

Cumulative Effects Assessment and Collaborative Governance of Wildlife in Eeyou Istchee,
Northern Quebec, Canada

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Abstract

The traditional food system in Eeyou Istchee territory of Northern Quebec is essential for sustainable development in the region, offering significant social, cultural, and health value to the local indigenous Cree communities. With the number of large-scale natural resource development projects within the territory increasing over the past 50 years, so too have the stresses on wildlife populations, including habitat loss, degradation, and alteration, with implications for the local traditional food system. Environmental Impact Assessment (EIA) is a formal regulatory tool employed in Eeyou Istchee to assess the potential impacts of proposed development projects on Valued Ecosystem Components (VECs), such as traditional food species, to identify and mitigate negative impacts before projects receive approval. Cumulative Effects Assessment (CEA), as an important component under EIA, has been previously reported to be insufficient in the context of protecting VECs in Eeyou Istchee, with the quality of project CEAs often not meeting best practices. This thesis seeks to better understand the challenges and opportunities for enhancing CEA in Eeyou Istchee focussing on wildlife-specific VECs. It begins with a literature and policy review covering the regulatory frameworks associated with CEA and CEA-supporting functions in Eeyou Istchee to examine the institutional capacity to support effective CEA. While there are frameworks already in place to undertake CEA in the territory, many of the key supporting programs are either not in operation or are absent. One of the most crucial but underdeveloped CEA supporting functions is the absence of long-term regional wildlife monitoring programs to supply the baseline data necessary for CEA. Recognizing that many of the challenges identified relate to potential resource and capacity constraints of government agencies, the potential for more decentralized and consensus-oriented multi-stakeholder approaches to wildlife monitoring is then explored. Drawing on the concept of collaborative governance, an empirical case study is presented using key informant interviews with policy actors involved with EIA in Eeyou Istchee, including government, non-government and private sector groups. The findings suggest that while Eeyou Istchee has the foundation to initiate multi-stakeholder collaborative governance in support of CEA, in order for it to be successful it will be important to pay close attention to both the system context and the drivers for collaboration. Policy implications and future research directions are then identified.

Résumé

Le système alimentaire traditionnel du territoire d'Eeyou Istchee, dans le nord du Québec, est essentiel au développement durable de la région. Il apporte une valeur sociale, culturelle et sanitaire non négligeable aux communautés crie autochtones locales. La multiplication des projets de développement de ressource naturelle à grande échelle sur le territoire au cours des 50 dernières années a pour conséquence l'augmentation des pressions sur les populations d'animaux sauvages, qui voient la perte, la dégradation et l'altération de leur habitat, impliquant aussi le système alimentaire traditionnel local. L'évaluation de l'impact environnemental (EIE) est un outil de réglementation formel utilisé à Eeyou Istchee afin d'évaluer les impacts potentiels des projets de développement proposés sur les composantes valorisées de l'écosystème (CVE), telles que les espèces alimentaires traditionnelles, afin d'identifier et d'atténuer les impacts négatifs des projets préalablement à leur approbation. L'évaluation des effets cumulatifs (EEC) est une composante importante de l'EIE. Elle a déjà été signalée comme insuffisante dans le cadre de la protection des CVE à Eeyou Istchee, car la qualité des EEC des projets ne répondent souvent pas aux normes de bonnes pratiques. Cette thèse vise à mieux comprendre les défis et les opportunités pour améliorer l'EEC à Eeyou Istchee en se concentrant sur les CVE spécifiques à la faune. Elle commence par une revue de la littérature et des politiques couvrant les cadres réglementaires associés à l'EEC et aux fonctions supportant l'EEC à Eeyou Istchee afin d'examiner la capacité institutionnelle à soutenir une EEC efficace. Il existe déjà des cadres pour entreprendre une EEC sur le territoire, mais bon nombre des principaux programmes de soutien ne sont pas encore opérationnels ou sont même absents. L'une des fonctions de soutien à l'EEC les plus cruciales mais sous-développées est l'absence de programmes régionaux de surveillance de la faune à long terme fournissant les données de base nécessaires à l'EEC. Bon nombre des défis identifiés sont liés aux potentiels problèmes de ressources et de capacités des agences gouvernementales, alors on explore le potentiel pour des approches multipartites plus décentralisées et axées sur le consensus pour la surveillance de la faune. En s'appuyant sur le concept de gouvernance collaborative, une étude de cas empirique clé est présentée à partir d'entretiens d'informateurs clés avec des acteurs réglementaires impliqués dans l'EIE à Eeyou Istchee, y compris des groupes gouvernementaux, non gouvernementaux et du secteur privé. Les résultats suggèrent qu'Eeyou Istchee a les bases nécessaires pour initier une gouvernance collaborative multipartite à l'appui de l'EEC, mais on ne réussira pas à la mettre en place si on ne

prête pas une attention particulière au contexte du système et aux moteurs de la collaboration. Les implications politiques et les orientations futures de la recherche sont ensuite identifiées.

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Contribution of Authors

This is a manuscript-based thesis containing four main chapters. Chapter 1 consists of a general introduction, including background information on the study area (Eeyou Istchee), research question and objectives, and general research methods. Chapter 2 presents a literature and policy review designed to identify the challenges and opportunities facing Cumulative Effects Assessment (CEA) in Eeyou Istchee, and outlines the research directions for Chapter 3. Chapter 3 builds on the literature and policy review to present a case study of the potential for using collaborative governance approaches to CEA in Eeyou Istchee, focusing on wildlife monitoring. Chapter 3 will be submitted for publication as a standalone research paper in an international peer reviewed journal. Chapter 4 concludes the thesis by providing a general discussion of the key findings and identifying future research directions.

I am the lead author for all of the chapters. My supervisor, Dr. Gordon Hickey, is a co-author of Chapters 2 and 3. Mr. Graeme Morin is a co-author of Chapter 2. Dr. Hickey assisted with the research question methodology and conceptual framework for Chapters 2 and 3. Mr. Morin assisted with helping define key research priorities and important regulatory documents in the region through his professional experience with the JBACE.

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Chapter 1: General Introduction

“Tears are like rivers;
they never stop flowing.
Rivers are like tears;
they become dry.”

- Margaret Sam-Cromarty, “Rivers” (1992)

1.1 Introduction – Regional Overview of Northern Quebec

Northern Quebec is a vast territory in the province of Quebec, Canada, situated between the 49th and 62nd parallels (Figure 1.1). This region has a total population of 18,563 (2016), consisting of both indigenous and non-indigenous residents (Cree Board of Health and Social Services of James Bay, 2016). Cree and Inuit are the two main indigenous groups that inhabit Northern Quebec. The Cree Nation occupies the Eeyou Istchee James Bay territory between the 49th and 52nd parallel lines, and the Inuit occupy the Nunavik region north of the 52nd parallel line (Royer, 2015). There are nine Cree communities (Chisasibi, Eastmain, Mistissini, Nemaska, Ouje-Bougoumou, Waskaganish, Waswanipi, Wemindji, and Whapmagoostui) in Eeyou Istchee, and fourteen Inuit communities in Nunavik (Kuujuuaq, Inukjuak, Salluit, Puvirnituk, Ivujivik, Kangiqsujuaq, Kangiqsualujuaq, Kangirsuk, Tasiujaq, Aupaluk, Akulivik, Quaqtaq, Kuujuarapik and Umiujaq).

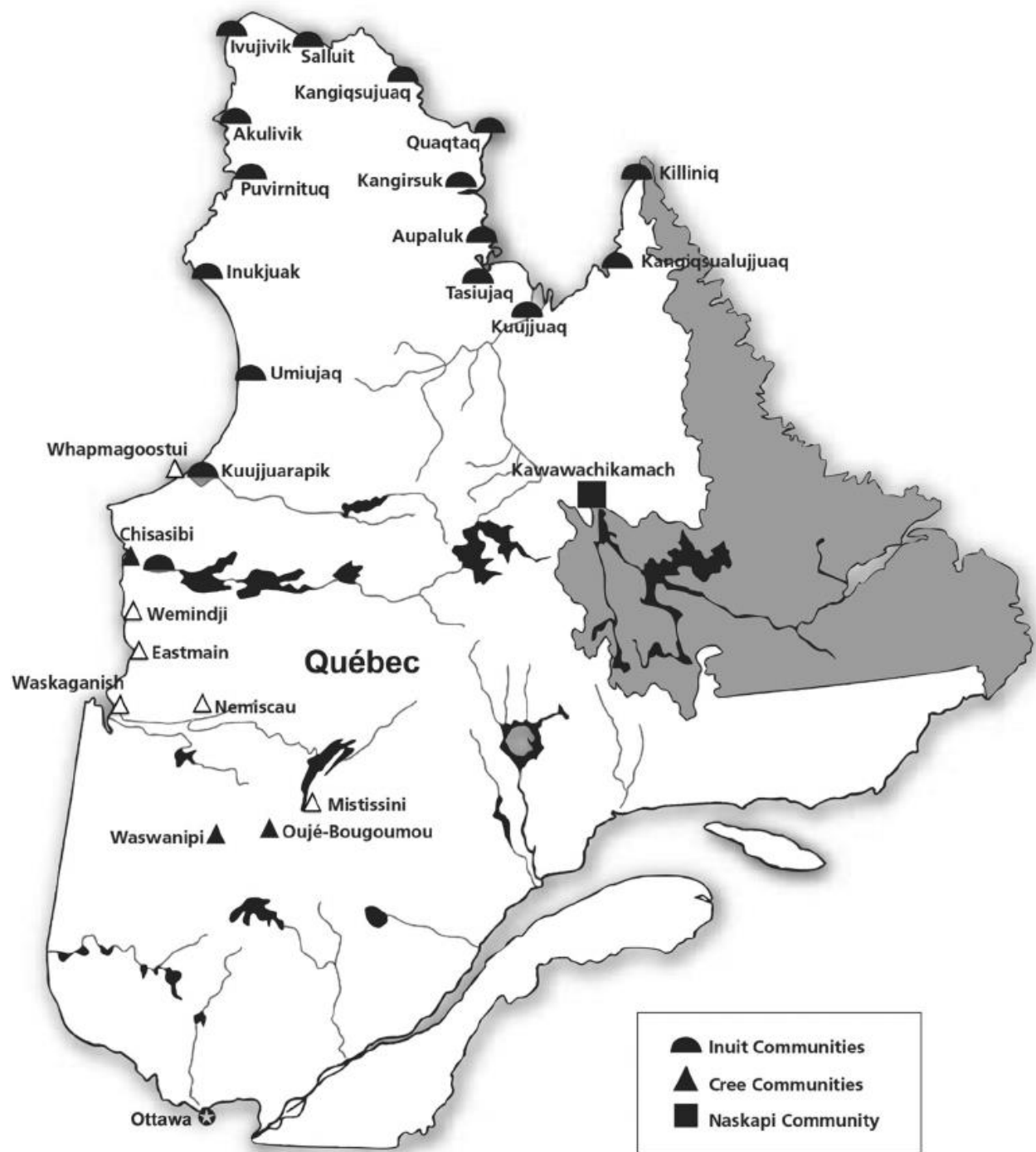


Figure 1.1: Map of Northern Quebec (retrieved from: Rapinski et al., 2014)

Cree and Inuit communities are currently living under a mixed economy, where they practice both a wage-based economy (mainly in natural resources development, public administration, and the service sector) as well as a traditional subsistence economy based on hunting, fishing, and trapping. Traditional food provides a healthier dietary source of iron, zinc, vitamins A, B, C, and D, and riboflavin, compared to the often highly processed store-bought foods available (Bergeron et al., 2016; Kuhnlein & Chan, 2000). In addition to the nutritional benefits, the gathering, preparation, and sharing of traditional food also provides significant cultural, social, and personal identity value to indigenous communities (Herrmann et al., 2012; Peloquin & Berkes, 2009; Power, 2008; Tanner, 2007). Traditional food sharing is an important social tie that allows the members of the communities to maintain their close kinship relationships: *"the hunting, fishing and gathering of traditional food and the subsequent sharing of these items within the community are social activities bringing together individuals, families and generations. Traditional foods create and sustain an important social and cultural fabric among individuals which supports community health and well-being"* (Van Oostdam et al., 2003, p.35). Hunting along traditional family traplines allows the younger generations to preserve and enrich Traditional Ecological Knowledge (TEK) about the land and wildlife by learning from experienced hunters, while at the same time adding their own experience to the knowledge system that can be passed to future generations (Herrmann et al., 2012; Tanner, 2007; Niezen, 1993). As explained by Niezen (1993, p.228) *"A successful hunter will possess a large fund of knowledge about the behaviour of a wide variety of game animals, the techniques used in catching them...this knowledge takes a great deal of experience to acquire thoroughly and is easily lost if close contact with the environment is not maintained"*. Members of Northern communities have previously described how the elements of nature (forestry, river, fish, game, and people) and traditional activities both contribute to, and construct, their sense of personal and collective identity (Herrmann et al., 2012; Salée & Lévesque, 2010; Power, 2008; Wintrob & Diamen, 1974).

Northern Quebec is rich in natural resources. The region contains complex river systems, rich mineral deposits, and dense boreal forest cover (Conseil Du Patronat Du Quebec, 2015). It has therefore long been viewed as a "source of resources" to supply energy and support economic growth in the southern regions of Quebec. In the past 50 years, the magnitude and intensity of

resource development through hydroelectricity, mining, and forestry has increased significantly (Mulrennan et al., 2019; Rodon, 2014; Awashish, 2005; Desbiens, 2004). Natural resource development coupled with climate change has imposed significant negative impacts on the local wildlife species that indigenous communities rely on for traditional subsistence practices (Royer, 2015; Rudolph et al., 2012; Herrmann et al., 2012; Royer & Herrmann, 2011). The Cree have witnessed significant changes (Laforest et al., 2018; Royer, 2015; Herrmann et al., 2012; Rudolph et al., 2012; Royer & Herrmann, 2011) in species distribution (e.g., an abundance of more southern species, species range limits shifting), migration (e.g., Canada Geese changing migration paths), population size (e.g., decrease in woodland caribou population), habitat conditions (e.g., disappearance of eel grass), and behaviour shift (e.g., more frequent polar bear and human encounters). Such observed changes in wildlife conditions and behaviour directly affect the hunting and eating habits of the indigenous communities of Northern Quebec, and have the potential to hinder their access to traditional food (Laforest et al., 2018; Herrmann et al., 2012; Peloquin & Berkes, 2009; Chan et al., 2006).

In 1974, in response to the negative effects of the James Bay hydroelectricity development project on natural resources and the indigenous traditional way of life, the Cree and Inuit communities brought the provincial government to court, which later led to the creation of the James Bay and Northern Quebec Agreement (JBNQA) (Whiteman, 2004). The JBNQA is the first modern, comprehensive land claim agreement in Canada involving indigenous groups and a Canadian federal and provincial government. It acknowledges the aboriginal title to land, and very importantly, it outlines environmental protection regimes related to future developments under section 22 and 23 of the agreement. JBNQA also requires that proposed resource development projects (on an inclusion list) be subjected to Environmental Impact Assessment (EIA) to identify and mitigate the potential negative environmental impacts before receiving approval to proceed.

EIA plays a central role in the process of granting proponents a right to undertake development projects while also protecting the environment, requiring careful impact mitigation, monitoring and management procedures to be in place as a condition for approval. However, the EIA system in Northern Quebec has been criticized as having a narrow scope and rarely

acknowledging the cumulative effects arising from multiple development projects (Noble, 2016; Bérubé, 2007). As suggested by the Eeyou Planning Commission (2018, p.10): “*depending on their locations, family hunting territories can be affected by the environmental impacts from any combination of resource extraction activities: the expansion of the road network, flooding and river diversion for hydroelectric production...There is a sense in the communities that this cumulative nature of impacts is insufficiently taken into account when new projects are brought forward*”. Enhancing the capacity for Cumulative Effect Assessment (CEA) under EIA regulations is therefore an important area of social concern, particularly as it relates to wildlife management and protection in support of traditional food security in Northern Quebec.

1.2 Research Question and Objectives

The main research question guiding this dissertation is: *What is the role of CEA in managing the cumulative effects of developments on the traditional food system in Eeyou Istchee, Northern Quebec?* In order to help me to answer this broad research question, two sub-objectives were identified, with each forming a chapter:

1. What is the status of CEA in Eeyou Istchee and which regulatory frameworks are in place to support CEA-related functions? (Chapter 2)
2. What are the challenges and opportunities for collaborative governance to enhance cumulative effects monitoring in support of traditional food systems in Eeyou Istchee? (Chapter 3)

The first research sub-question is explored in Chapter 2, beginning with an examination of the performance of CEA under EIA in the Eeyou Istchee territory based on a literature review of the CEA conducted by project proponents in the region and comparing these with CEA best-practices standards. Building on this understanding, a policy review is conducted covering the existing legal and regulatory frameworks operating in Eeyou Istchee for CEA with a view to identifying the policy steps that could be taken to enhance CEA capacity. The goal of this review chapter is to both identify the unique operational challenges (financial, political, resource, etc.) and the policy challenges (political priorities, lack or absence of support, etc.) affecting CEA in the territory and inform the ongoing efforts to design more effective and appropriate policy

strategies. The second research question is explored in Chapter 3, building on the key findings from Chapter 2 and applying concepts from collaborative governance literature to undertake a case study focussing on wildlife monitoring in Eeyou Istchee. Using key informant interviews, the system context and the drivers of collaboration relevant to multi-stakeholder driven CEA in Eeyou Istchee are identified. The goal of this empirical case study is to explore the potential for a more interactive and collaborative landscape-based governance approach to inform existing cumulative effects assessment, management, and policy strategies.

1.3 Research Framework

This research views CEA as a relevant policy tool to protect the traditional food system from the negative impacts of resource development in Eeyou Istchee. The conceptual diagram (Figure 1.2) presents the underlying relationships between key cumulative effects factors and their effects on the traditional food system in terms of how they are acting with each other to support or challenge the system's sustainability. It includes two important elements: variables and connections, with variables in the boxes connected with arrows with plus/minus signs to demonstrate the potential causal relationships between the different dependent and independent variables. This framework guided my research towards two general themes, "Identify" and "Assess", corresponding to the two primary variables "Sustainable Traditional Food System" and "Collaborative Governance". More specifically, I sought to first identify how cumulative effects from development are affecting the traditional food system, and then assess the feasibility of using a collaborative governance approach to improve the performance of CEA in terms of realizing more effective and robust practices and a more sustainable traditional food system. The "Identify" part relates primarily to my first research sub-question, while the "Assess" part of the framework connects to my second research sub-question. More detailed descriptions of the concepts presented in Figure 1.2 are presented in the relevant chapters.

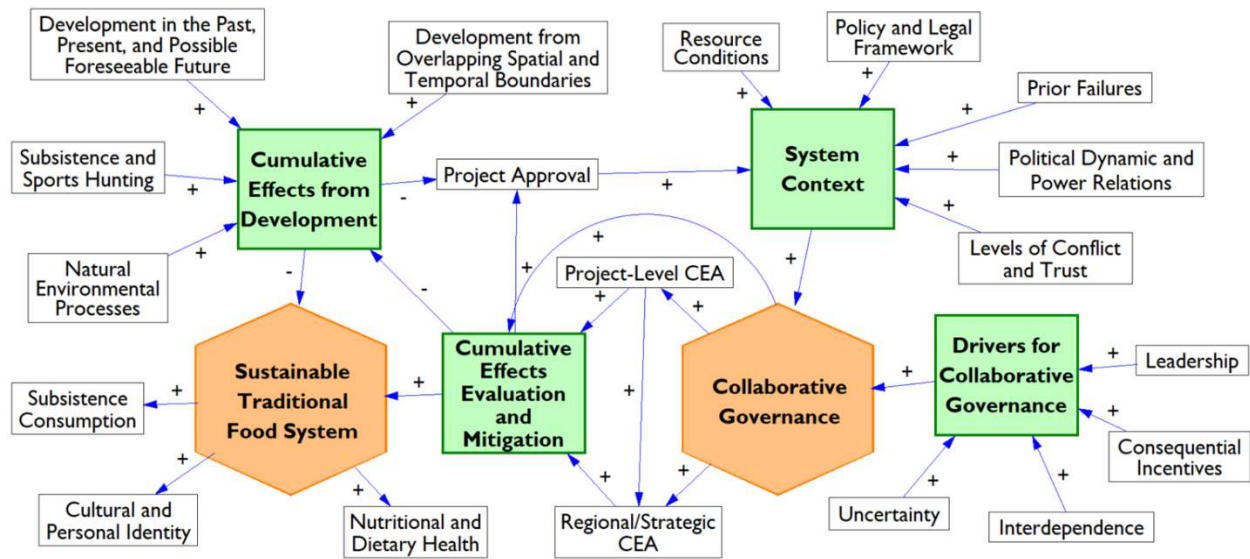


Figure 1.2: Conceptual Framework of the Research

1.4 General Methodology

1.4.1 Literature Review

Literature review is an important scoping and information gathering exercise to answer the first research sub-question on the status of CEA performance and the availability of legal and regulatory frameworks for CEA in Eeyou Istchee. Literature review is defined as: *“the review of surveys books, scholarly articles, and any other sources relevant to a particular issue, area of research, or theory, and by so doing, provides a description, summary, and critical evaluation of these works in relation to the research problem being investigated. Literature reviews are designed to provide an overview of sources you have explored while researching a particular topic and to demonstrate to your readers how your research fits within a larger field of study”* (Fink, 2014, p.155). Literature review allowed me to: 1) become familiar with the previous research on the subject; 2) transfer and apply existing knowledge into my own research consideration; 3) provide robust evidence-based support on my research design and research question formulation; 4) support the generation of new ideas; and 5) identify areas for future investigation and consideration (Paré & Kitsiou 2017). I followed a narrative review approach for information and knowledge gathering. *“A narrative review attempts to summarize or synthesize what has been written on a particular topic...the review team often undertakes the task of accumulating and synthesizing the literature to demonstrate the value of a particular*

point of view” (Paré & Kitsiou 2017, p.259; Green et al., 2006; Davies, 2000). Narrative reviews are useful for scoping and gathering background information and helped me to better understand the unique social, environmental, cultural, economic, legal and political background of the region (Green et al., 2006).

One of the major criticisms related to narrative review is related to the “selection bias”:
“reviewers may selectively ignore or limit the attention paid to certain studies in order to make a point. In this rather unsystematic approach, the selection of information from primary articles is subjective, lacks explicit criteria for inclusion and can lead to biased interpretations or inferences” (Paré & Kitsiou 2017, p.260). This potential bias was acknowledged and addressed in the research by working to encompass different points of view and perspectives in the research and reviewing both academic and policy documentation.

1.4.2 Case Study Research

Chapter 3 employs an exploratory qualitative case study method to examine the conditions for successful collaborative governance of cumulative effects-related activities in Eeyou Istchee. Case study is an intensive approach that allows researchers to conduct in-depth research within a bounded system using multiple sources of evidence (Harrison et al., 2017). According to Yin’s (1994) definition, case study is “*an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident...relies on multiple sources of evidence*” (Yin, 1994, p.13). Case study research is considered most appropriate when: 1) the study is aiming to answer “how” and “what” questions; 2) the researcher cannot manipulate the behaviours of those involved in the study; and 3) the contextual condition is believed to be relevant to the phenomenon under study (Baxter & Jack, 2008; Stake, 1995). As explained by Stake (1995, p.17), “*issues are not simple and clean, but intricately wired to political, social, historical, and especially personal contexts. All these meanings are important in studying cases.*” Specifically, an exploratory case study method is useful when there is a lack of detailed preliminary research existing for the research topic, and the intervention being evaluated has no clear set of outcomes (Baxter & Jack, 2008; Yin, 1994). The case study approach has also been employed to study collaborative governance in a national and international resources governance context (Hotte et al., 2019;

Johansson et al., 2018; Vodden, 2015; Baird et al., 2014; DuPraw et al., 2013; Gallardo et al., 2013). The relevant assumptions and limitations associated with the case study method as applied in my research are presented in Chapter 3 (Section 3.4.4).

1.5 Data Collection

1.5.1 Semi-Structured Interviews

Semi-structured key informant interviews were used to gather primary data from all of the stakeholder groups (government, proponent, NGO) to address the second research sub-question. Semi-structured interviews are commonly used when researchers have a rather clear focus on specific issues and are trying to gain a deeper understanding of it through flexible, open, and free-flowing conversations with an interviewee who has expertise on the topics (Bryman, 2008). Semi-structured interviews allowed greater flexibility in terms of the order of the questions being asked, allowed follow-up questions to be asked, and provided a great deal of leeway for the interviewee in deciding how they wanted to reply to the questions being asked (Bryman, 2008). It was important for my research to collect information on the actual experiences, behaviors, and thoughts of policy actors involved in CEA, without limiting responses to specific pre-defined categories, thus allowing participants to explore issues they considered to be of greater significance (Bolam et al., 2006). Semi-structured interviews also provide a high degree of consistency due to the use of pre-determined interview questions that focus on common topics for all consultations (Coddington, 2015).

Research participants were selected following a snowball sampling strategy. This approach is commonly used to gain access to the most knowledgeable and qualified participants, and assumes a network of qualified study subjects exists and that the researcher can become linked into this network through social interaction with an initial subject in the network (Atkinson & Flint, 2001; Faugier & Sargeant, 1997). Snowball sampling was the most appropriate and feasible strategy for my research due to the strong professional network relations within the environmental services field in Eeyou Istchee, and because it is often easier to get responses from key participants through referral. When potential participants were not able to be reached through referral, they were contacted using publicly available information online.

There are some challenges associated with the use of semi-structured interviews. It can be very time consuming to prepare for the interviews, collect the participant experiential data, and analyze the results, which typically involves a process of transcription and coding, repeated readings for content and understanding, an analysis for emergent themes, reviewing journals, comparisons with larger surveys, and many other activities (Loder, 2014). Semi-structured interviews also typically require some degree of upfront training to obtain broad, solid, and consistent working definitions that provide guidance so that the interviewer will not unfairly bias the results by leading the participants toward certain answers (MacDonald, 2013). Additionally, the retrospective nature of semi-structured interviews may not necessarily result in accurate dates and order of events being reported by the participants (Coddington, 2015). Further details on how this method was applied in my research are presented in Chapter 3 (Section 3.4.2).

1.6 Data Analysis

The data collected from semi-structured interviews can come in different formats, such as interview notes and audio recordings. It is therefore crucial to transcribe different sources of data into analyzable formats for the next step of analysis and interpretation (Bryman, 2008). Once the data had been organized and transcribed, a thematic analysis approach was employed to analyze the data. Thematic analysis is described as “*a method for identifying, analyzing and reporting patterns (themes) within data*” (Braun & Clarke, 2006, p.79). It involves the search for, and identification of, common threads that extend across an entire interview or set of interviews (DeSantis & Ugarriza, 2000). A deductive coding approach was selected for my data analysis, where “*themes and codes are pre-selected based on previous literature, previous theories or the specifics of the research question*” (Gale et al., 2013, p.5). Following this approach, an initial coding menu was developed based on the theory of collaborative governance drawn from literature review. Interview data were then coded systematically, with this first set of codes further categorized into potential themes and then carefully reviewed to see if the themes work in relation to the coded extracts and the entire data set, and to see if any new themes emerged (Hsieh & Shannon, 2005).

1.7 Indigenous Participation in the Research

This research was conducted as part of the Wildlife, Environmental Change, and Local Indigenous Food Systems (WECLIFS) research initiative, a McGill university-based research project focused on Northern Quebec's indigenous country food security issues. WECLIFS adapts a collaborative research approach by working closely with local and regional governments and organizations in Northern Quebec, the communities of Eeyou Istchee and Nunavik, as well as individual members within the communities. The research being conducted as part of the WECLIFS project was presented at a formal Steering Committee meeting hosted by the Quebec Ministry of Forests, Wildlife, and Parks (MFFP) in March 2019, with representatives from MFFP, Quebec Ministry of the Environment and the Fight Against Climate Change (MELCC), Ouranos, Makivik Corporation, Kativik Regional Government (KRG), the regional Nunavimmi Umajulivijiit Katujaqatigininga (RNUK), the Nunavik Marine Region Wildlife Board (NMRWB), Nunavik Regional Board of Health and Social Services (NRBHSS), Cree Nation Government (CNG), Cree Trappers Association (CTA), Cree Board of Health and Social Services (CBHSS), and the Eeyou Marine Region Wildlife Board (EMRWB). The overall research scope and the subprojects being completed under WECLIFS, including my research, were discussed, acknowledged and endorsed by the members of the Steering Committee listed above. The WECLIFS research group maintains ongoing interactions with partner organizations through regular meetings and newsletter updates.

This research presented in this dissertation, as a subproject under the WECLIFS research group, adhered to the following WECLIFS guiding research principles:

- Clearly define their scope and identify and formalize partnership agreements with directly involved organizations and communities.
- Request from all communities involved in the research a resolution indicating support for and partnership in the research.
- Enter into and respect data sharing and data ownership agreements that are appropriate for the specific subproject context, while respecting the rights of communities and organizations related to data ownership, control, access, and possession.

- Include organizational and community partners in all aspects of the research. Maintain consistent, two-way communication with organizational and community partners, while being sensitive to time demands and research fatigue.
- Present and discuss analyses, interpretations, and results with partners, prior to dissemination in the public domain, to ensure accuracy and avoid misunderstanding.
- Active, free, and informed consent must be obtained from all research participants.
- Research must ensure confidentiality and anonymity of individuals, organizations, and communities unless these parties choose to be named when the results are reported.

The results of Chapter 2 were presented to the Board of the James Bay Advisory Committee on the Environment (JBACE) in October 2019, including representatives from federal, provincial, and indigenous governments who are working in the EIA field. The results of Chapter 3 will be shared with research participants for their review and feedback prior to journal publication.

1.8 References

- Atkinson, R., & Flint, J. (2001). Accessing hidden and hard-to-reach populations: Snowball research strategies. *Social research update*, 33(1), 1-4.
- Awashish, P. (2005). From Board to Nation Governance: The Evolution of Eeyou Tapay-Tah-Jeh-Souwin (Eeyou Governance) in Eeyou Istchee. *Canada: The State of the Federation*, 165.
- Baird, J., Velaniškis, J., Plummer, R., & FitzGibbon, J. (2014). Political legitimacy and collaborative water governance: an exploratory case study. *International Journal of Water Governance*, 2(1), 61-84.
- Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The qualitative report*, 13(4), 544-559.
- Bergeron, O., Richer, F., Bruneau, S., & Laberge, V. (2016). *The Diet of Québec First Nations and Inuit Peoples: Reference Document*. Vice-présidence aux affaires scientifiques, Institut national de santé publique Québec.
- Bérubé, M. (2007). Cumulative effects assessments at Hydro-Québec: what have we learned?. *Impact assessment and project appraisal*, 25(2), 101-109.
- Bolam, B., Murphy, S., & Gleeson, K. (2004). Individualisation and inequalities in health: a qualitative study of class identity and health. *Social Science & Medicine*, 59(7), 1355-1365.
- Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative research journal*, 9(2), 27.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), 77-101.
- Bryman, A. (2008). Of methods and methodology. *Qualitative Research in Organizations and Management: An International Journal*.

- Chan, H. M., Fediuk, K., Hamilton, S., Rostas, L., Caughey, A., Kuhnlein, H., ... & Loring, E. (2006). Food security in Nunavut, Canada: barriers and recommendations. *International journal of circumpolar health*, 65(5), 416-431.
- Coddington, M. (2015). Clarifying journalism's quantitative turn: A typology for evaluating data journalism, computational journalism, and computer-assisted reporting. *Digital journalism*, 3(3), 331-348.
- Conseil Du Patronat Du Quebec (2015). *Quebec's natural resources: a natural source of prosperity*. Retrieved from https://www.cpq.qc.ca/wp-content/uploads/2015/07/01927_etude_2_prosp%C3%A9rit%C3%A9_ANGLAIS.pdf
- Cree Board of Health and Social Services of James Bay. (2016). *About Us*. <https://www.creehealth.org/about-us>
- Davies, P. (2000). The relevance of systematic reviews to educational policy and practice. *Oxford review of education*, 26(3-4), 365-378.
- Denzin, N. (1970). Strategies of multiple triangulation. *The research act in sociology: A theoretical introduction to sociological method*, 297, 313.
- DeSantis, L., & Ugarriza, D. N. (2000). The concept of theme as used in qualitative nursing research. *Western Journal of Nursing Research*, 22(3), 351-372.
- Desbiens, C. (2004). Producing North and South: a political geography of hydro development in Québec. *Canadian Geographer/Le Géographe canadien*, 48(2), 101-118.
- DuPraw, M. E., Brennan, B. V., & Placht, M. T. (2013). Case study: Collaborative governance as a tool for natural resource management in China and the United States. *Environmental Practice*, 15(3), 228-239.
- Faugier, J., & Sargeant, M. (1997). Sampling hard to reach populations. *Journal of advanced nursing*, 26(4), 790-797.
- Fink, A. (2019). *Conducting research literature reviews: From the internet to paper*. Sage publications.
- Gale, N. K., Heath, G., Cameron, E., Rashid, S., & Redwood, S. (2013). Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC medical research methodology*, 13(1), 1-8.
- Gallardo, M. V. I., Helsley, J., Pinel, S., Ammon, J., Rodríguez, F. V. L., & Wendland, K. (2013). Collaborative community-based governance in a transboundary wetland system in the Ecuadorian Andes. *Mountain Research and Development*, 33(3), 269-279.
- Gouvernement du Québec (2010). *Portrait territorial du Nord-du-Québec*. Retrieved from <https://mern.gouv.qc.ca/english/publications/nord-du-quebec/profile-nord-du-quebec.pdf>
- Green, B. N., Johnson, C. D., & Adams, A. (2006). Writing narrative literature reviews for peer-reviewed journals: secrets of the trade. *Journal of chiropractic medicine*, 5(3), 101-117.
- Harrison, H., Birks, M., Franklin, R., & Mills, J. (2017). Case study research: Foundations and methodological orientations. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* (Vol. 18, No. 1).
- Herrmann, T. M., Royer, M. J. S., & Cuciurean, R. (2012). Understanding subarctic wildlife in Eastern James Bay under changing climatic and socio-environmental conditions: bringing together Cree hunters' ecological knowledge and scientific observations. *Polar Geography*, 35(3-4), 245-270.
- Hotte, N., Wyatt, S., & Kozak, R. (2019). Influences on trust during collaborative forest governance: a case study from Haida Gwaii. *Canadian Journal of Forest Research*, 49(4), 361-374.

- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative health research*, 15(9), 1277-1288.
- Johansson, J., Sandström, C., & Lundmark, T. (2018). Inspired by structured decision making: a collaborative approach to the governance of multiple forest values. *Ecology & society*, 23(4).
- Kuhnlein, H. V., & Chan, H. M. (2000). Environment and contaminants in traditional food systems of northern indigenous peoples. *Annual review of nutrition*, 20(1), 595-626.
- Laforest, B. J., Hébert, J. S., Obbard, M. E., & Thiemann, G. W. (2018). Traditional ecological knowledge of polar bears in the northern eeyou marine region, québec, canada. *Arctic*, 71(1), 40-58.
- Lau, F., & Kuziemy, C. (2016). Handbook of eHealth evaluation: An evidence-based approach. Victoria. *British Columbia, Canada: University of Victoria*.
- Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P., ... & Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *Journal of clinical epidemiology*, 62(10), e1-e34.
- Loder, A. (2014). 'There's a meadow outside my workplace': A phenomenological exploration of aesthetics and green roofs in Chicago and Toronto. *Landscape and urban planning*, 126, 94-106.
- MacDonald, D. H., Bark, R., MacRae, A., Kalivas, T., Grandgirard, A., & Strathearn, S. (2013). An interview methodology for exploring the values that community leaders assign to multiple-use landscapes. *Ecology and Society*, 18(1).
- Mulrennan, M. E., Scott, C. H., & Scott, K. (Eds.). (2019). *Caring for Eeyou Istchee: Protected Area Creation on Wemindji Cree Territory*. UBC Press.
- Niezen, R. (1993). Telling a message: Cree perceptions of custom and administration. Available at SSRN 3076282.
- Noble, B., Martin, J., & Olagunju, A. (2016). A review of the application of cumulative effects assessment in the context of Section 22 project environmental assessments conducted in the James Bay Territory. *Prepared for the james bay advisory committee on the environment. Saskatoon (SK): Aura Environmental*.
- Paré, G., & Kitsiou, S. (2017). Methods for literature reviews. In *Handbook of eHealth Evaluation: An Evidence-based Approach [Internet]*. University of Victoria.
- Paré, G., Trudel, M. C., Jaana, M., & Kitsiou, S. (2015). Synthesizing information systems knowledge: A typology of literature reviews. *Information & Management*, 52(2), 183-199.
- Peloquin, C., & Berkes, F. (2009). Local knowledge, subsistence harvests, and social-ecological complexity in James Bay. *Human Ecology*, 37(5), 533-545.
- Power, E. M. (2008). Conceptualizing food security for Aboriginal people in Canada. *Canadian Journal of Public Health*, 99(2), 95-97.
- Rapinski, M., Liu, R., Saleem, A., Arnason, J. T., & Cuerrier, A. (2014). Environmental trends in the variation of biologically active phenolic compounds in Labrador tea, *Rhododendron groenlandicum*, from northern Quebec, Canada. *Botany*, 92(11), 783-794.
- Ritchie, J., & Spencer, L. (2002). Qualitative data analysis for applied policy research. *The qualitative researcher's companion*, 573(2002), 305-29.
- Rodon, T. (2014). From Nouveau-Québec to Nunavik and Eeyou Istchee: The Political Economy of Northern Québec. *Northern Review*, (38).
- Royer, M. J. S. (2015). *Climate, Environment and Cree Observations: James Bay Territory, Canada*. Springer.

- Royer, M. J., & Herrmann, T. (2011). Socioenvironmental changes in two traditional food species of the Cree First Nation of subarctic James Bay. *Cahiers de géographie du Québec*, 55(156), 575-601.
- Rudolph, T. D., Drapeau, P., St-Laurent, M. H., & Imbeau, L. (2012). Status of woodland caribou (*Rangifer tarandus caribou*) in the James Bay Region of Northern Quebec. *Scientific report presented to the Ministère des Ressources Naturelles et de la Faune du Québec and the Grand Council of the Crees (Eeyou Istchee)*. Montreal, QC.
- Salée, D., & Lévesque, C. (2010). Representing aboriginal self-government and First Nations/State relations: Political agency and the management of the boreal forest in Eeyou Istchee. *International Journal of Canadian Studies/Revue internationale d'études canadiennes*, (41), 99-135.
- Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage.
- Statistics Canada. (2011). National household survey. *Statistics Canada*.
- Tanner, A. (2007). The nature of Quebec Cree animist practices and beliefs. *La nature des esprits dans les cosmologies autochtones*, 133-150.
- Templier, M., & Paré, G. (2015). A framework for guiding and evaluating literature reviews. *Communications of the Association for Information Systems*, 37(1), 6.
- Thomas, D. R. (2003). A general inductive approach for qualitative data analysis.
- Van Oostdam, J., Donaldson, S., Feeley, M., Tremblay, N., Arnold, D., & Ayotte, P. (2003). Canadian arctic contaminants assessment report II: human health. *Ottawa, Canada*.
- Vodden, K. (2015). Governing sustainable coastal development: The promise and challenge of collaborative governance in Canadian coastal watersheds. *The Canadian Geographer/Le Géographe canadien*, 59(2), 167-180.
- Whiteman, G. (2004). The impact of economic development in James Bay, Canada: The Cree tallymen speak out. *Organization & Environment*, 17(4), 425-448.
- Wintrob, R. M., & Diamen, S. (1974). The impact of culture change on Mistassini Cree youth. *Canadian Psychiatric Association Journal*, 19(4), 331-342.
- Yin Robert, K. (1994). *Case study research: design and methods*. Sage Publications.

Chapter 2: Literature and Policy Review

2.1 Introduction

Environmental Impact Assessment (EIA) is an important legislative tool employed in Canada and internationally to “*identify, predict, evaluate and mitigate the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made*” (International Association for Impact Assessment, 1999). EIA was first formally introduced in Canada through the Federal Environmental Assessment and Review Process (EARP) in 1973, aiming to evaluate the environmental effects related to federal projects and activities (Sadar & Stolte, 1996). The EARP was later replaced by the *Canadian Environmental Impact Assessment Act (CEAA)* in 1993, which provided a more robust legal basis for Canadian EIAs (Sadar & Stolte, 1996). The most recent federal EIA is the *Impact Assessment Act* which was passed in 2019 to replace the *Canadian Environmental Assessment Act, 2012*. The provinces and territories of Canada also have their own parallel EIA legislation and regulations for their own responsible jurisdictions (Hickey et al. 2010; Petts, 2009; Noble, 2004). Federal, provincial and territorial EIAs include important regulatory basis for cross-jurisdictional harmonization in EIA for overlapping jurisdictions (Petts, 2009). The overall objectives of EIA can be summarized into three key areas: 1) identify and mitigate adverse environmental effects; 2) incorporate environmental factors into decision making and project approval; and 3) promote awareness on environmental protection and sustainable development (Powell, 2014; Noble & Press, 2011).

However, the ability for EIA to fulfill its stated objectives has raised many concerns in its application (Gunn & Noble, 2011; Duinker & Greig, 2006; Spaling et al., 2000; Damman, 1995). One of the major criticisms of EIA is that it employs a project-centric approach when assessing environmental impacts (Gunn & Noble, 2011; Damman, 1995). Traditional EIA only requires the developer (proponent) to evaluate the project-direct effects, which in most cases fails to acknowledge the cumulative impacts arising from multiple stressors on Valued Ecosystem Components (VECs) (Gunn & Noble, 2011; Duinker & Greig, 2006; Spaling et al., 2000; Damman, 1995). The overlapping cumulative impacts of multiple activities across space and time may be individually minor but collectively significant (Foley, 2017; Hegmann et al., 1999;

Lawrence, 1994). Cumulative effects can also be additive, synergistic, compensatory, or masking, and may remain largely undetectable under a single project-level EIA (Foley, 2017; Hegmann et al., 1999; Lawrence, 1994). As a result, Cumulative Effects Assessment (CEA) was established as a sub-discipline of EIA in the 1980s in Canada to assess the cumulative effects from all existing and foreseeable developments in the project region (Jones, 2016). CEA seeks to *“systematically predict the consequences of development, relative to an assessment of existing environmental quality, by evaluating the significance of effects from multiple activities over time in a regional landscape”* (Jones, 2016). CEA is often referred to as an “EIA well done” or “the only real effects worth assessing”, as modern developments rarely happen in isolation with other activities (Duinker & Greig, 2006; Hegmann, 1999).

While most legislated EIA processes refer to CEA as one of the proposed activities that must be considered, in practice, it is often not addressed or is handled poorly (Morgan, 2012; Baxter et al., 2012; Duinker & Greig, 2006; Baxter et al., 2001). As stated by Duinker and Greig (2006, p.153): *“the promise and the practice of CEA are so far apart that continuing the kinds and qualities of CEA currently undertaken in Canada is doing more damage than good”*. Some of the most common challenges of CEA identified are: 1) the narrow, project-centric view of project-level CEA; 2) CEA merely as “a means to an end” for project approval; 3) lack of understating of VEC thresholds; 4) weak interpretation of CEA by practitioners; and 5) difficulties to predict future developments (Morgan, 2012; Baxter et al., 2012; Duinker & Greig, 2006). There is also a substantial gap between ‘best-practice’ theory and CEA practice, and an apparent lack of suitable training and proficient CEA practitioners and managers (Baxter et al., 2012, Duinker & Greig, 2006). Therefore, improving existing CEA process, procedures, and training has become an important research area in the professional field of EIA.

2.2 The History of EIA in Northern Quebec

Prior to the 1970s, there were limited development activities that took place in Northern Quebec due to its isolated geographic location and limited accessibility by road. The James Bay Cree and the Inuit from Nunavik, therefore, were able to maintain their traditional way of living based on hunting, trapping, and gathering in their traditional lands for more than 5,000 years (Whiteman, 2004). 1971 marked a historic turning point for the Cree and the Inuit communities of Northern

Quebec, as they discovered that their traditional land and river systems would be dammed for the massive James Bay Hydroelectric project being led by Hydro-Quebec (Rodon, 2014). The James Bay project raised many serious environmental issues and concerns related to flooding, habitat destruction and alteration, and mercury accumulation in Crees' traditional land (McGee, 2000; Rosenberg et al., 1995). The Cree and Inuit were not consulted by the Quebec government or Hydro-Quebec despite the fact that they would be the most directly affected population due to their close relationship with the land (Rodon, 2014; McGee, 2000). In order to protect their traditional land and preserve their traditional way of living, the Cree and Inuit challenged the development by bringing it to international attention, and later to the Supreme Court of Canada in 1973 (Rodon, 2014). In 1975, the James Bay Northern Quebec Agreement (JBNQA) was signed by the Cree and Inuit peoples of Quebec, the governments of Canada and Quebec, the James Bay Development Corporation, the James Bay Energy Corporation, and Hydro-Quebec as an out-of-court settlement (Rodon, 2014; McGee, 2000). The first modern comprehensive land claim agreement in Canada, the JBNQA was based on two equally important guiding principles: *"The first principle is that Quebec needs to use the resources of its territory, all its territory, for the benefit of all its people. The second is that we must recognize the needs of the native peoples, the Crees and the Inuit, who have a different culture and a different way of life from those of other peoples of Quebec"* (JBNQA, 1975, p.11). With the signing of the JBNQA, the affected Cree and Inuit communities made concessions on parts of their traditional land in exchange for financial compensation, public services, and infrastructure upgrades (among other things). The JBNQA has supported The JBNQA established a framework for the support of indigenous autonomy and self-governance by including key sections and provisions on land categorization, environmental and social protection, economic development, education, hunting, fishing, and trapping, and the establishment of local and regional administrations.

The environmental and social protection regimes under the JBNQA provided an important regulatory basis for establishing Northern EIA procedures and responsible EIA evaluation authorities (Environmental and Social Impact Assessment Committee (COMEV) or Kativik Environmental Quality Commission (KEQC)) and review bodies (Environmental and Social Impact Review Committee (COMEX), Environmental and Social Impact Review Panels (COFEX-north and COFEX-South), or KEQC). The James Bay Advisory Committee on the

Environment (JBACE) for Eeyou Istchee and the Kativik Environmental Advisory Committee (KEAC) for Nunavik were also created to examine and advise the responsible governments on the implementation and administration of the protection regimes and EIA procedures outlined in the Agreement. Northern EIA recognizes the importance of indigenous participation in EIA decision making by including indigenous members in COMEV, COMEX, and KEQC, and by affording opportunities for public participation during project assessments and reviews (e.g. public hearings). In general, northern EIA consists of five steps reviews for projects that are on the inclusion list (Figure 2.1): 1) Project proponent submits the project statement and preliminary information to the Administrator; 2) The information is sent to COMEV (for projects in Eeyou Istchee) or KEQC (for projects in Nunavik) for preliminary review to create assessment guidelines for the proponents to follow in their impact studies, and a project directive is sent to the Administrator for review and distribution to the proponent; 3) The project directive is forwarded by the Administrator to the proponent, and the proponent then prepares an Environmental Impact Statement (EIS) according to the guidelines in the directive; 4) The proponent submits the EIS to the Administrator, and the Administrator forwards it to COMEX (for projects in Eeyou Istchee) or KEQC (for projects in Nunavik) for review. Public participation is generally emphasized during this stage. At the end, a recommendation will be made regarding whether to pass or reject the project by the committee, after taking all information into consideration; and 5) The Administrator issues a final decision after considering the recommendations made by the review committee. In the case of a disagreement, the Administrator will consult the review committee before delivering the final decision to the proponent. There is no mandate under the JBNQA to study the environmental impacts beyond the project-level in the context of EIA. There are currently no Strategic Environmental Assessment (SEA) or regional Cumulative Effect Assessment (CEA) frameworks in place to assess the potential environmental effects of the regional policies, plans, and programs from a long-term, cumulative, and regional perspective to inform regional planning decisions and development.

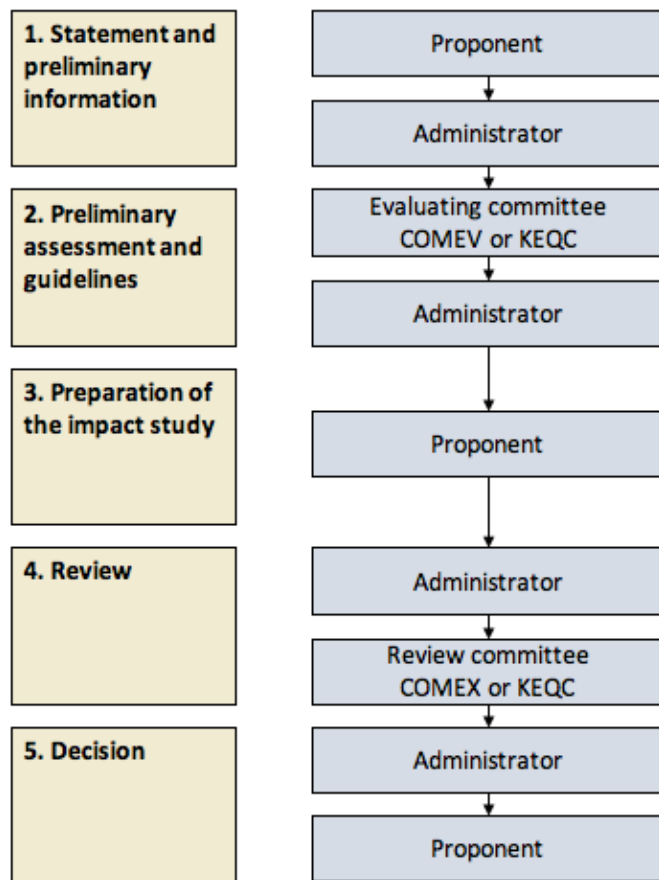


Figure 2.1: EIA Procedures for Northern Quebec (Retrieved from: The Ministère de l'Environnement et de la Lutte contre les changements climatiques, 2013)

2.3 The Need for CEA in Eeyou Istchee – Cumulative Effects on Wildlife

Eeyou Istchee has experienced significant resource development over the past 50 years including mining, forestry, and hydroelectricity. These human activities, together with the effects of climate change, have imposed significant cumulative effects on many VECs including water, air, human health, wildlife, and so on (Rodon, 2014; Herrmann et al., 2012; Rudolph et al., 2012). Wildlife such as woodland caribou, eelgrass, and many fish species are among the most impacted VECs in Eeyou Istchee and have raised significant attention at both the government and community level due to their substantial cultural, environmental and economic importance (Rodon, 2014; Herrmann et al., 2012; Rudolph et al., 2012). For wildlife in particular, it has come to be understood that project-level EIAs alone often have difficulties in assessing the overall impacts effectively, as the home/migration ranges (Figure 2.2) of many wildlife species

are beyond a single project's assessment boundary (Schultz, 2010).

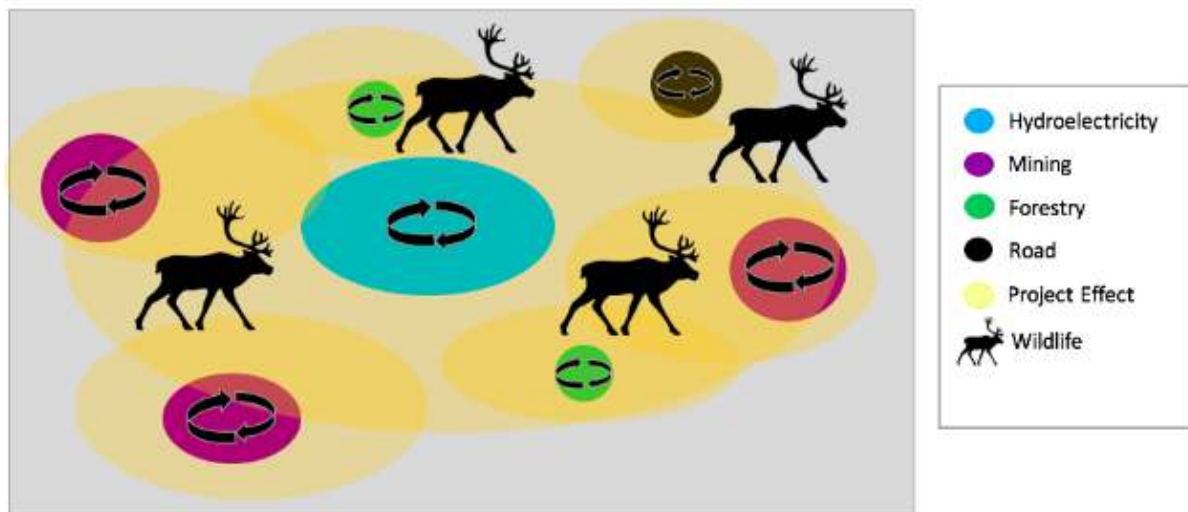


Figure 2.2: Illustration of the Potential Cumulative Effects Facing Wildlife in Eeyou Istchee. The graph demonstrates the potential overlapping effects (yellow) from regional developments (hydroelectricity, mining, forestry, and roads) on the home and migration ranges of local wildlife. The arrow loops in the project circles illustrate that there is lack of communications between proponents to understand their project impacts in the regional landscape.

CEA should be considered an essential component within the overarching EIA process to provide more VEC-centric assessments and promote wildlife protection and conservation from both project as well as regional perspectives (Schultz, 2010).

2.4 CEA Performance in Eeyou Istchee

There have been previous studies on the state of CEA within the context of EIA in Eeyou Istchee, carried out by Hydro-Quebec in 2007 (Bérubé, 2007) and the JBACE in 2016 (Noble et al., 2016). These two studies examined, in total, nineteen project-level CEAs in Eeyou Istchee to understand the current state of, and challenges related to, CEA through the lens of both government and industry proponents. Both studies used different methodologies. But, in general, ‘broke things down’ into the main phases of project-level CEA as recognized by the CEAA’s practitioners guide (1. Scoping; 2. Analysis of effects; 3. Identification of mitigation; 4. Evaluation of significance; 5. Follow-up). This common aspect of the two studies makes their

results highly comparable. Beyond these more policy-focused studies, most other research on CEA issues in Eeyou Istchee do not occur in the context of EIA, but rather focus on studying the cumulative effects of certain activities on VECs through more quantitative scientific approaches.

Hydro-Quebec's 2007 study analyzed twelve project-level CEAs submitted by Hydro-Quebec for EIA between 1999 and 2005, including: *the Rocher de Grand-Mère powerhouse and spillway, Portneuf River partial diversion, Sault-aux Cochons River partial diversion, Manouane River partial diversion, Toulmoustou River hydropower project, Les Cèdres–Cornwall powerline, Mercier new powerhouse, Pikauba River regulation dam, Péribonka hydropower project, Chute Allard and Rapide-des-Coeurs hydropower project, Eastmain 1-A/Rupert partial diversion hydropower project, and Nuclear waste disposal of Gentilly-2 power plant* (Bérubé, 2017). The results show that one of the main concerns of CEA from Hydro-Quebec's perspective is the lack of regional collective efforts on CEA management and follow-up. The authors state: “*regional authorities are better positioned than the promoter to tackle the problems raised by the mitigation at the cumulative effects level. This issue, which is also related to the sharing of mitigation/monitoring costs of cumulative effects, has not yet been addressed by governmental authorities*” (Bérubé, 2007, p. 107). Another challenge identified is related to the proponent's ability to determine future impacts when there is a lack of information on what is going to happen in the region in the future (Bérubé, 2007).

The study initiated by the JBACE in 2016 aimed to understand the current state of CEA (review project directives, project EISs, CEA legal basis, public concerns) and reviewed seven project-level CEAs submitted between 2002 and 2015 by different proponents for EIA: *Eastmain 1-A Powerhouse and Rupert Diversion, Eleonore Gold Mine, Bachelor Lake Gold Mine, Matoush Uranium Exploration, Renard Diamond Mine, Extension of Route 167N to the Otish Mountains, and the Whabouchi Spodumene Mine* (Noble, 2016). A follow-up workshop was conducted after the review to communicate the results with stakeholder groups and gain insight on how to address the challenges. Four major weaknesses associated with project-level CEA were identified by the author: 1) project directives provide insufficient instructions on some key CEA elements (special boundaries, baselines, thresholds, monitoring, and follow-up requirements) for the proponents to follow; 2) project monitoring and follow-up programs were carried out poorly

or in many cases are absent; 3) insufficient baseline data availability; and 4) few considerations given to cumulative impacts on project approval (Noble, 2016).

2.5 Research Gaps

The existing studies on CEA in Eeyou Istchee outlined some major challenges associated with project-level CEA within the context of EIA, including insufficient instructions on CEA in the project directives, lack of baseline data and in-depth trend analysis, absent or weak CEA monitoring programs, insufficient CEA considerations on project approval, and difficulties for the proponents to predict future development scenarios (Noble et al., 2016; Bérubé, 2007). From these studies we can conclude that the current EIA practices in Eeyou Istchee require further policy and community attention. However, the factors that were identified as preventing CEA best-practices from being fully realized in the territory remain understudied. In what follows we seek to help address this gap through policy review of the existing regulatory frameworks associated with CEA and CEA-supporting functions in Eeyou Istchee to better understand the current legal/political capacity in the region to support effective CEA.

2.6 Policy Review

The policy review process used for this research is guided by a framework for CEA that is based on my literature review (see Figure 2.3). There are three important elements within the process: 1) available CEA legal framework; 2) CEA supporting factors; and 3) contribution to CEA which together will lead to 4) CEA best practices. Each element sits in a hierarchical relationship that is connected to the latter one.

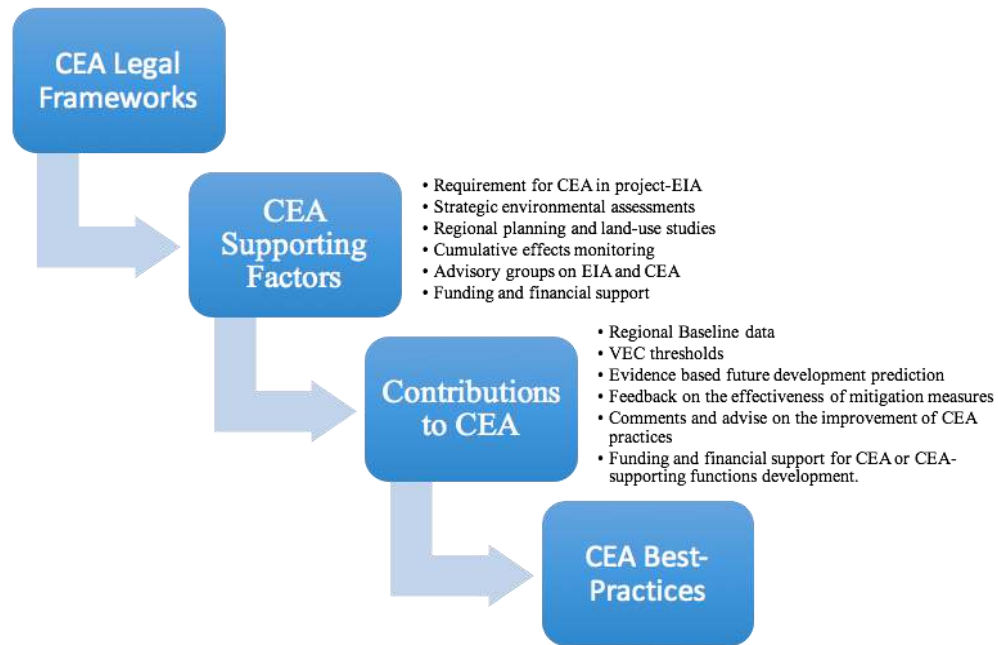


Figure 2.3: CEA best practices framework developed from literature reviews on CEA (Peterson et. al, 1987; Harrington & Canter, 1998; Duinker & Greig, 2006; Therivel & Ross, 2007; Gunn & Noble, 2009; Hegmann & Yarranton, 2011; Connelly, 2011; Jones, 2016; Clogg et al., 2017; Joseph et al., 2017; Murray et al., 2018; Cronmiller & Noble, 2018)

Three critical assumptions were made regarding the selection of CEA-supporting factors for analysis: 1) the factors selected for review are among the most important for CEA development in Eeyou Istchee; 2) the absence/presence of the legal frameworks for those factors will directly affect the outcome of CEA; and 3) each supporting factor is weighted equally and they mutually complement each other. Assessment criteria used in the policy analysis were generated through literature review and approved by JBACE to ensure that they aligned with regional research priorities, were applicable to the regional context, and had the potential to be transferred into meaningful actions.

2.6.1 CEA Supporting Factors and Contribution

Six essential supporting factors and their contributions (Table 2.1) for effective project-level CEA practices and regional CEA development were identified through literature review (Peterson et. al, 1987; Harrington & Canter, 1998; Duinker & Greig, 2006; Therivel & Ross,

2007; Gunn & Noble, 2009; Hegmann & Yarranton, 2011; Connelly, 2011; Jones, 2016; Clogg et al., 2017; Joseph et al., 2017; Murray et al., 2018; Cronmiller & Noble, 2018) including: 1) requirement for CEA in EIA; 2) need for Strategic Environmental Assessments; 3) available regional planning and land-use studies; 4) established project and regional cumulative effects monitoring programs and practices; 5) available advisory groups on EIA and CEA; and 6) funding and financial support for CEA or CEA-supporting functions development.

Table 2.1: Summary of CEA Supporting Factors and Contributions

Supporting factors for CEA	Definition/Important Provisions	Contribution to CEA
Requirement for CEA in EIA	<i>"The impact assessment of a designated project must take into account any cumulative effects that are likely to result from the designated project in combination with other physical activities that have been or will be carried out."</i> (Impact Assessment Act, 2019) At provincial level, EIA legislation in Québec also requires consideration of cumulative effects.	- Ensure cumulative effects are identified and mitigated by the proponents in the EIA process. - Include cumulative effects considerations in project approval. - Provide legal basis to enforce CEA implementation and outcome consideration.
Strategic Environmental Assessments	<i>"A process designed to systematically assess the potential environmental effects, including cumulative effects, of alternative strategic initiatives, policies, plans, or programs for a particular region."</i> (Canadian Council of Ministers of the Environment, 2009)	- Regional focus and longer timeline suitable for the scale of CEA. - Capture the potential cumulative effects of developments that may not formally be subjected to project-level EIA. - Regional baseline data collection. - Establish regional monitoring programs. - Establish acceptable VEC thresholds that can be used for CEA.
Regional planning and land-use studies	<i>"Comprehensive ordering or visualization of the possible or potential movement, activity, or flow (from sources onward) of waters, commodities, or population, within a defined area or sphere, for the purpose of laying therein the physical basis for the 'good life' or optimum human living."</i> (MacKaye, 1940, p.351)	- Provide evidence-based future development predictions for scenario building. - Establish acceptable VEC thresholds that can be used for CEA. - Proactive in nature that occurs before many developments have begun in the region with clear environmental and resource objectives. - Provide baseline and land-use information on sensitive areas, culturally significant areas, and other nearby development.
Cumulative effects monitoring	<i>"Holistic, dynamic, contextual and functional assessment of all those stressor responses at a regional scale, assuming that actual conditions in the environment may be related to existing stressors and that new projects/land use change/urban growth can be additive, synergistic or antagonist, with a necessity to follow up monitoring at a region scale."</i> (Chiang et. al., 2014, p.113)	- Baseline data collection. - Evaluate the effectiveness of proposed mitigation measures. - Evidence-based feedback to refine impact prediction mechanism of EIA. - Support adaptive environmental management and strategic decision making on cumulative effects. - Public participation and multi-stakeholder engagement opportunities.
Advisory groups for EIA and CEA	<i>"There are two kinds of advisory groups that might be employed to grapple with the problem of cumulative effects. One is a standing committee or established program that is expected to continue operating for many years. The other is an ad hoc group constituted to give advice about a particular subject or problem."</i> (Peterson et. al, 1987, p. 63).	- Conduct independent research to identify concerns and future directions to improve CEA and CEA-supporting elements. - Provide comments, advice, and recommendations to other responsible governing bodies to facilitate better CEA. - Pursue changes on existing practices and regulations to align with regional CEA development objectives.
Funding and financial support for CEA and CEA-supporting functions	<i>"Criteria for success on funding regional co-management bodies or other institutional arrangements for cumulative effects management: 1. Ample, stable and apolitical funding, 2. Objective and mutually agreed-to criteria for prioritizing among uses of limited resources, 3. Funding arrangements that are flexible enough to address emerging priorities."</i> (Lloyd-Smith, 2017, p.49).	- Support the development of new initiatives and programs related to CEA. - Relieve financial burden from the responsible authorities and proponents. - Provide funding for public participation and indigenous involvement.

2.6.2 CEA Supporting Legal Frameworks

Table 2.2 presents five main pieces of legislation operating at the federal, provincial, and regional level that are applicable for guiding and supporting CEA: 1) *Impact Assessment Act* (federal level, 2019); 2) *Environment Quality Act* (provincial, 1972); 3) *James Bay and Northern Quebec Agreement* (regional, 1975); 4) *Agreement on Governance in the Eeyou Istchee James Bay Territory between the Crees of Eeyou Istchee and the Gouvernement du Québec* (regional, 2012); and 5) *An Act establishing the Eeyou Istchee James Bay Regional Government and introducing certain legislative amendments concerning the Cree Nation Government* (regional, 2013). It is recognized that not all of these regulations were produced specifically for the purpose of EIA and/or CEA; thus, we would not expect a single document to cover all of the criteria for effective CEA development in Eeyou Istchee.

Table 2.2: Applicable Regulations for CEA in Eeyou Istchee

Supporting factors for CEA	Applicable Regulations
Requirement for CEA in project-EIA	- <i>Impact Assessment Act 2019</i> (Section 22.1.a.ii): Mandatory - <i>Environmental Quality Act 1972</i> (Section 95.1.8): Mandatory - <i>JBNQA 1975</i> (Section 22 Schedule 3): Discretionary
Strategic Environmental Assessments	- <i>The federal IAA and the provincial EQA apply in the territory. They have provisions for strategic assessments, but none have been conducted yet.</i>
Regional planning and land-use studies	- <i>Agreement on Governance in the Eeyou Istchee James Bay Territory between the Crees of Eeyou Istchee and the Gouvernement du Québec</i> (Chapter IV.C.4) - <i>An Act establishing the Eeyou Istchee James Bay Regional Government and introducing certain legislative amendments concerning the Cree Nation Government</i> (Sections 47 and 48)
Cumulative effects monitoring	- None applicable. But the JBNQA does not limit the scope of the conditions that the Administrators may prescribe post-EA - Monitoring requirement is issued on a project-by-project basis by EIA administrator
Advisory groups for EIA and CEA	- <i>JBNQA</i> (Paragraph 22.3)
Funding and financial support for CEA and CEA-supporting functions	- Multiple potential sources in the region

2.6.2.1 Requirement for CEA in Project-Level EIA

The *Federal Impact Assessment Act 2019* (Section 22.1.a.ii), *Quebec's Environmental Quality Act 1972* (EQA) (Section 95.1.8), and the *JBNQA 1975* (Section 22 Schedule 3) are the three pieces of legislation that are applicable in Northern Quebec for project-level EIAs. Including CEA within the project EIA is a mandatory requirement under the Federal Impact Assessment Act and the EQA, but it is considered discretionary under the JBNQA. Section 22, Schedule 3, of the JBNQA states that “*the statement should consider, whenever appropriate, direct, indirect and cumulative impacts, short term and long-term impacts...at phases of the development, and on different scales, i.e., local, regional or national scale*” (JBNQA, 1975). In practice, the project directives often make CEA a mandatory requirement for the project proponent to include in the project EIA in the Territory. For example, the project directive (2003) for the Eastmain-1-A and Rupert Diversion project stated that: “*The proponents shall identify and evaluate the project's cumulative environmental and social impacts combined with the effects of other existing works or activities, that have been carried out over the last 30 years, or that are reasonably foreseeable over the next decade.*” The project directives would also outline important components to be included in CEA, such as: VEC selection, existing projects and future projects identifications, mitigation measures, impact analysis, and consideration of monitoring and follow-up programs. However, the directives do not usually provide instructions on how to conduct CEA from a technical perspective or identify what indicators/parameters to use. The JBNQA can be viewed as a preliminary framework that sets the general direction of the CEA, and it is open ended thereby allowing future work to be built upon it for more comprehensive CEA development. Project directives in Eeyou Istchee play a big role in terms of including CEA consideration and setting minimum standards for what needs to be included in the project-level EIA for CEA. However, as stated in Noble's report (2016, p.5): “*the directive(s) identified specific VCs to be included in CEA, and those VCs were typically considered by the proponent – but the proponent rarely exceeded the scope of the requirements.*” There is room to refine the project directives (e.g. greater details on requirements), and to encourage and support CEA best-practices for project proponents.

2.6.2.2 Strategic Environmental Assessments

The *Federal Impact Assessment Act* (s.92-103) and *EQA* (Chapter V) both include Strategic Environmental Assessments (SEA) in their provisions. These two Acts established SEA procedures, development funding, and created responsible bodies to oversee and conduct SEA for federal and Quebec's plans, policies, and programs. There are currently no legal frameworks in Eeyou Istchee on SEA. Since SEA requires the creation of special assessment bodies, the establishment of SEA steps and procedures, and the assignment of clearly defined roles to responsible bodies, the lack of legal provision in the region on SEA would make the assessment process very difficult to carry out.

2.6.2.3 Regional Planning and Land-Use Studies

The Agreement on Governance in the Eeyou Istchee James Bay Territory between the Crees of Eeyou Istchee and the Gouvernement du Québec (Chapter IV.C.4) and *An Act establishing the Eeyou Istchee James Bay Regional Government and introducing certain legislative amendments concerning the Cree Nation Government* (Sections 47 and 48) are the two legal documents that set out provisions regarding the Cree governance of Category II (public lands, the Crees have exclusive hunting, fishing, and trapping rights on those lands) and III lands (public lands, the Crees have exclusive trapping rights, and certain non-exclusive hunting and fishing rights on those lands) to protect their traditional way of living under resources development. The Acts provided powers for the Cree Nation Government (CNG) and Eeyou Istchee James Bay Regional Government (EIJBRG) to establish regional planning bodies and prepare regional land and resource use plans in Eeyou Istchee. The Eeyou Planning Commission (EPC) was established to produce the Regional Land & Resource Use Plan Land (RLRUP) for Category II lands, and the Natural Resource Committee (NRC) is responsible for producing the Regional Plan for Integrated Land and Resources Development (PRDIRT) for Category III lands. Harmonization is an important aspect outlined in the Agreement that requires all regional planning partners to work collaboratively when developing their individual land use plans, and to share strategic visions that reflect on the common goals and interests of the Cree Communities.

In 2018, the EPC held work sessions with the members of nine communities in Eeyou Istchee to identify visions and themes to guide the land use planning in the region, and the concerns for cumulative effects on environment and wildlife have merged to become a sub-theme under the

protection of environment and wildlife. As stated in the report produced by the EPC on community inputs on land-use planning goals (2018, p.11): “*The cumulative nature of these impacts is invariably brought up at meetings...There is a sense in the communities that this cumulative nature of impacts is insufficiently taken into account when new projects are brought forward*”. Until now, the RLRUP and PRDIRT are still under development; however, there is hope of including cumulative effects into the regional planning objectives, which could potentially be useful for CEA in EIA.

2.6.2.4 Cumulative Effects Monitoring

There are currently no legal requirements in Eeyou Istchee to develop regional cumulative effects monitoring programs. Compared to Southern Quebec, Eeyou Istchee lacks long-term government-led regional monitoring programs on air, water, and wildlife. There are also very few federal-led monitoring activities taking place in the region on the matter. Monitoring in Eeyou Istchee is mainly conducted and overseen by project proponents as part of the compliance monitoring process that is required in their project-level EIA (e.g., by Hydro-Quebec). The project-level monitoring is therefore based on the proponent’s needs and project-specific impacts rather than the regional needs for assessing the VECs condition and identifying required follow up. The monitoring data collected by the proponents are published in report format, and raw data files are not available for free download. Sometimes the raw data may be made available from the owner for a fee. It is worth noting that not all project monitoring programs explicitly include cumulative effects in their monitoring objectives, which can make obtaining useful cumulative baseline data for the region very challenging.

2.6.2.5 Advisory Groups on EIA and CEA

The *JBNQA* (paragraph 22.3) enabled the creation of the JBACE “*to review and oversee the administration and management of the environmental and social protection regime established by and in accordance with section 22.*” The JBACE examines EIA procedures to recommend potential improvements to the procedure. CEA has been defined as a major concern in the region by the JBACE that requires systematic study. Since 2016, the JBACE has been actively involved in CEA research in Eeyou Istchee (for details, see Section 2.2), providing recommendations to

the federal and provincial governments on reviewing cumulative effects for the woodland caribou herds and habitats, and participating in roundtables for the creation of an Indigenous-led centre of expertise on cumulative effects management. The JBACE therefore plays an important role in the region's CEA development by providing supporting studies and research direction on best practices.

2.6.2.6 Funding and Financial Support

There are currently no funding mechanisms under the JBNQA that establish specific funds for CEA, SEA, or cumulative effects monitoring. However, there are other funding sources from government bodies, industry, and NGOs that may be used to support cumulative effects studies. For example, the Indigenous and Northern Affairs Canada funded the Eeyou Istchee Community-Based Sea Ice and Freshwater Ice Monitoring Program in 2018, and the Niskamoon Corporation provided funding under Impact-Benefit-Agreements (IBA) to establish the Comprehensive Research Program on Coastal Habitat of Eeyou Istchee to study the environmental impacts on eelgrass starting in 2019. This is an area that would benefit from greater policy attention in the context of supporting integrated CEA governance and sustainable development in the region.

2.7 Conclusion

Cumulative effects have been recognized as one of the key challenges for effective EIA in Eeyou Istchee. Current CEA and reporting requirements in the region lack clear instructions on CEA within project directives. There is also limited baseline data and in-depth trend analysis, absent or weak CEA monitoring programs, insufficient CEA considerations during formal project approval processes, and difficulties for proponents when predicting future development scenarios in their project-level EIAs. Many of these challenges could potentially be addressed if the appropriate CEA supporting factors (land-use plans, SEA, regional monitoring programs, etc.) were established and operating in the region. Eeyou Istchee does already have some important legal frameworks in place to support CEA, including the requirement for CEA in EIA, establishment of the planning bodies, the presence of an advisory body, and financial support. The challenge is how best to incorporate the identified missing CEA supporting factors into the

multi-level and multi-actor environmental management frameworks supporting development-related decision-making in Eeyou Istchee. Ultimately it will be important for the different policy actors involved in the process to build on the existing structures and identify new ways of working together to ensure that CEA can better support the sustainable development objectives of society.

2.8 References

- Baxter, W., Ross, W. A., & Spaling, H. (2001). Improving the practice of cumulative effects assessment in Canada. *Impact Assessment and Project Appraisal*, 19(4), 253-262.
- Bérubé, M. (2007). Cumulative effects assessments at Hydro-Québec: what have we learned?. *Impact Assessment and Project Appraisal*, 25(2), 101-109.
- Chiang, G., Munkittrick, K. R., McMaster, M. E., Barra, R., & Servos, M. (2014). Regional cumulative effects monitoring framework: Gaps and challenges for the Biobío river basin in South Central Chile. *Gayana*, 78(2), 109-119.
- Clogg, J., Smith, G., Carlson, D., & Askew, H. (2017). *Paddling Together*. West Coast Environmental Law Research Foundation.
- Connelly, R. B. (2011). Canadian and international EIA frameworks as they apply to cumulative effects. *Environmental Impact Assessment Review*, 31(5), 453-456.
- Cronmiller, J. G., & Noble, B. F. (2018). Integrating environmental monitoring with cumulative effects management and decision making. *Integrated environmental assessment and management*, 14(3), 407-417.
- Damman, D. C., Cressman, D. R., & Sadar, M. H. (1995). Cumulative effects assessment: the development of practical frameworks. *Impact Assessment*, 13(4), 433-454.
- Duinker, P. N., & Greig, L. A. (2006). The impotence of cumulative effects assessment in Canada: ailments and ideas for redeployment. *Environmental management*, 37(2), 153-161.
- Foley, M. M., Mease, L. A., Martone, R. G., Prahler, E. E., Morrison, T. H., Murray, C. C., & Wojcik, D. (2017). The challenges and opportunities in cumulative effects assessment. *Environmental Impact Assessment Review*, 62, 122-134.
- Gunn, J. H., & Noble, B. F. (2009). Integrating cumulative effects in regional strategic environmental assessment frameworks: lessons from practice. *Journal of Environmental Assessment Policy and Management*, 11(03), 267-290.
- Gunn, J., & Noble, B. F. (2011). Conceptual and methodological challenges to integrating SEA and cumulative effects assessment. *Environmental Impact Assessment Review*, 31(2), 154-160.
- Harrington, J. M., & Canter, L. W. (1998). Planning environmental monitoring programs within the environmental impact assessment process. *International journal of environmental studies*, 55(4), 305-331.
- Hegmann, G., & Yarranton, G. T. (2011). Alchemy to reason: effective use of cumulative effects assessment in resource management. *Environmental impact assessment review*, 31(5), 484-490.
- Hegmann, G., Cocklin, C., Creasey, R., Dupuis, S., Kennedy, A., Kingsley, L., ... & Stalker, D. (1999). *Cumulative effects assessment practitioners guide*. Canada: the Canadian.

- Herrmann, T. M., Royer, M. J. S., & Cuciurean, R. (2012). Understanding subarctic wildlife in Eastern James Bay under changing climatic and socio-environmental conditions: bringing together Cree hunters' ecological knowledge and scientific observations. *Polar Geography*, 35(3-4), 245-270.
- Hickey, G.M., Brunet, N., & Allan, N. (2010). A constant comparison of the Environmental Assessment legislation in Canada. *Journal of Environmental Policy & Planning* 12(3), 315-329.
- International Association for Impact Assessment. (1999). Principles of environmental impact assessment best practice. *Institute of Environmental Assessment*, 1.
- Jones, F. C. (2016). Cumulative effects assessment: theoretical underpinnings and big problems. *Environmental Reviews*, 24(2), 187-204.
- Joseph, C., Zeeg, T., Angus, D., Usborne, A., & Mutrie, E. (2017). Use of significance thresholds to integrate cumulative effects into project-level socio-economic impact assessment in Canada. *Environmental Impact Assessment Review*, 67, 1-9.
- Kuhnlein, H. V., & Chan, H. M. (2000). Environment and contaminants in traditional food systems of northern indigenous peoples. *Annual review of nutrition*, 20(1), 595-626.
- Lawrence, D. P. (1994). Cumulative effects assessment at the project level. *Impact Assessment*, 12(3), 253-273.
- Lloyd-Smith, G. (2017). An Ocean of Opportunity: Co-governance in Marine Protected Areas in Canada. *West Coast Environmental Law*.
- MacKaye, B. 1940. "Regional Planning and Ecology." *Ecological Monographs*, 10(3): 349–353.
- McGee, M. (2000). Regional development the Cree of James Bay, Quebec. *Papers in Canadian Economic Development*, 7, 142-158.
- Morgan, R. K. (2012). Environmental impact assessment: the state of the art. *Impact Assessment and Project Appraisal*, 30(1), 5-14.
- Murray, C. C., Wong, J., Singh, G. G., Mach, M., Lerner, J., Ranieri, B., ... & Chan, K. M. (2018). The insignificance of thresholds in environmental impact assessment: an illustrative case study in Canada. *Environmental management*, 61(6), 1062-1071.
- Noble, B. F. (2004). A state-of-practice survey of policy, plan, and program assessment in Canadian provinces. *Environmental Impact Assessment Review*, 24(3), 351-361.
- Noble, B. F., & Press, D. (2011). Introduction to environmental impact assessment. *The Canadian Geographer/Le Géographe canadien*, 56(1), 142-153.
- Noble, B., Martin, J., & Olagunju, A. (2016). A review of the application of cumulative effects assessment in the context of Section 22 project environmental assessments conducted in the James Bay Territory. *Prepared for the James Bay advisory committee on the environment. Saskatoon (SK): Aura Environmental*.
- Nunes, R. J. (2016). Regional planning: the resilience of an imperative. *International Encyclopedia of Geography: People, the Earth, Environment and Technology: People, the Earth, Environment and Technology*, 1-11.
- Peterson, E. B., Chan, Y. H., Peterson, N. M., Constable, G. A., Caton, R. B., Davis, C. S., ... Yarranton, G. A. (1987). *Cumulative effects assessment in Canada: An agenda for action and research* (p. 63). Hull: Canadian Environmental Assessment Research Council.
- Petts, J. (Ed.). (2009). *Handbook of Environmental Impact Assessment: Volume 2: Impact and Limitations* (Vol. 2). John Wiley & Sons.
- Powell, B. H. (2014). *Environmental Assessment & the Canadian Constitution: Substitution and Equivalency*. Environmental Law Centre.

- Rodon, T. (2014). From Nouveau-Québec to Nunavik and Eeyou Istchee: The Political Economy of Northern Québec. *Northern Review*, (38).
- Rosenberg, D. M., Bodaly, R. A., & Usher, P. J. (1995). Environmental and social impacts of large scale hydroelectric development: who is listening?. *Global environmental change*, 5(2), 127-148.
- Rudolph, T. D., Drapeau, P., St-Laurent, M. H., & Imbeau, L. (2012). Status of woodland caribou (*Rangifer tarandus caribou*) in the James Bay region of northern Quebec. *Scientific report presented to the Ministère des Ressources Naturelles et de la Faune du Québec and the Grand Council of the Crees (Eeyou Istchee)*. Montreal, QC.
- Sadar, M. H., & Stolte, W. J. (1996). An overview of the Canadian experience in environmental impact assessment (EIA). *Impact Assessment*, 14(2), 215-228.
- Schultz, C. (2010). Challenges in connecting cumulative effects analysis to effective wildlife conservation planning. *BioScience*, 60(7), 545-551.
- Spaling, H., Zwier, J., Ross, W., & Creasey, R. (2000). Managing regional cumulative effects of oil sands development in Alberta, Canada. *Journal of Environmental Assessment Policy and Management*, 2(04), 501-528.
- Therivel, R., & Ross, B. (2007). Cumulative effects assessment: does scale matter?. *Environmental Impact Assessment Review*, 27(5), 365-385.
- Whiteman, G. (2004). The impact of economic development in James Bay, Canada: the Cree tallymen speak out. *Organization & Environment*, 17(4), 425-448

Preface to Chapter 3

Chapter 2 reviews the performance of CEA in Eeyou Istchee, and outlines the major regulatory and policy constraints that prevent CEA best-practices from being realized in the territory. The lack of existing government regulatory frameworks and programs to support CEAs are a major challenge that will need to be overcome. Chapter 3 builds on these findings and presents an empirical case study assessing the potential for more decentralized collaborative governance approaches to enhance regional wildlife monitoring and long-term regional baseline data collection in support of CEA and management. It further considers the existing system context and drivers for collaboration in the region to identify the feasibility, challenges, and constraints facing the different key regional actors if they are to collaborate in support of common goals.

Chapter 3: Assessing the Potential for Collaborative Governance of Cumulative Effects Assessment in Eeyou Istchee, Canada

Abstract

This paper explores the potential for collaborative governance approaches to support Cumulative Effects Assessment in the Indigenous territory of Eeyou Istchee, located in Northern Quebec, Canada, where a long history of large-scale hydroelectricity development, mining and forestry activities have imposed burdens on the traditional food systems and livelihoods of local indigenous communities. Key concerns include observed changes in wildlife species distribution, migration patterns, population sizes, habitat conditions and behaviour shifts. Such changes have often been attributed to the negative cumulative effects of resource development, directly affecting the hunting and eating habits of the community and potentially hindering traditional economies, lifeways and access to traditional foods. Drawing on key informant interviews with policy actors from government, non-government and private sector organizations working on Environmental Impact Assessment in Eeyou Istchee, this paper explores how more decentralized and collaborative governance approaches might enhance regional wildlife monitoring and baseline data collection in support of CEA and management. The findings suggest that Eeyou Istchee has the foundation to initiate multi-stakeholder collaborative governance in support of CEA. However, in order for this approach to be successful it will be important to pay close attention to both the system context and the drivers for collaboration. Policy implications are discussed and future research directions identified.

Keywords: *Strategic Environmental Assessment; Traditional food systems; Wildlife monitoring; Ecosystem-based management; Regional land-use planning*

3.1 Introduction

Environmental issues are complex, interconnected, and can often be viewed as a collective action problem, where individuals/groups/organizations act primarily according to their own self-interests, which results in burdens being placed on the broader public (Jagers et al., 2019; Kinzig et al., 2013; Buizer et al., 2011; Duit, 2011; Schenck, 2008). There are also recognized mismatches between the institutional and jurisdictional boundaries of government and the

ecological scale and complexity of many environmental problems (Buizer et al., 2011; Bruyninckx, 2009; Folke et al., 2007; Cumming et al., 2006). This can result in a lack of clear responsibilities and inappropriate impact management frameworks for effective environmental management (Buizer et al., 2011; Folke et al., 2007; Cumming et al., 2006). Within environmental management, one of the most complex governance challenges facing society is related to the cumulative effects of human development (Larsen, 2017; Gillingham et al., 2016; Krausman & Harris, 2011; National Research Council, 1995; Spaling, 1994; Contant & Wiggins, 1991). Cumulative Effects Assessment (CEA) examines “*the changes in the environment caused by multiple interactions amongst human activities and natural processes that accumulate across space and time*” (Canadian Council of Ministers of the Environment, 2014).

Within indigenous territories, CEA has proven a challenging and complex type of environmental governance consideration, with the need to include indigenous land rights, traditional land-use, and indigenous self-determination into cumulative effects assessment and management (Larsen, 2017; Tollefson & Wipond, 1998). In practice, many CEAs have not lived up to their full promise of securing indigenous rights and full participation in CEA (Boutilier & Black, 2013; O’Faircheallaigh, 2011; Baker & McLelland, 2003; Tollefson & Wipond, 1998). As stated by Larsen (2017, p. 67) “*despite this connection between CEA and the need to address indigenous peoples’ rights, Impact Assessment in general and CEA governance in particular is most often shaped by inherently disabling institutional conditions that have been shaped by legacies of colonialism and inequality*”. In response, collaborative governance has been identified and suggested as a potential approach to collectively address complex and trans-boundary environmental issues by moving the CEA processes beyond traditional institutional and jurisdictional boundaries into a decentralized consensus-oriented, multi-stakeholder platform (Larsen, 2017; Susskind et al., 2012; Scholz & Stiftel, 2010; Koontz et al., 2004). Collaborative governance approaches have the potential to address structural causes of inequality within environmental impact assessment processes (Larsen, 2017; O’Faircheallaigh, 2011; Howitt, 2003).

In this paper we explore the potential for collaborative governance approaches to support CEA in the indigenous territory of Eeyou Istchee, located in Northern Quebec, Canada, where the need

for more effective CEA to inform development approvals has been identified. Key concerns in this region include observed changes in wildlife species distribution, migration patterns, population sizes, habitat conditions and behaviour shifts. Such changes in wildlife conditions and behaviour have often been attributed to the negative cumulative effects of resource development, directly affecting the hunting and eating habits of the community and potentially hindering traditional economies, lifeways and access to traditional foods (Laforest et al., 2018; Herrmann et al., 2012; Peloquin & Berkes, 2009; Chan et al., 2006). We focus on how more decentralized and collaborative governance approaches might enhance regional wildlife monitoring and long-term regional baseline data collection in support of CEA and management.

3.2 Background

Since 1973, Environmental Impact Assessment (EIA) has been employed in Canada to evaluate and mitigate the negative impacts of proposed development projects before they receive their permits and other approvals (Tinker et al., 2005; Tilleman, 1995; Hunt, 1990). While EIA is generally conducted on a project-by-project basis, in reality each proposed development will interact with other human activities and natural processes occurring in the landscape. It is these overlapping impacts from multiple stressors within a region that are considered individually minor, but can be collectively significant (Foley, 2017; Hegmann, 1999; Lawrence, 1994). In Canada, previous research has identified that project-level EIA's have focused heavily on identifying project-level impacts without adequately considering the cumulative effects on Valued Ecosystem Components (VECs) (Noble, 2011; Duinker & Greig, 2006; Gunn & Spaling et al., 2000; Damman, 1995). This has led to the need for cumulative effects assessment (CEA) (Foley, 2017; Lawrence, 1994; Hegmann, 1999). CEA aims to assess *“the changes in the environment caused by multiple interactions amongst human activities and natural processes that accumulate across space and time”* (Canadian Council of Ministers of the Environment, 2014). CEA can be conducted at the project-level by proponents as part of their project EIAs, and at the regional-level through government-led initiatives (Baxter et al., 2001). Both approaches are considered essential to understand and manage cumulative effects, and ideally complement each other reciprocally: *“a regional approach can set the context of cumulative effects attributable to individual projects...whereas project-specific CEAs should build on the*

regional understanding and suggest in some detail how to manage the cumulative effects” (Baxter et al., 2001, p.260).

While project-level CEA is a required component under most EIA legislation in Canada, the effectiveness of this approach is questionable due to the fundamental mismatches that exist between an individual project proponent’s ability to assess, manage, and predict cumulative effects, and the complex, interactive, regional-nature of cumulative effects (Noble, 2014; Foley, 2017; Morgan, 2012; Baxter et al., 2001). As noted by a proponent, cited in (Bérubé, 2007, p. 107): *“regional authorities are better positioned than the promoter to tackle the problems raised by the mitigation at the cumulative effects level. This issue, which is also related to the sharing of mitigation/monitoring costs of cumulative effects, has not yet been addressed by governmental authorities”*.

Regional CEA is considered a more effective approach than project-level CEA that requires extensive collaboration among stakeholders and CEA leading agencies (Jones, 2010). Regional CEA can help facilitate information collection and data sharing among stakeholders and enhances the collaboration process and relationship building between stakeholders, establishing more appropriate assessment boundaries and regional thresholds. It can also be integrated into regional environmental management frameworks, such as forest, fire, and wildlife management plans, to inform strategic decision-making (Connelly, 2011; Gunn and Noble, 2009; Spaling et al. 2000). However, regional CEA has not been employed in many regions in Canada, mainly due to weak or absent policies and regulatory frameworks, lack of baseline data, and the extensive need for collaboration and communication among diverse stakeholder groups which has proven difficult to organize and sustain (Jones, 2016; Harriman & Noble, 2008).

3.2.1 The Importance of Data in CEA

There are four essential stages in project and regional CEAs (Figure 3.1) that need to be fulfilled: 1) scoping and evaluation of current condition; 2) retrospective analysis of cumulative effects; 3) prospective analysis of cumulative effects; and 4) management measures for cumulative effects mitigation. The CEA scoping and evaluation phase focuses on determining the VECs to be included in CEA, and establishing the temporal and spatial boundaries for the CEA (Gunn & Noble, 2012). The retrospective analysis phase involves establishing trends and analyzing

changes to established VECs over time based on historical conditions (Gunn & Noble, 2012). The prospective analysis phase focuses on predicting the potential VEC responses to the pressures resulting from the proposed projects and other activities in the region and is dependent on the knowledge acquired and foundations established in the scoping and retrospective analysis stages (Gunn & Noble, 2012). Lastly, the management phase completes the CEA process by verifying the predictions through monitoring and establishing follow-up programs aiming to minimize the cumulative effects in the region using an adaptive management approach (Gunn & Noble, 2012).

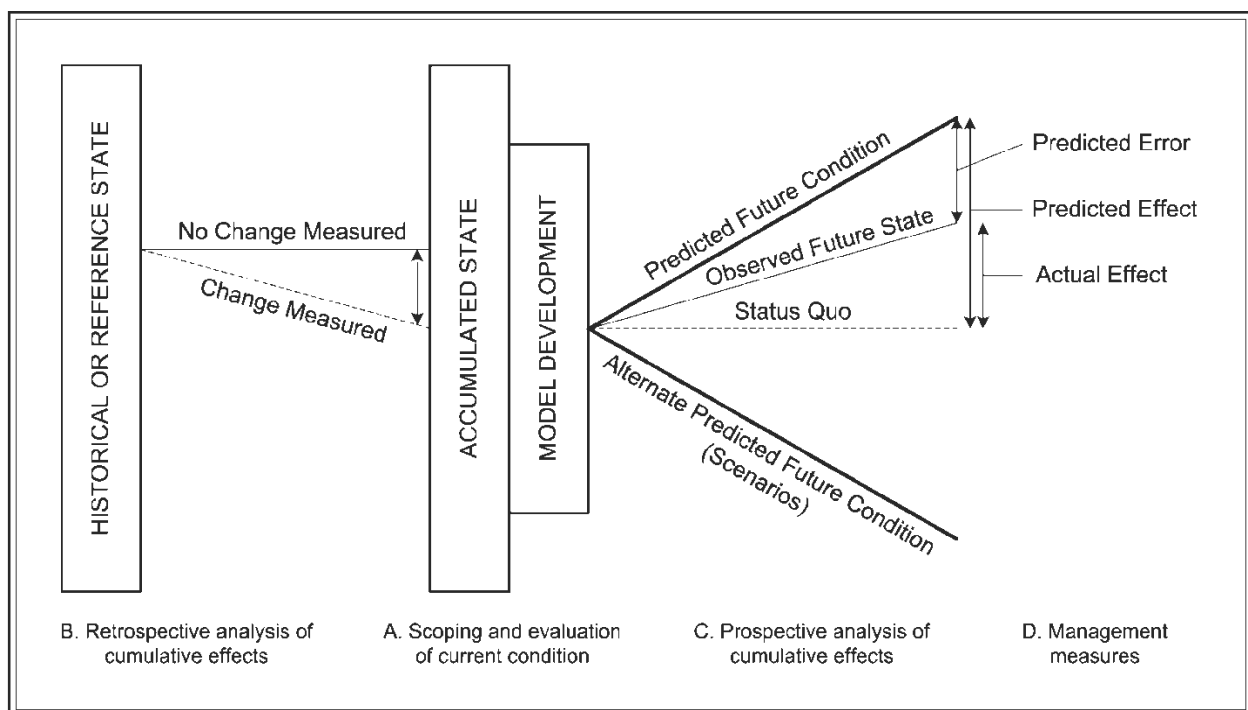


Figure 3.1: Four Essential Stages in CEA (Gunn & Noble, 2012)

Environmental baseline and monitoring data are crucial to support effective CEA at each stage. As suggested in Canada's Cumulative Effects Assessment Practitioners Guide (1999, p.15): *"boundary in the past ideally begins before the effects associated with the action under review and possibly before the effects of most major actions were present. However, in many cases the temporal scope of the CEA is only set when the baseline data is collected and available"* (Hegmann et al., 1999). This lack of sufficient historical baseline data might also lead to shifting baseline syndrome (SBS), where the members of each new generation would assume that the

current environmental conditions are considered normal, as they have no reference points to compare with (Soga & Gaston, 2018). According to Soga and Gaston (2018), SBS can result in increased tolerance for environmental degradation, false vision on the desirable state of the environment, as well as the establishment of inappropriate baselines for environmental management and protection. Baseline data are also important for retrospective and prospective cumulative effects analysis, as they provide important information to understand changes in VEC conditions over time to enable trend analysis and to establish stressor-response relationships that would ultimately contribute to cumulative effects modelling and prediction (Noble, 2015). *Ex-post* monitoring is carried out as part of the follow-up phase in EIA to ensure the development is in compliance with its approval conditions and to gain an understanding of cumulative effects management. The data acquired from *ex-post* monitoring can be used to understand the current environmental conditions, verify the existing knowledge on impact prediction, and to support adaptive environmental management (Weston, 2011; Artiola & Warrick, 2004; Arts et al., 2001).

VEC data are most commonly collected by proponents during project-level EIA monitoring programs and through government-led regional VEC monitoring programs to inform cumulative effects understanding and decision-making (Wong et al., 2019). With respect to VEC data collected by the proponents, for example, the EIA for the Eastmain-1-A Powerhouse and Rupert Diversion (Eastmain 1A) in Eeyou Istchee was able to use the baseline data collected by its own proponent (Hydro-Quebec) on changes to river flows of 34 rivers between 1978 and 2004 to conduct CEA. These data were collected since the initial development of the La-Grande complex and the establishment of the follow-up monitoring programs. The case of Hydro-Quebec is an example of a proponent having enough financial and technical resources to conduct long-term baseline monitoring “in-house”. However, in many other cases, the proponents would also rely on the baseline data collected by other proponents in the region. For example, in the case of the Dominion Diamonds Ekati Mine Corporation’s Jay project in the Northwest Territories, some baseline data sharing practices between different project proponents were noted. The baseline assessment for the Barren-Ground Caribou for the Jay Project used monitoring data from the Ekati Mine, Diavik Mine, Gahcho Kué Project, Snap Lake Mine, and the Government of the Northwest Territories. Government-led regional VEC monitoring programs are also an important source of baseline data for CEA. For example, the Grassy Mountain Coal Project in Alberta uses

information from the North American Breeding Bird Survey, Fish and Wildlife Management Information System, Alberta Conservation Association Aerial Ungulate Surveys, Committee on the Status of Endangered Wildlife in Canada, federal recovery strategies for species at risk, published species habitat use accounts and distribution maps, hunting and trapping statistics, and Treaty 7 First Nations Traditional Use Reports to obtain the existing baseline information on wildlife.

3.2.2 Criteria for Effective Regional Environmental Monitoring Programs

Regional environmental monitoring programs can provide the long-term environmental data essential for effective CEA at both the project and regional-level. Such programs are common in Canada, mainly operating through government agencies or stakeholder collaborations, often involving community groups (Cronmiller & Noble, 2018). For example, in southern Quebec, there are the Québec Marsh Monitoring Program (QCMMP), Ecological Integrity Monitoring Program (EIMP), and the Réseau de surveillance volontaire des lacs (RSVL) (Volunteer Lake-Monitoring Program - VLMP) for wildlife population monitoring in the province. However, some regional monitoring programs have not really lived up to their promise to support CEA due to their sometimes-short-lived nature, lack of program credibility and transparency, and inability to translate the data collected into meaningful results (Cronmiller & Noble, 2018). Five criteria for effective regional monitoring programs have been identified based on previous experiences in Canada (Cronmiller & Noble, 2018; Parkins, 2011; Hegmann and Yarranton, 2011) (Figure 3.2), as follow: 1) clearly defined monitoring objectives and outcomes; 2) compatibility with regional environmental priorities; 3) results should inform policies and management development; 4) programs should build on trust and allow the equal representation of all stakeholder groups; and 5) monitoring should be science-based and allow data sharing and dissemination to the public.

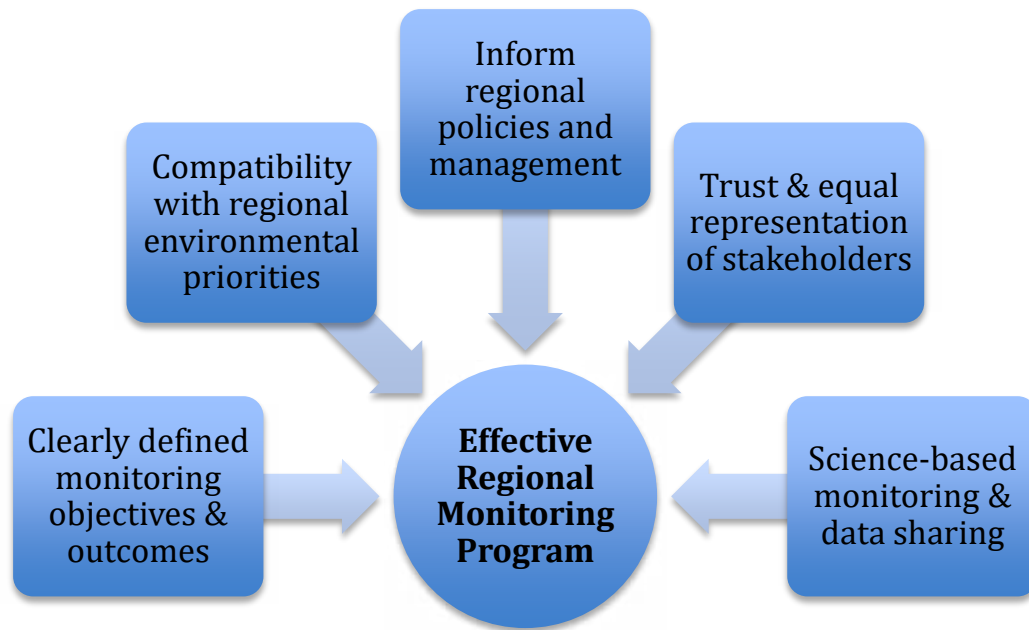


Figure 3.2: Criteria for Effective Regional Monitoring Programs (Cronmiller & Noble, 2018; Parkins, 2011; Hegmann and Yarranton, 2011)

3.2.3 Collaborative Governance as a Trust Building Mechanism

Of these criteria for effective regional monitoring programs, one of the most important to success, and perhaps the most difficult to realize, is related to trust building and the equal representation of stakeholders (Cronmiller & Noble, 2018; Parkins, 2011; Hegmann and Yarranton, 2011).

Without an appropriate level of trust present, key stakeholders may choose to not participate or exit the process, which may result in unbalanced representation in decision making that deepens existing conflicts among stakeholder groups (Cronmiller & Noble, 2018; Emerson et al, 2012). A collaborative governance approach has been increasingly employed as a mechanism for trust-building in the field of natural resource management (Krausman, 2011, Robinson et al., 2020; Rapp, 2020). For example, The Crown of the Continent Managers Partnership (CCMP), the United States Forest Service’s Collaborative Forest Landscape Restoration Program (CFLRP), and the Northwest Territories Cumulative Effects Assessment and Management Framework (NWT CEAMF) all employed a collaborative governance approach to build trust among the key stakeholder and rights holder groups (Krausman, 2011; Schultz et al., 2017; Rapp, 2020).

Compared with more traditional top-down government managed resource management approaches, a collaborative governance approach aims to provide “*processes and structures of*

public policy decision making and management that engage people constructively across the boundaries of public agencies, levels of government, and/or the public, private and civic spheres in order to carry out a public purpose that could not otherwise be accomplished” (Emerson et al., 2012, p.2). Previous research on collaborative governance in resource management contexts reports that most collaborators indicate that the level of trust has increased as the result of collaboration (Rapp, 2020; Wagner & Fernandez-Gimenez, 2008; Levesque et al., 2017; Schultz et al., 2017).

Within collaborative governance scholarship, ‘system context’ is defined as the unique, complex, and interrelated legal, political, socioeconomic, and environmental conditions of a region that would either facilitate or discourage the collaborative governance regime (Emerson et al., 2012; Borrini-Feyerabend, 1996). The connection established between system context and regime can be viewed as a feedback loop, where system context creates opportunities and constraints affecting the initiation and performance of collaborative actions. Conversely, the activities and outcomes generated from collaborations can also reshape the existing system context of the region (Emerson & Nabatchi, 2015). There are five important elements (Ansell & Gash, 2008) of system context: 1) resource conditions; 2) policy and legal frameworks; 3) network connectedness; 4) political dynamics and power relations; and 5) historical levels of conflict. ‘Drivers for collaborative governance’ are viewed as emerging from the system context, and include: 1) leadership; 2) consequential incentives; 3) interdependence; and 4) uncertainty (Emerson & Nabatchi, 2015). The presence of one or more of these drivers are considered essential for collaboration to unfold.

3.3 Study Setting: Eeyou Istchee, Quebec, Canada

Eeyou Istchee James Bay territory (Figure 3.3) is situated between the 49th and 55th parallels of the province of Quebec, with a total area of over 400,000 square kilometers (Cree Nation Government, 2017). Eeyou Istchee has been the traditional territory of the Cree for more than 5,000 years, with a total population of approximately 18,000 people and more than 300 family traplines (Cree Nation Government, 2017). There are nine Cree communities (Chisasibi, Eastmain, Mistissini, Nemaska, Ouje-Bougoumou, Waskaganish, Waswanipi, Wemindji, and Whapmagoostui) residing in Eeyou Istchee. The Grand Council of the Crees represents the Crees

of Eeyou Istchee, and the Cree Nation Government exercises governmental and administrative functions on behalf of the Cree Nation (Cree Nation Government, 2017).

The traditional economic structure of Crees in Eeyou Istchee is a land-based economy centered on hunting, trapping, and fishing, with the food being redistributed and shared within the community through kinship ties (Rodon, 2015). This land-based economy has slowly been transitioning into a mixed economy (wage labour and traditional land-based activities) through a history of fur trading, the emergence of the Canadian welfare state, and the signing of the James Bay Northern Quebec Agreement (JBNQA) (Rodon, 2015). According to the Cree Labour Market Survey in 2008, the employment-to-population ratio in Eeyou Istchee was approximately 62.8% (Cree Labour Market Survey, 2008). The public service and government sectors employed most of the people, accounting for 65.9% of total employment in the region (Cree Labour Market Survey, 2008). Hunting, trapping, and fishing, on the other hand, represented 22.0% of the total employment in Eeyou Istchee (Cree Labour Market Survey, 2008). Although a dietary transition from traditional food to store-bought processed food has occurred in the territory due to the decrease in traditional land-based activities and increases in wage labour, traditional food still makes up more than 50% of the meat and fish consumption in 78% of indigenous households (Gouvernement du Québec, 2015). Traditional food is defined as “*all of the food species that are available to a particular culture from local natural resources and the accepted patterns for their use within that culture*” (Kuhnlein & Chan, 2000). Traditional food provides a healthier food source of iron, vitamin C, and riboflavin, compared to the often highly processed food available in stores, which can be rich in nutritional contents but expensive (Kuhnlein & Chan, 2000). Traditional food also provides significant social, cultural, and spiritual values that are embedded in Cree society through traditional social interaction and activities such as the spring and fall goose hunt, the management of traditional trap lines, and passing knowledge through the generations (Whiteman, 2004). It also helps to maintain the traditional kinship relationship that is unique to the group through the sharing of game meat with the community (Whiteman, 2004). However, recent development within the region has resulted in significant disturbance to traditional food availability, due primarily to the cumulative effects of forestry, mining, infrastructure development, hydroelectricity generation, and hunting (Whiteman, 2004).

It is worth noting that Eeyou Istchee has less regional wildlife monitoring programs compared to other regions of Quebec, resulting in the project-level EIAs relying mainly on the data collected by the proponents in their baseline studies to make decisions. Those baseline studies are often conducted just one or two years prior to project development, which may cause a lack of time-depth in the CEA resulting in underestimation of the project impacts on the regional environment. Developing a regional monitoring network could be an important step towards better assessing and managing the cumulative effects of development on traditional food species in Eeyou Istchee, informing both project and regional-level decision-making. However, due to the high costs associated with regional monitoring programs, such a network would require a wide range of actors from across different sectors to collaborate and share resources in ways that they are presently not. In what follows, we consider the potential for the collaborative governance of cumulative effects assessment in Eeyou Istchee, focusing on the VEC of traditional foods.

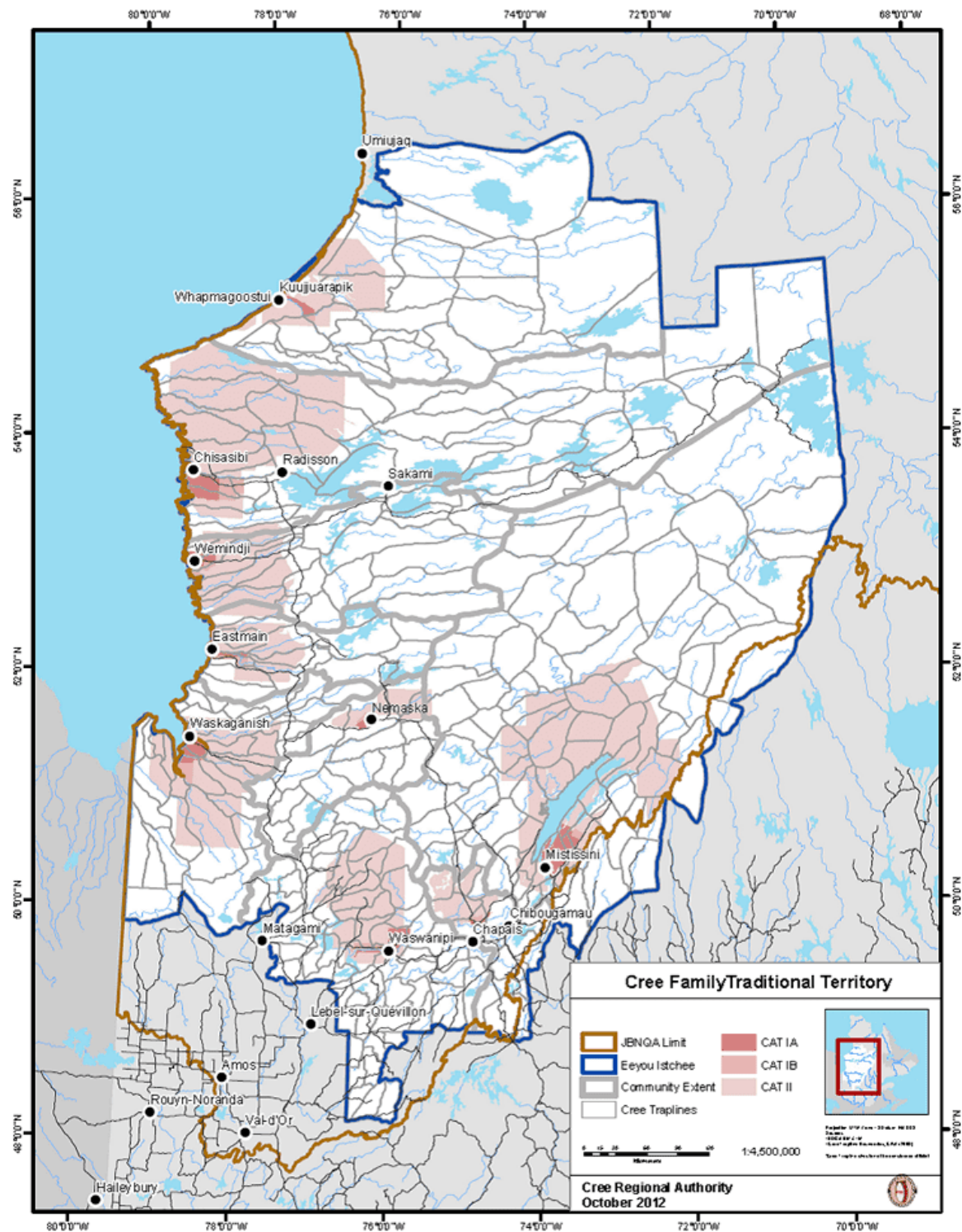


Figure 3.3: Map of Cree Traditional Territories in Eeyou Istchee (map from [https://alchetron.com/Eeyou-Istchee-\(territory\)#eeyou-istchee-territory-8a42c80b-25f6-4c1a-abd6-eeec72a766f8-resize-750.png](https://alchetron.com/Eeyou-Istchee-(territory)#eeyou-istchee-territory-8a42c80b-25f6-4c1a-abd6-eeec72a766f8-resize-750.png))

3.4 Methods

3.4.1 Case Study Research

This research adopts an exploratory, qualitative case study method to evaluate the feasibility of initiating a regional wildlife monitoring program in Eeyou Istchee using a collaborative governance approach. Case study research allowed us to conduct “*an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution, program or system in a ‘real life’ setting*” (Simons, 2009, p. 21). A case study method is considered appropriate when: 1) the study aims to answer “how” and “why” questions; 2) the researcher cannot manipulate the behaviours of those involved in the study; and 3) the contextual condition is believed to be relevant to the phenomenon under study (Baxter & Jack, 2008). An exploratory approach was taken because there is a lack of previous preliminary research on the topic (Hancock & Algozzine, 2017; Yin, 1994).

3.4.2 Data Collection

Primary data were gathered through semi-structured key informant interviews with thirteen professionals working on EIA-related issues from government, industry, and local NGOs following a purposive snowball sampling strategy (Table 3.1). Semi-structured interviews are one of the most used methods in qualitative research (Morris, 2015; Kitchin & Tate, 2000). Clifford et al. (2016, p. 152) state that “*semi-structured interviews are useful for investigating complex behaviors, opinions, and emotions and for collecting information on a diverse range of experiences.*” They are often used when researchers have a rather clear focus on specific issues and are trying to gain a deeper understanding of it through flexible, open, and free-flow conversations with an interviewee who has expertise on the topics (Bryman, 2016). The purposive sampling technique is a type of non-probability sampling where “*the researcher decides what needs to be known and sets out to find people who can and are willing to provide the information by virtue of knowledge or experience*” (Tongco, 2007, p.147; Lewis & Sheppard, 2006; Bernard, 2002). Participants were selected based on their professional role in EIA and CEA in the Eeyou Istchee region and their experiences working in a regional collaborative environment. Our aim was to gain grounded insights into the collaborative environment in Eeyou Istchee based on their professional experiences working within communities to address the

negative impacts of development on traditional food systems. The interview guide covered 11 main research questions along with sub-question prompts (see Appendix 2), grouped into three categories: 1) general background information of the participant; 2) questions on system context of the region; and 3) questions on the drivers for collaborative governance. Restricted probing questions were asked during the interview to gain a more in-depth understanding of the topic and allow any new themes to emerge outside of the collaborative governance theory. All interviews were conducted in English and audio recorded for transcription. Secondary data were gathered through document analysis and literature review, including regional monitoring programs and mandates, government reports, program descriptions, conference papers, and peer reviewed literature. The secondary data were used to inform our understanding of the existing legal and socio-political framework supporting CEA in Eeyou Istchee. All field research protocols were reviewed and approved by the McGill University Research Ethics Board (REB File #: 453-0219) prior to data collection.

3.4.3 Data Analysis

Data collected from semi-structured interviews were initially transcribed into analyzable formats for the next step of analysis and interpretation (Bryman, 2008). A thematic analysis approach was then employed to analyze the data, described as “*a method for identifying, analyzing and reporting patterns (themes) within data*” (Braun & Clarke, 2006, p.79). It involved the search for and identification of common threads that extended across an entire interview or set of interviews (DeSantis & Ugarriza, 2000). The software NVivo was used for thematic analysis following a deductive coding approach where “*themes and codes are pre-selected based on previous literature, previous theories or the specifics of the research question*” (Gale et al., 2013, p.5). Following this approach, an initial coding menu was developed based on the Emerson et al.’s (2012) collaborative governance theory, comprising two general themes: 1) system context; and 2) drivers for collaboration. There are several pre-established categories under *system context*: 1) resource conditions; 2) policy and legal framework; 3) prior failures to address issues; 4) political dynamics and power relations; 5) degree of connectedness within and across existing networks; and 6) levels of conflict and trust. For *drivers for collaboration*, the following pre-established categories were used: 1) leadership; 2) consequential incentives; 3) interdependence; and 4) uncertainty. Interview data were then coded systematically from across the entire data set.

The results were then carefully reviewed to see if the themes worked in relation to the coded extracts and the entire data set, and to see if any new themes emerged (Hsieh & Shannon, 2005).

Table 3.1: Summary of Informant's Groups, Organizations, and Roles

Stakeholder Group	Description of Informant's Organization	Informant's role/position
Government Organizations	A political body that executes the governmental and administrative functions on behalf of the Cree Nation. They oversee Category II lands and support the local Cree administrations which are Category I lands in James Bay	Coordinator
		Analyst
		Advisor
	A committee is mandated to oversee the hunting, fishing, and trapping regime set out in Section 24 of the JBNQA	Secretary
		Analyst
	A tri-party body (CA-QC-Cree) that oversees the environmental and social protection regime for James Bay per Section 22 JBNQA. Mandated to advise the governments on laws, regulations, land-use measures, public consultation, EIA, etc.	Analyst
	A federal environmental protection body	Manager
	A provincial environmental protection body	Analyst
NGOs	An NGO that works with Cree land users and Hydro-Quebec to implement Cree/Hydro-Quebec Agreements. It is also responsible for reviewing and allocating financial resources to meet the needs of the Cree communities.	Director
	An NGO that focuses on wildlife conservation and management.	Coordinator
Industry/Proponent	A government-owned utility company with a significant portion of its operations and hydroelectric generating stations located in Eeyou Istchee.	Advisor
	A mining company operating in Eeyou Istchee on the territory of Mistissini and Chibougamau.	Manager
	A mining company operating in Eeyou Istchee on the territory of Mistissini.	Director

3.4.4 Assumptions, Limitations and Biases

A limitation of this study is the lack of industry proponents in the dataset. Of 25 interview requests sent out, only three proponents responded and were willing to participate in interviews. The lack of representation of this specific group might lead to a limited perspective on the potential effect of collaborative governance in Eeyou Istchee and a less well-rounded analysis (Walker et al., 2016). Another research limitation is related to the used of semi-structured interviews. The underlying assumption is that all the participants would answer the questions honestly and truthfully. In order to ensure that they could express their opinions freely, and to protect them from potentially harming or damaging their relationship with the organization they work for, the participants were guaranteed confidentiality. The interview guide was also pre-tested in order to enhance clarity, reduce potential interviewer biases and mitigate the potential for misunderstanding. Another assumption relevant to this research is that the participants selected for the interviews were qualified to answer the questions being asked. While this is a valid concern, the use of a purposive sampling approach focusing on professionals working on wildlife-related monitoring and CEA in Eeyou Istchee mitigated this potential problem. Another limitation of this research is that there were no interviews conducted with community members in Eeyou Istchee due to the logistics and timing constraints. To address this limitation, interviews were conducted with members from the Cree Trappers' Association (CTA), a not-for-profit organization with responsibilities to protect the interests, desires, and values of the Cree Trappers. The interviews with the CTA provided opportunities to explore some higher-level insights from the local hunters and trappers. We acknowledge the potential for various forms of bias to affect the results and interpretation presented in this paper, particularly researcher and confirmation biases due to our positionality as non-local university social scientists interested in sustainable natural resource governance, and the cultural differences among the various communities included in our study design. These biases involve researchers "seeking or interpreting evidence in ways that are partial to existing beliefs, expectations, or a hypothesis in hand" (Nickerson, 1998, p. 175), and if not addressed can significantly undermine the rigour and credibility of the study. We sought to address these biases through a snowball sampling design, asking open-ended interview questions, following interview best-practices, and verifying the results of the study through peer debriefing and review (Chenail, 2011; Powell et al., 2012; Spall, 1998).

The interview was carefully pre-tested to help us to avoid asking leading questions, ensure appropriate follow-up questions to probe for more information and to maximize clarity for a diverse audience.

3.5 Results

3.5.1 System Context

Understanding the system context of the study region is important to inform the initiation and operation of collaboration. First, it informs the participants about the feasibility and sustainability of cross-boundary collaborations. Secondly, it can be used as an important basis for participants to monitor changes in conditions and adapt to these changes for better collaborative governance (Emerson & Nabatchi, 2015). As previously mentioned, there are five important elements of system context that are applicable in the context of Eeyou Istchee: 1) resource conditions; 2) policy and legal frameworks; 3) network connectedness; 4) political dynamics and power relations; and 5) historical levels of conflict (Ansell & Gash, 2008), each of which is further described using our findings below.

3.5.1.1 Resource conditions – Wildlife Health and Wellbeing

Improving resource conditions is the ultimate baseline problem that collaborative governance aims to solve (Emerson & Nabatchi, 2015). The state of resource condition is considered an essential element when assessing the degrees of incentive for stakeholders to participate in collaborative actions (Emerson et al., 2012; Ostrom, 1990). If a common-pool resource of importance is facing significant challenges or depletion that could affect the stakeholders and/or their use of resources, the stakeholders would likely have a strong incentive to collaborate (Bodin et al., 2016; Emerson & Nabatchi, 2015).

In Eeyou Istchee, the health and wellbeing of wildlife are crucial to multiple stakeholder groups. The indigenous communities rely on wildlife for subsistence consumption and cultural and traditional practices (Whiteman, 2004). The industry proponents need to assess, monitor, and mitigate their project impacts on wildlife to increase the project's social acceptability and conditions for approval. For government organizations, wildlife protection is a key responsibility

in their agendas to ensure the sustainability of the species in the region and sometimes across regions in the trans-boundary context. There are certain wildlife species in Eeyou Istchee that have been identified in government reports, project EIAs, and research as key priorities (Eeyou Marine Region Wildlife Board, 2019). For example, the population of woodland caribou has experienced a sharp decline in Canada and Northern Quebec in the last few decades due to predation, hunting, and landscape transformation from human development (Rudolph et al., 2012; Dennis, 2018). A suite of collaborative actions on population studies, herd management, and conservation plans, as well as scientific and traditional monitoring activities, have emerged in Eeyou Istchee due to the strong concerns from the communities and government bodies over the threatened conditions of woodland caribou (Rudolph et al., 2012; Eeyou Conversation, 2018; Cree Trappers' Association, 2018). Most of our interview participants agreed that collaborative action emerges fairly quickly and actively if the wildlife of interest were experiencing obvious challenges and that this would directly or indirectly impact the interests of stakeholders. Participants also suggested that monitoring for VECs should be selective. It would not be logistically, financially, and technologically feasible to monitor every species in the region over a long period. The selected VECs for regional monitoring would need to reflect the broader concerns of stakeholders and the conditions that need to be improved.

3.5.1.2 Policies and Legal Frameworks

Policy and legal frameworks include a broad set of laws, policies, regulations, and other legal requirements to manage public resources and services, as well as their provisions related to cross-boundary collaborations (Emerson & Nabatchi, 2015; Bryson et al., 2006). In Eeyou Istchee, project proponents conduct the majority of wildlife monitoring programs as part of their project EIAs for baseline, effects, and compliance monitoring. EIA is a highly regulated process that follows the strategic provisions and guidelines outlined in the Acts for impacts assessment. The *Federal Impact Assessment Act (IAA)*, *Quebec's Environmental Quality Act (EQA)*, and the *James Bay Northern Quebec Agreement (JBNQA)* are the three pieces of EIA legislation applicable in Eeyou Istchee at different jurisdictional levels. The IAA provides the legal basis for federal involvement in impact assessment in Canada. Development projects are subjected to IAA if they are described in the *Physical Activities Regulations*, in an order made by the Minister, or if the projects are taking place on federal lands or outside of Canada (IAA, 2019). IAA focuses

on key stakeholder collaborations and public participation to facilitate transparent, open, and informed impact assessment processes at the project, regional, and strategic levels (Government of Canada, 2019). As stated in its purpose statement, the IAA aims to “*promote cooperation and coordinated action between federal and provincial governments, and the federal government and Indigenous governing bodies that are jurisdictions (s.6(e))*”, to “*promote communication and cooperation with Indigenous peoples of Canada with respect to impact assessments (s.6(f))*”, and “*to ensure that opportunities are provided for meaningful public participation during an impact assessment, a regional assessment or a strategic assessment (s.6(1h))*”. Public participation is an important form of collaborative action in EIA to ensure that the local land-users and interested parties are being informed and considered regarding the environmental impacts of the proposed development. Meaningful public participation aims to incorporate public experiences, concerns, and knowledge into the assessment and decision-making processes of EIA (Government of Canada, 2019). Public participation is a mandatory requirement under IAA at the planning phase (s.11; s.14(1); 15(1); 16(2); 18), in the impact assessment process (s.27; 28(1); 28(3.2); 55), and in the regional and strategic assessments (s.99). The Impact Assessment Agency of Canada (referred to as “the Agency”) establishes participant funding programs to provide financial support to facilitate the capacity for public participation (s.75(1)). Aside from legislative provisions outlined in the IAA, the Agency also developed a *Practitioner’s Guide to Federal Impact Assessments under the Impact Assessment Act* (referred to as the “*Practitioner’s Guide*”) that outlines tools and guidance that can be used to facilitate meaningful public participation at each phase of EIA. Indigenous engagement is another critical provision under the IAA, recognizing the embedded constitutional relationship between the Crown and indigenous people of Canada based on the *Constitution Act, 1982* focused on reconciliation. The IAA ensures that indigenous involvement in EIA moves beyond participation, to facilitate interactive cooperation and partnership. Besides regular public participation, the Agency also must consult with indigenous groups that might be affected by the project (s.12) and provide a summary of issues to the proponents that encompasses all concerns identified by indigenous groups (s.14). In the EIA, effects from the projects that might hinder the health, wellbeing, socio-economical, and cultural aspects of indigenous people are required to be identified and assessed carefully (s.22(c, g, i, r, s)). The Minister will also take indigenous peoples’ rights and interests into “careful consideration” in the final decision-making (s.63). For supporting the application and execution

of indigenous engagement and collaboration in the EIA, the *Practitioner's Guide* (1999) outlines some indigenous engagement tools, including an Indigenous Engagement and Partnership Plan, consultation protocols and frameworks for collaboration, and Cooperation Agreements to be included in the EIA process to support the implementation of collaborative activities.

Quebec's EQA establishes the regulatory requirements and procedures respecting EIA for development projects in Quebec (Chapter Q-2 Title I) and Northern Quebec (Chapter Q-2 Title II). The EQA's main objective is to facilitate environmental protection, restoration, and management based on the principle of sustainable development. Title I of the EQA concerns the development projects in Quebec in general. Public participation can be requested to take place in the preparation of the environmental impact statement (EIS) (s.31.3.1) as well as after the EIS is received by the Minister (31.3.5) in the form of public hearings, consultation, and mediation. Through public participation, the impacted groups are able to gain knowledge on the potential impacts associated with the projects, and express their values and concerns to the Minister to be included in decision-making. EIA in Eeyou Istchee follows the regulatory requirements set out under Title II of the EQA: *Provisions Applicable to the James Bay and Northern Quebec Region*. Title II of the EQA, applicable for Northern Quebec, embedded the treaty obligations from the JBNQA into Quebec law and placed a focus on jurisdictional cooperation including both indigenous and non-indigenous bodies in the impact assessment and decision-making process.

The JBNQA is the first comprehensive modern land claim agreement in Canada signed by the Cree and Inuit peoples of Quebec, the governments of Canada and Quebec, the James Bay Development Corporation, the James Bay Energy Corporation, and Hydro-Quebec. Section 22 of the JBNQA outlines the environmental and social protection regimes and EIA procedures that are applicable in Eeyou Istchee. Indigenous participation is an essential element in the JBNQA to ensure that the absence of indigenous consultation from the James Bay Hydroelectric project in 1971 won't happen again in EIA. Section 22 of the JBNQA outlines the general provisions for Cree involvement (s.22.2.4.f) and grants "*a special status and involvement for the Cree people over and above that provided for in procedures involving the general public through consultation or representative mechanisms*" (s.22.2.2.c).

Indigenous representation in assessment agencies is another important provision under Section 22 of the JBNQA. The James Bay Advisory Committee on the Environment (JBACE), the Evaluating Committee (COMEV), and the Review Committee (COMEX) are the three governmental organizations that are responsible for EIA in Eeyou Istchee. The JBACE is a Quebec/Canada/Cree tri-party body that oversees the application of the environmental and social protection regime under the JBNQA in EIA. The JBACE contains thirteen members where four are appointed by the Government, four by the Governor-General in Council, and four others by the Cree Nation Government. The COMEV is a Quebec/Canada/Cree tri-party agency responsible for assessing and developing guidelines for project assessment. There are six members in the COMEV, including two members each appointed by the Government, the Governor-General, and the Cree Nation Government. The COMEX is responsible for reviewing and making the final recommendation of project approval, consisting of three members appointed by the Government and two appointed by the Cree Nation Government. This cross-jurisdictional collaboration allows more effective and transparent indigenous involvement for EIA review and decision-making and allows equal representation of both indigenous and non-indigenous groups (Peterson et. al, 1987; Fitzpatrick & Sinclair, 2009).

3.5.1.3 Network Connectedness

Network connectedness is an essential element under system context to identify the pre-existing networks of the region that the collaborators are part of and the degree of structural embeddedness that can be expected from their experiences (Emerson & Nabatchi, 2015). Density and strength are the two main criteria to evaluate network connectedness (Emerson & Nabatchi, 2015). Density is referred to as the number of direct links established between collaborators, and the strength of the network is the frequency of interactions taking place within networks between collaborators (Emerson & Nabatchi, 2015). If a region has dense networks and stronger ties, collaborations are more likely to be successful and the collaborators would likely collaborate again in the future (Emerson & Nabatchi, 2015).

All of our key informants from government agencies, NGOs, and project proponents indicated that they had been involved in some form of collaboration with other organizations or groups related to environmental issues in Eeyou Istchee. They further identified four main reasons for

their collaboration: 1) fulfillment of their legal obligations; 2) joint knowledge creation and data collection; 3) protection of indigenous rights and interests; and 4) regional environmental studies.

Informants from government agencies explained that they have collaborated with other government agencies, project proponents, indigenous communities, and NGOs for all of these reasons. However, the stakeholder groups they collaborated with under each of the circumstances were very different. For example, in the context of regional environmental studies, government participants reported collaborating with other government organizations, NGOs, and indigenous groups. The project proponents often have fewer incentives to collaborate in that context. However, in the case of fulfillment of legal obligations in EIA, the government agencies were reported to often collaborate with other government agencies, indigenous communities, and industry proponents to ensure that the process follows the provisions set out in the legislation.

“The government agencies have a role to play in ensuring they oversee the assessment and decision-making process and make sure other stakeholders in the process are fulfilling their obligations. The proponents have a role to play in informing the public how the processes are, and the community has a role to play to share with the proponent the community’s perspective. From our experience, the EIA is a pedagogical and collaborative process before anything else.”

(Government Informant)

Participants from NGOs indicated that their main incentives for collaboration are the protection of indigenous rights and interests, and regional environmental protection. They also indicated that there is a lack of collaboration between them and the proponents.

There were three informants from the industry interviewed for this research. One of these proponents represented a large corporation, and the other two were from small-scale companies. All three of these informants indicated that they have collaborated with other stakeholders to fulfill their legal obligations and increase their capacity for knowledge creation and data collection. The key informant from the larger corporation also indicated their company’s involvement in protecting indigenous rights and interests and their collaborative activities on

protection of the regional environment. However, the two smaller companies admitted that they usually do not go beyond their project-level obligations to address regional issues. The lack of incentive to participate is primarily due to the limited time and financial and human capital they possess to conduct those activities. Like the NGO participants, the proponent participants also reported a lack of collaboration taking place between them and the NGOs.

“There is a fundamental mistrust between the industry and the NGOs. I was in an NGO also a few years ago, so I think I see both sides. On the NGO side, sometimes they don’t know or don’t feel that someone in the industry wants to do some things right and improve what they can. On the other hand, the industry feels that the NGOs are only gathering data to catch them.” (Industry Informant)

Proponents felt that collaboration should be free of prejudice. Aside from fulfilling stakeholders’ own objectives, participants should also share a common vision based on mutual trust and goodwill.

“Collaboration is letting people into your circle that you don’t usually have a conversation with to work together to achieve common goals that would otherwise be hard to achieve individually. Good collaboration should be free of prejudice, whether you are representing the government, NGO, or the proponents, we should always acknowledge that we all want the same thing – a clean future for our kids.” (Industry Informant)

3.5.1.4 Political Dynamics and Power Relations

Political dynamics and power relations supporting collaborative governance are rarely distributed equally among collaborators as a result of the intrinsic differences in the political powers, organizational functions, and level of resources possessed by each entity (Ansell and Gash, 2008; Emerson & Nabatchi, 2015). Such power imbalances can discourage or make relevant stakeholder groups withdraw from collaborative processes, and thereby present an incomplete or false picture of consensus-based decision-making and information exchange (Ansell and Gash,

2008; Emerson & Nabatchi, 2015). Collaborative governance therefore requires the potential power imbalances among key stakeholder groups to be recognized, and the design of the collaboration process to facilitate the equal representation of all key groups.

Most of our research participants identified indigenous communities and small companies as being the most vulnerable stakeholder groups in Eeyou Istchee when participating in collaborative actions. Large corporations and government agencies, on the other hand, were reported to have the most significant power in initiating and driving the collaborative process. The power imbalances reported between the stakeholder groups in Eeyou Istchee appeared primarily due to the historical context of conflict, imbalance of financial capital and their incentives to participate in collaborative monitoring activities.

There is currently (2020) no regional regulatory framework or designated funding programs that supports the indigenous communities to begin a monitoring program without requesting approval or financial support from the government agencies or the project proponents. Although indigenous people are in a strong position to provide recommendations to the government and proponents, the process of translating them into actionable items might be very time consuming or not attainable.

“There is only so much financial resource and time we can dedicate as an organization. It is impossible to address all the concerns that were raised to us. We have to prioritize them in a way that is aligned with regional and organizational priorities.” (Government Informant)

Sometimes requests from indigenous communities might take a long time to implement, such that irreversible environmental damage due to development may occur before they are implemented. The case of eelgrass decline in Eeyou Istchee was an often-mentioned example during the interviews by informants from the government and NGOs.

“20 years apart from the project in 1998, the amount of issues we have with this project is not so much at the scientific level, the problem becomes more relational, and people are saying what took you guys so long to address the problem.” (NGO Informant)

Compared to indigenous communities who appeared to have a strong incentive to collaborate with other stakeholders to solve regional environmental issues, smaller companies reported focusing more on how collaboration can help them function at the project-level. They also have fewer financial resources and time dedicated to regional collective action efforts.

3.5.1.5 Historical Levels of Conflict

The history of conflicts between key collaborators affects the level of trust and would hinder the success of initiating future collaborations if left unrepaired (Ansell and Gash, 2008; Emerson & Nabatchi, 2015). Eeyou Istchee experienced significant historical conflicts between the local indigenous communities, the Government of Quebec, and Hydro-Quebec during the development of the James Bay Hydroelectric Project in 1971. The James Bay project raised many pressing environmental issues and concerns related to flooding, habitat destruction and alteration, and mercury accumulation in Crees' traditional land (McGee, 2000; Rosenberg et al., 1995). The Quebec government and Hydro-Quebec did not consult local Cree and Inuit communities despite the fact that they were to be the most directly affected population due to their close relationship with the land (Rodon, 2014). In order to protect their traditional land and preserve their traditional way of living, the Cree and Inuit challenged the development by bringing it to international attention, and later to the Supreme Court of Canada in 1973 (Rodon, 2014). The JBNQA was created as an out-of-court settlement with provisions to support indigenous autonomy and self-governance regimes, and guaranteed Cree communities a special status of involvement in the EIA process. Twenty-five years after the signing of the JBNQA, Cree communities expressed their frustrations with the failure of Quebec and Canada to carry out their treaty commitments to protect the Cree traditional lands against forestry development and the proposed Great Whale River Hydroelectric Project. In 2002, the *“New Relationship Agreement,”* also known as the *Paix des Braves*, was signed between the Cree and Quebec government giving *“more autonomy for the Cree by their assumption of Quebec's responsibilities under the James Bay and Northern Quebec Agreement for Cree economic and*

community development funded through payments by Quebec adjusted to reflect development in Eeyou Istchee” (Cree Nation Government, 2019). The signing of the Federal New Relationship Agreement (2008), Agreement on Governance in the Eeyou Istchee James Bay Territory (2012), Agreement on Cree Nation Governance (2017), and Constitution of the Cree Nation of Eeyou Istchee (2017) provided the Cree with more resources for community and economic development, as well as autonomy over Category IA and II lands. The regulatory provisions outlined in the above legislation can be viewed as conflict resolution mechanisms to repair the relationship between the Cree, federal government, Quebec government, and proponents, by providing a legal basis to ensure the Cree have an equal footing in collaboration and resources management processes.

Most of our key informants reported that their relationship with indigenous communities is getting better as they put more effort into understanding the communities’ needs and concerns, and by placing a greater emphasis on indigenous participation, consultation, and decision-making for environmental matters. One project proponent shared a testimony made by a Cree leader regarding his experiences in the project’s EIA.

“So there is quite a level of participation by the trappers that did not exist prior ... Then, it has existed. And there is a great deal of dialogue between those responsible ... and the Cree tallymen, as well as the Cree communities. It is a relationship that I have never seen before, a very positive one. I am glad that I was a part of it, I am glad that I was able to put that relationship on the map in the North that the Crees can participate with Quebec and with the developers in the North.” (Cree Leader)

As some informants suggested, it is also important for the proponents to remember and acknowledge the past conflicts, and approach the communities with care and respect. The proponents should be extra sensitive to the feelings and needs of the community members. It is also important to communicate the expectations and outcomes of the collaboration in an open and truthful manner, and compensate collaborators fairly.

3.5.2 Drivers of Collaborative Governance

The previously described system context sets the general background for collaborative governance in the region. As previously mentioned, the drivers for collaborative governance emerge from the system context. There are four essential drivers for collaborative governance identified by Emerson & Nabatchi (2015): 1) leadership; 2) consequential incentives; 3) interdependence; and 4) uncertainty. The greater presence of these drivers, the more likely that collaborative governance will successfully initiate.

3.5.2.1 Leadership

Leadership is referred to as the presence of an identified leader who is in the position to initiate, support, and provide resources to maintain a collaborative governance regime (Emerson et al., 2012). There are two main characteristics a leader should possess in order to ensure the success of leading a multi-stakeholder collaboration. First, the leader should be impartial and have a neutral standing towards any particular solutions or participants in the collaboration that might hinder the fairness of the consensus-based collaboration (Emerson et al., 2012; Bryson et al., 2006). Secondly, the leader should be willing to absorb the transaction costs associated with initiating and maintaining the collaboration by providing staff, time, technology, and other resources to ensure the long-term success (Schneider et al., 2003; Emerson et al., 2012).

There was a common agreement among our research participants that government agencies should be the one leading stakeholder collaboration due to their regional nature and the number of available resources they can put towards public participation. Government participants also expressed a willingness to lead the process, but there were political and institutional constraints concerning the actual application of the process.

“A long-term regional monitoring program would require the establishment of a dedicated agency to lead the process. Well, there is no existing agency I could think of that would be able to take on this additional responsibility on top of their existing responsibilities. Moreover, you would not be able to create a new one unless you signed another agreement.

However, it could be possible. Because the Cree, in recent agreements, have created other bodies. Like they created the Cree Quebec forestry board.” (Government Informant)

On the other hand, all participants agreed that proponents should not be the one leading collaboration due to concerns over the proponents’ unique position in EIA and because they may have a different agenda and expect some gains from leading the collaboration. Therefore, it might be challenging for them to stay neutral. On the other hand, project proponents believed that leading regional monitoring collaboration is beyond their responsibilities, and they do not have strong incentives to lead the process or absorb the high transaction costs associated with supporting and maintaining collaborations.

“The approach of the EIA is putting the burden of proof on the proponents. In terms of leading regional cumulative effects monitoring, it does not work. We are willing to participate in the process and follow the developed process and procedures to contribute to regional monitoring efforts. However, it would be hard for us to initiate and lead the process as our resources are being allocated carefully to support our primary business function; any additional cost would be challenging for us to contribute.” (Industry Informant)

3.5.2.2 Consequential Incentives

Consequential incentives for collaboration could come from either positive or negative situations the stakeholders are expecting or experiencing. Stakeholders will have an incentive to collaborate if they expect to gain benefits from the collaboration (funding opportunities, relationship establishment, technical support, etc.), or if the collaboration can relieve them from the burden of crises they are facing (resource constraints, external threats, internal problems, etc.) (Emerson et al., 2012).

Participants from each stakeholder group all expressed a strong incentive to participate in the regional monitoring networks. The participants from government agencies and NGOs reported that a regional collaborative wildlife monitoring network could help them fill the information gap related to species distribution and wildlife wellbeing in the region, for better regional

wildlife conservation and decision making. The proponents' incentive for collaboration was primarily related to their information and technical constraints related to carrying out effective wildlife monitoring practices on their own.

“It is hard to monitor living things like animals. The problem with monitoring living things is that you have to have enough resources or technical expertise to track them using collars or helicopter surveys. As a medium-scale company, it’s not something we would be able to do ourselves as we don’t have the expertise to do that.” (Industry Informant)

Government proponents raised an important issue on the lack of an available framework to integrate monitoring data they do receive from different stakeholder groups with different purposes (project-level monitoring data from EIA, regional scientific research, community-based wildlife monitoring, etc.) into a useable format or style to inform regional wildlife conservation planning and decision making concerning cumulative effects.

“The proponents are willing to share their monitoring data with the government and the communities. We have no problem requesting data. The challenge is to make these data useful. As for now, we do not use those monitoring data to make any regional decisions, we only read the descriptions that came with the data explaining what are the impacts related to the project.” (Government Informant)

3.5.2.3 Interdependence

Interdependence takes place when “*individuals and organizations are unable to accomplish something on their own*” (Emerson et al., 2012). It is a fundamental driver initiating any collaboration, and it is the basis for why a collaborative approach to regional wildlife monitoring to inform cumulative effects assessment warrants consideration in Eeyou Istchee. Indeed, most of our research participants indicated that regional monitoring in Eeyou Istchee could not be carried out without some degree of stakeholder collaboration. Two main reasons emerged from the interviews that indicated why a collaborative approach is necessary: 1) A lack of existing long-term regional monitoring programs and data sharing mechanisms; and 2) the geographical challenges of monitoring wildlife behaviours and movement across the landscape.

Many participants indicated that there is a lack of established long-term regional monitoring programs in the region. Although there are many established long-term monitoring programs conducted by the federal government (generally led by Environment and Climate Change Canada (ECCC)) and the provincial government (generally led by Ministère de l'Environnement et de la Lutte contre les Changements Climatiques (MELCC)) that are committed to wildlife monitoring, the scope of these federal and provincial monitoring programs usually does not cover Eeyou Istchee. Thus, the current monitoring practices in Eeyou Istchee are mainly conducted and overseen by project proponents as part of their baseline studies or compliance monitoring that is required in the project EIA (e.g., Hydro-Quebec). Sometimes the region conducts monitoring on the issues of interest (e.g., spring aerial surveys for caribou), but those monitoring activities tend to be project-based, and most of the monitoring data are not publicly available.

“There are some project-based monitoring programs in the region that I am aware of. However, it is very challenging to obtain and make those data useful as they are being designed to fulfill specific project objectives and not made available to the public. With the absence of a central environmental agency to conduct monitoring, utilizing, and standardizing those already established project monitoring programs and making them talk to each other seems like a more feasible option instead of starting from scratch.”

(Industry Informant)

The geographic challenges of monitoring wildlife behaviours and movements were another commonly mentioned issue by some participants.

“Eeyou Istchee is a vast territory; some regions in Eeyou Istchee are better studied and have more available data than other regions. Environmental data is generally available if the region has development going on. However, when we talk about cumulative impacts on wildlife, we are not only talking about human disturbance, also natural disturbances and climate change. Therefore, we need stakeholders to not only monitor the impacts at

the project-level, but also the overall stress on wildlife, and all stakeholders can contribute something to fill in the regional picture.” (NGO Informant)

3.5.2.4 Uncertainty

Uncertainty is the main feature of wicked problems, meaning the problem is not only a lack of simple solutions, but also sometimes the proposed solutions can be competing, or the effectiveness of the solutions is unknown, which further amplifies the uncertainty (Emerson et al., 2012). Uncertainty is an essential driver for collaboration to reduce, diffuse, and share risks associated with the wicked problem and foster creativity and innovation (Emerson et al., 2012).

All of our participants agreed that cumulative effects are a form of wicked problem because the primary source that causes the effects are not apparent, but rather stem from a series of collective actions combining both human activities and natural processes, and the impacts from individual projects might be individually minor but can be collectively significant. Collaborative wildlife monitoring involving multiple stakeholders from both indigenous and non-indigenous backgrounds allows the monitoring results to be more credible and effective by employing both scientific methods and Traditional Ecological Knowledge (TEK). Some participants highlighted their experiences with how scientific knowledge and TEK can complement each other and give them a fuller picture of what is going on with the wildlife species.

“In one of the projects, we sent biologists to assess fish habitat. Furthermore, in Northern Quebec, the season you can expect is not the same as in Montreal. So the biologists wrote in their report that there is no fish in that body of water. We presented that to the impacted family and the community, and they said no, this river is full of fish. One of the elders explained to us: “well, because the biologist came much too soon.” So we had to go back when they told us the fish would be there, and there were plenty of fish at that time. So traditional knowledge from people who walk the land every day, it has a value that is at least if not more equal to the science that we use. To me, they complement one another.” (Industry Informant)

Some proponents also suggested that collaborative governance in wildlife monitoring can also be an excellent platform to initiate discussions on the impacts and the changes in animal behaviours that are found during the monitoring activities, as those changes in behaviours might mean different things to different actors. Without an interactive dialogue between different policy actors talking about what those changes mean to them, the monitors are only presenting their own point of view, and sometimes their views are not culturally or socially sensitive to other groups.

“A lot of the time, project proponents and indigenous groups are having the same values in terms of what is an effective mitigation measure. However, sometimes, it can also be conflicting. One example I have is that in one mining site, wildlife is being attracted to the mine site because of the re-vegetation. From the proponent’s perspective, this was great; they have a minimal impact because the habitat is being restored. But from the Cree’s point of view, it was bad because this is where the industry is, and they don’t want animals to go there and feed off the grass that’s being planted by the industry right next to the mine.” (Government Informant)

Table 3.2 Summary of the Research Findings on Initiating Collaborative Governance

Collaborative Governance	Evaluation Criteria	Status	Summary
System Context	Resource conditions	Present	All participants agree that the wellbeing of wildlife is crucial to them.
	Policies and legal frameworks	Partially present	The existing policies and regulations mainly focus on inter-governmental/jurisdictional/indigenous collaboration. There is a lack of strategic guidance on involving NGOs and proponents in collaborations.
	Network connectedness	Partially present	Some existing connections were established between the government, indigenous groups, and NGOs. Proponents often feel themselves to be an “outsider” in collaborations.
	Political dynamics and power relations	Absent	There is an inherent resource imbalance existing within the region. Resource holders have the upper-hand (government and proponents) in collaborations for setting research goals and agendas.
	Historical levels of conflict	Partially present and improving	Most stakeholders have positive experiences in their recent collaborations. Historical conflicts need to be acknowledged and taken into consideration through the collaboration process.
Drivers of Collaborative Governance	Leadership	Partially present	There is a general consensus among stakeholders that the government should lead collaborations. There may be some practical constraints (human capital, financial, priorities, etc.) in the actual implementation.
	Consequential Incentives	Present	All participants expressed their interest towards collaboration. Making the results accessible and useful to all stakeholders is an important incentive booster identified by the stakeholders.
	Interdependence	Present	All stakeholders agree that collective data collection and sharing can help to address the geographic challenges.
	Uncertainty	Present	All stakeholders agree that collaboration is good at addressing “wicked problems”.

3.6 Discussion

Our findings suggest that there is an adequate foundation for collaborative governance to initiate in Eeyou Istchee. Out of nine essential criteria for collaborative governance, four were broadly assessed as fulfilled (resource conditions, consequential incentives, interdependence, and uncertainty), four criteria as partially fulfilled (policies and legal frameworks, network connectedness, historical level of conflicts, and leadership), and only one criterion (political dynamic and power relations) assessed as missing.

Several major challenges to employing a collaborative governance approach to establishing a regional wildlife monitoring network in Eeyou Istchee were identified. First, the absence of essential supporting programs (land-use plans, regional environmental frameworks, SEA, leading monitoring agencies, designated funding) for collaboration and monitoring data integration was a major challenge for both initiating collaborative governance as well as for the usefulness of any regional monitoring program that might be established. As summarized in section 3.2.2, effective long-term monitoring programs should have clearly defined monitoring objectives and compatibility with regional environmental priorities. The results of the monitoring program would need to be able to be integrated into a regional environmental framework to meaningfully inform policies and management plans. The absence of essential supporting programs for regional monitoring likely hinders the usefulness of the data collected through the monitoring network and imposes challenges for policy actors to identify regional priorities and secure funding to ensure the long-term objectives of the network. The lack of essential supporting programs might also hinder the success of the collaborative process. For example, some proponents expressed their concerns related to not wanting the collaborative process to be too complicated or time-consuming. They were more interested in carrying out their primary duty of wildlife monitoring, rather than conducting lengthy background work to come up with an integrated regional environmental framework. Therefore, the lack of essential supporting programs might make some actors have less incentive to participate.

Second, participants from proponent organizations expressed their concerns about collaborating with NGOs, which would weaken the overall connectedness of the governance network. The concerns raised by proponents who worked with NGOs are related to the potential consequences

of NGOs interpreting data against them, and some proponents believing that the NGOs have the upper hand in the collaborative relationship, which would make them more of an evidence collector rather than a collaborator. It will therefore be important to address this potential source of conflict or misunderstanding between proponents and NGOs at the earliest establishment of any long-term monitoring network to avoid either of the groups withdrawing. There is also a major concern related to the resource imbalance among different actors. The imbalance of financial resources and the power to influence political priorities are some issues to be considered when engaging in multi-actor network collaborations.

Third, all of the stakeholder groups we interviewed expressed their willingness to collaborate to improve the overall regional environmental conditions and to generate long-term data that could enable them to gain knowledge on wildlife population and distribution. Aside from their primary goal, each stakeholder group also has specific goals they want to achieve through collaboration. For example, project proponents indicated that they prefer not to duplicate their monitoring effort and hope the data collected by or from other organizations would be made available to them for use as well. They would be more willing to participate if a monitoring network had clear and straightforward instructions (set indicators, techniques, procedures, etc.), and preferably if responsibility could be integrated into what they are already doing in their compliance monitoring, or vice versa. The proponents we interviewed also wanted the information generated from the monitoring network to be useful and available to them for other future uses. Integrating stakeholders' incentives into the goal of the network can be challenging, but they must be considered in the design to provide efficient, accessible, and useful experiences and outcomes to different groups.

Future efforts to establish and operationalize important collaborative governance and regional monitoring supporting functions, such as land and resource-use plans, Strategic Environmental Assessment procedures and regional environmental frameworks would be beneficial for addressing cumulative effects. For example, although the Agreement on Governance in the Eeyou Istchee James Bay Territory between the Crees of Eeyou Istchee and the Government of Quebec provides a legal basis for establishing regional planning committees and land-use plans, there are still no land-use plans available for the region (2020), making the outcomes of any

regional monitoring network less significant and tangible. Long-term baseline data availability is another crucial element to establish trends for CEA. In the James Bay Territory, much of the monitoring data are privately owned and requires a fee to access. Lack of open-access monitoring data may discourage some project proponents and governments from conducting trend analyses for CEA. Supporting the availability of open-access monitoring data is therefore potentially a good starting point to also increase data availability to the public. An example of this approach can be found in the Northwest Territories (NWT), Canada, through the creation of an online NWT Discovery Portal and the Mackenzie DataStream under the NWT Cumulative Effects Monitoring Program (NWT CEMP).

3.7 Conclusion

Regional monitoring programs provide continuous long-term baseline data that is essential for effective CEA and wildlife management. Developing a regional monitoring network will be necessary for Eeyou Istchee to address the cumulative effects of development on traditional food systems at a regional level. However, the process of developing such a network will likely be difficult, requiring plenty of resources, time, communication and human capital from different stakeholder groups working together. It is important to better understand if the current conditions in Eeyou Istchee could support regional monitoring programs based on decentralized multi-stakeholder collaboration network structures.

While exploratory, our findings suggest that the Eeyou Istchee region has the potential to initiate a regional wildlife monitoring network involving federal, provincial, and indigenous government agencies, project proponents, indigenous communities, and NGOs through a collaborative governance approach. However, there appear to be constraints that would first need to be addressed to increase the chance of success. These can be categorized as either constraints that can be addressed within the collaboration process, or those that cannot. For the constraints that can be addressed within the process (a lack of trust between certain actors, challenges with integrating stakeholder individual incentives into common goals, a lack of data sharing common practices), the collaboration process would benefit from actively engaging with the various policy actors to come up with solutions in an interactive and consent-based way, and to engage them in these discussions as soon as possible. For the constraints that cannot be addressed within

the collaborative process (lacking an established regional environmental framework, the absence of land-use plans, a lack of funding programs), a more practical recommendation could be that the manager of the collaborative network begin expressing their concerns and creating coalitions to advocate for change to the appropriate bodies in order to make them aware of the need for regional action. Based on the findings of this case study, further research on, and experimentation with, collaborative governance approaches to cumulative effects assessment and wildlife management would be valuable in the context of traditional food systems.

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3.9 References

- Ansell, C., & Gash, A. (2008). Collaborative governance in theory and practice. *Journal of public administration research and theory*, 18(4), 543-571.
- Artiola, J. F., & Warrick, A. W. (2004). Sampling and data quality objectives for environmental monitoring. In *Environmental Monitoring and Characterization* (pp. 11-27). Elsevier Inc.
- Arts, J., Caldwell, P., & Morrison-Saunders, A. (2001). Environmental impact assessment follow-up: good practice and future directions—findings from a workshop at the IAIA 2000 conference. *Impact assessment and project appraisal*, 19(3), 175-185.
- Baker, D. C., & McLelland, J. N. (2003). Evaluating the effectiveness of British Columbia's environmental assessment process for first nations' participation in mining development. *Environmental Impact Assessment Review*, 23(5), 581-603.
- Baxter, W., Ross, W. A., & Spaling, H. (2001). Improving the practice of cumulative effects assessment in Canada. *Impact Assessment and Project Appraisal*, 19(4), 253-262.
- Bernard, H. R. (2017). *Research methods in anthropology: Qualitative and quantitative approaches*. Rowman & Littlefield.
- Bérubé, M. (2007). Cumulative effects assessments at Hydro-Québec: what have we learned?. *Impact Assessment and Project Appraisal*, 25(2), 101-109.
- Bodin, Ö., Robins, G., McAllister, R. R., Guerrero, A. M., Crona, B., Tengö, M., & Lubell, M. (2016). Theorizing benefits and constraints in collaborative environmental governance: a

- transdisciplinary social-ecological network approach for empirical investigations. *Ecology and Society*, 21(1).
- Booth, A. L., & Skelton, N. W. (2011). Industry and government perspectives on First Nations' participation in the British Columbia environmental assessment process. *Environmental Impact Assessment Review*, 31(3), 216-225.
- Borrini-Feyerabend, G. (1996). *Collaborative management of protected areas: Tailoring the approach to the context*. Gland: IUCN-The World Conservation Union.
- Boutilier, R. G., & Black, L. (2013). Legitimizing industry and multi-sectoral regulation of cumulative impacts: A comparison of mining and energy development in Athabasca, Canada and the Hunter Valley, Australia. *Resources Policy*, 38(4), 696-703.
- Bruyninckx, H. (2009). Environmental evaluation practices and the issue of scale. *New Directions for Evaluation*, 2009(122), 31-39.
- Bryman, A. (2016). *Social research methods*. Oxford university press.
- Bryson, J. M., Crosby, B. C., & Stone, M. M. (2006). The design and implementation of Cross-Sector collaborations: Propositions from the literature. *Public administration review*, 66, 44-55.
- Buizer, M., Arts, B., & Kok, K. (2011). Governance, scale and the environment: the importance of recognizing knowledge claims in transdisciplinary arenas. *Ecology and society*, 16(1).
- Canadian Environmental Assessment Agency (CEAA). (2014). Draft technical guidance for assessing cumulative environmental effects under the Canadian Environmental Assessment Act, 2012.
- Chenail, R. J. (2011). Interviewing the investigator: Strategies for addressing instrumentation and researcher bias concerns in qualitative research. *Qualitative Report*, 16(1), 255-262.
- Clifford, N., Cope, M., Gillespie, T., & French, S. (Eds.). (2016). *Key methods in geography*. Sage.
- Connelly, R. B. (2011). Canadian and international EIA frameworks as they apply to cumulative effects. *Environmental Impact Assessment Review*, 31(5), 453-456.
- Contant, C. K., & Wiggins, L. L. (1991). Defining and analyzing cumulative environmental impacts. *Environmental Impact Assessment Review*, 11(4), 297-309.
- Cree Labour Market Survey. (2008). *Nine Cree Communities of Eeyou Istchee Statistical Profile*. https://acee-ceaa.gc.ca/5D97CA58-docs/statistical_profile_2008-eng.pdf
- Cree Nation Government. (2017). *The Eeyou of Eeyou Istchee*. <https://www.cngov.ca/community-culture/communities>
- Cronmiller, J. G., & Noble, B. F. (2018). The discontinuity of environmental effects monitoring in the Lower Athabasca region of Alberta, Canada: institutional challenges to long-term monitoring and cumulative effects management. *Environmental Reviews*, 26(2), 169-180.
- Cumming, G. S., Cumming, D. H., & Redman, C. L. (2006). Scale mismatches in social-ecological systems: causes, consequences, and solutions. *Ecology and society*, 11(1).
- Dennis, R. (2018). Science, Conservation, and Indigenous Rights: The Political Ecology of the George River Caribou Herd.
- Dipper, B. (1998). Monitoring and post-auditing in environmental impact assessment: a review. *Journal of Environmental Planning and Management*, 41(6), 731-747.
- Duit, A. (2011). Patterns of environmental collective action: Some cross-national findings. *Political Studies*, 59(4), 900-920.
- Emerson, K., & Nabatchi, T. (2015). *Collaborative governance regimes*. Georgetown University Press.

- Emerson, K., Nabatchi, T., & Balogh, S. (2012). An integrative framework for collaborative governance. *Journal of public administration research and theory*, 22(1), 1-29.
- Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International journal of qualitative methods*, 5(1), 80-92.
- Fitzpatrick, P., & Sinclair, A. J. (2009). Multi-jurisdictional environmental impact assessment: Canadian experiences. *Environmental Impact Assessment Review*, 29(4), 252-260.
- Foley, M. M., Mease, L. A., Martone, R. G., Prahl, E. E., Morrison, T. H., Murray, C. C., & Wojcik, D. (2017). The challenges and opportunities in cumulative effects assessment. *Environmental Impact Assessment Review*, 62, 122-134.
- Folke, C., Pritchard Jr, L., Berkes, F., Colding, J., & Svedin, U. (2007). The problem of fit between ecosystems and institutions: ten years later. *Ecology and society*, 12(1).
- Galletta, A. (2013). *Mastering the semi-structured interview and beyond: From research design to analysis and publication* (Vol. 18). NYU press.
- Gillingham, M. P., Halseth, G. R., Johnson, C. J., & Parkes, M. W. (Eds.). (2016). *The integration imperative: Cumulative environmental, community and health effects of multiple natural resource developments*. Springer.
- Gouvernement du Québec. (2010). *The Diet of Quebec First Nations and Inuit Peoples*. https://www.inspq.qc.ca/pdf/publications/2065_diet_first_nations_inuits.pdf
- Gunn, J., & Noble, B. F. (2012). Critical review of the cumulative effects assessment undertaken by Manitoba Hydro for the Bipole III project. *Prepared for the Public Interest Law Centre, Winnipeg, MB*.
- Hancock, D. R., & Algozzine, B. (2017). *Doing case study research: A practical guide for beginning researchers*. Teachers College Press.
- Harriman, J. A., & Noble, B. F. (2008). Characterizing project and strategic approaches to regional cumulative effects assessment in Canada. *Journal of environmental assessment policy and management*, 10(01), 25-50.
- Hegmann, G., & Yarranton, G. T. (2011). Alchemy to reason: effective use of cumulative effects assessment in resource management. *Environmental impact assessment review*, 31(5), 484-490.
- Hegmann, G., Cocklin, C., Creasey, R., Dupuis, S., Kennedy, A., Kingsley, L., ... & Stalker, D. (1999). *Cumulative effects assessment practitioners guide*. Canada: the Canadian.
- Howitt, R. (2003). Local and non-specialist participation in impact assessment. In *Strategic management of environmental and socio-economic Issues: a handbook= Huan jing yu she hui jing ji wen ti de zhan lue guan li* (pp. 27-36). Gui zhou ke ji chu ban she.
- Hunt, C. D. (1990). A Note on Environmental Impact Assessment in Canada. *Envtl. L.*, 20, 789.
- Jagers, Sverker C., Niklas Harring, Åsa Löfgren, Martin Sjöstedt, Francisco Alpizar, Bengt Brölde, David Langlet et al. "On the preconditions for large-scale collective action." *Ambio* 49, no. 7 (2020): 1282-1296.
- Jones, F. C. (2016). Cumulative effects assessment: theoretical underpinnings and big problems. *Environmental Reviews*, 24(2), 187-204.
- Kinzig, A. P., Ehrlich, P. R., Alston, L. J., Arrow, K., Barrett, S., Buchman, T. G., ... & Ostrom, E. (2013). Social norms and global environmental challenges: the complex interaction of behaviors, values, and policy. *BioScience*, 63(3), 164-175.
- Kitchin, R., & Tate, N. (2013). *Conducting research in human geography: theory, methodology and practice*. Routledge.

- Koontz, T. M., & Johnson, E. M. (2004). One size does not fit all: Matching breadth of stakeholder participation to watershed group accomplishments. *Policy Sciences*, 37(2), 185-204.
- Krausman, P. R., & Harris, L. K. (Eds.). (2011). *Cumulative effects in wildlife management: impact mitigation*. CRC Press.
- Kress, N. (2019). *Marine Impacts of Seawater Desalination: Science, Management, and Policy*. Elsevier.
- Kubo, B. M., Were, J. O., & Wetang'ula, G. N. (2009). Environmental baseline studies for geothermal developments. *short Course IV on Exploration for Geothermal Resources, organized by UNU-GTP, KenGen and GDC, at Lake Naivasha, Kenya*.
- Kuhnlein, H. V., & Chan, H. M. (2000). Environment and contaminants in traditional food systems of northern indigenous peoples. *Annual review of nutrition*, 20(1), 595-626.
- Larsen, R. K., Raitio, K., Stinnerbom, M., & Wik-Karlsson, J. (2017). Sami-state collaboration in the governance of cumulative effects assessment: A critical action research approach. *Environmental Impact Assessment Review*, 64, 67-76.
- Levesque, V. R., Calhoun, A. J., Bell, K. P., & Johnson, T. R. (2017). Turning contention into collaboration: engaging power, trust, and learning in collaborative networks. *Society & Natural Resources*, 30(2), 245-260.
- Lewis, J. L., & Sheppard, S. R. (2006). Culture and communication: can landscape visualization improve forest management consultation with indigenous communities?. *Landscape and Urban Planning*, 77(3), 291-313.
- MacDonald, L. H. (2000). Evaluating and managing cumulative effects: process and constraints. *Environmental management*, 26(3), 299-315.
- Morgan, R. K. (2012). Environmental impact assessment: the state of the art. *Impact assessment and project appraisal*, 30(1), 5-14.
- Morris, A. (2015). *A practical introduction to in-depth interviewing*. Sage.
- National Research Council. (1995). *Science, policy, and the coast: Improving decision making*. National Academies Press.
- Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. *Review of general psychology*, 2(2), 175-220.
- Noble, B. F. (2014). *Cumulative environmental effects and the tyranny of small decisions: Towards meaningful cumulative effects assessment and management*. Natural Resources and Environmental Studies Institute, University of Northern British Columbia.
- O'Faircheallaigh, C. (2011). Social impact assessment and Indigenous social development. In *New Directions in Social Impact Assessment*. Edward Elgar Publishing.
- Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge university press.
- Parkins, J. R. (2011). Deliberative democracy, institution building, and the pragmatics of cumulative effects assessment. *Ecology and Society*, 16(3).
- Powell, M. B., Hughes-Scholes, C. H., & Sharman, S. J. (2012). Skill in interviewing reduces confirmation bias. *Journal of Investigative Psychology and Offender Profiling*, 9(2), 126-134.
- Prakash, A., & Potoski, M. (2007). Collective action through voluntary environmental programs: A club theory perspective. *Policy Studies Journal*, 35(4), 773-792.
- Rapp, C. (2020). Hypothesis and Theory: Collaborative Governance, Natural Resource Management, and the Trust Environment. *Frontiers in Communication*, 5, 28.

- Ritchie, J., & Spencer, L. (2002). Qualitative data analysis for applied policy research. *The qualitative researcher's companion*, 573(2002), 305-29.
- Robinson, T., Kern, M., Sero, R., & Thomas, C. W. (2020). How collaborative governance practitioners can assess the effectiveness of collaborative environmental governance, while also evaluating their own services. *Society & Natural Resources*, 33(4), 524-537.
- Rodon, T. (2014). From Nouveau-Québec to Nunavik and Eeyou Istchee: The Political Economy of Northern Québec. *Northern Review*, (38).
- Rudolph, T. D., Drapeau, P., St-Laurent, M. H., & Imbeau, L. (2012). Status of woodland caribou (*Rangifer tarandus caribou*) in the James Bay region of northern Quebec. Scientific report presented to the Ministère des Ressources Naturelles et de la Faune du Québec and the Grand Council of the Crees (Eeyou Istchee). Montreal, QC.
- Sadar, M. H., & Stolte, W. J. (1996). An overview of the Canadian experience in environmental impact assessment (EIA). *Impact Assessment*, 14(2), 215-228.
- Schenck, L. (2008). Climate Change Crisis-Struggling for Worldwide Collective Action. *Colo. J. Int'l Envtl. L. & Pol'y*, 19, 319.
- Schneider, M., Scholz, J., Lubell, M., Mindruta, D., & Edwardsen, M. (2003). Building consensual institutions: networks and the National Estuary Program. *American journal of political science*, 47(1), 143-158.
- Scholz, J. T., & Stiftel, B. (Eds.). (2010). *Adaptive governance and water conflict: New institutions for collaborative planning*. Routledge.
- Schultz, C. A., McIntyre, K. B., Cyphers, L., Ellison, A., Kooistra, C., & Moseley, C. (2017). Strategies for success under Forest Service restoration initiatives.
- Simons, H. (2009). *Case study research in practice*. SAGE publications.
- Soga, M., & Gaston, K. J. (2018). Shifting baseline syndrome: causes, consequences, and implications. *Frontiers in Ecology and the Environment*, 16(4), 222-230.
- Spaling, H. (1994). Cumulative effects assessment: concepts and principles. *Impact Assessment*, 12(3), 231-251.
- Spall, S. (1998). Peer debriefing in qualitative research: Emerging operational models. *Qualitative inquiry*, 4(2), 280-292.
- Susskind, L., Camacho, A. E., & Schenk, T. (2012). A critical assessment of collaborative adaptive management in practice. *Journal of Applied Ecology*, 49(1), 47-51.
- Tilleman, W. A. (1995). Public participation in the environmental impact assessment process: A comparative study of impact assessment in Canada, the United States and the European community. *Colum. J. Transnat'l L.*, 33, 337.
- Tinker, L., Cobb, D., Bond, A., & Cashmore, M. (2005). Impact mitigation in environmental impact assessment: paper promises or the basis of consent conditions?. *Impact Assessment and Project Appraisal*, 23(4), 265-280.
- Tollefson, C., & Wipond, K. (1998). Cumulative environmental impacts and aboriginal rights. *Environmental Impact Assessment Review*, 18(4), 371-390.
- Tongco, M. D. C. (2007). Purposive sampling as a tool for informant selection. *Ethnobotany Research and applications*, 5, 147-158.
- Wagner, C. L., & Fernandez-Gimenez, M. E. (2008). Does community-based collaborative resource management increase social capital?. *Society and Natural Resources*, 21(4), 324-344.
- Walker, R. C., Howard, K., Morton, R. L., Palmer, S. C., Marshall, M. R., & Tong, A. (2016). Patient and caregiver values, beliefs and experiences when considering home dialysis as a

- treatment option: a semi-structured interview study. *Nephrology Dialysis Transplantation*, 31(1), 133-141.
- Weston, S. (2011). An overview of environmental monitoring and its significance in resource and environmental management. *School of Resource and Environmental Studies, Dalhousie University*.
- Whiteman, G. (2004). The impact of economic development in James Bay, Canada: the Cree tallymen speak out. *Organization & Environment*, 17(4), 425-448.
- Wong, L., Noble, B., & Hanna, K. (2019). Water Quality Monitoring to Support Cumulative Effects Assessment and Decision Making in the Mackenzie Valley, Northwest Territories, Canada. *Integrated Environmental Assessment and Management*, 15(6), 988-999.
- Yin Robert, K. (1994). Case study research: design and methods. *Sage Publications*.

Chapter 4: General Conclusion

4.1 Key Findings

This dissertation presents novel findings of relevance to understanding the challenges and opportunities for enhancing cumulative effects assessment (CEA) in Eeyou Istchee, with a particular focus on wildlife-specific Valued Ecosystem Components (VECs). The results of the literature and policy review on the performance of CEA and the associated regulatory frameworks supporting CEA in Eeyou Istchee identifies the following issues of relevance to decision makers: 1) insufficient instructions on CEA in project directives; 2) lack of baseline data and in-depth trend analysis; 3) absent or weak CEA monitoring programs; 4) insufficient CEA considerations on project approval; 5) and difficulties for the proponents to predict future development scenarios (Noble, 2016; Bérubé, 2007). A number of CEA supporting factors are also identified as missing, including: land-use plans, regional monitoring programs, and SEAs that are likely to hinder the effectiveness of CEA in the region.

The case study analysis builds on these findings, honing in on the need for workable long-term regional wildlife monitoring programs to support baseline data collection and inform CEA in Eeyou Istchee. Recognizing the organizational challenges and resource constraints facing different policy actors with a stake in wildlife management in the region, the potential for a wildlife monitoring network to be initiated based on decentralized and voluntary collaboration is explored. Drawing on the concept of collaborative governance, the results suggest that Eeyou Istchee has an adequate foundation for multi-stakeholder collaborations to be successfully initiated in the context of wildlife monitoring, with most of the criteria for collaboration found to be present to some degree. Several constraints are also identified, including those that can be addressed within the collaborative process (a lack of trust between certain actors, challenges with integrating stakeholder individual incentives into common goals, a lack of data sharing common practices, etc.) and those that cannot be addressed within the collaborative process (lacking an established regional environmental framework, the absence of land-use plans, a lack of funding programs). Based on these findings, the following suggestions for policy and research attention are discussed.

4.2 General Discussion

Based on the literature and policy review, four potential areas for future improvement have emerged: 1) establishing operational priorities; 2) improving instructions on projective directives; 3) building capacity for regional monitoring programs; and 4) promoting open access to data exchange and sharing.

4.2.1 Establishing Operational Priorities

Many CEA-related supporting functions (e.g., Strategic Environmental Assessment, regional monitoring programs, and land-use plans) are not being operationalized in the region.

Some of the important CEA-related supporting functions (e.g., cumulative effects monitoring programs, land use-plans, SEA) are not yet in operation within the region. The absence of CEA-related supporting functions may hinder the effectiveness of any future CEA efforts. For example, one of the major challenges related to CEA in the James Bay Territory is the absence of established cumulative effects thresholds. The best way to address this issue is through the development of regional land-use plans (Hegmann et al. 1999). Although the Agreement on Governance in the Eeyou Istchee James Bay Territory between the Crees of Eeyou Istchee and the Gouvernement du Québec provides a legal basis for establishing regional planning committees and land-use plans, there are still no land-use plans available for the region making the establishment of regional thresholds a long-term issue. It is understandable that the operationalization of programs and plans requires a considerable amount of time and resources to become operational. Therefore, it is likely to be important to prioritize these activities in a strategic way such that the elements that are essential to support regional CEA development are included in the near-term political agenda.

4.2.2 Improving Instructions on Project Directives

The CEA is as good as the project directives - the proponent rarely exceeded the scope of the requirements.

“Faced with the current reality of tight business margins and public fiscal restraint, proponents generally do only what they must in EIA to get a favorable regulatory decision” (Duinker and Greig, 2006). As a result, the project proponents in Eeyou Istchee usually have very little

incentive to go beyond what is required in an EIA. Project directives, therefore, can be used as an important tool to facilitate better project-level CEA practices by incorporating CEA best-practice elements (e.g., requesting appropriate temporal and spatial boundaries, trend analysis of VEC changes with time depth, threshold analysis, etc.) into the design, as well as providing more detailed instructions on how to conduct CEA (e.g., identify parameters and standard indicators to use, provide a general temporal timeline, identify the VECs that must be included, define thresholds, etc.). The design of better EIA directives would require COMEV to carefully review a project's preliminary information and take the public interests and concerns into consideration.

4.2.3 Build Capacity for Regional Cumulative Effects Monitoring

Cumulative effects assessment and monitoring programs in the James Bay Territory are generally conducted at the project level as part of the requirement for project EIA.

Monitoring programs provide important baseline information to support environmental decision-making and cumulative effects assessment. In other Canadian jurisdictions, most data comes from the monitoring programs occurring through the project-level EIA, as well as the regional monitoring programs led or supported by the government. In the James Bay Territory, the monitoring data generally only comes from the proponents, with few regional monitoring programs in place. It will be important for regional level monitoring programs to be established in order to better understand changes in VEC condition over a relatively long period of time and over larger geographic spaces. When developing regional monitoring programs, it becomes important to consider the extent to which they will be mutually supportive of project-level monitoring programs, so that the data from both sources can be integrated and operate synergistically to inform CEA. Community-based monitoring and citizen volunteer monitoring can also contribute to the regional initiatives, with many federal wildlife-monitoring programs already relying on volunteers and local residents for data submission.

4.2.4 Promoting Open Access to Data Exchange and Sharing

The data collected at the provincial and project level, such as in Southern and Northern Quebec, are mostly published in report format, and raw data files are generally not available for open download.

Long-term baseline data availability is a crucial element for proponents to establish trends for the VECs in their CEAs. In the James Bay Territory, much of the existing monitoring data are privately owned and requires a fee to access. This lack of open-access monitoring data may discourage some project proponents from conducting a proper trend analysis for CEA.

Supporting the availability of open-access monitoring data could be a good option for the James Bay Territory to explore, in order to increase data availability to the public. Some examples of efforts towards open-access monitoring data can be found in the Northwest Territories (NWT) through the creation of the online NWT Discovery Portal and the Mackenzie DataStream under the NWT Cumulative Effects Monitoring program (NWT CEMP). The NWT Discovery Portal is an online search tool for the public to access data, metadata, and reports. The portal contains monitoring information generated through land-use planning, project-specific environmental impact assessments, and regulatory processes. The public is also encouraged to upload their research and monitoring information to the portal, which uses standards for the metadata to ensure compatibility. The Mackenzie DataStream is an open-access platform for water data sharing in the Mackenzie River Basin. Since 2016, all project data associated with NWT CIMP funded water quality projects is available on the Mackenzie DataStream. This open-access approach to monitoring data sharing can also promote data transparency and provide important resources for regional CEA development.

4.3 Future Directions

While our case study analysis identifies that there is likely a sufficient foundation to initiate a decentralized collaborative governance approach to wildlife monitoring in Eeyou Istchee, successful initiation will not necessarily lead to successful ongoing collaboration towards the desired outcomes. Following Emerson et al.'s (2012) collaborative governance theory, a workable Collaborative Governance Regime (CGR) will be necessary for long-term success. Such a CGR would consist of “*sets of implicit and explicit principles, rules, norms, and decision-making procedures around which actors' expectations converge in a given area*” (Krasner, 1982, p.2). Within this regime, collaborative dynamics and collaborative actions become the main focal areas of the actors' guiding the collaboration process. Collaborative dynamics contain three interactive elements: 1) principled engagement; 2) shared motivation; and 3) capacity for joint action. Collaborative actions are the product of consensus building where agreements are

reached to achieve a common goal and can come in many different forms, such as securing important resources, establishing policies, and program development (Emerson et al, 2012). Further policy experimentation and research attention on these more operational aspects of collaborative governance, perhaps focusing on a sample of multi-actor collaborative initiatives that are already underway in other sectors or contexts within the Eeyou Istchee territory would be valuable.

4.4 Reference

- Bérubé, M. (2007). Cumulative effects assessments at Hydro-Québec: what have we learned?. *Impact assessment and project appraisal*, 25(2), 101-109.
- Emerson, K., Nabatchi, T., & Balogh, S. (2012). An integrative framework for collaborative governance. *Journal of public administration research and theory*, 22(1), 1-29.
- Hegmann, G., & Yarranton, G. T. (2011). Alchemy to reason: effective use of cumulative effects assessment in resource management. *Environmental impact assessment review*, 31(5), 484-490.
- Krasner, S. D. (1982). Structural causes and regime consequences: regimes as intervening variables. *International organization*, 185-205.
- Noble, B., Martin, J., & Olagunju, A. (2016). A review of the application of cumulative effects assessment in the context of Section 22 project environmental assessments conducted in the James Bay Territory. *Prepared for the james bay advisory committee on the environment. Saskatoon (SK): Aura Environmental.*
- Ritchie, J., & Spencer, L. (2002). Qualitative data analysis for applied policy research. *The qualitative researcher's companion*, 573(2002), 305-29.

Appendices

Appendix 1. Participant Consent Form

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Title of Project: Examining the Role of Cumulative Effects Assessment in the Environmental Impact Assessment of Northern Quebec: The Case of the Wild Food System in Eeyou Istchee

Sponsor(s): McGill Chair in Northern Research, NSERC CREATE, Institut nordique du Quebec, MFFP, Makivik Corporation, INAC (PI: CNG), Ouranos, Mitacs

Purpose of the Study: The purpose of this study is to gain insight into the current state, problems, and opportunities related to cumulative effects assessment under Northern Quebec's Environmental Impact Assessment (EIA) practices. This study draws on the knowledge of some key organizations in the Northern Quebec region. The goal of this research is to help with potential policy development. It aims to establish a more robust and precise cumulative effects assessment reporting and communication system. This is needed for assessing cumulative impacts on the local wild food system, which is under pressure due to resources development activities.

Study Procedures: The key participants from the selected organizations will be contacted via email. The email will contain a brief project description that describes the purpose and expected outcome of the research. It will also ask if they would like to participate in a semi-structured interview with the researcher. If the participants indicate they are interested in participating, an interview schedule and written consent form will be sent to them for review. Once the participants receive these two documents and consent to participate, the researcher will arrange the location and time for the interview. The interview is expected to be two hours in length and take place in a professional and private setting. The interview will be semi-structured and one-on-one. The researcher will follow the arranged schedule and allow for probing and follow-up questions. The interview will be audio recorded for later transcribing, with the consent of the participants. The audio recording will only be used for transcription purposes and will be deleted when the transcription is completed. Prior to the interview, the researcher will go over the consent form orally and

obtain written consent from participants. The consent form will contain information on whether the participants and their organization want to be identified and if they agree to audio recording.

Voluntary Participation: Participation is voluntary. Participants can refuse to participate in any part of the study or answer any question. They may withdraw from the study at any time, for any reason. If participants withdraw from the study, all audio recordings and identifiable datasets will be destroyed unless they give permission otherwise. There will be full disclosure as to the purpose of the study, without any deception. The participants reserve all their legal rights.

Potential Risks: A potential risk of this project is that participants may damage their relationship with the organization they work for. This could occur if their answers to research questions are not acceptable or do not align with their organization's view. However, this risk is very small, as the interview questions are more objective than subjective. As well, the target message mostly concerns EIA in general rather than any given organization. To address this potential risk, participants can choose to remain anonymous in the reporting. This is done by removing their name and any information that would make them identifiable from the final report. One-on-one interviews will ensure that the thoughts of participants are expressed freely without concern for any potential conflict of views or privacy exposure. Another potential risk of this project is the amount of time required of the participants. The interviews will take place during participants' working hours and the entire process may take upwards of two hours. Therefore, the economic cost of their time away from work will be discussed with each participant prior to the interview. As well, any compensation or alternate schedule will be negotiated at the participants' request.

Potential Benefits: The study may not directly benefit the participants. However, they will contribute to the field of knowledge in cumulative impact assessment and environmental impact assessment by providing useful insight. This will help close the research gap associated with the current lack of an effective and standardized CEA reporting system for development projects in Northern Quebec. It can also help to identify the effects of this deficiency on wild food systems. As well, it will assist with building an interactive model that can inform regional cumulative effects management and policy reformation.

Confidentiality: Semi-structured interviews will be audio recorded. Through the consent process, participants will indicate whether they prefer to not be identified. If participants do not wish to be identified, their names and all information that can make them identifiable will be removed and replaced with codes. This is done so that participants are only identifiable to the researcher. Confidentiality of the participants is therefore ensured. Access to master code lists and key codes is controlled and stored separately from the data in a unique password-protected folder on a password-protected computer, and backed up on a secure password-protected server. All data will be securely stored on a password-protected computer and backed up on a secure password-protected server. Consent forms, notes, videos, and audio recordings will be stored securely in a locked cabinet or case. This is true both during and after field data collection. Only the researcher will have access to the cabinet or case, using a key or combination lock. However, if participants schedule the interview in a non-private setting with other people nearby, privacy cannot be guaranteed. The researcher will always suggest that participants have interviews in a private space to avoid any breach of confidentiality. Only the researcher (Che), her academic supervisor (Hickey), and the Wild Food INC & Climate Change in Northern Quebec project Principal Investigator (Humphries) will have access to identifiable datasets. The participants will also be asked for their preference as to who may have access to their identifiable information. If a preference is given, only the stated researcher(s) will have access. The audio recordings will be deleted right after transcription. Any identifiable data will be kept by the researcher for seven years following the end of the project, after which it will be destroyed.

If applicable, describe study options available to the participant using clear YES/NO options.

Yes: ☐ No: ☐ *You consent to be identified by name in reports.*

Yes: ☐ No: ☐ *You consent to have your organization's name used.*

Yes: ☐ No: ☐ *You consent to be video recorded.*

Yes: ☐ No: ☐ *You consent for the video recording to be played publicly during the dissemination of results.*

Yes: ☐ No: ☐ *You can identify me in the video recording if shown publicly.*

Questions:

If you have questions regarding this research project, please contact Murray Humphries at 514-794-7885 or murray.humphries@mcgill.ca.

If you have any ethical concerns or complaints about your participation in this study and want to speak with someone not on the research team, please contact the McGill Ethics Manager at 514-398-6831 or lynda.mcneil@mcgill.ca.

Please sign below if you have read the above information and consent to participate in this study. Agreeing to participate in this study does not waive any of your rights or release the researchers from their responsibilities. A copy of this consent form will be given to you and the researcher will keep a copy.

Participant's Name: (please print) _____

Participant's Signature: _

Date: __

Appendix 2. Semi-Structured Interview Guide

Interview Questions

In this interview I am broadly interested in exploring some of the challenges and opportunities related to establishing a more interactive and collaborative environment for cumulative impact-related monitoring and information sharing, particularly in relation to wild food systems, to help improve the outcomes for all interest groups.

I. General background information

1. Could you please tell me a bit about your organization, your position, and job responsibility?
 - Does your work involve activities related to EIA/CEA/wildlife management/ traditional food? Can you please describe the main issues and challenges related to cumulative effects in your role?
2. Are cumulative effects an important issue or concern for your organization? In what ways?
 - Are you involved in or aware of any programs and studies conducted in the region related to cumulative effects?
 - Are there any regional cumulative effects monitoring programs in the region? Is there anything already in place that could help cumulative effects monitoring to become regional?
 - What are the main challenges associated with assessing and managing cumulative effects in Eeyou Istchee, particularly related to wild food systems?

II. Questions on System Context

In this section I am interested in your experiences working with other organizations when undertaking cumulative effects monitoring and information reporting activities in Eeyou Istchee.

3. Does your organization conduct any environmental monitoring work? Who requires this?
 - Are any partners or other agencies involved in your monitoring programs? Consultants, communities, other interest groups?
 - What are some of the main challenges related to environmental monitoring?
 - Is the monitoring data collected by your organization shared with organizations or is it kept private? How might an external user access those data if requested? What might the barriers or issues be?
4. Has your organization ever requested monitoring/ baseline data from other organizations? Were there any issues that arose? How dependent is your organization on externally collected and collated data?

- How do you go about accessing data from other organizations?
- What are some challenges related to requesting data from different types of organizations, public, private, community, etc.? (financial, data integrity, format, etc.)

5. What are some challenges and drawbacks that might be arise when organizations assess and monitor cumulative effects on wildlife individually (organizations make their own plans and monitoring agenda) versus more collaboratively (shared plan and action)?

6. Could different groups benefit from regional cumulative effects monitoring programs? Who might benefit the most, the least, why/ why not?

- Are there any incentives for your organization to share resources with other actors to help with more regional cumulative effects assessment?
- There seems to be a lack of existing regional CE programs. Do you think this is important? In what ways? Why might there be challenges associated with collaboration on cumulative effects?

7. Who should be included in regional cumulative effects monitoring?

- Based on which types interest? Capacity? Liability? Resources? Risk?
- What roles should different groups play?

III. Questions on Drivers for Collaboration

In this section I am interested in your experiences and insights on the collaborative dynamics that exit in Eeyou Istchee when it comes to environmental assessment.

8. What does collaboration mean to you?

- Is it a common approach in your organization?
- Common approach in the region?
- Previous conflict and trust?

9. Have you been involved in collaboration with stakeholders across different sectors on environmental policy/program development in Eeyou Istchee?

- Why did your organization join the collaboration?
- Any resource sharing?
- Who acts as the leadership?
- What is the outcome of the collaboration?
- What are some challenges?

10. Why might it be difficult for the private sector to join collaborative actions?

11. What are some advantages and challenges in cross-sector collaboration in CE monitoring?