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Collaborative environmental assessment in the Northwest Territories, Canada

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Abstract

Recent trends in environmental assessment theory and practice indicate a growing concern with collaboration and learning. Although there are few examples of the institutional, organizational, and socio-political forms and processes required to foster this collaboration and learning, the establishment of an environmental planning, management, and assessment regime in Canada's Northwest Territories offers useful insights. Consequently, this paper identifies and examines the institutional, organizational, and socio-political conditions that have encouraged more collaborative forms of environmental assessment practice in the Northwest Territories. Key issues highlighted include: (1) the development of decentralized regulatory organizations more responsive to changing circumstances; (2) strategies for more effective communication and participation of community interests; (3) efforts to build a collaborative vision of economic and social development through region-specific land use plans; (4) the integration of knowledge frameworks; and (5) a concern with the capacity required to encourage effective intervention in the assessment process.

Keywords: Environmental impact assessment; Collaborative management; Collaboration; Learning; Sustainability; Canada

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1. Introduction

Environmental assessment practice is currently addressing several interrelated themes, such as public participation and involvement (Sinclair and Diduck, 2001), participatory or social learning (Webler et al., 1995; Diduck and Mitchell, 2003; Schusler et al., 2003), sustainability (George, 1999; Gibson, 2001), strategic environmental assessment (Brown and Therival, 2000; Fischer, 2003), and adaptive management (Jones and Greig, 1985; Noble, 2000). This diversity of themes highlights the multiple methodological and substantive goals environmental assessment practitioners must meet. These goals include, for example, the integration of data types and knowledge sources across spatial and temporal scales; the design and evaluation of alternatives; the identification of the cumulative effects of development activities, programs, and policies; the development of flexible institutional and organizational structures and processes; a process that brings together a multitude of stakeholder interests in the collaborative analysis of the potential impacts of plans, policies, and programs; and environmental assessment processes that account for different knowledge frameworks and worldviews, and respond to changing circumstances.

As highlighted by Lawrence (2000), the challenges imposed by multiple methodological and substantive goals indicate a need to engage the theoretical foundations and strategies of alternative forms of planning and assessment. Specifically, this implies a continued transition in assessment practice from a strictly rational–technical paradigm to forms that also involve transactive, communicative, and/or 'civics-oriented' strategies. However, if the barriers to this transition are to be addressed in the environmental assessment arena, significant effort will be required to create new opportunities for collaboration among diverse interests, and to develop the institutional and organizational arrangements that foster 'single-loop' and 'double-loop' learning.

Single-loop learning involves the identification of alternative strategies and actions in an effort to resolve specific problems, challenges, or issues, and therefore improve outcomes. Single-loop learning is a useful and important aspect of institutional and organizational change and development. In contrast, double-loop learning occurs in a planning, management, and assessment context when existing worldviews, objectives, and underlying values are challenged, resulting in fundamental changes in the behaviour of stakeholders (see Argyris, 1976). Institutional and organizational frameworks that encourage double-loop learning are necessarily characterized by trust-building efforts, a willingness to take risks in order to extend learning opportunities, the transparency required to test and challenge embedded values, active engagement with civil society, and a high degree of citizen participation (Diduck et al., in press). Both types of learning (but in particular the latter) play a central role in fostering collaboration, defined in this paper as both a process and a set of institutionalized arrangements around which different interests and groups seek to achieve commonly agreed upon goals. Effective collaboration, like double-loop learning, is closely associated with such issues as trust, openness, and accountability, and both collaboration and learning are central to the design and implementation of alternative institutional and organizational arrangements for environmental assessment.

There are a number of contexts in which collaborative strategies are being tested, including parks and protected areas (Borrini-Feyerband, 1996; Weitzner and Manseau,

2001; Lane, 2001) and commons resource situations (e.g., forests, wildlife, and water resources) in both developed and developing countries (Ostrom et al., 2002; Berkes et al., 2003; Schusler et al., 2003). Yet, despite an emphasis on collaboration and learning in other resource and environmental planning and management situations, such issues have received less attention in environmental assessment, although that is changing. Sinclair and Diduck (2001), for example, have identified a number of valuable criteria with which to discern evidence of collaboration and learning in environmental assessment regimes in Canada. These criteria include: accuracy and completeness of information; freedom from coercion in the assessment process; openness to alternative perspectives; the opportunity to reflect critically upon the assumptions and 'presuppositions' embedded in the assessment process; equal opportunity to participate; and the opportunity to debate issues and approaches in a transparent and systematic fashion.

Similarly, Noble (2000) identified a number of indicators of successful application of adaptive management principles—that is, principles for learning through uncertainty in the environmental assessment process. These principles include the need for more integrated analysis; clarification of the significant issues; an evaluation of alternative options; prescriptive analysis rather than a descriptive or reactive environmental assessment process; a coordinated and open assessment process; and an iterative decision-making procedure involving key stakeholder groups (e.g., communities and proponents). However, what are the *preconditions* that ensure the accuracy and completeness of information, an openness to alternative perspectives, or the opportunity to reflect critically upon the assumptions embedded in the assessment process? What structures and processes are necessary to facilitate an iterative procedure in which key stakeholder groups are more likely to learn from and fundamentally transform assessment processes? In other words, what institutional, organizational, and socio-political forms and processes are required to foster collaboration and learning in environmental assessment?

Development of the indicators and normative principles highlighted above is an important step in the evolution of environmental assessment theory and practice. Yet, the identification of these indicators and principles also suggests a need to broaden the analytical lens to articulate those preconditions of environmental assessment regimes that support collaboration and learning. Despite the apparent value of collaboration and learning in environmental planning and management, the incorporation of these ideas into environmental assessment will not prove easy. Environmental assessment frameworks in most jurisdictions are well-established (Barrow, 1997). As Fischer (2003) notes, moreover, there are advantages associated with the rational–technical assessment paradigm. Environmental assessment processes in most jurisdictions remain technically oriented because the primary objective of the assessment process is to offer predictive analyses and confer a degree of certainty about the expected impacts of development activities, and the suitability of proposed mitigation measures. In this planning and assessment context, the role of technical experts is paramount. Principles of collaboration and learning are somewhat at odds with conventional environmental assessment frameworks that necessarily seek to predict specific impacts at discreet points in time. These principles are also at odds with assessment processes that offer opportunities for participation directed only at technical components of the review, rather than in regards to the broader worldviews, values, and goals that frame decisions to undertake specific development

activities. Therefore, changes to existing environmental assessment processes may not always be welcomed by government regulators and proponents in search of consistency and certainty, or consultants who undertake baseline studies, prepare impact statements, and facilitate public consultation activities. Given the constraints on conventional assessment practice, what is required to foster greater collaboration and learning in environmental assessment practice?

The relatively recent establishment of an environmental planning, management, and assessment regime in Canada's Northwest Territories—the *Mackenzie Valley Resource Management Act* (MVRMA)—in 1998 may offer insights of value to practitioners and analysts elsewhere (Fig. 1). Consequently, the objectives of this paper are to: (1) highlight the emergence and evolution of a relatively recent environmental assessment process in the Northwest Territories; (2) examine the extent to which collaboration and learning are encouraged in this evolving regime; (3) identify the main institutional, organizational and

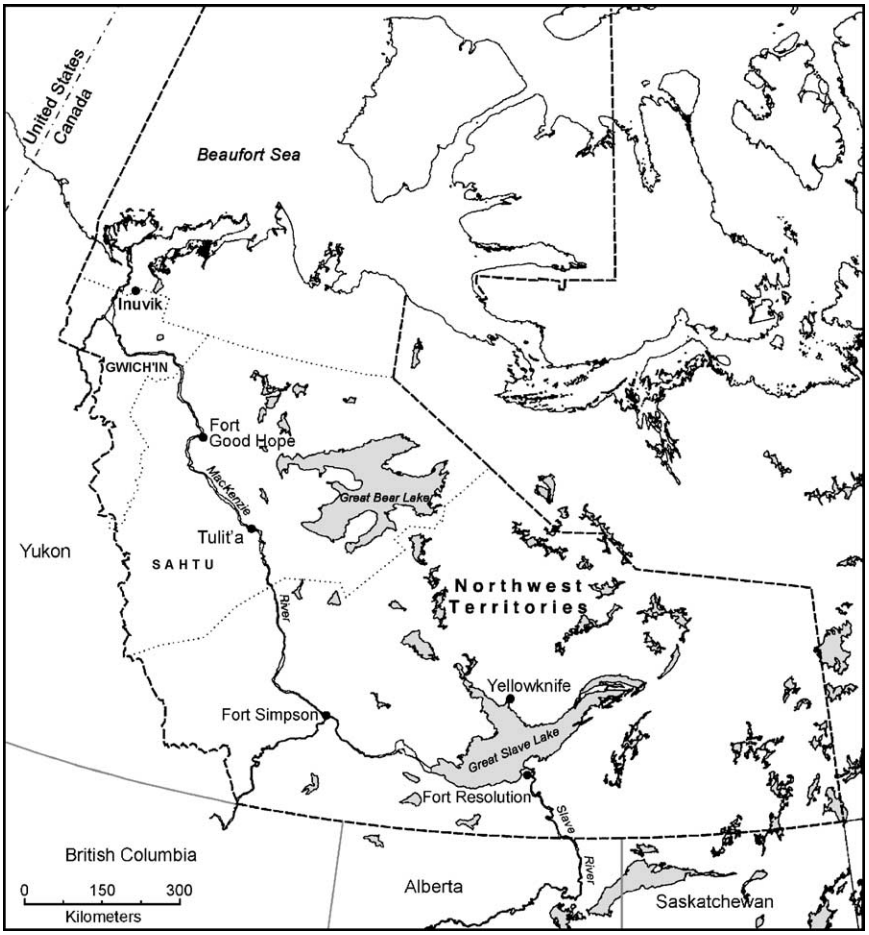

Fig. 1. Northwest Territories, Canada.

socio-political preconditions associated with efforts to foster greater collaboration and learning in environmental assessment; and (4) indicate, at least preliminarily, how the MVRMA environmental assessment framework may offer insights of value to practitioners and researchers in other jurisdictions.

Given the challenges associated with the assessment of collaboration and learning at multiple institutional and organizational scales, case-specific evidence is still emerging. As well, the actual assessment process, which is the subject of this analysis, is itself still relatively recent, and the initial years of implementation were focused primarily on establishing the new regime. Therefore, it is not the intent of this paper to analyze specific, project-level impact assessments, or explicitly compare impact assessments undertaken in pre- and post-MVRMA conditions. Rather, this analysis represents an initial assessment of the institutional and organizational arrangements for implementation of the MVRMA with respect to issues of collaboration and learning, and provides a baseline for further research. The analysis is based on:

- A review and synthesis of relevant documentation pertaining to environmental assessment in the Northwest Territories, and environmental assessment more generally;
- Direct reference to the results of a 3-day workshop on environmental screening and assessment in the Northwest Territories held in September 2001 (and cofacilitated by the author) involving over 50 assessment practitioners from federal and territorial government departments and various boards responsible for implementing the new regime (Terriplan/IER, 2001); and
- Subsequent follow-up and semistructured interviews with assessment practitioners and officials to further explore key issues.

2. Environmental assessment in Canada's Northwest Territories

The MVRMA provides one of the more recent examples of a new (and still evolving) regulatory and institutional framework for resource management and environmental impact assessment (EIA) in Canada. The regulatory process created by the MVRMA differs in a number of ways from environmental assessment frameworks in other Canadian jurisdictions. For example, based on commitments made in the Gwich'in (1992) and Sahtu Dene and Metis (1993) Comprehensive Land Claims Agreements, the MVRMA establishes an integrated resource planning, management, and assessment framework for the Mackenzie Valley, and has created new organizational structures and implementation processes. From the outset, the MVRMA institutionalized an explicitly collaborative assessment process involving the creation of regionally distributed organizations with defined roles, responsibilities, and decision-making autonomy, along with more clearly articulated requirements for participation and the integration of different knowledge types and sources in the regulatory process. Moreover, each comprehensive claim agreement called for the establishment of new legislation requiring the coordinated regulation of land and waters throughout the Mackenzie Valley, both in settlement areas (i.e., those lands covered by the Gwich'in and Sahtu claims) and adjacent areas in the Mackenzie Valley (i.e., those lands not covered under a comprehensive land claim). As a result, each of these

claims-based requirements was incorporated into the design of the MVRMA, with the intention of creating an integrated and collaborative framework to foster the conservation, development, and utilization of land and water resources; to protect the environment from significant adverse impacts; and to ensure the social, cultural, and economic well-being of residents and communities in the Mackenzie Valley.

More detailed overviews of the MVRMA are provided elsewhere (Donihee, 2001; Armitage, in press). However, the main components of the environmental assessment regime are as follows:

1. Clauses in both the Gwich'in and Sahtu agreements called for the establishment of new 'institutions of public government' (IPG; sometimes referred to as comanagement boards) (Table 1) responsible for: (1) preparing regional land use plans to guide development decision making; (2) regulating the use of land and water; and (3) carrying out environmental assessments and reviews of proposed developments.
2. Implementation of a new land use planning process (a key responsibility of the land use planning boards highlighted in Table 1) and the development of land use plans in each settlement area. Once approved, all proposed developments will be required to conform with the land use plans.
3. Regulation of land and water to be undertaken by the Mackenzie Valley Land and Water Board and its two regional panels, the Gwich'in and Sahtu land and water boards. The land and water boards are authorized to issue, renew, suspend, and/or cancel land use permits and water licenses in their respective jurisdictions. All land use

Table 1
Claims-mandated IPGs in the Mackenzie Valley

Board	Primary mandate	
Mackenzie Valley Environmental Impact Review Board (MVEIRB)	Environmental assessment and review throughout the Mackenzie Valley, including the Gwich'in and Sahtu settlement areas.	www.mveirb.nt.ca
Mackenzie Valley Land and Water Board (MVLWB)	Issuing land use permits and water licenses for all areas in the Mackenzie Valley outside of the Gwich'in and Sahtu settlement areas; preliminary screening.	www.mvlwb.com
Gwich'in Land and Water Board (GLWB)	Issuing land use permits and water licenses within the Gwich'in settlement area; preliminary screening.	www.glwb.com
Gwich'in Land Use Planning Board (GLUPB)	Development and implementation of a land use plan for the Gwich'in settlement area.	www.gwichinplanning.nt.ca
Sahtu Land and Water Board (SLWB)	Issuing land use permits and water licenses within the Sahtu settlement area; preliminary screening.	www.slwb.com
Sahtu Land Use Planning Board (SLUPB)	Development and implementation of a land use plan for the Sahtu settlement area.	www.sahtulanduseplan.com

and water permits approved by the boards must conform to the appropriate land use plan (when finalized).

4. The development and implementation of a three-stage EIA process involving: (1) preliminary screening of proposed undertakings; (2) environmental assessment of those proposed developments deemed to have potentially significant effects during the initial screening stage; and (3) environmental impact review in those circumstances in which large-scale public consultation and detailed technical reviews are required to determine impacts and project suitability. Land and water boards are responsible for preliminary screening, while the Mackenzie Valley Environmental Impact Review Board is responsible for the later two stages as necessary.
5. The establishment of a unique cumulative effects monitoring program for the entire Mackenzie Valley, as well as the periodic auditing of the environmental assessment regime. The provision for cumulative effects monitoring makes an explicit call for the integration of western scientific knowledge and traditional knowledge when implementing the process.

In combination, the components of the MVRMA highlighted above form an integrated environmental planning, management, and assessment framework in the Northwest Territories (with the exception of the Inuvialuit Settlement Region), of which there are a number of important features. For example, the MVRMA sets forth requirements for the participation of First Nations groups in the environmental assessment process. These requirements are a result of commitments made in the comprehensive claims agreements. In addition, the MVRMA has resulted in the creation of new institutional and organizational structures (i.e., IPGs) intended to decentralize the decision-making process and encourage collaboration among First Nations groups and communities, government agencies, and proponents. Of particular importance, IPG members are nominated on an equal basis by the relevant First Nations groups (i.e., Sahtu or Gwich'in, depending on the region) and the federal/territorial government. Finally, the MVRMA framework encourages integration in environmental assessment by linking in one process the water and land use license application review, the land use planning process, impact assessment, and comprehensive impact review (as required), as well as cumulative effects assessment. However, to what extent do these features and components of the MVRMA environmental assessment framework foster greater collaboration and learning? What challenges and constraints to collaboration and learning in the MVRMA assessment process must be overcome? And finally, how might insights from this MVRMA process translate into lessons for practitioners and analysts in other jurisdictions where institutional, organizational, and socio-political dynamics have not coalesced in the same way?

3. Preconditions for collaborative environmental assessment

To explore the questions highlighted above, several important dimensions of the MVRMA environmental assessment regime are discussed: (1) the role of emergent institutions and organizations; (2) communication strategies and public participation; (3) common goals and shared visions; (4) integrating knowledge frameworks; and (5) building

adaptive capacity. These five themes serve a dual purpose. First, they offer a framework to highlight the extent to which the MVRMA environmental assessment regime does foster collaboration and learning. Second, these themes are illustrative of the institutional, organizational, and socio-political preconditions required to move beyond conventional assessment practice, and towards the normative principles and criteria of collaboration and learning previously highlighted.

3.1. Emergent institutions and organizations: learning through uncertainty

A central component of the MVRMA regime has been the establishment of new institutions and organizations responsible for environmental assessment. These new institutions and organizations have played a central role in creating the preconditions necessary for enhanced collaboration and learning in environmental assessment. The MVRMA environmental assessment regime should represent a new way of doing things, and, as a result, the 'windows of opportunity' offered by this regime change have created new avenues for collaboration and learning. It is important to distinguish, however, the types of learning (single-loop vs. double-loop) that have taken place and how this facilitates or detracts from the institutional and organizational development of the environmental assessment process in the Mackenzie Valley.

At the onset of the proclamation of the MVRMA in 1998, there was no template in place to guide the implementation of the integrated planning, management, and assessment process. The Canadian Environmental Assessment Act (CEAA), which was in force prior to 1998, involved many different legislative, regulatory, and organizational structures and processes. However, the requirements enshrined in the claims agreements, and subsequently the MVRMA, necessitated that new strategies and approaches be adapted very quickly by the boards responsible for implementation (and by government, proponent, and community interests). Since the establishment of the MVRMA process, in fact, a number of management innovations have been put in place by the boards, including the development of a standard referral list to facilitate preliminary screening, new requirements for written comments on applications at the screening stage, and filing of all board staff reports through an on-line public registry. The actual preliminary screening process itself is a management innovation encouraged by the MVRMA regime, although this has not come about without some controversy and difficulty (Terriplan/IER, 2001). Still, individual managers, staff, practitioners, proponents, and communities have been learning through this uncertainty. In particular, land and water boards have become more effective at developing and approving the terms and conditions of permits (e.g., what requirements are stipulated, and by focusing on those impacts and mitigation strategies they can reasonably influence). Initially difficult working relationships among the land and water boards and the impact review board have also been improving. For example, much initial conflict centred on the scope and depth of the preliminary screening process. Representatives of the MVEIRB initially felt that preliminary screening should be cursory and fairly straightforward. In contrast, land and water board representatives felt that the preliminary screening process was an important element of the regulatory responsibilities they had under the MVRMA, and therefore necessitated a certain level of detailed analysis and consultation with potentially affected parties (Terriplan/IER, 2001). Process improve-

ments, including changes made to the initial MVEIRB guidelines for impact assessment (MVEIRB, 2001), however, are playing a key role in the evolution of assessment practice and are contributing to improved information flows and decision making. These improvements are examples of 'single-loop' learning, or learning that is concerned primarily with effectiveness and how best to meet specific objectives.

Yet, there is a process of more fundamental learning that is taking place in the context of this assessment regime, which highlights important preconditions for collaborative environmental assessment. Specifically, there is evidence of 'double-loop' learning, or learning that addresses and seeks to change worldviews and values, and may involve some degree of conflict. The new organizations created by the MVRMA, as well as those designated under the Sahtu and Gwich'in comprehensive claims, are engaged in a fundamental testing of governance strategies, approaches, and worldviews. Assumptions about environmental assessment procedures and the embedded power relationships in the previous government-driven regime have been substantially reconfigured. As a result, community-based renewable resource councils (RRCs), for example, are confronted with increasing expectations about their engagement with the environmental assessment process. Any application for development must pass through the offices of the relevant RRCs, while the land and water boards are increasingly insistent that they provide written comments on development applications—a step that is necessary to meet the requirements for consultation articulated in the claims agreements. Five years into the process, there is still a long way to go until community organizations (i.e., land corporations and RRCs) have the capability to fully participate in this reconfigured environmental assessment process, but a fundamental transition in how different groups are involved, and to what extent they control the process, is underway. Whether these changes will ultimately result in a better assessment process or encourage more suitable outcomes is yet to be determined.

In the context of this environmental assessment process, a locus of much learning and conflict involves the evolution of new roles and responsibilities. As one government official noted, the technical dimensions of the environmental assessment process (screening, impact identification, and mitigation) have not changed much under the MVRMA and are typical of other jurisdictions. As the same official pointed out, however, the political and institutional processes have been significantly altered with the creation of new boards and the subsequent transformation of roles and responsibilities. For those in former positions of power (e.g., government organizations), learning has involved significant changes in authority and jurisdiction, dealing with inconsistent interpretations of that authority and a lack of clarity about the roles that different groups are expected to have in the new process. One of the key issues in building a more collaborative framework for EIA, therefore, will be a reconciliation of the balance of power among the government organizations previously responsible for environmental assessment, the new boards, and the various other groups now more involved in the process (such as designated organizations under the claims agreements). According to many participants at the environmental assessment workshop (Terriplan/IER, 2001), and confirmed with follow-up interviews, the exercise of this authority by the boards has tested relationships and values, and has been an ongoing source of tension.

There are, as a result, a number of challenges to collaboration and learning in this context. The increasing role of First Nations in resource planning, management, and assessment, supported by the comprehensive claims agreements and the MVRMA, has been central in challenging conventional worldviews and governance strategies. Still, a number of respondents were quick to point out that the claims-mandated boards responsible for preliminary screening and environmental assessment do not 'represent' those First Nations groups in whose jurisdictions they operate. Unlike the community-based RRCs, for example, the various claims-mandated boards are IPGs, and the members of these boards are expected to serve impartially. Yet, these boards are often referred to as 'comanagement boards' rather than IPGs, and have been perceived by some claimants in the Sahtu and Gwich'in territories as representing their interests. This situation is a source of uncertainty in the new regime, as well as a source of potential conflict.

Similarly, not all First Nations groups in the Mackenzie Valley support the implementation of the MVRMA. In particular, First Nations such as the Dogrib, Deh Cho, and Akaitcho have not completed claims negotiations and view the MVRMA as an imposition. While the legislation (see Sections 5(1) and (2)) was designed to be flexible and to accommodate evolving political realities in the region (i.e., new claims agreements), this, too, creates additional challenges. New claims will take precedence over the MVRMA and will, in all likelihood, result in the establishment of new regional boards for resource planning, management, and assessment with their own mandates, roles, and responsibilities. There is much contested geographical and political space in the Mackenzie Valley, and the outcomes of the double-loop learning that has already taken place in the region will be further tested.

Many individuals and organized interests, therefore, have raised doubts about the efficacy of the new regime—in particular the establishment of the new boards to effectively regulate development activities. For government departments and proponents in particular, there have been concerns about the process capabilities of the boards and the tendency of the MVEIRB in particular to establish time frames for assessment deliverables without taking into account the needs of different stakeholder groups (Terriplan/IER, 2001). An analysis by the MVEIRB following the completion of a major environmental assessment process did identify this problem, and recommendations to address the situation were identified. In addition, many process concerns were raised at the multistakeholder workshop on improving preliminary screening and environmental assessment practice in the Mackenzie Valley (Terriplan/IER, 2001). A key outcome of that workshop was a commitment to revise the MVEIRB's EIA guidelines—a process that has been completed. Credibility in the process may increase as experience is gained among the various parties involved and as levels of trust among these different groups (boards, proponents, communities, and government) improve.

Jurisdictional complexity is still a basis of conflict around the preliminary screening and environmental assessment process and a continued constraint on multistakeholder collaboration. However, the new institutional and organizational framework may ease this particular challenge and enhance the credibility of the new regime in the long term. Prior to the MVRMA, for example, Indian and Northern Affairs Canada (INAC) was the lead agency responsible for the implementation of environmental assessment in the region. However, INAC has a broad-based mandate that includes resource and economic

development, as well as environmental protection. In contrast, the land and water boards and the MVEIRB are not constrained by this duality in mandate. Moreover, the new assessment processes and collaboration mechanisms being established have been adapted independently of INAC. The MVRMA permits boards to create and implement rules and procedures, and allows for more rapid development and adaptation of institutional and organizational changes (e.g., the development of a traditional knowledge policy by the Sahtu Land and Water Board and the MVEIRB). Locally evolved solutions to some of the more intractable and difficult problems of the assessment process in the region are thus being devised in the context of significant uncertainty.

3.2. Communication strategies, public participation, and information flows

Many environmental assessment best practices are closely related to communication strategies and efforts to ensure the adequate flow of information among participants in the assessment process. To address this issue, key sections within the MVRMA emphasize the centrality of claims beneficiaries and the importance of public consultation. Accordingly, board representatives in particular have identified the new process as having definite communication benefits. Moreover, to improve the outcomes of communication and consultation activities, the SLWB, for example, has established a stratified standard referral list to ensure that appropriate organizations and community groups provide input and feedback on proposed developments, rather than sending out a broad-based request for input. The SLWB has also insisted on receiving written comments from these groups—a task that does place a heavy burden and onus to participate, and which can be difficult for some of the local organizations and governments with limited staff and resources. Previously, community organizations and band offices might receive requests for input on applications throughout the Mackenzie Valley, many of which would be irrelevant. However, with the development of standard referral lists, most local organizations now receive a more manageable number of applications for land or water permits each year, and therefore are more likely to offer more input and provide substantive comments. The GLWB has likewise indicated that there is now a much more proactive approach to participation—both in terms of outreach to indicate the need for participation, as well as providing the opportunities for participation.

Some skepticism remains, nevertheless, about the extent to which communication and public participation have increased or improved. For example, all boards are concerned with ensuring an open and transparent process, and, as a result, they have placed increased efforts on written communication and the use of e-mail communication. Thus, a land and water board staff member was unequivocal in stating that levels of communication among stakeholders in the assessment process were improving and better than they had been prior to the MVRMA. According to this individual, the reasons for improved communication and consultation included a greater standardization of procedures to ensure consultation (developed by the MVEIRB), the role of the legislation itself in promoting consultation, and, as a result, the greater awareness among proponents about the requirements for increased consultation and communication. On the other hand, more than one government representative pointed to previous environmental assessment processes (e.g., the Diavik mine review, which was filed just before the MVRMA came into force) as being more

open and less linear. Moreover, the ability to foster communication and participation has much to do with the proximity of communities to the decision makers and the decision-making process. The relative isolation of many communities in the Northwest Territories and the high costs of travel pose a challenge to effective communication. More importantly, many people in the north still have an oral tradition of communication and the new assessment framework has not fully addressed this reality.

There have been other communication challenges. In particular, the implementation of the MVRMA regime has created some emergent communication challenges at the federal and territorial government levels. Prior to the MVRMA, INAC typically served as the 'responsible authority' under the CEAA, and provided a conduit for issues raised by federal government departments. Yet, as one respondent noted, government departments (e.g., Environment Canada, Natural Resources Canada) are now dealing independently with the MVEIRB, thus increasing the chance of contradictory positions from different federal government bodies. Further uncertainties for federal departments associated with the MVRMA regime have also been identified by government officials and board representatives, notably the question as to whether federal departments (and others) are communicating with the actual board members, or the staff of those boards responsible for implementing board member decisions. Despite the challenges, the new regime has influenced how communication and consultation with communities are carried out in the Mackenzie Valley, both by the boards and proponents. More standardized procedures for consultation have been developed and proponents and communities are more aware of the opportunities and requirements. Perhaps most importantly, the decentralization of the boards into the regions in an effort to enhance communication and consultation is creating space for alternative forms and practices of communication and participation that may encourage new avenues for collaboration. In this regard, institutional and organizational changes that have been made to the environmental assessment process in the Mackenzie Valley suggest a significant effort to learn from previous experiences and adapt new approaches.

3.3. Toward a collaborative vision

Environmental assessment practice that seeks to engender collaboration and learning requires some recognition of, or commitment to, a shared vision, set of values, or goals. In the Mackenzie Valley context, the goals or vision that guide planning, management, and assessment emerge in large part from the legitimization of beneficiary rights as articulated in the comprehensive claims agreements (or interim agreements). Thus, the goals and aspirations of claims beneficiaries must be central to the environmental assessment process. Goals and aspirations of beneficiaries in the Mackenzie Valley typically centre on the pursuit of traditional livelihood activities, land rights, and human health issues, in conjunction with the sustainable development of economic resources. Where economic resources are to be developed (i.e., mineral resources, oil, and natural gas), the impact assessment process as articulated through the claims agreements and the MVRMA is rights-driven—Aboriginal people have the right to significant participation in the decisions that are made, and in accruing the benefits of economic development activities that take place in settlement lands.

Impact and benefit agreements (IBAs) play an important role in this regard. IBAs are formalized contractual agreements among development proponents and Aboriginal communities that are intended to secure economic benefits for affected communities in the form of revenue sharing from resource development or extraction, commitments to employment opportunities for individuals in affected communities, and opportunities for training and capacity building. IBAs may also influence decision making about resource development and extraction by addressing the potential impacts of proposed development activities (Sosa and Keenan, 2001). Thus, in areas where claims agreements are in place (e.g., Gwich'in and Sahtu regions), O'Reilly and Eacott (1999) note that IBAs typically build upon the goals and objectives of the claims agreements and will address potential environmental impacts. In those regions where no claims agreements are in place (e.g., in the Deh Cho or Akaitcho regions), the relationship between the environmental assessment process and the development of IBAs is not as clear, largely because of the absence of a legal requirement to put them in place (O'Reilly and Eacott, 1999). Given the rights-based framework associated with the MVRMA, the significant role of IBAs, the complex ownership patterns of many resources, and the many interests associated with development activities (Aboriginal and non-Aboriginal), a collaborative vision and shared goals reflective of multiple values and worldviews are paramount in the planning, management, and assessment process.

In the context of the MVRMA, efforts to foster the development of a collaborative vision offer interesting insights and implications for environmental assessment practice, even though there are many challenges associated with these efforts. Initially, for example, the 'goal' of the new boards, as expressed by one board representative, was simply "...not letting people down." As previously noted, the new boards were under tremendous pressure to quickly establish effective screening and assessment procedures for proponents, communities, and government agencies. With the benefit of several years of implementation, the boards and others engaged in the screening and assessment process are increasingly focused on meeting the mandates provided for them in the claims agreements and the MVRMA. This has involved a somewhat greater focus on procedural goals—participation, communication, and integrating knowledge frameworks—that are being addressed through evolving practice. In contrast, more substantive goals of environmental assessment like sustainability have been less actively pursued given their inherent complexity, and the lack of a broader framework in which the socio-economic and ecological tradeoffs associated with efforts to achieve substantive goals can be debated.

However, the implementation of a key component of the MVRMA process—the development of comprehensive land use plans in the Gwich'in and Sahtu regions—may provide the necessary context for the clarification of different goals and the development of a collaborative vision. All proposed developments will be required to conform to region-specific land use plans developed for each settlement area. A draft plan has already been approved by the Gwich'in Tribal Council and the Government of Northwest Territories, and is currently being reviewed by the federal government (see www.gwichinplanning.nt.ca). As of late 2003, a preliminary draft of the Sahtu region land use plan was made available for review (see www.sahtulanduseplan.com), while development of land use plans in the remainder of the Mackenzie Valley will depend on the outcome of settlement negotiations in the North Slave, South Slave, and Deh Cho regions.

The land use plans have the potential to prove a critical element in the development of an overall vision of the forms and intensity of economic development. Currently, economic development goals, tempered in part by the establishment of IBAs, are driving the environmental planning, management, and assessment process in the Mackenzie Valley in the absence of land use plans (or a similar collaborative vision). Assessment practitioners (i.e., boards and government departments) and communities find themselves attempting to "catch up," as one board representative suggested, with the pace and intensity of development activities in the region. Until a collaborative vision(s) is more fully articulated, in significant part through the completed land use plans, proponents will be able to side step much of the responsibility for navigating proposals through a complicated morass of values and worldviews concerning the very nature of economic development, and the implications for Aboriginal livelihoods and culture.

Finally, it is important to recognize the heterogeneous political dimensions of the planning, management, and assessment process in the Mackenzie Valley, and the implications for the development of a collaborative vision to frame environmental assessment activities. While there is a real potential for implementing an alternative and more collaborative form of environmental assessment in the region, based on a more comprehensive vision about appropriate forms of economic development, there is also the potential for embedded conflicts of interest in the permitting and licensing process (i.e., screening and assessment) to undermine that opportunity. As previously noted, there is still an evolving recognition of the role of the boards as IPGs, rather than "comanagement" boards that may seek to support specific agendas or objectives. The permitting process has the potential to be utilized as a political lever. Although the motivations for economic benefit may not be an issue, unless these motivations are balanced by a broader vision of appropriate economic development, collaborative efforts may be hindered.

3.4. Integrating knowledge frameworks

An important component of the MVRMA assessment framework involves efforts to integrate knowledge frameworks and sources in the identification, analysis, and prediction of development impacts. Traditional knowledge can be defined as "...information that people in a given community, based on experience and adaptation to a local culture and environment, have developed over time, and continue to develop (Hanson and VanFleet, 2003)." As such, there have been extensive efforts to document traditional knowledge and to highlight the benefits associated with the use of traditional knowledge in the environment and development context (Sherry and Myers, 2002; Sillitoe, 2002). With regards to environmental assessment, particular emphasis has been placed on enhancing the role of traditional knowledge in northern jurisdictions (Stevenson, 1996; 1997; Peters, 1999; Usher, 2000), often with mixed results.

A key feature of the MVRMA regime, however, is the implicit recognition that integrating knowledge frameworks is much more than a technical process. Integrating knowledge frameworks in the assessment process is the outcome of efforts to bridge different value systems and worldviews. The politics of information integration (i.e., contested facts about impacts and livelihoods) tends to undermine collaboration in environmental assessment. These political dimensions of information integration are

associated with the commitment, or lack thereof, to pluralism (values, information) among various participants in the assessment process, recognizing the limits of impact assessment science and a corollary recognition that traditional knowledge offers insights into socio-ecological processes relevant to the identification of potential impacts and associated mitigation measures. Efforts to integrate knowledge frameworks are more likely to succeed when different value systems are accorded legitimacy. In the Mackenzie Valley, the formal legitimization of traditional knowledge in the planning, management, and assessment process is largely a result of the comprehensive claims agreements.

Reconfiguring the orientation of environmental assessment practice to one that more explicitly engenders collaboration and the integration of different knowledge frameworks may imply a value shift, and a more fundamental transition in overall approach to environmental assessment in the Mackenzie Valley. Yet, there are still several obstacles to be addressed. As one practitioner commented, integrating knowledge frameworks is very much a moving target and one that is dependent upon the specific context and underlying conditions. Moreover, the inclusion of traditional knowledge in the environmental screening and assessment process is largely proponent-driven. A government official also noted that communities are not necessarily comfortable working with proponents, and would often prefer that their traditional knowledge be provided to the boards first hand. This situation also raises concerns about the appropriate use and control of traditional knowledge, and the methodological challenges that emerge when proponents and decision makers expect that the different types of knowledge are analytically compatible (see Sillitoe, 1998; Sherry and Myers, 2002), or conducive to quantitative impact analysis.

Nevertheless, efforts to overcome these challenges in the Mackenzie Valley are worth highlighting. The Government of Northwest Territories has a formal policy supporting the use of traditional ecological knowledge in planning, management, and assessment (GNWT, 1993), and strategies to include traditional knowledge in regional cumulative effects assessment activities are being tested in the Northwest Territories (see www.ceamf.ca). In addition, the Sahtu Land and Water Board (SLWB, 2002) has been proactive in beginning the process of translating the broader GNWT policy and expectations for greater integration of knowledge frameworks in the screening and assessment process as envisioned in the MVRMA by drafting preliminary policy papers and operational guidelines (Table 2). Somewhat counterintuitively, efforts to integrate knowledge in the Sahtu region involve separating the analytical requirements and recommendations for permitting based on traditional knowledge and formal scientific knowledge. This approach recognizes that the knowledge sources emerge from distinct frameworks and worldviews, and that they are not necessarily compatible in the context of impact identification and prediction. Similarly, the MVEIRB has recently developed draft guidelines to facilitate the inclusion of traditional knowledge in the impact assessment process (MVEIRB, 2003). Despite the fact the process remains proponent-driven, better guidelines for the incorporation of traditional knowledge are emerging.

3.5. Adaptive capacity: bridging the rights and responsibilities divide

Implementation of the MVRMA represents a dramatic reconfiguration in the planning, management, and assessment process. As such, there are significant implications for

Table 2
Contribution of traditional knowledge to environmental assessment

Terrain
A description of the area (e.g., the area might be mostly muskeg and will not freeze properly, making travel by heavy equipment impossible)
Soils/geology
Including any permafrost considerations
Climate
Time/dates as to when the project will occur, and what condition might be expected (e.g., when creeks and lakes freeze up, when the ground is frozen enough to support equipment)
Vegetation
Lists types of vegetation in the area, what is the vegetation used for, is it a local berry-picking area?
Water use
Potential impacts of changes in quality or quantity (e.g., in small lakes used for camp water, the drawdown might be such that there will not be enough water left for plant or fish life)
Stream flow
It affects stream crossings, freeze-up, and spawning areas (e.g., will the stream flow be affected by ice bridges, or permanent bridges?)
Annual and seasonal trends
Related to wild life, climate, etc. (e.g., when do the caribou migrate through the area?)
Transportation
Routes related to traplines, access to the land
Significant sites
Burial sites, archaeological significance
Importance of site-specific areas
Why land is important, sacred sites, legends, beliefs, need for respect (e.g., Red Dog Mountain in Tulita District is considered a sacred site by the Mountain Dene)
Traditional use
How might fishing, trapping, and cabins be affected

Source: SLWB (2002).

financial and human resource requirements, as well as the technical capacity for information sharing and coordination. The new regime also requires individuals and organizations to prepare to deal proactively with uncertainty, as well as to learn from experiences and mistakes. The ability of individuals and organizations to meet this challenge can be referred to as 'adaptive capacity.' As defined by Walker et al. (2002, p. 6), adaptive capacity "...reflects learning, flexibility to experiment and adopt novel solutions, and development of generalized responses to broad classes of challenges." Folke et al. (2002) further highlight several key dimensions of adaptive capacity, including: (1) learning to live with uncertainty and change; (2) supporting and promoting institutional diversity; and (3) combining different types of knowledge.

Efforts to build adaptive capacity are thus paramount in the context of an emergent institutional and organizational framework for environmental assessment. Yet, in the Mackenzie Valley context, community-based organizations that need to be more actively engaged in assessment process face a number of capacity constraints. RRCs have increasingly significant responsibilities such as reviewing land use permit and water license applications, and providing input on research initiatives. However, these local organizations are underfunded and understaffed, and typically open for shortened hours. The limited funds at their disposal are generally used to hire an office manager and provide

a small stipend for a president. Despite their roles in providing input and advice on proposed developments, these local organizations do not have at their disposal technical or resource people, nor environmental assessment specialists. The claims-mandated IPGs also face financial, technical, and human resource capacity challenges, and have had difficulty keeping staff (Terriplan/IER, 2001). Staff turnover does create a barrier to learning—both at the individual and organizational levels. There is a need for new funding arrangements and resource people for communities and boards, and this is one precondition for collaborative environmental assessment that many practitioners and officials agree has not been adequately assessed.

However, building adaptive capacity is more than simply a financial, technical, or human resource issue. Efforts to foster the capacity for collaboration and learning have much to do with equitable relationships among different organizational interests (public, private) in the region. At present, certain 'partner' organizations in the MVRMA assessment process have more technical capacity, and therefore relatively greater degrees of influence. There is, for example, a power differential between local organizations and land and water boards. The lack of local capacity means that the land and water boards must offer support and guidance to communities. In of itself, this is not a major problem, but it raises the issue of the extent to which the intent of the decentralized MVRMA framework is being achieved. There were initial concerns as well about a power imbalance among the land and water boards and MVEIRB. The position and authority of the MVEIRB were initially interpreted in a manner that created a hierarchical relationship—a hierarchical relationship that was not envisioned in the MVRMA. Fortunately, effort on the part of the boards to collaboratively revise the EIA guidelines, and incorporate lessons learned from past experience, has been improving the situation.

Beyond power imbalances (real and/or perceived), adaptive capacity also requires a shift in worldviews about the nature of environmental assessment and its role in the Mackenzie Valley context. The capacity of the claims-mandated IPGs, local organizations, and other parties to foster learning and promote effective collaboration will depend on the worldviews of the individuals that make up those organizations. From a capacity-building perspective, there is a need for board members that bridge the duality of the north—economic, socio-political, and cultural. Such individuals will possess both wisdom and independence to withstand the many and competing pressures associated with rapid change in the Mackenzie Valley. At present, there is still a disconnect between the rights and responsibilities enshrined in the MVRMA, and the abilities of individuals across all organizations (IPG, government, First Nation, and industry) to fulfill these new and complex responsibilities.

4. Conclusions

Emergent environmental assessment practice in the Mackenzie Valley illustrates several innovative structures and processes. A number of associated practices and strategies highlight the institutional, organizational, and socio-political preconditions for collaborative environmental assessment. With roots in the comprehensive claims process, the transition to collaborative environmental assessment in the Mackenzie Valley includes

efforts to build a vision of economic and social development through region-specific land use plans, the integration of knowledge frameworks, strategies for more effective communication and participation of community interests, the development of decentralized regulatory organizations that are more responsive to changing circumstances, and a concern with building the capacity (local and regional) required to actively encourage effective intervention in the assessment process. What are the prospects for the future?

As highlighted above, there are a number of challenges and issues that must be overcome. Yet, there is there is reason for cautious optimism. Among many environmental screening and assessment practitioners in the region, there is agreement that an innovative environmental assessment process is evolving—a process that better accounts for the socio-political, institutional, and organizational conditions required to facilitate collaboration, learning, and integration. Evidence of changes in the orientation of assessment practice are increasingly widespread and include stringent requirements for consultation, higher standards for proponents in terms of communication with communities, greater opportunities to obtain context-specific and locally relevant information, and more involvement of 'referral organizations' such as RRCs and designated organizations in the Sahtu and Gwich'in settlement areas. As a number of individuals remarked, the majority of the different groups and stakeholders involved in the environmental planning, management, and assessment process are interested in promoting a culture of collaboration. Importantly, this should apply not only to the Mackenzie Valley, but to other regions in Canada's north that have or are developing environmental assessment processes involving new institutions and organizations reflective of changing socio-political and economic realities.

The lessons learned and implications of the MVRMA regime, however, may be broader still. Experience in the Mackenzie Valley offers a tangible example of the institutional, organizational, and socio-political opportunities and constraints that engender a greater concern with civics-oriented, collaborative frameworks for environmental assessment relevant to a wider spectrum of jurisdictions. Embracing civil society as partners in the assessment process has involved a significant shift in power in the Mackenzie Valley, requiring key government department to transition elements of decision-making authority to emergent organizations and IPG. The environmental assessment process in the Mackenzie Valley has most certainly emerged from a unique set of political circumstances (i.e., comprehensive claims agreements) not likely to be experienced in most jurisdictions. Nevertheless, the strategies and mechanisms being employed to potentially foster more collaborative forms of environmental assessment, and the potential lessons that may emerge from this 'experiment,' are worthy of further research and analysis.

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