphasis omitted)). Examples include the transfer of tree licences which would have permitted the cutting of old-growth forest (*Haida Nation*); the approval of a multi-year forest management plan for a large geographic area (*Klahoose First Nation v. Sunshine Coast Forest District (District Manager)*, 2008 BCSC 1642, [2009] 1 C.N.L.R. 110); the establishment of a review process for a major gas pipeline (*Dene Tha’ First Nation v. Canada (Minister of Environment)*, 2006 FC 1354, [2007] 1 C.N.L.R. 1, aff’d 2008 FCA 20, 35 C.E.L.R. (3d) 1); and the conduct of a comprehensive inquiry to determine a province’s infrastructure and capacity needs for electricity transmission (*An Inquiry into British Columbia’s Electricity Transmission Infrastructure & Capacity Needs for the Next 30 Years, Re*, 2009 CarswellBC 3637 (B.C.U.C.)). We leave for another day the question of whether government conduct includes legislative action: see *R. v. Lefthand*, 2007 ABCA 206, 77 Alta. L.R. (4th) 203, at paras. 37-40.

³⁶ *Haida* at para 76.

³⁷ *Ibid* at para 55.

³⁸ *CEAA 2012*, s 19(1)(a).

³⁹ <http://www.ceaa.gc.ca/default.asp?lang=En&n=1F77F3C2-1> (original March 1999, updated 2007)

⁴⁰ *Strategic Environmental Assessment: the Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals, Guidelines for Implementing the Cabinet Directive* (Ottawa: Privy Council Office and the Canadian Environmental Assessment Agency, 2010), online < at: http://www.ceaa-acee.gc.ca/Content/B/3/1/B3186435-E3D0-4671-8F23-2042A82D3F8F/Cabinet_Directive_on_Environmental_Assessment_of_Policy_Plan_and_Program_Proposals.pdf >.

⁴¹ Jill Harriman Gunn, Integrating Strategic Environmental Assessment and Cumulative Effects Assessment in Canada (PhD Thesis, Department of Geography and Planning University of Saskatchewan, 2009) at 93, online < http://ecommons.usask.ca/bitstream/handle/10388/etd-06092009-201800/Harriman_Gunn_Dissertation_Jun_10.pdf >.

⁴²*R-SEA Principles and Guidance* at 6.

⁴³ *Ibid* at 7.

⁴⁴ *Ibid* at 10.

⁴⁵ *Ibid*

⁴⁶*CEAA 2012*, ss 73-75.

⁴⁷ *CEAA 2012*, s 4(1).

⁴⁸ Earlier plans focused included strategies to achieve these objectives; later plans focused on targets and indicators but with similar intent.

⁴⁹ I.e., the services that forests provide with respect to climate change mitigation, as carbon storehouses and through ongoing carbon sequestration.

⁵⁰ Province of British Columbia, *Cumulative Effects Assessment and Management Framework Discussion Paper* (12 March 2012) [unpublished]; *Values: A Consistent Approach to Describing Values in Natural Resource Assessments Discussion Paper*, Version 6.2 (22 April 2012) [unpublished].

⁵¹ Prior to the introduction of the *Forest Practices Code Act* in 1995, strategic land use plans that were completed could be adopted as provincial government policy but were not legally binding, with the exception of new land designations like parks established after planning. The *Forest Practices Code* introduced the concept of a 'higher level plan'. Higher level plan was a legal term used by the *Forest Practices Code Act*, rather than a new type of land use plan. Establishment of higher level plans became the primary mechanism for linking strategic land use planning to operational forestry activities, through a *Forest Practices Code Act* requirement that operational plans for forest practices be consistent with higher level plans. Prior to June 15, 1997, entire land use plans could be established as higher level plans by ministerial order (e.g., the Kispiox Land and Resource Management Plan was legalized in this manner). Subsequently, the definition of higher level plan was changed to refer to "an objective for (a) a resource management zone, (b) a landscape unit or a sensitive area, (c) for a recreation site, a recreation trail or an interpretative forest site." Today, although the term 'higher level plan' is no longer used, the basic approach remains constant, and forest and range objectives may be set by government under *Land Act* s 93.4, or the *Government Actions Regulation to the Forest and Range Practices Act (FRPA)*, which came into effect on January 31, 2004 and replaced the *Forest Practices Code*.

⁵² *Forest Planning and Practices Regulation*, BC Reg 14/2004, s 25.1.

⁵³ For example:

- Once a forest stewardship plan (FSP) is approved, licensees can unilaterally create a new designation called a "declared area" which is insulated from compliance with legal objectives that are subsequently established: *Forest Planning and Practices Regulation*, s. 23(1) and 32.1. A declared area means an area identified under section 14 (4) of the *Forest Planning and Practices Regulation*, which reads: "A person who prepares a forest stewardship plan may identify an area as a declared area if, on the date that the area is identified, (a) the area is in a forest development unit in effect, and, (b) all activities and evaluations that are necessary in relation to inclusion of cutblocks and roads in the area have been completed." The activities and evaluations referenced in s. 14(4)(b) are not legally prescribed. Section 23(1) insulates "declared areas," and cutblocks and roads previously shown in a Forest Development Plans (as set out in FRPA s 196(1)) from legal objectives with respect to any new FSPs submitted for approval. Section 32 insulates "declared areas" and cutblocks and roads previously shown in a Forest Development Plans (as set out in FRPA s 196(1)) from new legal objectives with respect to mandatory amendments to already approved FSPs. But for s 32.1 of the *Forest Planning and Practices Regulation*, the establishment of new legal objectives would trigger mandatory amendments to FSP results and strategies pertaining in these areas as per FRPA s 8.
- FRPA allows delays of up to two years or more before FSPs have to be amended to comply with legal objectives once they are established: FRPA, s 8(1.1).
- Other provisions of the FRPA framework insulate already approved cutting permits from compliance with the outcomes of strategic level planning. In many cases, this can mean up to four years of further

unconstrained logging that is inconsistent with the implementation of strategic level plans: FRPA, s.7(1)(a) provides that any part of an FSP that pertains to a cutting permit, road permit, or timber sales licence (if the permit or licence is in effect on the date of the submission of the FSP to the minister) “must be considered to have received the minister’s approval.” *Forest Planning and Practices Regulation* s. 23(1) also extends this exemption to permits or Timber Sales Licences that are not in effect but that have a term commencing after the FSP is submitted to the minister.

⁵⁴ The *Mineral Tenure Act* reads:

14(5) Unless the location is one of the following, a land use designation or objective does not preclude application by a recorded holder for any form of permission, or approval of that permission, required in relation to mining activity by the recorded holder:

(a) an area in which mining is prohibited under the *Environment and Land Use Act*;

(b) a park under the *Park Act* or a regional park under the *Local Government Act*;

(c) a park or ecological reserve under the *Protected Areas of British Columbia Act*;

(d) an ecological reserve under the *Ecological Reserve Act*;

(d.1) an area of Crown land if (i) the area is designated under section 93.1 of the *Land Act*, for a purpose under that section, and (ii) the order under that section making the designation, or an amendment to the order, precludes the application by the recorded holder;

(e) a protected heritage property.”

Note, however, that another provision of the Mineral Tenure Act, s. 22 does give the gold commissioner the ability to establish mineral reserves and such reserves presently cover approximately 8.2% of the provincial landbase, about half of which are areas that are already under another form of protection designation.

⁵⁵ *Environmental Protection and Management Regulation*, BC Reg 200/2010.

⁵⁶ *Oil and Gas Activities Act*, SBC 2008, c 36, s 25(1).

⁵⁷ *Ibid* s 36(2).

⁵⁸ *Environmental Assessment Act*, SBC 2002, C 43, s 11(2)(b).

⁵⁹ See e.g., *Environmental Assessment Act*, s 49.

⁶⁰ *Community Charter*, SBC 2003, c 26, Schedule (definitions), “land”, and *Local Government Act*, RSBC 1996, c 323, s 5.1.

⁶¹ GHM Ajax Mining Inc., Draft Application Information Requirements for the Proposed Ajax Mine Project (11 January 2012), online: Environmental Assessment Office <http://a100.gov.bc.ca/appsdata/epic/html/deploy/epic_project_doc_list_362_p_tor.html>.

⁶² BC courts have found that local governments do have zoning powers with respect to processing of minerals, including gravel, as opposed to extraction activities, and that local governments may prohibit mineral processing activities within a defined zone. See *Squamish (District) v. Great Pacific Pumice Inc.* 2003 BCCA 404 (B.C.C.A.).

⁶³ See *Private Managed Forest Land Act*, SBC 2003, c 80, s 21.

⁶⁴ RSBC 1996, c 473.

⁶⁵ *The Miscellaneous Amendment Act (No. 2)*, 2006 (“Bill 30”). Section 56 of Bill 30 amended Section 121 of the *Utilities Commission Act*. See Minister Richard Neufeld’s speech to the IPPBC AGM (June 7, 2006); Minister Neufeld, Debates of the Legislative Assembly (May 15, 2006 Afternoon Siting), online: <http://www.leg.bc.ca/hansard/38th2nd/H60515p.htm#bill30-3R>.

⁶⁶ Forestry activities on Provincial Crown lands are subject to provincial legislation such as the *Forest Act*, RSBC 1996, c.157 and the *Forest and Range Practices Act*, SBC 2002, c.69. With respect to oil and gas activities there is a limited exception where the right of entry does not extend to protected heritage property under s. 967 or 970.1 (3) (b) of the *Local Government Act*, RSBC 1996, c.323. There is a tenure referral process associated with petroleum and natural gas tenures allocated by the provincial government, under which local governments are consulted about tenure applications and may provide feedback, but ultimately local governments have no formal, legal role in tenure decisions.

⁶⁷ SBC 2003, c 26, s 8(3)(j).

⁶⁸ BC Reg 144/2004.

⁶⁹ *Local Government Act*, RSBC 1996, c 323, ss 903, 919.1, 920.

⁷⁰ *Local Government Act*, RSBC 1996, c 323, ss 920.01, 920.

⁷¹ In *Anning v British Columbia (Minister of Energy and Mines)* 2002 BCSC 896 (B.C.S.C.), the Court noted that in deciding whether to issue a permit under the *Mines Act* the Chief Inspector *may* consider municipal bylaws such as an Official Community Plan and a zoning bylaw when deciding whether to issue a permit but is not bound to do so.

⁷² Farrah Ali-Khan and Peter Mulvihill, “Exploring Collaborative Environmental Governance: Perspectives on Bridging and Actor Agency (2008) 2/6 Geography Compass 1975 at 1975.

⁷³ Folke, C., T. Hahn, P. Olsson, and J. Norberg, “Adaptive governance of social-ecological systems” (2005) *Annual Review of Environment and Resources* 30:441 at 444, online: <<http://dx.doi.org/10.1146/annurev.energy.30.050504.144511>> [Folke et al., “Adaptive Governance”].

⁷⁴ *Delgamuukw v British Columbia*, [1997] 3 SCR 1010 .

⁷⁵ Because the terms “co-management” or “shared decision-making” have sometimes used loosely to capture any form of relationship where the Crown or industry purports to “share” some of their asserted decision-making authority with First Nations or local communities, many First Nations prefer terms such as “joint management” or “co-jurisdiction” to refer to collaborative management approaches that are based on respect and recognition of Aboriginal title and decision-making authority (“jurisdiction”) and where the goal is for First Nations have at least equal decision-making authority. See e.g., Assembly of First Nations, *Co-management Discussion Paper*, online: <http://www.afn.ca/uploads/files/env/comanagement_paper.pdf>.

⁷⁶ Folke et al., “Adaptive Governance” at 448.

⁷⁷ Royal Commission on Aboriginal Peoples, *Report of the Royal Commission on Aboriginal Peoples, Volume 2 Restructuring the Relationship* (Ottawa: Canada Communications Group –Publishing, 1996) at 640.

⁷⁸ Armitage, “Governance” at 8

⁷⁹ Folke et al., “Adaptive Governance,” at 449.

⁸⁰ Armitage, “Governance” at 8.

⁸¹ Ryan Plummer and Derek Armitage, “Crossing Boundaries, Crossing Scales: The Evolution of Environment and Resource Co-Management” (2007) 1/4 *Geography Compass* 834 at 837.

⁸² Folke et al., “Adaptive Governance,” at 441 at 448.

⁸³ Plummer et al., “Adaptive Comanagement” at 21.

⁸⁴ SC 1998, c 25.

⁸⁵ All members are appointed by the Minister of Aboriginal Affairs and Northern Development Canada (AANDC), with the exception of Tlicho Government nominees.

⁸⁶ With a settled land claim.

⁸⁷ In addition to the bodies noted below, there are also a number of other co-management boards cover various aspects of renewable resource and wildlife management in the region.

⁸⁸ Because of its regional nature, the MVLWAB is slightly more complex in its structure, consisting of:

- 1 Chairperson, nominated by the majority of members
 - 5 members of the Sahtu Land and Water Board;
 - 5 members of the Wek’èezhìi Land and Water Board; and,
 - 5 members of the Gwich’in Land and Water Board
- Note: Each of the 3 regional Boards above have the following structure:
2 members nominated by the Tribal Council of the specific First Nation
1 member nominated by the NWT Government
1 member nominated by the Government of Canada
1 Chairperson nominated by the above-listed Board members
- 4 members appointed pursuant to s. 99(4) of the MVRMA relating to representatives from unsettled regions in the NWT
 - 2 members nominated and appointed by the Tlicho Government;

- 1 member nominated of the NWT Government
- 1 member nominated by the Government of Canada

⁸⁹ Graham While, “Not the Almighty: Evaluating Aboriginal Influence in Northern Land-Claim Boards” (2008) 61 Arctic 71 at 72.

⁹⁰ *Resource Management Act 1991*, (1991, No. 69) (NZ) [RMA].

⁹¹ See <http://www.horizons.govt.nz/about-us/who-what-where/place-and-people/>.

⁹² RMA, 36B-36E.

⁹³ Natalie Coates, “Joint Management Agreements in New Zealand: Simply Empty Promises?” (2009) 13(1) Journal of South Pacific Law 32-39, online: <<http://www.paclii.org/journals/fJSPL/vol13no1/pdf/coates.pdf>>.

⁹⁴ *Ibid.* at 33.

⁹⁵ See e.g. Raukawa Settlement Trust and Waikato Regional Council, Joint Management Agreement (10 May 2012), online: <<http://www.waikatoregion.govt.nz/PageFiles/15805/JMAs/Raukawa%20JMA%202201886.pdf>>; Taupo District Council and the Tūwharetoa Māori Trust Board, Joint Management Agreement, online: <<http://www.taupodc.govt.nz/Documents/Policy/Tuwharetoa%20Council%20Joint%20Management%20Agreement/joint%20Management%20Agreement.pdf>>.

⁹⁶ In practice, this means that opportunities for Māori involvement in decision-making vary for each council. At the Hawke’s Bay Regional Council for example, the Chairman of the Māori Committee attends all meetings, but has speaking rights only, and there are Māori representatives appointed to each of the committees that work under the Council. See <http://www.hbrc.govt.nz/About-your-Council/Who-we-are/Pages/Council-Committees-Structure.aspx>.

⁹⁷ See the Murray–Darling Basin Agreement, Schedule 1 to the *Water Act 2007* (Cwlth), as amended.

⁹⁸ The Authority attempts to reinforce its persuasive authority vis-à-vis state decisionmakers as follows: “When a decision-maker is required to ‘have regard to’ particular matters, it is expected that the decision-maker will give those matters proper, genuine and realistic consideration, even if not ultimately bound to act in accordance with those matters.” *Basin Plan*, November 2012, s.1.07 Definitions.

⁹⁹ *Basin Plan*, November 2012, Acknowledgement of the Traditional Owners of the Murray-Darling Basin.

¹⁰⁰ See *Southeast Florida Regional Climate Action Plan* and related documents, online: <<http://southeastfloridacclimatecompact.org>>.

¹⁰¹ Commission on Resources and Environment, *Provincial Land Use Strategy, Volume 3 Public Participation* (Victoria: Commission on Resources and Environment, 1995) at 7.

¹⁰² Eco-social sustainability in the Murray-Darling Basin, Case study: regional sustainability efforts in the Murray-Darling Basin, Hawke Research Institute, University of South Australia, online: <<http://w3.unisa.edu.au/hawkeinstitute/research/ecosocial/eco-case-study.asp>>.

¹⁰³ See Patrick M. Condon, *Design Charrettes for Sustainable Communities* (Washington, DC: Island Press, 2008).

¹⁰⁴ In contrast to the project list approach used in BC and now federally, in the Mackenzie Valley a preliminary screening must be carried out by the applicable Land and Water Board for *any* application to a regulatory authority “for a licence, permit or other authorization required for the carrying out of a development”: *Mackenzie Valley Resource Management Act*, s. 124. The preliminary screening process involves stakeholder and public consultations, following which the body that conducts the preliminary assessment must, with certain exceptions

(a) determine and report to the Review Board whether, in its opinion, the development might have a significant adverse impact on the environment **or might be a cause of public concern**; and

(b) where it so determines in the affirmative, refer the proposal to the Review Board for an environmental assessment [emphasis added]: s. 125(1)(a) and (b).

¹⁰⁵ Jill Symonds, *How do BC municipalities engage citizens in their communities?* (Victoria: University of Victoria, 2005), online: <<http://www.cpsa-acsp.ca/papers-2005/Symonds.pdf>>.

¹⁰⁶ Renee, Irvin A & John Stansbury “Citizen Participation in Decision-making: Is It Worth the Effort?” (2004) 64:1 PAR at 55, online: <<http://graduateinstitute.ch/webday/site/developpement/shared/developpement/mdev/soutienauxcours0809/Gironde%20Pauvrete/IrvinParticip.pdf>>.

¹⁰⁷ Lori Turnbull & Peter Aucoin, *Fostering Canadians' Role in Public Policy: A strategy for institutionalizing public involvement in Canada* (Ottawa: Canadian Policy Research Networks Inc, 2006), online: <http://www.cprn.org/documents/42670_en.pdf>.

¹⁰⁸ Don Lenihan, *Rethinking the Public Policy Process: A Public Engagement Framework* (Ottawa: Public Policy Forum, 2009). <http://www.ppforum.ca/sites/default/files/FRAMEWORK%20PAPER%20.pdf> See also Archon Fung, *Innovations in Participation: Citizen Engagement in Deliberative Democracy* <http://www.innovations.harvard.edu/cache/documents/1030/103001.pdf>

¹⁰⁹ Smart Growth BC, *Smart Growth BC: Early and Ongoing Engagement Community Engagement Policy* (Vancouver: Smart Growth BC, 2006), online: <<http://www.smartgrowth.bc.ca/Portals/o/Downloads/EOCEpolicy.pdf>>.

¹¹⁰ Calgary, Plan It Calgary & Design Centre for Sustainability, *Greenfield Case Study Charrette: Final Report*, (Calgary: City of Calgary, 2008), online: <<http://www.calgary.ca/PDA/LUPP/Documents/Publications/plan-it-grnflld-case-study-charrette-sept.pdf?noredirect=1>>.

¹¹¹ For more information, see Patrick M. Condon. *Design Charrettes for Sustainable Communities* (Washington, DC: Island Press, 2008).

¹¹² Integrated Resource Planning Committee, *Land and Resource Management Planning: A Statement of Principles and Policies* (Victoria: Integrated Resource Planning Committee, 1993), online: <http://archive.ilmb.gov.bc.ca/slrp/lrmp/policiesguidelinesandassessments/lrmp_policy/stmt.htm#INTENT>.

¹¹³ Provincial policy required approval by the then Minister of Energy, Mines and Petroleum Resources, the Minister of Environment, Lands and Parks and the Minister of Forests, as well as other significantly impacted ministries; in practice plans were approved by Cabinet.

¹¹⁴ *Provincial Land Use Strategy, Volume 3 Public Participation* at 116.

¹¹⁵ A more commonly used term is Traditional Knowledge defined as “a cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment,”: F. Berkes, *Sacred ecology: Traditional ecological knowledge and resource management* (Philadelphia: Taylor and Francis, 1999). We use the term “Indigenous knowledge” to mean the same thing but out of respect for some First Nations peoples who emphasize that the word “traditional” risks implying that their knowledge is something from the past rather than in vibrant, living practice in the modern world.

¹¹⁶ Armitage, “Governance” at 24.

¹¹⁷ de Loë at 26.

¹¹⁸ Folke et al, “Adaptive governance” at 446.

¹¹⁹ Julia Christensen and Miriam Grant, “How Political Change Paved the Way for Indigenous Knowledge: The Mackenzie Valley Resource Management Act (2007) 6 Arctic 115 at 120-121.

¹²⁰ de Loë at 26.

¹²¹ Available online at: <http://www.citbc.org/>

¹²² See: <http://www.cortex.ca/dow-cla.html> for the reports of the panel.

¹²³ <http://www.psp.wa.gov/>

¹²⁴ <http://www.psp.wa.gov/scienceplan.php>

¹²⁵ This material in this section is summarized, with thanks, from a longer paper with this title by Richard Overstall, *Using Trusts to Get Impartial Resource-Use Information: the Babine Example*, Environmental Law: In the Public Interest Paper 3:3 (Continuing Legal Education Society of British Columbia, 2008).

¹²⁶ <http://www.babinetrust.ca/DocumentsBWMT/TrustAgreement/BWMTrustAgreementFinal.pdf>

¹²⁷ www.mvlwb.com

¹²⁸ www.glwb.com

¹²⁹ www.slwb.com

¹³⁰ <http://www.wlwb.ca/>

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- ¹³¹ www.gwichinplanning.nt.ca
- ¹³² <http://209.146.197.178/index.html>
- ¹³³ www.dehcholands.org
- ¹³⁴ www.grrb.nt.ca
- ¹³⁵ www.srrb.nt.ca
- ¹³⁶ <http://www.wrrb.ca/>
- ¹³⁷ www.mveirb.nt.ca
- ¹³⁸ www.jointsecretariat.ca/JS/history.htm
- ¹³⁹ www.fjmc.ca
- ¹⁴⁰ www.jointsecretariat.ca/IGC/aboutus.htm
- ¹⁴¹ www.jointsecretariat.ca/JS/history.htm
- ¹⁴² www.fjmc.ca
- ¹⁴³ www.jointsecretariat.ca/IGC/aboutus.htm
- ¹⁴⁴ <http://www.nunavutwaterboard.org/en/home>, pursuant to Article 13 powers and responsibilities of the Board have been defined further by the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, (2002, c-10)
- ¹⁴⁵ <http://www.nwmb.com/>
- ¹⁴⁶ <http://www.nirb.ca/AboutUs.html>
- ¹⁴⁷ http://www.reviewboard.ca/upload/ref_library/1247177561_MVReviewBoard_Traditional_Knowledge_Guidelines.pdf
- ¹⁴⁸ Graham White, “Not the Almighty’: Evaluating Aboriginal Influence in Northern Land-Claim Boards,” (2008) 61 *Arctic* 71 at 80.
- ¹⁴⁹ See e.g., M. Stevenson, “The possibility of difference: Rethinking co-management,” (2006) 65 *Human Organization* 167-180.
- ¹⁵⁰ P. Nadasdy, “The anti-politics of TEK: the institutionalization of co-management discourse and practice,” (2005) 47 *Anthropologica* 215 at 224-225.
- ¹⁵¹ Christensen and Grant, *How Political Change Paved the Way for Indigenous Knowledge* at 120-121.
- ¹⁵² White at 83.
- ¹⁵³ Carl Folke et al, “Resilience and Sustainable Development: Building Adaptive Capacity in a World of Transformations” (2002) 31:5 *Ambio* 437 at 438 [Folke et al., “Resilience and Sustainable Development”].
- ¹⁵⁴ Clayoquot Sound Scientific Panel, *Report 3: First Nations Perspectives Relating to Forest Practices Standards in Clayoquot Sound* (March 1995) at viii.
- ¹⁵⁵ Erin Sherry & Gail Fondahl, *Criteria Affecting the Success of Co-Management: New Directions for Improved Forest Management Partnerships in British Columbia* (Prince George, BC: UNBC, Geography Program in partnership with Chuzghun Resources Corporation, 2003) at 30.
- ¹⁵⁶ *Far North Act*, 2010, SO 2010, c 18.
- ¹⁵⁷ *Muskwa-Kechika Management Area Act*, SBC 1998, c 38.
- ¹⁵⁸ *Flathead Watershed Area Conservation Act*, SBC 2011, c 20.
- ¹⁵⁹ I.e., in this model, local/regional authorities obtain approval of local plans, and once approved have power to implement as well as coastal jurisdiction (with some limitations)
- ¹⁶⁰ http://www.coastal.ca.gov/publiced/Comm_Brochure.pdf
- ¹⁶¹ Section 148.
- ¹⁶² 2010 Northwest Territories Environmental Audit (March 2011) at ES-3, online at: <http://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-NWT/STAGING/texte-text/ear10_1317743037188_eng.pdf>.

¹⁶³ <http://www.coastfunds.ca/index.php>

¹⁶⁴ *Local Government (Rating) Act 2002*, No 6, s. 3.

¹⁶⁵ See <http://www.horizons.govt.nz/about-us/rates/types-of-rates/>.

¹⁶⁶ An excellent diagram of how rates are collected and spent by the Horizons Regional Council is available here: <http://www.horizons.govt.nz/about-us/rates/>.

¹⁶⁷ *Local Government Act 2002*, ss. 100-111.

¹⁶⁸ Martin Berka, "Funding of Regions in New Zealand" 6 Clm. Economia 2006 at 8. Please note that this article is generally an excellent resource summarizing the local government system and its reform in New Zealand.

¹⁶⁹ *Municipalities Enabling and Validating (Amendment) Act*, SBC 1969, c 23, s 138.

¹⁷⁰ http://www.obwb.ca/fileadmin/docs/supplementary_letters_patent.pdf

¹⁷¹ <http://kootenayconservation.ca>

¹⁷² "The most recent example is the purchase of DL 48 on the east shore of Columbia Lake. The \$700,000 committed through the Conservation Fund was used as proof of local support to help raise the balance from other partners such as Teck, Columbia Basin Trust, Fish and Wildlife Compensation Program, Habitat Conservation Trust Foundation, the provincial and federal governments, and numerous other groups and individuals. Without the Conservation Fund, this support may not have been possible." See http://www.civicinfo.bc.ca/practices_innovations/p-ekrd.pdf

¹⁷³ *Columbia Basin Trust Act*, R.S.B.C. 1996, c.53.

¹⁷⁴ <http://cbwn.ca/dev/events-training/2013-watershed-governance-symposium/>

¹⁷⁵ This section of the paper draws on excerpts from a background paper prepared for West Coast by Tony Pearse, Firedog consulting.

¹⁷⁶ See www.monitoringagency.net for more information. For an external review of IEMA see online: <http://www.monitoringagency.net/LinkClick.aspx?fileticket=CL5N6RVpZ10%3d&tabid=110>.

¹⁷⁷ <http://www.monitoringagency.net/LinkClick.aspx?fileticket=%2bHCwiwiJm7E%3d&tabid=87>

¹⁷⁸ Ministry of Environment, *British Columbia Greenhouse Gas Inventory Report 2010*, online: www.env.gov.bc.ca/cas/mitigation/ghg_inventory/. Logging and slash burning accounted for emissions of 51.3 MtCO₂e (including, respectively, 43.8 MtCO₂e and 7.5 MtCO₂e) in BC in 2010.

¹⁷⁹ The Coastal First Nations Reconciliation Protocol, the Gitanyow Huwilp Recognition and Reconciliation Agreement, the Haida Reconciliation Protocol - Kunst'aa Guu - Kunst'aayah, and the Nanwakolas First Nations Reconciliation Protocol. Full text online: http://www.newrelationship.gov.bc.ca/agreements_and_leg/reconciliation.html.

¹⁸⁰ Folke et al., "Adaptive Governance" at 449.

¹⁸¹ Folke et al., "Resilience and Sustainable Development" at 439.

¹⁸² *Ibid.*

Feedback or comments on this discussion draft may be communicated to the authors by writing to: Jessica_Clogg@wcel.org; 1-800-330-WCEL, ext 201
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