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The Role of Indigenous Local Knowledge (ILK) in Resource Co-management in the Mackenzie Valley, Northwest Territories, Canada

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ABSTRACT

This thesis examines the incorporation of Indigenous Local Knowledge (ILK) in the environmental governance regime in the Mackenzie Valley, Northwest Territories, Canada. In the Mackenzie Valley, the incorporation of ILK in the Environmental Impact Assessment (EIA) and the regulatory processes is one of the distinctive features of environmental governance in the region. However, the depth of the use of ILK in the decision-making processes of the co-management boards established as a result of the Comprehensive Land Claims Agreements, is unknown. The broad objective of this study was to identify the role of the co-management boards in incorporating ILK in the natural resource management framework.

This study included 14 semi-structured interviews with representatives from the co-management boards and the Tlicho government. I also reviewed the literature and documents evidencing the incorporation of ILK in actual project assessments and in mining Effects Monitoring programs. I conclude that the co-management boards provide extensive procedural opportunities for Aboriginals to volunteer ILK. These Boards have also instituted policies and guidelines outlining requirements for developers to consider ILK in various stages of the lifecycle of projects. These factors combined with Aboriginal representation on the Boards, and the facilitative role of Aboriginal governments, have led to an increased incorporation of ILK within and outside of the environmental assessment process. However, a critical examination of the programs incorporating ILK in the post EA phase shows a tendency among developers to choose aspects of ILK that are easily blended with Western scientific data points, lending credence to claims by some researchers that in many cases, ILK is used to fill gaps in scientific information, rather than used in its cultural or spiritual context, as an alternative way of knowing. In spite of these shortcomings, EA co-management system in Canada's North is unique in considering Indigenous peoples' knowledge systems in the environmental assessment and regulatory phases.

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CHAPTER 1: INTRODUCTION

The late 20th century witnessed significant social, economic and environmental changes in the Arctic (Noble & Hanna, 2015). Increasing energy and mineral resource extraction, the opening of new transportation routes, and the impacts of climate change (Prowse et al., 2009; Burkett, 2011), are ushering in a period of interrelated political, economic, social and ecological changes in the Circumpolar North. Sustaining Arctic and subarctic ecosystems and livelihoods of northern Indigenous peoples is becoming a challenge in the face of increasing resource development (Parlee, Sandlos & Natcher, 2018).

Mining projects generate employment and promote the development of much-needed regional infrastructure, but these activities can also cause local environmental damage and unintended social consequences, resulting in significant adverse effects for local communities. For example, while diamond mines are of critical importance to the economy of the Northwest Territories (NWT), Canada, they also have significant adverse impacts on the local and regional environment (Davison & Hawe, 2012; Shigley, Shor, Padua, Breeding, Shirey & Ashbury, 2016). Mining operations in the Mackenzie Valley of the NWT are located on important caribou migration routes and near calving grounds, where caribou females are most sensitive to human disturbance (Parlee, Sandlos, & Natcher, 2018). The area in which these mines are located is also used for traditional hunting by the Dene First Nations. In deed in the NWT, changing climatic conditions coupled with the additional stress of increased industrial development activities have led to a decline in most caribou populations (Vors & Boyce 2009). The decline of these species has implications for caribou hunting practices and thus for the culture, identity, and traditional ways of life of communities in the Mackenzie Valley.

As competition over land use and resources continue to intensify, caribou management and its relationship with other land uses have gained prominence (Klein, 2000; Schneider, Hauer, Dawe, Adamowicz & Boutin, 2012). Given the importance of caribou to the cultural identity and socio-economic well-being of many northern societies, balancing caribou management with natural resource management (NRM) within the existing social and political landscape is important for ensuring sustainable development in the North. Meaningful Indigenous participation in NRM is key to the success of any such endeavour.

Historically, Indigenous peoples have relied on Indigenous Local Knowledge or “ILK”¹ to guide their interaction with natural resources and their environment and to manage wildlife (Schmidt & Stricker, 2010). Developed through an accumulation of location-specific observations and knowledge, the detailed collective bodies of ILK on Caribou by Indigenous peoples has been transmitted from one generation to another, over time. However, the meaningful integration of Indigenous people and their knowledge systems in environmental governance regimes, such as the Environmental Assessment (EA) process, continues to be the exception rather than the norm (Johannes, 1993; Noble & Hanna, 2015). Usher (2000) notes that in the Canadian context, EA is the “most structured and visible” of the policy arenas involving ILK. This makes EA regimes a suitable process for a focused study of ILK incorporation in resource management in the context of the NWT.

Although EA systems are widely criticized for not adequately considering Indigenous peoples and their knowledge systems (Noble & Udofia, 2015), EA systems in Canada’s North may be the exception. Governance arrangements set a broader context that impacts the ability of ILK to influence NRM processes such as EA. Hence, the relationship between ecological systems stewardship and ILK cannot be discussed without considering the legal status of Indigenous nations as distinct sovereigns, within wider nation-states (Ranco, O’Neill, Donatuto, & Harper, 2011). Indigenous governance systems play important roles in defining and implementing programs to mitigate the negative impacts of resource extraction (Grijalva, 2011).

In the northern regions of Canada, because of Comprehensive Land Claims Agreements (CLCAs), legislative, regulatory or policy requirements have been instituted to ensure that the ILK of Aboriginal people are included in resource management (Usher, 2000). Current EA regimes in the north require that developers incorporate ILK into project reviews, including in the NWT (*Mackenzie Valley Resource Management Act (MVRMA)* 1998), and in the Yukon (*Yukon Environmental and Socio-economic Assessment Act (YESA Act)* 2003). In Nunavut, the Nunavut Land Claims Agreement similarly requires the assessment of the

¹ Indigenous Local Knowledge (ILK) is also sometimes referred to as “Traditional Ecological Knowledge” (TEK), or Traditional Knowledge (TK). The use of ILK in this thesis is meant to reflect the shift toward the use of the term in recent academic literature.

potential impacts of proposed developments in the Nunavut Settlement Area, considering both ILK (referred to as Inuit Qaujimagatuqangit or IQ) and scientific methods.

Co-management institutions across the North have the potential to be important vehicles for the inclusion of ILK in resource management (Pinkerton, 1989; Berkes, Armitage & Doubleday, 1997). Kendrick (2000) stresses the importance of co-management institutions as avenues for the exchanges of ideas on natural systems, where interactive and mutual learning takes place. The northern co-management bodies have led to greater use of ILK alongside scientific knowledge in NRM decision-making, especially relating to mining and other industrial activities (Manseau, Parlee & Ayles, 2007; Berkes et al., 2001).

Despite the recognised importance of ILK, there is a scarcity of research that details the processes through which it is considered by co-management boards and how it impacts decision-making and impact management. Although many studies have focussed on the EA regime in the NWT (Papillon & Rodon, 2017; Udofia, Noble & Poelzer, 2016) only a few have focussed on ILK in EA in the Mackenzie Valley (Manseau, Parlee & Ayles, 2007; Vanclieaf, 2014; Christiansen & Grant, 2007; Pudovskis, 2013). Apart from Pudovskis (2013), much of the academic literature on ILK in the Mackenzie Valley has not addressed the role the MVRMA plays in ensuring that ILK is used in resource management processes. Further, there has been little or no research on factors (other than legislation) that impact the incorporation of ILK in the NWT regulatory system.

The overarching goal of this thesis is to explore whether and how the MVRMA and co-management boards in the Mackenzie Valley facilitate the inclusion of ILK in decision-making in the EA and regulatory process. Specifically, this thesis examines the factors that impact the incorporation of ILK in the resource co-management system in the Mackenzie Valley of NWT. The thesis seeks to answer the following research questions:

- i. What roles does the MVRMA play in ensuring that ILK is used in resource management in the Mackenzie Valley?
- ii. What roles do co-management boards play in facilitating the collection, interpretation, and inclusion of ILK in decision-making related to EA and regulatory processes?
- iii. What are the other factors that facilitate the use of ILK for resource management in the Mackenzie Valley co-management system?

This thesis fills a gap in the literature on ILK by examining the role of the co-management boards in collecting and incorporating ILK in the decision-making process in the EA and regulatory phases. The results provide insights into the role of Aboriginal board representation and indigenous governance systems in facilitating the incorporation of ILK in environmental decision-making.

The remainder of this thesis is presented in six sections. Section 2 briefly discusses the potential role of ILK in mitigating impacts and provides an overview of ILK as a governance issue in northern Canada. This section also assesses some of the relevant gaps in the literature related to the ILK in the co-management of resources in Northern Canada. This is followed by Section 3, the study methodology. Section 4 presents the results of the document analyses, while Section 5 outlines the findings of the research. Section 6 discusses some of the important outcomes of the study. Finally, Section 7 provides concluding statements and areas of future research.

CHAPTER 2: LITERATURE REVIEW

In the Canadian north, the impacts of mining and other large resource developments are disproportionately experienced by Aboriginal communities. EA and co-management boards established under modern land claims are planning processes through which these impacts can be mitigated. This chapter focuses on literature on the use of ILK in northern co-management processes and the issue of ILK in governance mechanisms. Section 2.1 provides an overview of ILK as a governance issue in northern Canada, especially within the context of modern treaties and EA. Section 2.2 assesses some of the relevant gaps in the literature related to the ILK in the co-management of resources in Northern Canada.

2.1 Balancing Industrial Development and Indigenous livelihood – The role of ILK and Modern Treaties in Northern Canada

The population of the Bathurst caribou herd has declined from roughly 450,000 in mid 1980s to about 20,000 now (Government of the Northwest Territories, ND). While it can be argued that the decline in the population of the caribou is impacted by factors such as climate change, cyclical factors, and predators, the location of diamond mines on migration routes and calving grounds does not help the recovery of the species. The role of ILK in improved land use decision-making across the Bathurst caribou's herd range is thus increasingly taking centre stage.

Bridging Indigenous and scientific knowledge in environmental governance systems is increasingly seen as pivotal to mitigating the “wicked” problems related to balancing the interests of traditional practices and industrial development (Uprety, Asselin, Bergeron & Doyon, 2012; Dale & Armitage, 2011). Recognition of the importance of engaging Indigenous peoples and their knowledge systems in environmental governance regimes, such as EA, is not new (Johannes, 1993). Although many resource management systems across southern Canada are subject to increasing criticism for their limited inclusion of ILK, the inclusion of ILK and the recognition of its value along with western science in decision-making processes is one of the cornerstones of natural resource co-management arrangements in Canada's North (Nadasdy, 1999).

In Canada, the rise in the use of ILK in resource management can be traced back to developments in the political and judicial recognition of Indigenous rights. The entrenchment

of Aboriginal and treaty rights in the Canadian Constitution Act of 1982, by way of Section 35, has resulted in increased attention on the content and substance of these rights, particularly as they pertain to NRM. The Supreme Court of Canada’s 1973 decision in *Calder v. British Columbia (AG)*, [1973] SCR 31 recognised the possibility of a form of “Aboriginal title”² existing in parts of Canada where it had not been extinguished by treaties. Given that most of northern Canada, and most of British Columbia, were not subject to “historic treaties”, the Government of Canada responded to this court decision with its Comprehensive Land Claims Policy in 1973 (Alcantara, 2013). This policy was designed to yield “modern treaties” in all those parts of Canada not covered by historic treaties (Figure 1).

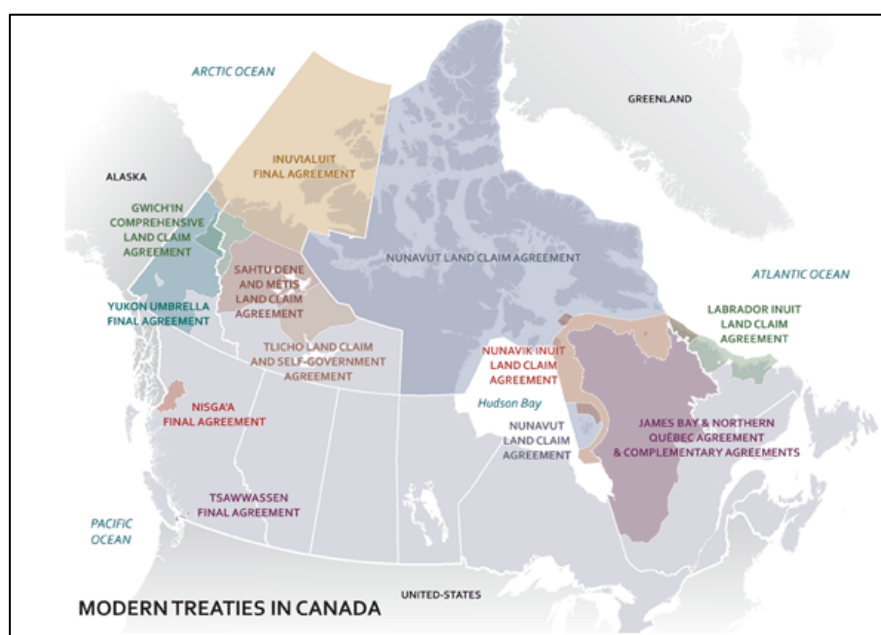


Figure 1: Modern treaties in Canada. Source: Government of Canada (2011)

The first modern treaty was the James Bay and Northern Quebec Agreement, signed in 1975 between the federal government and the Cree and Inuit of Quebec in response to the construction of a hydroelectric development complex (Rynard, 2000). This agreement included the establishment of a co-management regime, whereby the Cree and Inuit of Quebec would partner with government representatives in equal numbers on management boards in relation to such areas as EA and wildlife management.

² This decision was driven by the Nisgaa’a people’s push for recognition of their legal rights to their land.

Since the James Bay and Northern Quebec Agreement, 25 CLCAs have been signed between Canada and Indigenous groups (Government of Canada, NDa). Many of these modern treaties are in the northern territories of Canada and like the James Bay agreement, these CLCAs also ensure Aboriginal participation in EAs and resource management through the establishment of co-management boards.

Environmental assessment is broadly defined as a process for identifying, predicting, evaluating, and mitigating the biophysical, social, and other relevant effects of development proposals before major decisions and commitments are made (Noble & Hanna, 2015). EA is the point in the decision-making process that offers the most opportunities for stakeholders, such as local residents, municipal governments, and First Nations to influence the outcome of a project (Noble, 2016), and sets out the standards for managing impacts over the lifecycle of a development.

The EA process in Canada's northern territories is based on a co-management approach, rooted in the legal and cultural frameworks of CLCAs. Each territory has its own regulatory regime, administered under a variety of regional boards, responsible for various management processes from wildlife, to water, to EA. These Boards are referred to as “co-management” boards because they are made up of equal representatives of Indigenous community and non-Indigenous government representatives. They function as decision-making bodies that are responsible for the day-to-day management of resources in their settlement areas; though in some cases the Minister of the Environment (federal or territorial) retains ultimate decision-making authority.

Several researchers have highlighted the important role that northern co-management boards play in facilitating the use of ILK for resource management (Pinkerton, 1989; Manseau et al., 2007). White (2006) notes that these Boards represent the best opportunity for imbuing public, non-Aboriginal governmental institutions with traditional knowledge. Others assert that the Boards often lead to a change in the power dynamics that is critical in the linking of state and Indigenous knowledge systems (McCay & Acheson, 1987; Pinkerton, 1989). However, not everyone is convinced about the utility of the approach of these boards in combining ILK with science in resource management processes. Several scholars note that the two knowledge systems are “incommensurable” (Nadasdy, 2003) because knowledge requires experience and the fundamental experience of Indigenous peoples is drastically different from the scientific context. Hence, combining the two systems is unproductive and

only serves to maintain the subordinate position of ILK (Nadasdy, 1999). Other scholars have also argued against reformatting ILK into databases for the benefit of scientists and policy-makers, arguing that such processes deprive ILK of its dynamic and integrative aspects, and remove it from its central context (Agrawal, 2002; Stevenson, 1996; Fenge & Funston, 2009). Spak (2005) and Nadasdy (1999) conclude that ILK is often used merely as supplementary data to fill the information gaps of resource biologists.

White (2006) notes that despite efforts at imbuing them with Indigenous principles and procedures, the Boards still follow rational bureaucratic processes. He also observes that fundamental incompatibilities between Indigenous culture and the conceptual scientific framework of the co-management Boards present a real barrier to infusing boards with ILK. Berkes & Berkes (2008) highlight the language-based qualitative nature of ILK compared to the quantitative focus of science. Other researchers (Stevenson, 1996; Ellis, 2005) also highlight the inextricable link between language and ILK and point to the communication barriers arising from the different languages and styles of expression used by ILK holders in the transmission of ILK from Indigenous communities to co-management Boards.

2.2 Gaps

While disagreements exist as to the overall efficacy of co-management boards in incorporating ILK, few would dispute that, as Natcher et al. (2005, p 240) argue, they are "restructuring Indigenous-state relations. The CLCAs and the co-management boards have elevated the status of ILK in northern Canada. Co-management boards offer one of the most promising institutional arrangements for the inclusion of ILK. Yet, despite the vast amount of research on co-management boards, there is limited literature on the internal dynamics of these institutions or the practical outcomes of the EA decisions made by these boards (see Noble & Hanna, 2015). Limited research exists on board membership (e.g. White, 2006), which indicates that the balance of Indigenous and non-Indigenous members is an important but insufficient factor to bring meaningful ILK influence. White (2006) notes that how co-management boards collect ILK, process ideas, reach decisions, and formulate and implement policies may be just as important, if not more important, than representation by numbers or the actual decisions made.

Manseau et al. (2007) document how Indigenous members of co-management boards in northern Canada bring their ILK to board operations, and Irlbacher (1997) argues that the probability of ILK truly impacting the EA and regulatory processes is high if they are utilized

within institutions controlled by Indigenous peoples or institutions in which Indigenous people have a strong influence. However, there is little understanding of how institutional dynamics potentially impact the ILK consideration and decision-making processes of these Boards. There is also a lack of a systematic presentation of the ways in which co-management boards collect, consider and use ILK for decision-making during the lifecycle of a project (see Spak, 2005; White, 2006). Finally, there is still limited understanding of the role of local Indigenous governments or groups in facilitating the incorporation of ILK in co-management bodies (Manseau et al., 2007).

CHAPTER 3: METHODOLOGY

3.1 The Case: The Mackenzie Valley, NWT

The NWT is home to some 20,860 Indigenous peoples, accounting for 50.7% of the territory's total population. The majority of Indigenous persons reside in smaller NWT communities (Statistics Canada, 2017). There are three settled land claims in the Mackenzie Valley – the Gwich'in (1992), the Sahtu (1994) and the Tlicho CLCAs (Figure 2). While each land claim is different, these agreements generally cover ownership, use, and management of land, and they clarify how renewable and non-renewable resources will be owned, managed and regulated. As part of the agreements covering these CLCAs, the Government of Canada was required to establish a network of co-management boards to form an integrated system of resource management. Consequently, the *Mackenzie Valley Resource Management Act*³ was enacted in 1998 to implement the federal government's land claim obligations to the Gwich'in and the Sahtu peoples. The law was amended in 2005, to accommodate the Tlicho Agreement, and again in 2013 with the Devolution legislation. The MVRMA implements the EA sections of the CLCA.

Environmental governance in the Mackenzie Valley is influenced by the MVRMA, Section 35 of the Canadian Constitution, the federal government's constitutional responsibility for Aboriginal issues,⁴ and the relationship between the federal government and the Government of the NWT (GNWT). Unlike the provinces, the NWT does not have the constitutional powers set out in the Canadian constitution (Sabin, 2017). However, the federal government has delegated powers normally exercised by the provinces to the GNWT through several federal Acts, most notably the *Northwest Territories Act*. The latest of these transfers of power involves the devolution of land and resource management under the Northwest Territories Land and Resources Devolution Agreement — signed by federal, territorial and nine Indigenous governments in 2013. This agreement introduced new executive, fiscal and regulatory institutions to manage intergovernmental relations within the territory (Sabin, 2017).

³ This region corresponds generally to the ancestral lands of the Dene peoples located within the boundaries of the Northwest Territories.

⁴ Crown- Indigenous Relations and Northern Affairs Canada (formerly Indian and Northern Affairs (INAC) is the federal ministry responsible for the territories.

The devolution agreement empowers the GNWT to administer public lands, regulate the development of surface and subsurface resources — including minerals, oil and gas — and set and collect resource royalties (Sabin, 2017). The MVRMA still remains a federal legislation, with several responsibilities and ultimate decision-making authorities held by the federal Minister, including the authority of approve water licenses for larger and more sensitive projects, such as mining and oil and gas activities. Many of the duties and functions related to EA are delegated to the GNWT.

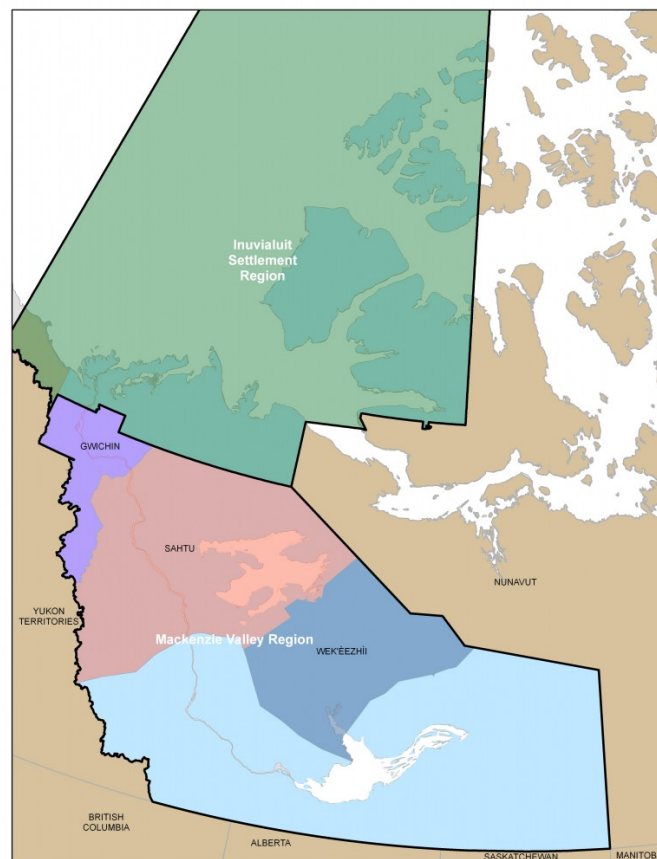


Figure 2: Mackenzie Valley NWT and the jurisdictions of the three CLCAs. Source: Mackenzie Valley Environmental Impact Review Board (MVEIRB) (2016)

3.2 The MVRMA Co-management Boards

The MVRMA establishes three types of independent co-management boards to run the various stages of the EA and regulatory processes (Table 1). The Boards created by the MVRMA are as follows:

a. Regional Land-use Planning Boards (LUPBs): LUPBs are tasked with developing regional land use plans that define where and under what conditions resource development activities may take place and what land will be set aside from development. These land use plans are heavily dependent on ILK from community elders. The Sahtu Land-use Planning Board (SLUPB), and the Gwich'in Land-use Planning Board are currently operating. Land use planning in the Tlicho area is done by the Tlicho government, while the Mackenzie Valley Land and Water Board (MVLWB) is responsible for land use planning in unsettled land claims areas.

b. Mackenzie Valley, Gwich'in, Sahtu, and Wekheezhi Land and Water Boards: The Land and Water Boards (LWBs) are responsible for preliminary project screenings and have the authority to issue, amend, suspend and renew land use permits and water licences throughout their respective settlement areas. The MVLWB is responsible for project screening and issuance of Land use permits and water licenses in unsettled land claims areas and transboundary projects in the whole of Mackenzie Valley.

c. The Mackenzie Valley Environmental Impact Review Board (MVEIRB): Responsible for EA of proposed developments and for creating panels to conduct Environmental Impact Reviews (EIR) if necessary, throughout the Mackenzie Valley. Based on the findings of its assessment, this board makes recommendations to the responsible GNWT minister on whether a proposed development proceeds to regulatory review or not.

Table 1: Boards established under the MVRMA

| Preliminary Screening and Regulating and Permitting Land and Water Boards | Environmental Assessment and Impact Review Boards | Land Use Planning Boards |
|--|--|---|
| Mackenzie Valley Land & Water Board Gwich'in Land & Water Board Sahtu Land & Water Board Wek'èezhì Land & Water Board | Mackenzie Valley Environmental Impact Review Board | Sahtu Land-use Planning Board Gwich'in Land-use Planning Board |

MVRMA boards are further supported by regional Renewable Resource Boards (RRBs) established directly under CCLAs (not the MVRMA) - the Gwich'in, Sahtu, and Wek'èezhì Renewable Resource Boards. The RRBs are advisory boards on wildlife management issues in the respective land claims settlement areas. The work of the RRBs feed into the review process of the LWBs and the MVEIRB. The boards use ILK and scientific information to make recommendations to governments on management decisions affecting wildlife within their respective settlement areas.

MVRMA boards are frequently referred to as co-management boards as a result of the requirement for half of the members of the boards to be nominated by Aboriginal governments and the other half by the territorial and federal governments. Despite this appointment framework, members are expected to be independent in their decisions. The co-management boards are institutions of public government, with rights and responsibilities that are the forefront of independent administrative decision-making. They are granted the powers, rights and privileges of a superior court with respect to examination of witnesses and the production and inspection of documents. The Boards make decisions based on evidence provided to them (MVRMA, 1998). This is important because if ILK is not submitted as evidence then it cannot inform the Boards' decisions. Hence, the onus is on the holders of ILK to provide that knowledge to the Boards and so the process stresses participation of indigenous people. Decisions are formally made by majority vote but in practice almost always by consensus (MVRMA, 1998).

3.3 Study Design

This research adopted a case study design (Yin, 1981), focused on the integration of ILK in the EA and regulatory systems under the MVRMA, with emphasis on the co-management Boards in the Tlicho traditional area. Case studies are valuable in scholarly research because they facilitate “exploration of a phenomenon within its context, using a variety of data sources” (Baxter & Jack 2008, p 544). The methodology is based on the constructivist paradigm, which postulates that reality is socially constructed and can best be understood by exploring the tacit, i.e., experience based, knowledge of individuals.

The main data collection methods employed in this case study are semi-structured interviews and a review of available documents and literature⁵. An interview is “a conversation, whose purpose is to gather descriptions of the (lifeworld) of the interviewee” with respect to interpretation of the meanings of the ‘described phenomena’ (Kvale, 1996, p 174). The semi-structured interview (SSI) “allows depth to be achieved by providing the opportunity on the part of the interviewer to probe and expand the interviewee's responses” (Rubin & Rubin, 2005, p 88). SSIs also allow conversations to flow naturally, potentially leading to the capture of un-anticipated knowledge, while having a pre-defined structure allows the interviewer to gather the data needed (Huntington, 1998).

The interviews in this study were meant to augment some of the issues identified in documents analysis and the literature review processes. A total of 14 semi-structured interviews were conducted with members of the co-management boards (the MVEIRB, the MVLWB, the Wek’èezhì Land and Water Board (WLWB), the Wek’èezhì Renewable Resources Board (WRRB) and the Tlicho government. The research questions and goals drove the respondent selection (purposive sampling). Purposive sampling is useful for guiding the selection of informants with knowledge and experience relevant to the research questions (Bryman, 2012). Depending on the respondents, the topics included the role of ILK in the decision-making processes of the Boards, the role of Aboriginal representation on the collection and incorporation of ILK in decisions of the Boards, and the role of Indigenous governments in promoting the use of ILK. The typical interview lasted between 50 minutes to 1 hour. The interviews were recorded and transcribed. The interview schedule consisted of

⁵ Due to confidentiality concerns and the size of the sample, I have opted not to add the interview list to this thesis.

about 10 open-ended questions, depending on the respondents' role in the co-management process (see Appendix 1).

In addition to interviews, the study relied on a review of the literature on the role of ILK in resource management, and the analysis of relevant documents. The selection of documents was aided by the literature review and recommendations from some of the interview respondents. The types of documents reviewed included legislative frameworks, CLCAs, co-management board policies and guidelines on ILK requirements, Land use permits and water licenses issued to developers, formal statements in public hearing processes, EA Reports, and workshops reports. The documents were reviewed for provisions on ILK or evidence of incorporation of ILK in project management activities (see Appendix 2 for list of documents reviewed).

3.4 Theoretical Framework

The creation of co-management boards under EA regimes places NWT at the cutting edge of innovation in Northern environmental management. Singleton's (1998) defines co-management as: "governance systems that combine state control with local, decentralized decision making and accountability and which, ideally, combine the strengths and mitigate the weaknesses of each" (Singleton 1998:7). This study adopts Singleton's definition of co-management. Also, co-management as both an "institution building" process and a "power sharing" process (see Berkes, 2009) provides the analytical tools for assessing the data collected for this study. Relevant questions of co-management are addressed under these two themes.

The legitimacy of ILK and Indigenous participation in decision-making relating to EA and NRM broadly, are deeply connected to issues of power. Co-management boards under northern EA regimes represent a redistribution in the balance of power, thereby contributing to changing power relations between Aboriginals and the Canadian state in the context of NRM (Berkes, 2012). Measures of power sharing provide useful tools for assessing the success of co-management processes (Kruse, Klein, Braund, Moorehead, & Simeone, 1998). Pertinent issues such as the role of Aboriginal governments in the process, the weight given to the recommendations of Aboriginal governments in the EA and licensing process, and the role of ILK in the decision-making process are among issues to be examined.

Co-management can be strengthened by institution and capacity building. The Mackenzie Valley co-management boards (which are functional bodies, with formalised

structures) are part of an institution building process created by the MVRMA (see Section 3.1). The Boards serve as bridging organisations that make it easier for different institutions to interact at multiple organisational levels, leading to a cross fertilisation of ideas; and the integration of ILK and scientific knowledge (Berkes & Armitage, 2010). The Tlcho government's development of ILK research capacity is also another form of institution building spurred by the creation of the Boards. The impact of inter and intra- institutional dynamics (such as the role of Aboriginal membership of these Boards) are also explored.

CHAPTER 4: RESULTS OF THE DOCUMENT ANALYSIS

In this chapter, the role of the Boards in the collection and incorporation of ILK in the project lifecycle is evidenced. The chapter is organized in terms of key stages in the EA process, the Preliminary Screening and EA phases, followed by the operations and mine closure planning phases. The last two phases have been separated for illustrative purposes, but in practice, mine closure planning commences during the mine design stage and continues through the operations and mine closure phases. Co-management boards in the Mackenzie Valley play a facilitating role in the use of ILK in EAs and wildlife co-management (Kendrick, 2003). This is partly due to legal requirements in the MVRMA and the provisions of the CLCAs. Sections 115.1 and 60.1 (b) of the MVRMA⁶ require that the MVEIRB and the MVLWBs respectively consider any traditional knowledge (in addition to scientific information) that is presented to them (MVRMA, 1998), thereby placing ILK on par with other scientific data - at least in principle.

4.1 The Role of the MVRMA Co-management Boards in the Collection of ILK during the EA Phase

There are three possible levels of EA before a project is approved and goes through the regulatory process (Figure 3). These stages are: Preliminary Screening (PS), Environmental Assessment (EA) and Environmental Impact Review (EIR).⁷ Depending on the complexity of the project, a development proposal may have to go through one or two or all of the stages before proceeding to the regulatory process.

⁶ Other relevant sections of the MVRMA requiring the recognition of ILK and the areas covered are as follows: Section 144 - Regional Studies, and Section 146 - Monitoring (Cumulative Impact).

⁷ This stage of the EA process is not covered in the scope of this thesis.

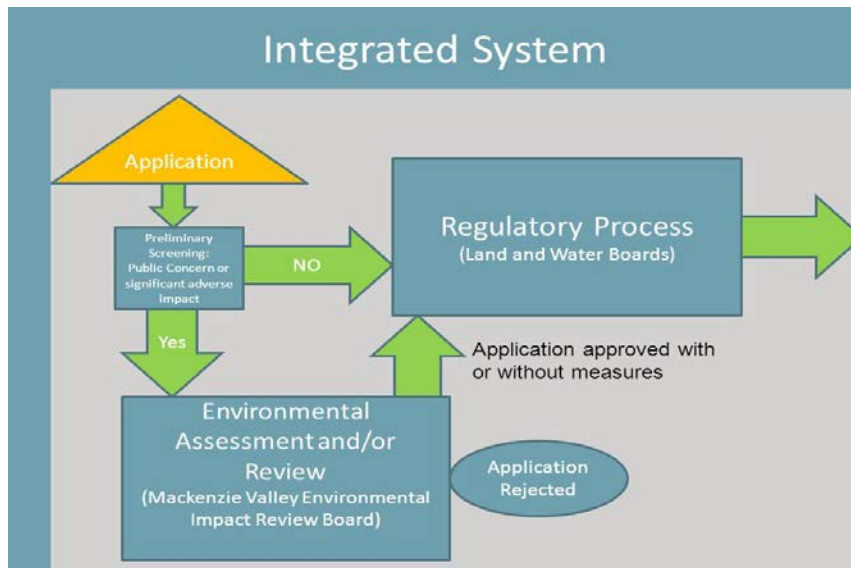


Figure 3: The Three Levels of Environmental Impact Assessments in the Mackenzie Valley, Source: MVEIRB (2018)

4.1.1 Preliminary Screening (PS)

The Preliminary Screening (PS) phase, the first phase of the EA process, involves a high-level assessment of the potential impacts (including culture and social impacts) of a proposed development and whether a more thorough assessment of the project is needed. The MVLWB and its sub panels are responsible for the preliminary screenings of proposals in their various geographical jurisdictions. During this stage, there are opportunities for ILK to be used to determine the impacts of projects. The Boards notify the public and invite comments from interested parties, and expert advice on the proposed development, primarily through their online registry. A review of the online registry shows that some of the comments submitted for some of the projects being screened do contain ILK.

The Board then collects the evidence from the online registry, lists potential impacts, consider the adequacy of mitigations, and determines whether the project passes the “might test.”⁸ They have a checklist for potential impact of projects (including culture and social impact). If the Board determines in the affirmative that the project might have a significant effect on the environment and community, the project is referred to the MVEIRB for a more thorough EA. Generally, more than 95% of developments only go through the PS stage, with

⁸ This test is meant to answer whether a given development might cause significant harm to the environment or communities.

larger projects (involving sensitive issues) or small projects in important receiving areas going to the EA process (Ehrlich, 2016). For minor projects, the PS stage screening represents the only opportunity for the inclusion of ILK before the regulatory phase.

4.1.2 Environmental Assessment

The EA process conducts a more thorough assessment of the environmental and social impacts of a project on an area or community (Figure 4). During EA, the MVEIRB determines whether the project impacts are significant, and whether the mitigation measures are sufficient. Both the significance of impacts and the significance of public concern are assessed by the Board (MVEIRB, 2004). The EA process has built-in mechanisms to ensure a more detailed collection and incorporation of ILK than the PS stage because of the requirements for more extensive consultation and consideration of ILK by proponents at this stage.

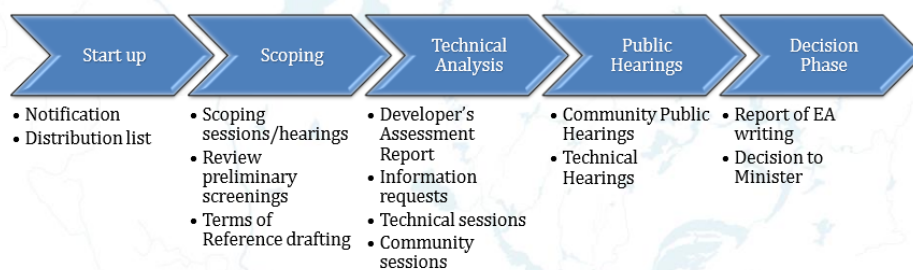


Figure 4: The Environmental Assessment process in NWT. Source: MVEIRB (2018)

Broadly, the EA is divided into four phases - Scoping, Technical Analysis, Public Hearings, and Decision phases. The MVEIRB's Traditional Knowledge Guidelines (2005) provide guidance on the Board's general expectations with respect to ILK for all stages of an EA or review (MVEIRB, 2005, pp 14, 23). The guidelines also explicitly state that the Board uses ILK to help identify the issues to be addressed in the EA (MVEIRB, 2005, pp 23-24).

In the Scoping phase, through hearings and community sessions, the Board delimits the potential impacts that should be focused on during the EA. The developer proposes a Terms of Reference (ToR), which the various parties can respond to at community and technical scoping sessions, and through written comments and questions. ILK may be volunteered at the Scoping and ToR stage by the community commenting directly on the

draft ToR. The Board then sets the final ToR, based on evidence provided to it by the various parties and gives direction to the developer to study particular areas.

During the Technical Analysis stage, the developer submits a Developer's Assessment Report (DAR) or Environmental Impact Statement (EIS) - an assessment of potential impacts in respect of each issue, and proposes mitigative measures where necessary. Importantly, the DAR is expected to outline how ILK holders have influenced the developer's project design, impact assessment, and mitigation measures (MVEIRB, 2005).⁹ They are also required to propose a plan for future cooperation between the developer and ILK holders in order to further incorporate ILK where applicable, including during the operations and closure phases (MVEIRB, 2005). Once the proponent has submitted its draft DAR/EIS document to the MVEIRB, the document is opened for public comments. The Board and the parties may then submit information requests and more information is shared during scientific and cultural technical sessions.

The Technical Analysis stage includes direct communication between ILK holders and the Board, during community sessions¹⁰. Public hearings, the next stage, also provides avenues for communities to volunteer ILK to influence Board decisions. The communication of ILK to the Board and proponents during public hearings is facilitated by the availability of simultaneous translation or interpretation services for translation of English into Aboriginal languages and vice versa.

Evidence from a review of the EA documents (reports and submissions from stakeholders) suggests that these community sessions and public hearings are important avenues for communities to volunteers substantial quantities of ILK. In some cases, the MVEIRB's final EA reports have commented on the usefulness of the ILK provided during public hearings in their decision making process (MVEIRB, 2016). Information, including ILK, provided in these meetings can have and have had concrete effects on the EA process. For example, in response to early engagement and community concerns about the environmental footprint of the proposed Jay-Cardinal Pipe Project footprint identified during

⁹ The scope of ILK incorporated in an EIS is influenced by the ToR, the scale of the project and whether or not the proponent and the Indigenous group have an Impact and Benefit Agreement.

¹⁰ Community sessions are aimed at identifying community concerns and what matters most to the communities affected.

the EA, Dominion Diamond¹¹ amended their application and removed the Cardinal Pipe portion from the project entirely, thereby minimising the impact of the proposed project on the area (MVEIRB, 2016).

Other means of communicating parties' assessments of the DAR include written submissions presented directly to the MVEIRB through the online registry or by email. ILK studies may also be conducted and submitted directly to the Board by the affected community or the developer. These studies usually provide more detailed information on a range of issues considered important to the EA process.

Parties can then come to a decision about the significance of potential impacts and recommend ways to avoid potential impacts. The Board conducts an adequacy review of the DAR to ensure that it fulfills the ToR. The position of the various parties is then presented to the Board, which then has to make a final decision.

After the EA is completed, the Board produces a recommendation and the formal decision is made by the Minister. If the MVEIRB determines that there will not be significant adverse impacts, the project is recommended for approval. If the Board believes otherwise, then the project is either recommended for approval with mitigation measures or the MVEIRB can send a project to the EIR screening phase, if it deems the project impact will be very significant.

4.2 The Land and Water Boards (LWBs) and the Incorporation of ILK in the Post EA Phase of Project Development

The LWBs are responsible for permitting and licensing of developments in the post EA phase. To facilitate its work, the MVLWB has produced a number of guidelines and policies, which not only guide their regulatory functions but have also served to elevate the role of ILK in the post EA phase. The most relevant guidelines and policies to this thesis are the "Consultation and Engagement Policy" (MVLWB, 2013), the "Engagement Guidelines

¹¹ Dominion Diamond owns the Ekati Mine (Canada's first diamond mine), situated approximately 200 kilometers south of the Arctic Circle in Canada's Northwest Territories. The Jay Pipe (an open pit mine) is an expansion of the Ekati mine which would extend Ekati mine's life to 2033.

for Applicants and Holders of Water Licenses and Land Use Permits,” (MVLWB, 2014) and the “Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories.” (MVLWB & AANDC, 2013). The provisions of Land Claims and Self Government Agreements, and Engagement and traditional knowledge policies and guidelines of some Aboriginal governments, also influence the work of the LWBs.

When an application for a land use permit or water licence is submitted in the post EA phase, the LWBs look for evidence of the proponent’s pre-application engagement with the community. LWB policy and guidelines require the proponents to show the modifications that were made to their applications based on feedback received from affected communities, otherwise the application is not considered complete (MVLWB, 2013, 2014). A community engagement log detailing all meetings, teleconferences, e-mails, workshops, etc., with the topics of discussion, the outcomes, persons involved, along with a record of all files, letters, invitations, presentations, e-mails, etc. should be included in the application. This requirement is important because the engagement log normally contains the concerns of the community and how the developers plan to mitigate those concerns.

Once the board is satisfied with the pre-application engagement, there is a 12-month long extensive engagement process with the community. Technical workshops and consultations with communities are held, during which ILK may be brought forward by the communities and be considered by the proponent. Stakeholders and interested parties present interventions before the Board and ask questions of each other. The Board may then ask the developer to modify its applications to reflect the contributions of the parties.

In issuing the licenses, based on the MVEIRB’s EA report and relevant information (including ILK) collected during the engagement process, the LWBs may impose “Conditions” in the licenses of the developers. Conditions are legally binding provisions, which the proponents are required to follow in order to maintain their license. For example, a Condition included in the amended¹² Land Use Permit of Dominion Diamond’s Ekati Mine requires the company to seek the advice of Aboriginal elders on the location, design and operation of caribou crossings on the Jay Road, esker crossing, and waste rock storage area egress ramps to limit the impacts to caribou mobility (WLWB, 2017a).

¹² The amendment was needed to accommodate a new road at the mine site.

This Condition is the result of a technical intervention by the Tlicho government, which argued that eskers (what'aa) are important to the caribou because they use them as trails to migrate and escape from heat and pests. The Tlicho government also maintained that the waste rock storage area will increase sensory disturbance during its construction and be a permanent barrier to caribou movement, hence the need for the proposed waste rock storage area with its egress ramps to be planned and constructed based on ILK (MVLWB, PR#531 p4-6). Similarly, in 2017, in response to an intervention by the Tlicho government during the review of Dominion Diamond's application for amendment of its water license,¹³ the WLWB imposed a new Condition requiring the developer to report all recommendations based on ILK received, describe how the recommendations were incorporated into their reports and provide justification for any recommendation not adopted (WLWB, 2017B). Based on an analysis of the co-management Boards' documents detailing the ILK-related interventions of the Tlicho government regarding developments under review, it is evident that the recommendations of the Tlicho Government have significantly impacted mitigatory Measures and the licensing and permitting Conditions issued by the MVEIRB and the WLWB respectively.

The Tlicho Government, through the Tlicho Research and Training Institute (Dedats'eetsaa), conducts various ILK and land use studies to inform the government's technical submissions to the Boards. For example, the What'aa Eskers Research Project, which conducts ILK research on eskers crossing and waste rock storage area ramps is a feeder project for ILK work on effects monitoring and reclamation research for Ekati and Jay Pipe projects. The "Boots on the Ground" research program,¹⁴ which involves a small group of hunters and elders travelling hundreds of miles, monitors the conditions of Bathurst caribou on the post-calving range herd. One of the goals of this project is to update ILK on caribou movement, information which is pivotal for resource management. Hence, the Tlicho Government plays an important role in facilitating the use of Tlicho knowledge in resource management in its area of jurisdiction.

¹³ In an intervention during the its Closing Argument, the Tłı̨chų Government recommended that Dominion Diamond include justification of why any recommendation coming from ILK Holders is rejected.

¹⁴ The program is a collaboration between the Tłı̨chų Government, the GNWT, the WRRB and Dominion Diamond Mines.

4.2.1 ILK Incorporation in the Operations Phase

Currently, the Effects Monitoring phase is perhaps the phase with the most significant incorporation of ILK in the mining life cycle. In the Wek'èezhì region (Tlicho area), the Aquatic Effects Monitoring Program (AEMP)¹⁵ and the Wildlife Effects Monitoring Plan (WEMP)¹⁶ stand out as important mechanisms for the inclusion of ILK in the operations phase of mines.

The objective of the AEMP is to identify changes occurring in the aquatic environment that may be caused by mining activities. As part of this program, which is usually at a seasonal camp near the mine site, fish are caught, cleaned, inspected, cooked, and tasted by elders and community members, to determine whether there are any differences in taste of the fish from one period to another or from one location to another. ILK holders and fish biologists also examine the fish for signs of deformities and parasites. For example, in a test done in August 2012, the group noted that many of the Lake Trout fish had mild fin erosion, a result which is different from results observed 5 years earlier (in 2007) where almost no fish had fin erosions (Rescan, 2013).

Water is inspected, sampled, boiled, and tasted during these camps. The LWBs use both ILK and western scientific data and information to adequately evaluate the effects of a mine on the aquatic environment and set effluent quality criteria to ensure that water quality standards are met.

The goal of the WEMP is to develop, implement, and monitor mitigation strategies so that the mine does not significantly adversely affect wildlife in the receiving and surrounding environment. With respect to caribou, some of the specific goals of WEMP include among others, identifying the composition of caribou groups moving through the study area, documenting the annual timing of caribou movement through the study area to compare temporal trends in migration patterns, collared caribou monitoring, and to determine whether caribou behaviour changes with distance from the mine. Elders and holders of ILK are regularly invited to the site to participate in monitoring programs and to share their

¹⁵ The Aquatic Effects Monitoring Program (AEMP) at the Ekati Mine is a requirement specified in the mine's Class A Water license (W2009L2-0001) (WLWB 2014)

¹⁶ A Wildlife Effects Monitoring Plan (WEMP) was established as a result of the Environmental Agreement signed on January 6, 1997 by BHP Diamonds Inc., and the Governments of the Northwest Territories and Canada (BHP 1998).

knowledge about caribou behaviour, diet, health and body condition, and migration movements. ILK is being used to interpret the results of caribou and habitat surveys and provide ways of preventing or reducing impacts to wildlife (Golder Associates, 2016).

During site visits, elders have identified high ridges and sharp rocks along the edges of site roads as potential barriers and hazards to caribou movement. ILK has been used to construct caribou crossings to allow caribou to cross with greater ease (Rescan, 2011). These crossing ramps have been constructed using crushed rock (6 inches or less in size) so that the side slopes of the road are flatter and provide easier walking for caribou (Golder Associates, 2016). Hence, ILK has been useful in enhancing road mitigation, as part of adaptive management.

4.2.2 Mine Closure Planning and ILK Requirement

MVLWB guidelines requires mine closure planning to commence during the design of the project (MVLWB & AANDC, 2013). Hence, much of the ILK requirements for mine closure planning in the Boards' Guidelines overlap with other lifecycle phases of mines (especially the operations phase). According to MVWLB's guidelines, a Type A water licence application triggers a requirement for a Closure and Reclamation Plan (CRP) (MVLWB & AANDC, 2013). The CRP should provide detailed descriptions of approaches that are proposed to be used to close and reclaim the site. The Guidelines requires a conceptual CRP during mine design stage, one or more interim CRP(s) during the construction and operations phase and a final CRP closure during closure and reclamation stages

Also, when applying for a Water License, community engagement logs detailing all community engagement details are required. There is also a requirement for developers to hold public meetings, face to face meetings, and workshops at various stages (typically these occur prior to submission of a conceptual, interim, or final CRP). The developer is required to describe its approach to public engagement, including any strategies for engaging communities in the CRP development and implementation (MVLWB & AANDC, 2013). An annual closure and reclamation progress report is also required.

The guidelines also stress the need for integrating both ILK and other scientific information when designing for mine closure. Permitting and Licensing Conditions may also require developers to consider ILK in their work. For example, as part of its Water License Conditions, Dominion has to ensure that its "Traditional Knowledge Management

Framework” is applied to the entire lifecycle of the Ekati and Jay Pipe development (WLWB, 2017b).

As per regulations (MVLWB, 2013), the mines are engaged in progressive reclamation, using knowledge gained through community consultation, to prepare the mine site for eventual closure. Much of ILK-related work being done now is research-oriented, given that the mines are still in operation. One important reclamation research being conducted by Dominion Diamond in collaboration with the Tlicho Traditional Knowledge Elders Group (TKEG) is aimed at providing ILK on caribou reaction to esker crossing and waste rock storage area egress ramps. The preliminary design for the Jay Pipe’s waste rock storage area includes three caribou emergency egress ramps. These ramps are progressively being built as the rock pile is developed. Dominion Diamond occasionally invites Tlicho elders on the mine sites to seek their advice on the location and design of these ramps (WLWB, 2017). Another example of reclamation research work involving ILK include the revegetation studies, and the scarification of roads to promote vegetation (Rio Tinto, ND).

CHAPTER 5: RESULTS OF THE SEMI-STRUCTURED INTERVIEWS

This chapter presents some of the significant themes identified during the analyses of the results of semi-structured interviews with board members, and Aboriginal government officials and elders. First, an assessment of the role of the co-management boards in the incorporation of ILK in the EA and regulatory phases is carried out. This is followed by an evaluation of the role of the MVRMA in facilitating the incorporation of ILK in the mining lifecycle. The impact of other factors such as Aboriginal board membership, and the role of Aboriginal governance organizations in the collection and incorporation of ILK in co-management board decisions and processes are presented. The lack of a mechanism to track the status of ILK recommendations provided to industry is also discussed.

5.1 The Role of Co-management Boards, Factors Impacting the Incorporation of ILK, and Monitoring of ILK Recommendations

5.1.1 The Role of Co-management Boards in the Collection and Incorporation of ILK in the Mackenzie Valley

When respondents were asked about the role of the Boards in the collection and incorporation of ILK, an employee of one of the Boards proudly boasts:

“The Mackenzie Valley co-management system is the envy of the rest of Canada. The Boards have an extensive engagement process which allows parties to provide feedback on proposed developments. Even the federal government is considering making changes to Canadian Environmental Assessment Act to incorporate some of our procedures for collecting traditional knowledge. This is super unique system in the world. This co-management system is unique. The closest system that we know is New Zealand, where they have pretty strong Indigenous rights. But it (the co-management system) doesn’t really exist elsewhere.”

Another respondent, an employee of one of the LWBs, gave an example of the importance of the WLWB’s licensing Conditions for the incorporation of ILK in resource management:

“As part of their licensing conditions, all the mines are required to have Culture Camps. For example, the mines usually have camps by the shore of lakes as part of their multimillion Aquatic Effects Monitoring Programs. These camps usually involve fish tasting. One way to ensure that the mines are not affecting the environment is fish tasting. You get the elders to taste the fish to make sure that the fish in the water bodies by the mine do not taste different from fish elsewhere. Or that the fish does not

taste different from how they tasted 5 years ago. The Aquatic Effects Monitoring Program and the closure programs are where you will find the most inclusion of traditional knowledge.”

Respondents were generally of the view that the Boards play an important role in the collection and incorporation of ILK in the environmental governance system. Respondents from the Tlicho government stressed the need for the timelines for inputs into EA to be lengthened, in order to give Aboriginals more time to do ILK studies for the process. A respondent from the GNWT stressed the need for more human resources to help Aboriginal governments contribute more ILK to the process. In a nutshell, respondents were satisfied with the role of the boards in facilitating the incorporation of ILK.

5.2 Factors Impacting the collection and Incorporation of ILK

5.2.1 The Role of the MVRMA

When interview participants were asked about their perception of the role of the MVRMA in facilitating the incorporation of ILK (the term traditional ecological knowledge (TEK) was used during the interviews), the consensus was that the MVRMA has played an important facilitating role in the process. In the comment below, an employee of the Tlicho government and a Tlicho elder, sums up the impact of the MVRMA as follows:

“Look you (industry) had the freedom to do whatever you wanted up until when we had the agreement (CLCA). Then it was like a God given right for mining companies to come and do whatever they like. They have a legacy of leaving uncleaned and unattended sites. That is the freedom that they had and that is the kind of freedom that they are used to. Now that we have our agreement (Tlicho Agreement) our views and knowledge are going to have to be taken in into consideration because we are part of the system of approvals.”

As mentioned earlier, the MVRMA implements the EA sections of the CLCAs. These CLCAs emphasise and require extensive local consultation requirements, and have also been particularly important in ensuring that ILK is taken into account in resource development.

An employee of the Tlicho government) comments on the role of the MVRMA in the incorporation of ILK:

“The MVRMA has no doubt contributed to Tlicho knowledge being incorporated in resource management in this area, but outside of the mining and other resource

developments, people are genuinely keen on protecting their land. You have people in the community who have a view of their culture and they have their lives and they want to go out on the land and harvest animals, harvest plants. They want to continue that kind of life. And outside of that, you have this other world of industrial developments and governments. And the Tlicho interact with mining companies not because they want to, but because they have to.”

While this respondent contends that the MVRMA has been instrumental in raising the profile of ILK in resource management, he also credits the Tlicho people’s attachment to their culture and their desire to maintain their land-based cultural activities as a contributing factor. This sentiment about the Tlicho people being very keen on protecting their culture and cultural traditions was echoed by other respondents.

There was unanimity among the interviewees that the MVRMA has positively impacted the incorporation of ILK in the resource management in the Mackenzie Valley. Significantly, what the quotes above and the interviews in general reveal is that statutory factors are not the only factors impacting the incorporation of ILK in the co-management process. Other factors include: Aboriginal representation on the Boards, and the role of Indigenous governance systems, the availability of resources and the social license to operate. This thesis focuses on the first two factors because there predominance in the interviewees responses.

5.2.2 The Impact of Aboriginal Representation on the Incorporation of ILK

The MVRMA requires the boards to have 50% of their members appointed by Aboriginal communities and the other 50% appointed by the governments (GNWT and the federal government). However, in many cases, there is Aboriginal numerical domination of the boards.¹⁷ Aboriginal representatives, are usually from the impacted communities and are often holders of ILK (hunters, trappers or fishers). Results from the interviews indicate that Aboriginal representation on the Boards play an important role in facilitating the incorporation of ILK in the co-management process. An employee of one of the Boards commented on the importance of having Aboriginal representatives on the Board:

“One reason why board members are appointed is because they have extensive knowledge of the area that they are from. During an exchange over caribou migration routes around Ekati mine between a representative of the developer and a community

¹⁷ This is because in addition to the nominees from the Aboriginal governments (who are indigenous) in many cases, all or most of the government nominees are usually Aboriginals.

member at one of our public hearings, a board member stood up and provided information that backed the traditional knowledge provided by the community. He walked up to the screen and commented ‘we use to hunt at that particular location but the caribou don’t go there anymore. The caribou go up here, not down here (pointing to a location on the map). We have situations where Board members are making decisions on resource development in areas where they trapped or hunted, so they have a lot of knowledge about those areas.’”

While the capacity of individual members of the boards to maximise the inclusion of ILK in the co-management process is constrained by their duties to act in the public interest and to base their decisions upon evidence presented, the MVRMA places ILK at par with science in the decision making process, hence, the ILK of Board members could also be key in the interpretation of the ILK received from communities.

Language is inextricably linked to ILK, therefore the incorporation of ILK in the co-management process is dependent on the ability of ILK holders to communicate their knowledge to the Boards. Although all Board public meetings have simultaneous translation or interpretation services, communication remains challenging in certain instances. Some of the respondents from the Boards noted that although the boards conduct workshops to familiarise translators with EA and regulatory concepts and terminologies, they conceded that sometimes there are problems with the accuracy of the translation. Therefore, having Aboriginal board members who speak the local languages in these communities ensures that ILK is not diluted or lost in translation during the public engagement process. It could also facilitate the transfer of information from the boards to the communities. An employee of one of the Boards narrated an incident at a public hearing which exemplifies the importance of Aboriginal membership of the Boards:

“We have been burned, figuratively, or companies have been burned. During one of our public hearings, when the translators were translating the word “power line” in Dogrib, it was being translated as “line of fire.” The intervention of an Aboriginal board member in Dogrib saved the day. So when we have public hearings, we train our translators and sometimes we have our board members around in these meetings, who help them (the translators) out with the translation of words. Our board members have a larger vocabulary of technical terms in their local languages, because we train them in these technical concepts.”

Given the nature of my study, it is difficult to decipher with certainty, the effects of Aboriginal membership of the Boards on ILK collection and incorporation, however, there are no doubts that Aboriginal members of the board with ILK and local language skills are better positioned to understand ILK provided by communities and ensure that such

knowledge are properly considered in the review process. Also, with trust being important for the volunteering of ILK, Aboriginal membership of the Boards, goes a long way in boosting Aboriginal confidence and trust in the system.

5.2.3 The Role of Aboriginal Governance Organizations

“If they don’t pick our traditional knowledge, then we would push it.” This comment by a Tlicho government official and an elder, sums up the approach of the Tlicho government to the use of Tlicho knowledge in resource management in its jurisdiction.

When respondents were asked about the role of the Tlicho government in the incorporation of ILK in the co-management system, many of the respondents highlight the importance of culture to the Tlicho people and the importance of caribou to Tlicho culture. Hence, they consider it the responsibility of Tlicho government to protect Tlicho culture. For example, a Tlicho Government employee noted the importance of ILK to the Tlicho in this comment:

“The focus on the Tlicho government is important but the government reflects what the communities are. When I moved here 30 years ago, you sit down with Tlicho people my age then, every one spoke about the importance of traditional knowledge and traditional ecological knowledge. They tell you about the land and the caribou. Even now, when you speak to 20 year-olds about the elders’ knowledge, they do believe that it is sacred knowledge. This knowledge is within their mythologies and stories. There is still that push to preserve Tlicho culture. I do not know whether it is the same in other areas.”

Another Tlicho government employee notes the importance of caribou to Tlicho culture and the role of the government in protecting the caribou:

“Caribou is everything. Caribou provides you with food, clothes and shelter. People had to be good hunters to survive. They had to be good at tanning the hides so that they have shelter and clothes. When it comes to marriage, women would want to marry a very good hunter, while men would want to marry someone who knows how to work the caribou skin so that you survive. So now that we have our own government and agreement (reference to CLCA), it is the responsibility of this government to make sure that the caribou is not destroyed and that is what they are doing with all of these Tlicho knowledge projects.”

Other respondents note that the Tlicho government has prioritised ILK research related to the impact of industrial activities on caribou because of concerns about the threats that these activities pose to the caribou.

5.3 Who is following-up on the Elders' Knowledge Provided to Industry?

One major finding of this study is the lack of a formal mechanism to track the implementation of ILK provided to industry by elders. This is particularly important given that the Boards' ILK-related license Conditions are often broad and non-specific. In response to a question on whether there is a follow-up mechanism to ensure that specific ILK recommendations given by elders are implemented, an employee of the Tlicho Government, reports the following:

“As I said earlier, the mining companies bring elders to the mines to look at the roads and the waste rock. It would be very useful to us and everyone I guess, to know systematically what was recommended by the elders and what was acted upon and what was not acted upon. To have a system would be very helpful. Currently, there is no system in place to monitor.”

When pressed further on whose responsibility it is to record and follow up on these ILK-related recommendations, the respondent stated that it is the responsibility of the developers to document and report on the progress of these recommendations. When a respondent from the MVEIRB was asked the same question, he reported that it is the responsibility of the Tlicho Government to document what elders share with the developers and follow up with the companies to ensure that these recommendations are implemented. On their part, the respondents from the LWBs believe that the reporting requirements embedded in the licenses and permits of developers is enough to ensure that the developers are reporting these ILK recommendations in the reports submitted to the Boards.

While the developers may implement the ILK recommendations, without a formal tripartite monitoring mechanism (involving the ILK holders, the developers and the LWBs) how does the community know how many of the recommendations were implemented? It is evident that there are different perceptions of whose responsibility it is to track the implementation of specific ILK recommendations and this has left a major gap in the system. It is important to point out that recently, the WLWB imposed a condition on Dominion Diamond which requires the company to specifically report on recommendations given by TKEG relating to all activities within its Traditional Knowledge Management Framework (see Section 4.2.1), however, without a formal monitoring process, this condition only applies to that specific license.

Another sentiment that was widely expressed was that despite the lack of a formal monitoring mechanism, developers have the motivation to implement the elders'

recommendations because they want to maintain their social license to operate. For example, an employee of the GNWT notes the importance of some of this factor in the comment below:

While the legislation does not require industry to consider TEK (ILK) in their submission, they would not get very far in the approval process without TEK. It is difficult to run a mine without the social license to operate. The use of TEK is one way to get social license to operate.

An employee of the Tlicho government and a Tlicho elder reinforces this sentiment by stating:

“The mining companies know the importance of including the people that are impacted. They do their best to be good neighbours with people. In my opinion, they do that just to be good neighbours so they can be viewed as good corporate citizens.”

CHAPTER 6: DISCUSSION

The Bathurst caribou herd is the only herd of all the barren ground caribou herds in Canada to have fallen steeply and to very low numbers (GNWT, ND). Given the cultural importance of this specie to the identity of the Dene people, the rapid decline of this herd has been a source of worry and tension among Aboriginals and their governments in the Mackenzie Valley. Hence, the co-management boards in the region have created robust, and institutionalised mechanisms, for ensuring a substantial incorporation of ILK related to Caribou and other species in the resource management process in the region.

Much of the focus of the ILK-related Conditions issued by the Boards and the Effects Monitoring programs have been on identifying and mitigating the impacts of mining on the caribou. However, a careful assessment of the nature of the ILK that are incorporated under the AEMP and the WEMP programs shows that the tangible aspects of ILK (for example, ILK about the type and numbers of caribou presently and formerly in particular areas) are more likely to be incorporated into management practices than the intangible aspects of ILK (for example, Aboriginal worldviews on caribou).¹⁸ Manseau et al (2007) assert that by contributing different values and perspectives, ILK can broadly influence management objectives. It is safe to conclude that the incorporation of Aboriginal values and beliefs about caribou in the Mackenzie Valley co-management system is less obvious. Hence, legitimate questions can be raised about the influence that Aboriginals have on developers' caribou management objectives.

Western scientific management plans and processes break down data into smaller elements to understand whole and complex phenomena, while ILK is holistic in nature, with all elements of a phenomenon viewed as interconnected. ILK often includes a preference for observations and management options that are based on multiple interrelated ecological or socio-ecological variables and taken at fine-grain temporal and spatial scales (Kendrick 2003). The AEMP and WEMP focus on separate aspects of the fragile northern ecology (aquatic and wildlife issues respectively) and it is unclear what degree of coordination exists between the two programs at the implementation phase. While the nature of this study precludes me from making a definitive conclusion on whether Aboriginal values are

¹⁸ See Usher (2000) for more information on categories of ILK.

accounted for in the Boards' caribou management plans or in the Effects Monitoring Programs, anecdotal evidence suggests that these values do not influence developers' management plans and this brings to the fore the long term usefulness of these ILK initiatives. This finding lends some credence to the claims made by some researchers that ILK is used to fill science gaps rather than used in its cultural or spiritual context as an alternative way of knowing (see Nasdady, 1999; Spak, 2005).

The Mackenzie Valley co-management regime is unique because of the strong Aboriginal influence in the critical phase of determining the significance of impact of developments using ILK. This has been facilitated by the wide range of procedural opportunities for Aboriginals to volunteer ILK for the EA and regulatory processes. Contrary to skepticisms on the part of some researchers about the usefulness of the Boards' "Western and rational bureaucratic consultation processes" (see Ellis 2005; White, 2006), evidence from this study suggests that these engagement procedures (community scoping sessions and public hearings) are generally able to overcome these cultural barriers to yield substantive ILK related to caribou. ILK volunteered during public sessions have had had some significant impacts on decision outcomes in the Mackenzie Valley.

One of the most significant findings of this study is that Aboriginal representation on the Boards potentially plays a significant role in facilitating the elevation of the role of ILK in the co-management process. White (2006) contends that the Boards' Westernised bureaucratic processes trump Aboriginal numerical superiority on boards in terms of importance for the incorporation of ILK in the co-management system. On the other hand, Manseau et al (2007) highlight the role of Aboriginal members in bringing their skills to facilitate the incorporation of ILK in the work of some of the northern co-management Boards. There can be no doubt that having Aboriginal members from the local impacted communities with ILK on caribou and local language skills at the very least, improves the ILK integration process qualitatively and at best, facilitates communication between the communities and the Boards, thereby enhancing the role of ILK in the process.

The elevated role of ILK in resource management in the Mackenzie Valley cannot be divorced from the positive political opportunity structures which have facilitated the recognition of Aboriginal right to self-determination (first through constitutional protections and then the CLCAs). Through a complex web of governance arrangements created by the MVRMA, the Boards have institutionalized the role of ILK in the project lifecycle. This

governance arrangement has also led to a vertical redistribution of power (through processes of devolution of powers, and the regionalization of some processes) (Marks & Hooghe, 2004). Aboriginal governments have been beneficiaries of the vertical dispersion of power by the co-management system. The significant role played by the Tlicho Government in promoting the use of Tlicho knowledge in resource management in the region exemplifies the importance of Aboriginal agency in the co-management process. With a strong desire to maintain Tlicho culture, the Tlicho government has built up significant research capabilities in caribou and mining related issues, thereby contributing significantly to elevating the role of ILK in the resource management process. One reason for this is that while the MVRMA provides clear provisions for consulting Aboriginals, it is fairly vague regarding the implementation of the ILK provisions of the Act (MVRMA, 2007). Therefore, the CLCAs and the Aboriginal governments can and do influence the implementation of the provisions of the legislation.

CHAPTER 7: CONCLUSION

In this thesis, I have examined the Mackenzie Valley resource co-management system, and the procedural opportunities it has provided for Aboriginals to volunteer ILK to influence the resource management process. The overall objective of the thesis was to gain an understanding of the role of the MVRMA and the co-management Boards in facilitating the incorporation of ILK in the Mackenzie Valley. My first research question was - *What roles does the MVRMA play in ensuring that ILK is used in resource management in the Mackenzie Valley?* The results of this study show that the MVRMA (together with other statutory provisions such as the Duty to Consult and CLCAs) are an important foundation for the inclusion of ILK in the decision-making and management process in mining in the region.

On the second research question - *What roles do co-management boards play in facilitating the collection, interpretation, and inclusion of ILK in decision making in the EA and regulatory phases?* - The evidence presented in this thesis shows that the Boards do play a significant facilitating role in the collection, interpretation and inclusion of ILK in the resource management process. Indeed, these Boards have provided a wide range of opportunities for ILK to be volunteered, and included in resource management in the region.

Lastly, on the third research question - *What are the factors that facilitate the use of ILK for the purpose of resource management in the Mackenzie Valley co-management system?* - The results show that in addition to statutory provisions, Aboriginal representation on the Boards, and Aboriginal agency, manifested by Aboriginal governance organizations are key factors enabling the ILK inclusion process.

The past 20 years have witnessed a significant growth in the policy framework regarding ILK in the NWT. With the MVRMA, the territory has taken important steps towards substantive incorporation of TEK in its environmental governance regimes. Evidence suggests that the influence of ILK on the operational and mine closure planning phases of mining is increasing. Future research should focus on the role of Aboriginal representation in the board on the collection and incorporation of ILK. Studies should also compare opportunities for the incorporation of ILK in NRM in different Indigenous political and governance contexts.

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APPENDIX 1: INTERVIEW SCHEDULE

Thank you for agreeing to be part of this 45-50 minute interview on the mechanisms governing the use of Traditional ecological knowledge (TEK) in environmental governance in the Mackenzie Valley. Please rest assured that this interview is voluntary and your answers are completely confidential and anonymised (this means that no individual will be associated with the survey's results - rather, all of the results will be combined to protect the confidentiality of each respondent).

This interview will be recorded, the recording will be password protected, hence, no one, but my supervisors, and me will have access to it. I will transcribe the recording onto a Word document, which will also be stored on my laptop (under password protection).

Section 1: Questions on the integration of TEK in Environmental Assessment and regulatory phases of mines

1. In your view, what is the role of the Mackenzie Valley Resources Management Act in the collection and incorporation of Tlicho traditional ecological knowledge (TEK) in the Mackenzie Valley co-management system? (All respondents)
2. What is the role of the Tlicho government (TG) in the collection and incorporation of TEK in the co-management system? (All respondents)
3. Are there any areas of TEK incorporation in environmental governance that have been of priority to the Tlicho Institute? (Tlicho government employees and elders only)
 - a. If so, what areas are they?
 - b. Why the emphasis on these areas?
4. How is Tlicho traditional knowledge transmitted from the community to Dominion Diamond Corporation? (All respondents)
5. What is mechanism for resolving disputes over the incorporation of Tlicho traditional knowledge in the operations of the mines (if they ever do occur)? (All respondents)
6. Are there any aspects of Tlicho traditional knowledge, which industry is particularly resistant to incorporate?
7. Once the elders have made TEK recommendations to Dominion Diamond, how does your organization follow up to make sure that these recommendations are implemented?
8. What is the role of the (fill in the name of the relevant Board) Board in the collection and incorporation of TEK in the co-management system? (All)
9. What is your assessment is of the role of Aboriginal board members in the collection and incorporation of ILK in the co-management system? Why? (All members)
10. How does the Board deal with instances when the conclusions of TEK or science contradict one another? (Board members only)
11. Are there any questions or comments that you want to make regarding this interview?

Appendix 2: LIST OF DOCUMENTS REVIEWED

1. Tlicho Land Claims and Self Government Agreement (2005)
2. Mackenzie Valley Resource Management Act (MVRMA) (1998)
3. Guidelines for Designing and Implementing Aquatic Effects Monitoring Programs for Development Projects in the Northwest Territories (INAC) (2009)
4. MVLWB Engagement Policy
5. MVLWB Engagement Guidelines
6. Mackenzie Valley Environmental Impact Review Board (MVEIRB) Environmental Impact Assessment Guidelines (2004)
7. MVEIRB Guidelines for Incorporating Traditional Knowledge in Environmental Impact Assessment (2005)
8. MVEIRB Report (EA1314-01) - Report of Environmental Assessment and Reasons for Decision Dominion Diamond Ekati Corp. Jay Project (2016)
9. Wekhezhi Land & Water Board (WLWB) Work Plan for the Water Licence and Land Use Permit Applications: Dominion Diamonds Ekati Corporation – Ekati Jay Project (2016)
10. MVLWB Consultation and Engagement Policy
11. MVLWB Engagement Guidelines for Applicants and Holders of Water Licenses and Land Use Permits
12. Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories
13. Dominion Diamond’s Report titled Wildlife Effects Monitoring Plan for the Ekati Diamond Mine (2016)
14. Ministerial Approval Required for Amendment of Dominion Diamond Ekati Corporation’s Type A Water Licence to incorporate the Ekati Jay Development (2017)
15. Amendment of Dominion Diamond Ekati Corporation’s Land Use Permit to incorporate the Ekati Jay Development (2016)
16. Dominion Diamond Response to Tlicho Government Technical Report on the Jay Project (2015)