

How participation influences Environmental Assessment decisions: Mackenzie Valley, Canada

by

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## Abstract

In many countries, Environmental Assessment (EA) is an important tool for aiding in decision-making about resource development projects, which includes approval or rejection and imposing mitigation Measures. Whether the public can participate in EA and influence decision-making through participation are two important problems because such projects often bring negative environmental or socio-cultural impacts. Theoretically, participation without influence indicates lack of power in the decision process. Participation of Indigenous Peoples and knowledges in EA and whether that participation can influence decision-making are matters of particular focus and concern. This holds in Canada, as evidenced through recent changes to federal EA through Bill C-69. Previous qualitative research has highlighted some key barriers and challenges to participation and the limited ways in which Indigenous Peoples and knowledge systems are reflected in decision-making outcomes. This dissertation focuses on participation and influence of Indigenous and other groups in the EA process in the Mackenzie Valley, Northwest Territories, a co-management process set up to give Indigenous Peoples more say in resource management decision-making than previously.

This study has two objectives. Objective 1 is to identify and quantify indicators of participation and EA decisions in the Mackenzie Valley EA process. Objective 2 is to quantitatively evaluate how participation by various groups influences the Mackenzie Valley Environmental Impact Review Board's decisions on all 39 projects that completed EA between 1998 and 2019.

The Reports of Environmental Assessment (REA) from the Review Board public registry were studied for the 39 projects. Indicators of participation and decisions were developed and detailed coding rules were created to guide the conversion of the content of REAs into

quantitative indicators related to participation and EA decisions. Types of participation were identified for specific participants, which were organized into participant groups. Review Board decisions about the project were identified: there will likely be Significant Adverse Impacts (SAI) or Significant Public Concern (SPC), mitigation Measures, and Suggestions. Coding by content analysis was conducted on the 39 Reports to derive the quantitative data, on which descriptive and econometric analyses were conducted.

A key EA decision is the Review Board's decision as to whether there will likely be SAI/SPC from the project. The Review Board makes these decisions on specific "issues" within a project (e.g. water, caribou, jobs), and for each project. I gleaned 419 issue observations from the 39 projects. I coded the Review Board's SAI/SPC decision as a dependent variable and constructed explanatory variables measuring participation opposing and participation supporting projects. To assess influence of participation, I estimate a Linear Probability Model of the SAI/SPC decision on participation by groups, with fixed effects and clustering by project.

The summary statistics show that Indigenous Peoples without settled land claims lead in participation opposing a project while Proponents lead in participation supporting a project. The regression results show wide differences in the degree of influence on the Review Board's decisions when different participants raise SAI, SPC, and concerns (Oppose). The largest influence of these Oppose influences is by the Review Board's entities, followed by the Government, and Indigenous Peoples with settled land claims. All of these influences are statistically significant. In terms of magnitude, Indigenous Peoples without settled land claims have similar Oppose influence as Indigenous Peoples with settled land claims, although their Oppose influence is not statistically significant. Also not statistically significant is the Oppose influence by environmentally-oriented groups.

The significance of the coefficient on Unsettled land claimants Oppose is likely sensitive to model specification. Significance aside, in terms of magnitude, there is higher influence by Review Board entities and Government, than by Indigenous Peoples, when they raise SAI, SPC, and concerns. The results also show that when certain groups participate in support of a project, they influence the decision-making at statistically significant levels. However, this study focuses on the ability of groups to influence decision-making when they raise SAI, SPC, and concerns, because the Review Board's decision is to determine SAI/SPC.

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## List of commonly used Acronyms

AANDC	Aboriginal Affairs and Northern Development Canada
AGC	Auditor General of Canada
CEAA	<i>Canadian Environmental Assessment Act</i>
DAR	Developer's Assessment Report
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EIR	Environmental Impact Review
FPIC	Free, Prior, and Informed Consent
GNWT	Government of Northwest Territories
GNWT EIA	GNWT Executive and Indigenous Affairs
GNWT ITI	GNWT Industry, Tourism and Investment
IAIA	International Association for Impact Assessment
INAC	Indigenous and Northern Affairs Canada
LWB	Land and Water Board
LPM	Linear Probability Model
MVEIRB	Mackenzie Valley Environmental Impact Review Board
MVLWB	Mackenzie Valley Land and Water Board
<i>MVRMA</i>	<i>Mackenzie Valley Resource Management Act</i>
PS	Preliminary Screening
RB	Review Board
REA	Report of Environmental Assessment
SAI	Significant adverse impacts
SPC	Significant public concern
TK	Traditional knowledge
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples

Please see Tables 6.3 and A1.1 for acronyms for specific participants.

## 1 Introduction

Participation in Environmental Assessment (EA) and the influence of participation on EA decisions are worldwide problems. Conceptually, influencing decision-making is a central objective of public participation in EA. Due to historical biases and vulnerabilities, it is especially important that Indigenous Peoples participate in EA and influence decision-making in those processes. In Canada, these imperatives have been articulated in the Berger Report of 1977 that set a high standard for involving Indigenous Peoples in resource decisions through participation in EA (Armitage, 2009; Gibson & Hanna, 2009). These imperatives were recognized recently by the Expert Panel reviewing the federal EA system (Government of Canada, 2017a), which led to the controversial Bill C-69 that reformed federal EA in Canada. This study focuses on the EA process in the Mackenzie Valley, Northwest Territories (NWT), Canada, which is governed by a co-management board of certain Indigenous groups and Government agencies. Unlike previous studies in the vast Mackenzie Valley, this study takes a quantitative approach to identify, measure, and assess participation and EA decisions regarding issues that are identified by participants. Content analysis is used to characterize all of the issues that have arisen in the 39 completed EAs that have been conducted in the region from 1998 to 2019. Since all issues in all REAs for all projects that completed EA are studied, I argue that this avoids biases that could arise from sample selection. Quantification of participation by different groups and decisions related to those issues allows statistical tests of hypotheses regarding the influence that participation by different groups has had on EA decisions. The remainder of this chapter introduces EA and the theory and practice of participation and its influence in EA.

## 1.1 Participation in EA and influence on EA decisions

In many countries, EA is an important tool for decision-making about resource development projects because EA identifies potential impacts from a proposed project and seeks to mitigate those impacts (Hanna, 2016). In the Mackenzie Valley case, such decision-making includes the identification of “Significant Adverse Impact” (SAI) and “Significant Public Concern” (SPC) (s. 128, *Mackenzie Valley Resource Management Act [MVRMA]*), imposition of Measures and Suggestions to mitigate those impacts, and approval or rejection of proposed resource development projects. Whether the public can participate in EA and whether they can influence decision-making through their participation are two key questions because the decisions can impact the public in profound ways as projects potentially bring negative environmental externalities. Public participation alone is not enough to achieve the desired effects on decision-making; there also needs to be influence. Therefore, this study examines how participation influences decision-making in the EA process in the Mackenzie Valley, NWT, Canada. The following section introduces various definitions of EA and participation in EA.

### 1.1.1 Key concepts in EA

**Environmental Assessment (EA)** is a decision-making process that identifies potential impacts from a proposed project, and deals with the significance of those impacts and potential for mitigation and adaptive management (Hanna, 2016). EA and Environmental Impact Assessment (EIA) are sometimes used interchangeably. Impact Assessment is another term used that is more general than EA. I use the term EA throughout this dissertation.

The literature contains several conceptions of **participation** in EA, some of which are mostly descriptive, others of which are more prescriptive. The following summarizes some

definitions of participation in EA, because this study will measure various types of participation in order to estimate how participation influences decision-making in the EA process in the Mackenzie Valley. The descriptive definition of the International Association of Impact Assessment (IAIA) (André, Enserink, Connor, & Croal, 2006) relates participation to involvement in decision-making processes by individuals and groups that are affected by or have interests in a proposed project. O’Faircheallaigh (2010) emphasizes interactions between government, corporate actors, and the public in an EA process, while Sinclair and Diduck (2016, p. 65) focus on the “active involvement of the public”. A more normative concept is “meaningful public participation,” which Sinclair and Diduck (2016, p. 65) define as “processes that incorporate all of the essential components of participation, from the opportunity to provide input to active and critical exchange of ideas among proponents, regulators, and participants”. Stewart and Sinclair (2007) found that the public, Proponents, and Government can differ in their definitions of meaningful participation. For clarity, this study uses the more concrete concept of participation being able to *influence* the EA decision rather than “meaningful participation”, which is more vague.

### 1.1.2 The beginnings of public participation in bureaucratic decision-making processes and EA

Public participation in bureaucratic decision-making processes in the United States (US) had its beginnings in 1946 when the *Administrative Procedure Act* required federal agencies to undergo “notice and comment” by the public when making rules (Yackee, 2019). In 1969, this became more salient to environmental management when the US enacted the *National Environmental Policy Act*, thus becoming the first country to require EA by law. That first EA law explicitly recognized the importance of public participation (Chen, 2013; Noble, 2015; Petts,

2003). International acceptance of the importance of participation for solving environmental challenges was explicitly recognized in the United Nations Rio Declaration of 1992 and the Aarhus Convention of 1998 that established public participation in decision-making about the environment as a right in countries of the United Nations Economic Commission for Europe.

In Canada, there is EA legislation at the federal, provincial, and territorial levels. Federally, Canada first introduced an EA process based in policy in 1973 and provided for public panel reviews (Gibson & Hanna, 2009). In 1975, Ontario created Canada's first EA process based in legislation, which also allowed public hearings (Gibson & Hanna, 2009). From 1974 to 1977, the federal government added more substance to the Environmental Assessment and Review Process and encouraged early public participation in 1977 (Gibson & Hanna, 2009). In 1987, a review of the federal EA process led to considerations for public participant funding (Gibson & Hanna, 2009).

Until recently, the federal EA process was governed by the *Canadian Environmental Assessment Act*, which became federal law in 1992 and took effect in 1995 (Gibson & Hanna, 2009). In the preamble of *CEAA* 1995, the federal government pledged to facilitate public participation in EA (Sinclair & Diduck, 2016). In 2012, the then Conservative federal government made many major changes to *CEAA*. One amendment required participants to be “directly affected” by the project or to have “relevant information or expertise” (*CEAA*, s. 2(2)). This was viewed as an additional barrier to participation (Fluker & Srivastava, 2016; Salomons & Hoberg, 2014).

After taking power in 2015, the Liberal government started reviewing the federal EA system in June 2016 (Government of Canada, 2017b). An expert panel found problems with the ability of public participation to influence EA decisions (Government of Canada, 2017a). The

panel recommended that public participation must be meaningful, which means “hav[ing] the inherent capacity to influence decisions made through the assessment” (Government of Canada, 2017a, p. 36). That effort to renew the federal EA system led to Bill C-69, which came into force on August 28, 2019 (Parliament of Canada, 2019).

Sinclair and Diduck (2016) contend that all EA laws in Canada, federally or provincially, provides for participation and that most of these EA laws make participation an important part of the EA process. The following section examines theoretical reasons for public participation in EA.

### 1.1.3 Theory of public participation in EA

A review of the relevant literature shows that there is considerable disagreement regarding what the objectives, purposes, rationale, or benefits of public participation in EA are or ought to be. Some of this is positive, based on EA legislation, while much is normative and distinct to particular authors.

Doelle and Sinclair (2006) argue that cooperation and building consensus ought to be an objective of public participation in EA. Webler and Tuler (2006) interviewed 117 participants from 10 EA processes in the US and found that the participants believed in four main objectives of public participation in EA: stakeholder consultation that is centred on science, egalitarian deliberation, efficient cooperation, and informed collaboration.

Stewart and Sinclair (2007) assert that the benefits to public participation in EA include enabling democracy, empowering individuals and communities, facilitating individual and social learning, providing decision-makers with access to local knowledge, allowing decision-makers to consider more solutions and make more balanced decision-making, and reducing lawsuits.

Noble (2015) argues that public participation can help decision-makers to access additional information, identify solutions that are more acceptable to the public, ensure more balanced decision-making, reduce lawsuits, increase social learning, define the problem better, and ease project implementation.

Sinclair and Diduck (2016) add that public participation helps to define the problem better, enables better access to knowledge (local and traditional), and provides additional resources (human, financial, in-kind). Public participation helps to identify solutions, helps the project meet public needs, and allows more balanced decision-making through consideration of more solutions and more factors (Sinclair & Diduck, 2016). Controversy, lawsuits, and conflict are reduced because public participation clarifies goals and various understandings (Sinclair & Diduck, 2016). Sinclair and Diduck (2016) contend that participation increases the project's legitimacy and the accountability of the decision process. Participation can also bring different views of ethics into the decision-making process and can prevent EA decision-makers from befalling "regulatory capture" by Proponents. Regulatory capture is discussed in more detail in section 4.2. Finally, participation allows unlawful decisions to be contested early.

O'Faircheallaigh (2010) classifies 10 specific purposes of public participation in EA under three broad purposes. First, public participation provides input into decision-making. Second, public participation involves the public in the decision-making process. Third, public participation changes the power dynamics within decision making. The ten specific purposes are summarized in Table 1.1.

Table 1.1: Ten specific purposes of public participation in EA

<b>General purpose of public participation in EA</b>	<b>Specific purposes of public participation in EA</b>
1. Providing input into decision making	<ul style="list-style-type: none"> <li>• Decision makers provide the public with information and vice versa;</li> <li>• Information gaps are filled as decision-makers receive all information necessary to make the most informed decision;</li> <li>• Information from Proponent is openly contested;</li> <li>• Social learning and problem solving;</li> </ul>
2. Involving public in decision making	<ul style="list-style-type: none"> <li>• Public influence over decision making;</li> <li>• Develop citizen’s capacities to participate in democracy and facilitate social learning;</li> <li>• Resolution of conflicts by differential societal interests represented by different interest groups;</li> </ul>
3. Changing the distribution of power in decision making	<ul style="list-style-type: none"> <li>• Better balance of power and empowerment of socially marginalized groups;</li> <li>• Provide better opportunities for systematically marginalized groups to interact with project Proponents;</li> <li>• Exacerbate marginalization.</li> </ul>

Source: Author’s summary of O’Faircheallaigh (2010).

Glucker, Driessen, Kolhoff, and Runhaar (2013) repeat many of these ten purposes but group them by rationale: normative, substantive, and instrumental. They argue that the normative rationale for public participation include influencing decisions, increasing citizens’ democratic abilities, social learning, and changing the distribution of power to empower the marginalized. The substantive rationale for public participation includes increasing the quality of decision-making by providing decision-makers with knowledge that is local, value-based, and experiential. Another substantive rationale for public participation is to test the “robustness” of other information, which also increases the quality of decision-making. Last, they argue that public participation may be an instrument to EA by creating legitimacy and solving conflict.

Of the many objectives, purposes, rationale, or benefits of public participation in EA discussed above, influencing decisions is an important objective and the focus of this study. The following section reviews this further.

#### 1.1.4 Public participation influencing EA decision-making and power

Participation and influence over decision-making through participation can be considered to be specific dimensions of power in EA processes. Cashmore and Richardson (2013) argued that scholars ought to clearly distinguish if they are asking analytical questions about how power works or normative questions about whether the power distribution is appropriate. Cashmore and Richardson (2013) also want normative arguments about power to be grounded in analytical evidence. Within analytical questions, Cashmore and Richardson (2013) argued for more examination of how EA resolves conflicts and how it reifies certain governance norms. Regarding normative questions, they argued for more critical analysis.

The connection between power and influence over decision-making has been made by Arnstein (1969), who created a typology of degrees of citizen influence on decision-making and stated that higher degrees of citizen influence on decision-making reflected degrees of citizen power. Arnstein (1969) argued that citizen participation can be conceptualized along an 8-rung ladder or typology (which correspond to three broader categories) in terms of the degree of their influence on decision-making. The first two rungs constitute “non-participation” and include “manipulation” and “therapy”. Here, the public are not really participating. Rather, those with power are teaching or fixing them. The next three rungs constitute “tokenism”, which permit the marginalized to have a voice. However, there is no guarantee that decision-makers will incorporate what they have said. Specifically, this can take the form of “informing”,

“consulting”, and “placating” participants by, for example, giving a few participants representation but still outvoting them. Finally, the last three rungs constitute “degrees of citizen power”. Specifically, the public can form a “partnership” with the powerful. An even higher degree of citizen power involves a model of “delegated power”, where the public has a strong decision-making role. The highest degree of citizen power is called “citizen control”.

Arnstein’s ladder has been critiqued, adapted, and revised (Connor, 1988; International Association for Public Participation [IAP2], n.d.; Lawrence, 2006; Luyet, Schlaepfer, Parlange, & Buttler, 2012; Rocha, 1997; Ross, Buchy, & Proctor, 2002; Wiedemann & Femers, 1993). Notably, the International Association for Public Participation adapted Arnstein’s ladder into a 5-level public participation spectrum, with increasing influence on decision-making (Jami & Walsh, 2014).

The question arises as to where public participation in EA in Canada has tended to fall on Arnstein’s ladder of influence on decision-making. The following section canvasses this.

#### 1.1.5 Ability of public participation to influence EA decisions in Canada

Noble (2015) argues that the highest rung in Arnstein’s ladder, where the public has full control, is rare in EA in Canada. Rather, public participation in EA is mainly about informing and consulting the public, a form of tokenism. Sinclair and Diduck (2016) share a similar view, stating that EA in Canada is severely limited by inadequate public participation in decision-making for some Environmental NGOs and activist citizens. Sinclair and Diduck (2016) postulate that meaningful participation is not achieved, due to insufficient shared decision-making, insufficient participation for normative planning, inadequate communication and

information, inadequate participant resources, inadequate time in EA processes, and insufficient public participation after EA.

One of the few studies that examined how participation influences EA decisions in Canada is Rutherford and Campbell (2004), which investigated the effectiveness of public participation in *CEAA* review panels between 1995 and 2002. They developed indicators to measure what appeared to be the public participants' influence on the review panel's report, the panel's recommendations, or the Proponent's actions. One indicator was the mention of public participation in the reports. Other indicators included changes in procedures, panel rejections or recommendations, and Proponent changes caused by public participation. They also interviewed participants in those processes. Rutherford and Campbell (2004, p. 77) found a "qualified yes" for whether it was worthwhile for the public to participate. While public participation did influence outcomes, they found that the public faced many barriers to participation.

While the sections above have reviewed the importance of public participation and the influence of public participation in general, the following discusses the importance of participation of Indigenous Peoples and knowledges specifically.

#### 1.1.6 The importance of participation of Indigenous Peoples and knowledges in EA and their influence on EA decision-making

Many countries recognize the importance of Indigenous Peoples participating in EA and influencing EA decisions (Nakamura, 2008; O'Faircheallaigh, 2009; Penn-Roco, A., 2016). Part of this strong emphasis on Indigenous participation is in recognition that historically, Indigenous Peoples in industrialized countries have been largely excluded from participation in Impact Assessment or have faced barriers even when they did participate (O'Faircheallaigh, 2009).

International agreements and organizations have also recognized that it is especially important for local Indigenous Peoples affected by proposed resource development projects to be able to participate in EA and to influence EA decisions or outcomes. Principle 22 of the United Nations Rio Declaration recognized that Indigenous Peoples “have a vital role in environmental management and development because of their knowledge and traditional practices,” while Chapter 23 urges governments to “recognize that [I]ndigenous lands need to be protected from environmentally unsound activities”.

The participation and influence of Indigenous Peoples in EA is a particularly important issue in Canada where protection of Treaty and inherent rights to land and resources necessitate a clear process of consultation and accommodation. One reason is that the Crown owes fiduciary obligations to Indigenous Peoples (*Guerin v. R.*, [1984] 2 SCR 335; *R v Sparrow*, [1990] 1 SCR 1075; *Delgamuukw v British Columbia*, [1997] 3 SCR 1010). Another reason is the constitutional duty to consult (*Delgamuukw*; *Haida Nation v British Columbia*, 2004 SCC 73; *Taku River Tlingit First Nation v British Columbia (Project Assessment Director)*, 2004 SCC 74). Thirdly, the federal government has adopted the United Nations Declaration on Rights of Indigenous Peoples (“UNDRIP”), which includes, among other rights, the right to self-determination (art. 3), the right of Indigenous Peoples to participate in decision-making while keeping their own institutions (art. 5), and the right to Free, Prior, and Informed Consent (FPIC). Yet several studies have identified challenges to Indigenous Peoples in Canada participating in EA and influencing EA decisions through participation (Gibson, Galbraith, & MacDonald, 2016; Udofia, Noble, & Poelzer, 2017).

In sum, influencing decision-making in EA is an important theoretical objective for public participation in EA, as shown in section 1.1.3. An examination of the extent to which

different participant groups influence decision-making would reflect the extent to which those groups achieve an important theoretical objective of public participation in EA: influencing decision-making. Different degrees of influence have also been connected to different degrees of power by Arnstein, as shown in section 1.1.4. Scholars (Noble, 2015; Sinclair & Diduck, 2016) have contended that public participation in federal EA in Canada does not reach higher rungs on Arnstein's ladder of citizen participation, as discussed in section 1.1.5. These conclusions were reached in the absence of quantitative analysis. Therefore, it can be useful to examine how participation influences decision-making using quantitative analysis. In particular, given the importance of participation of Indigenous Peoples and knowledges in EA and their influence on decision-making as recognized in the world and in Canada, it can be useful to examine how participation by Indigenous Peoples influences decision-making in EA. Such an examination would reflect the extent to which different participant groups can achieve an important theoretical objective of public participation in EA: influencing decision-making. This study aims to examine how participation by various participant groups, including Indigenous Peoples, influences decision-making in the EA process in the Mackenzie Valley. The following section discusses why it is especially important for Indigenous Peoples to influence decision-making in the Mackenzie Valley process while section 1.3 describes the objectives of this study.

## 1.2 Focus on the Mackenzie Valley EA process

While projects in Canada's South (Trans Mountain Expansion, Energy East, and others) have garnered much national media attention, Canada's South seems to pay less attention to the North. This dissertation fills part of this gap by studying the EA process in the Mackenzie

Valley, NWT, governed by the *MVRMA* and administered by the Mackenzie Valley Environmental Impact Review Board (“Review Board”).

It is especially important that Indigenous Peoples are able to influence the EA decision in the Mackenzie Valley EA process for many reasons. First, at 51%, the NWT has the second highest proportion of Indigenous Peoples among Canada’s 13 provinces and territories (Statistics Canada, 2019). The Indigenous Peoples in the Mackenzie Valley also maintain a special connection with the land (Government of Northwest Territories Executive and Indigenous Affairs [GNWT EIA], n.d.), and therefore arguably bear more of the negative environmental externalities that are caused by resource development.

A second special feature of the Mackenzie Valley is that the Indigenous Peoples of the valley differ in the degree to which they have settled land claims with the federal and territorial governments. Indigenous Peoples of the Mackenzie Valley without settled land claims are particularly vulnerable because their regions coincide with the region’s largest deposits of diamonds, gold, and other base metals, which are highly sought after by resource development Proponents (Government of Northwest Territories Industry, Tourism and Investment [GNWT ITI], 2016). Yet Indigenous Peoples without settled land claims have even less control over their land under the *MVRMA*. The reason is that the *MVRMA* gives Indigenous Peoples with settled land claims more rights, including guaranteed representation on the Review Board (s. 112(2)), the right at Preliminary Screening to reject projects that do not conform to an approved land use plan (ss. 61(1)-(2)), and the right to refer projects to EA (ss. 126(2)(b)-(c)), among other things. Please see section 2.4 for more details. In contrast, the *MVRMA* does not extend these rights to Indigenous Peoples without settled land claims. This group is given special attention in this dissertation.

Third, as a co-management system with certain defined Indigenous representatives and government representatives, the Mackenzie Valley EA system was set up to give Indigenous Peoples more say in resource management decision-making than previously (Mackenzie Valley Environmental Impact Review Board [MVEIRB], 2016a). Indeed, one purpose of Part 5 of the *MVRMA*, which governs EA, is “to ensure that the concerns of aboriginal people and the general public are taken into account in that process” (s. 114(c)). It is important to know whether the system is giving effect to these intentions.

Previous studies of participation and influence of participation on EA decisions in the Mackenzie Valley process have been mainly qualitative and focused on one or a small number of studies. No previous study has attempted to use quantitative evidence for statistical hypothesis testing. While qualitative analysis of many cases can certainly yield generalizable insights, there may still be idiosyncratic features of each case that make generalizability challenging. Quantitative analysis, specifically statistical regression, can help in these situations by controlling for such idiosyncrasies to identify the causal effect. Therefore, this study has the following purpose and objectives.

### 1.3 Study objectives and outline

#### 1.3.1 Purpose and objectives

The purpose of this study is to assess how key groups have participated in and influenced the decisions of the Mackenzie Valley Environmental Impact Review Board in the Mackenzie Valley EA process in Canada. Hypothesized key groups include the Proponent, Government, Indigenous Peoples with settled land claims, and Indigenous Peoples without settled land claims.

Different levels of influence indicate degrees of absolute and relative power in the EA process. Toward that purpose, the study has two distinct objectives.

**Objective 1:** Identify and quantify specific indicators of participation and EA decisions by various groups in the Mackenzie Valley EA process.

**Objective 2:** Assess how participation by various groups (including Government, Indigenous Peoples, Environmental Groups, and others) in the Mackenzie Valley EA process has influenced the Review Board's "decisions" for all projects that completed EA between 1998 and 2019.

### 1.3.2 Outline

The following chapter introduces the Mackenzie Valley and its EA system. Chapter 3 reviews literature relevant to answering the research question. Chapter 4 presents conceptual foundations of the empirical approach that is taken for achieving Objectives 1 and 2, including the econometric model used to investigate how participation influences EA decisions. Chapter 5 provides descriptive information for the 39 projects that are the subject of this study. Chapter 6 describes the research methods, including the methods for eliciting variables on participation and Review Board decisions from the 39 REAs. Chapter 7 presents summary statistics for the data. Chapter 8 describes the statistical results. Chapter 9 discusses implications for the Mackenzie Valley EA process and EA in Canada. Chapter 10 discusses limitations, caveats, and future research.

## 2 Mackenzie Valley and the EA system

This chapter provides a full description of the context of this study. This includes a review of the Mackenzie Valley itself, the Indigenous Peoples who live in the Mackenzie Valley, and the importance of settled or unsettled land claims for both participation in EA processes and influence over EA decisions. The EIA process is explained, from Preliminary Screening to EA, and the composition of the Review Board is outlined. The phases of EA are outlined to explain how participants can participate during EA. The Review Board's description of different types of participants is also presented.

### 2.1 Mackenzie Valley

The NWT is bounded by Yukon to the west, Nunavut to the east, and the 60<sup>th</sup> parallel to the south (*Northwest Territories Act*, SC 2014, c 2, s 2). It spans approximately 1.3 million km<sup>2</sup> in area (Office of the Auditor General of Canada [AGC], 2010). The Mackenzie Valley comprises all of the NWT except for the Inuvialuit Settlement Region to the north and Wood Buffalo National Park (*MVRMA*, s. 2). It covers 700,000 km<sup>2</sup> in area (White, Christensen, & Ehrlich, 2007). Figure 2.1 shows the NWT within Canada and Figure 2.2 shows the NWT comprised of its major regions.



Figure 2.1: Northwest Territories (NWT) in Canada (Immigration Canada Services, 2019)

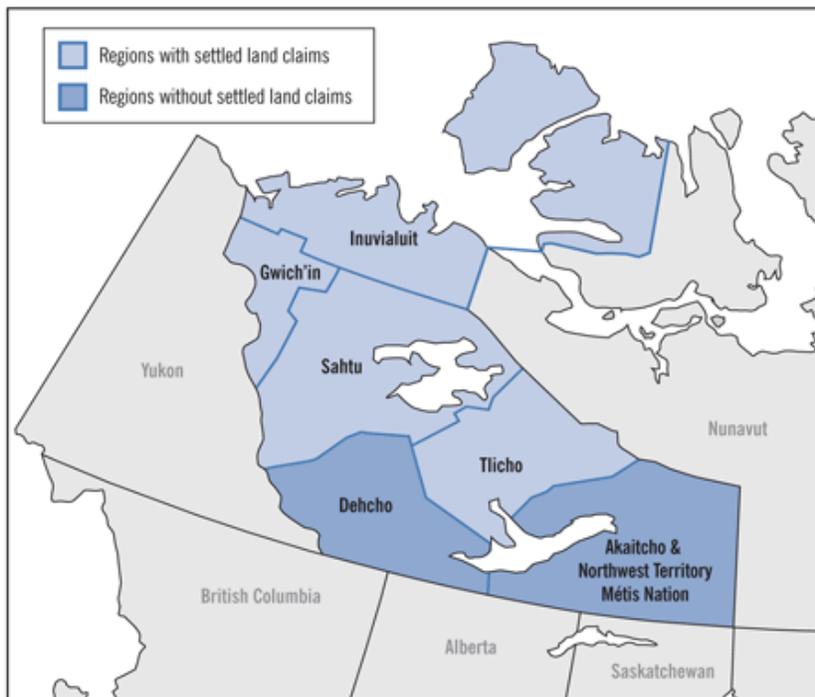


Figure 2.2: NWT in terms of its major regions (AGC, 2010)

## 2.2 Regions

The Mackenzie Valley is commonly classified into five regions: the Gwich'in, Sahtu, Wek'èezhii (where the Tlicho First Nation resides), Dehcho, and Southeast NWT regions.

The Gwich'in First Nation is among the most northern Indigenous Peoples in North America. In the NWT, most Gwich'in live in four communities: Fort McPherson, Tsiigehtchic, Aklavik, and Inuvik. The population is around 3,440 (Gwich'in Social and Cultural Institute, 2016). The Gwich'in Tribal Council represents the Gwich'in (*MVRMA*, s. 2).

The Sahtu First Nation is the Sahtu Dene and Metis represented by the Sahtu Secretariat Incorporated (*MVRMA*, s. 2). The Sahtu region has five communities: Fort Good Hope, Norman Wells, Tulita, Déline, and Colville Lake (Sahtu Secretariat Inc., 2019).

The Tlicho First Nation is represented by the Tlicho Government. There are four Tlicho communities: Behchokò, Gamètì, Wekweètì, and Whatì (Tlicho Government, 2017b).

Most communities in the Dehcho Region are Dehcho First Nations, a regional government that includes ten member communities (Dehcho First Nations, 2019a). Liidlii Kue First Nation and Fort Simpson Metis Local live in Fort Simpson, the largest community in the Dehcho (GNWT ITI, 2019). Deh Gah Gotie First Nation and Fort Providence Metis Nation live in Fort Providence. Pehdzeh Ki First Nation lives in Wrigley. Jean Marie River First Nation lives in Jean Marie River. Ka'a'gee Tu First Nation and West Point First Nation live in Hay River. Nahanni Butte Dene Band lives in Nahanni Butte. Sambaa K'e Dene Band lives in Trout Lake. Katlodeeche First Nation living on Hay River Reserve is not a member community but is in the Dehcho region (K'atl'odeeche First Nation, 2019).

Isaac (2017, p. 2) identified several Indigenous groups as “having interests in the Southeast NWT”. There are four Akaitcho Dene First Nations: Dettah (Yellowknives Dene First

Nation), Ndilo (Yellowknives Dene First Nation), Lutsel K'e Dene First Nation in Lutsel K'e, and Deninu Kue First Nation in Fort Resolution (Akaitcho Territory Government, 2019). The Akaitcho Territory Government represents the four Akaitcho First Nations. There is also the Northwest Territory Metis Nation (NWTMN), who are the Indigenous Metis in the South Slave region and they live mainly in four communities: Fort Smith, Hay River, Fort Resolution, and Yellowknife (Northwest Territory Metis Nation, 2019). The North Slave Metis Alliance (NSMA) are Metis people in the Great Slave Lake area (North Slave Metis Alliance, 2019). There are also the Salt River First Nation and Smith's Landing First Nation (Isaac, 2017). Some other Indigenous Peoples outside the Southeast NWT also assert rights to parts of the Southeast NWT region (Isaac, 2017).

### 2.3 Land claim regions

The Gwich'in, Sahtu, and Tlicho have settled land claims while most Indigenous Peoples in the Dehcho and Southeast NWT regions are currently trying to settle land claims.

In 1981, the federal government began negotiating Comprehensive Land Claim Agreements with all Dene and Metis groups in the NWT (Isaac, 2017). An Agreement-in-Principle was even completed (Isaac, 2017). However, in 1990, the process fell apart (Isaac, 2017). Afterwards, the Gwich'in and Sahtu approached the federal government to negotiate regional comprehensive land claims (Isaac, 2017).

In 1992, the Gwich'in settled their agreement for land and resources (GNWT EIA, 2019b). In 1993, the Sahtu settled their agreement for land and resources (GNWT EIA, 2019c). Both groups are negotiating self-government agreements (GNWT EIA, 2019e). In 2003, the Tlicho Government settled Canada's first combined land, resources, and self-government

agreement (GNWT EIA, 2019d). Note that the *MVRMA* was established because of the Gwich'in and Sahtu land claims. The *MVRMA* was amended when the Tlicho settled their claims.

Indigenous Peoples in the Dehcho and Southeast NWT regions are still settling land claims. In the Dehcho region, negotiations are ongoing between the federal government and the Dehcho First Nations (GNWT EIA, 2019h). Separate negotiations are ongoing between the federal and territorial governments and the Acho Dene Koe First Nation (GNWT EIA, 2019f).

In the Southeast NWT, the federal and territorial governments are negotiating with the Akaitcho Dene First Nations (GNWT EIA, 2019g) and separately with the NWT Metis Nation (GNWT EIA, 2019j). In March 2017, Tom Isaac, the Minister of Indigenous and Northern Affairs' Special Representative published a report on the state of claims in the Southeast NWT. In May 2017, the GNWT made new offers to the Akaitcho Dene First Nations and NWT Metis Nation in light of the Isaac report. Negotiations are ongoing and confidential. Salt River First Nation and the Smith's Landing First Nation have already settled land claims. Table 2.1 summarizes the current situation on land claims.

Table 2.1: Summary of land claim information by Region in the Mackenzie Valley

<b>Region</b>	<b>Land claim status</b>
Gwich'in	1992: Settled land and resources. Negotiating self-government agreement.
Sahtu	1993: Settled land and resources. Negotiating self-government agreements.
Tlicho	2003: Settled land, resources, and self-government.
Dehcho	Dehcho First Nations are negotiating with the federal government. Acho Dene Koe First Nation are negotiating with the federal and territorial governments.
Southeast NWT	Akaitcho Dene First Nations are negotiating with the federal and territorial governments. NWT Metis Nation are negotiating with the federal and territorial

	governments. Salt River First Nation and Smith’s Landing First Nation have settled land claims.
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Source: Own summary of published sources

This study refers to Indigenous Peoples with settled land claims as *Settled land claimants* and Indigenous Peoples without settled land claims as *Unsettled land claimants*.

Two further notes are in order for the use of these terms. First, this study calls the Southeast NWT Region an “Unsettled land claimant” Region, because empirically, in this study, the two First Nations in the Southeast NWT Region that settled land claims (Salt River First Nation and Smith’s Landing First Nation) have not participated in EA. Similarly, when this study refers to “Settled land claimants”, it does not refer to Salt River First Nation and Smith’s Landing First Nation because they have not participated in EA. Second, the *MVRMA* gives certain special rights to the Gwich’in, the Sahtu, and the Tlicho that it does not to other Indigenous Peoples in the Mackenzie Valley. When I refer to the *MVRMA* treating “Settled land claimants”, I refer to the Gwich’in, the Sahtu, and the Tlicho. Here, Settled land claimants excludes the two First Nations in the Southeast NWT Region that have indeed settled land claims (Salt River First Nation and Smith’s Landing First Nation), because the *MVRMA* does not extend the special rights to them.

Indigenous Peoples with settled and without settled land claims have different resources and different rights in the *MVRMA* EA process. Specifically, Settled land claimants can access the following financial and political resources after settling land claims. The Gwich’in Tribal Council received \$141 million in capital transfers from the federal government over 15 years as a result of settling their claim and receives resource royalties annually (GNWT EIA, 2019b). The Sahtu Secretariat Inc. received \$130 million in capital transfers over 15 years and receives

resource royalties annually (GNWT EIA, 2019c). The Tlicho Government (TG) received \$152 million in capital transfers over 14 years and will receive resource royalties (GNWT EIA, 2019d). All three groups also belong to a Land Claims Agreements Coalition, which includes other Indigenous Peoples across Canada that have settled land claims (Land Claims Agreement Coalition, 2017). This coalition works together to ensure the implementation of agreements.

In contrast, Unsettled land claimants lack access to such financial and political resources. Furthermore, settling land claims requires resources. Indeed, Isaac (2017) found that the Akaitcho Dene worried about being able to access funding and the NWTMN said their ability to access funding has also fallen. Therefore, Settled land claimants can be said to have an advantage over Unsettled land claimants even before interfacing with EA.

#### 2.4 Different rights for Settled and Unsettled land claimants under the *MVRMA*

The *MVRMA* treats Settled and Unsettled land claimants differently in six major ways. First, Settled land claimant groups (Gwich'in, Sahtu, and Tlicho) have their own Land and Water Boards with representation from their respective governments (*MVRMA*, ss. 54-57.2). Unsettled land claimants (Indigenous Peoples in the Dehcho and Southeast NWT regions) do not have their own Land and Water Boards. They rely on the Mackenzie Valley Land and Water Board (MVLWB) instead (*MVRMA*, s. 99). However, the MVLWB still has more representation by Settled land claimant groups (*MVRMA*, s. 99).

Second, half of the Review Board members must be nominated by the Settled land claimant organizations (Gwich'in, Sahtu, and Tlicho) (*MVRMA*, ss. 112(2)-(3)). No such provision exists for Unsettled land claimants. The latter may have representation on the Review Board, but it is by chance rather than guarantee.

Third, the *MVRMA* (ss. 61(1)-(2)) grants Settled land claimants what I call **rejection** powers *only at Preliminary Screening* for projects that fail to conform to an approved land use plan. The emphasis on “only at Preliminary Screening” is to clarify that Settled land claimants do not have the power to reject projects at EA. No participant group does. Only the Review Board can recommend project rejection at the end of EA.

Settled land claimants have approved land use plans because they settled land claims. They can reject projects that fail to conform to their approved land use plans at the outset of the EIA process so that the project does not proceed to Preliminary Screening and beyond (MVEIRB, 2019f). Unsettled land claimants lack this power. They do not have approved land use plans because they have not yet settled land claims.

The Review Board’s process diagram for “Application for Licence/Permit/Authorization” below shows that if a Preliminary Screener deems an application complete, and if the application is in a region with a Land use planning board, that board deems the application in conformity with an approved land use plan. If the Land use planning board does not deem the application in conformity with an approved land use plan, the process diagram suggests that it is up to the Land use planning board to grant an exception for amendment to the land use plan. The diagram suggests that if no such exception is granted, the application is rejected, and does not proceed to Preliminary Screening.

I would argue that to the extent that this process diagram reflects the true process, the conformity with an approved land use plan can be used by the Gwich’in, Sahtu, and Tlicho, given ss. 61(1)-(2) of the *MVRMA*. Section 61(1) of the *MVRMA* on “Conformity with land use plan — Gwich’in and Sahtu Boards” states: “61 (1) The Gwich’in Land and Water Board and the Sahtu Land and Water Board may not issue, amend or renew a licence, permit or authorization

except in accordance with an applicable land use plan under Part 2.”. Section 61(2) of the *MVRMA* on “Conformity with land use plan — Wekeezhii Board” states: “(2) The Wekeezhii Land and Water Board may not issue, amend or renew a licence, permit or authorization except in accordance with any land use plan, established under a federal, territorial or Tlicho law, that is applicable to any part of its management area”.

It is an empirical question how many times the Gwich’in, Sahtu, and Tlicho have actually exercised this power shown in the process diagram and suggested in ss. 61(1)-(2) of the *MVRMA*. Answering that question requires studying all 1,800 applications at Preliminary Screening since 1998. Given the large number of documents, this question is not explored in this dissertation. It may be that empirically, the Gwich’in, Sahtu, and Tlicho have not exercised this power much.

The purpose here is to simply outline the differences between Settled and Unsettled land claimants, *as outlined under the MVRMA*, and *as outlined in the Review Board’s process diagram*. I do not suggest at any time that Settled land claimants have a veto over projects during EA. In fact, they cannot stop others from referring projects to EA. Rather, the purpose here is to show that under the *MVRMA*, and in the Review Board’s process diagram, Unsettled land claimants do not have access to the power at Preliminary Screening of rejecting applications for non-conformity with an approved land use plan. This is regardless of how often Settled land claimants have actually exercised this power.

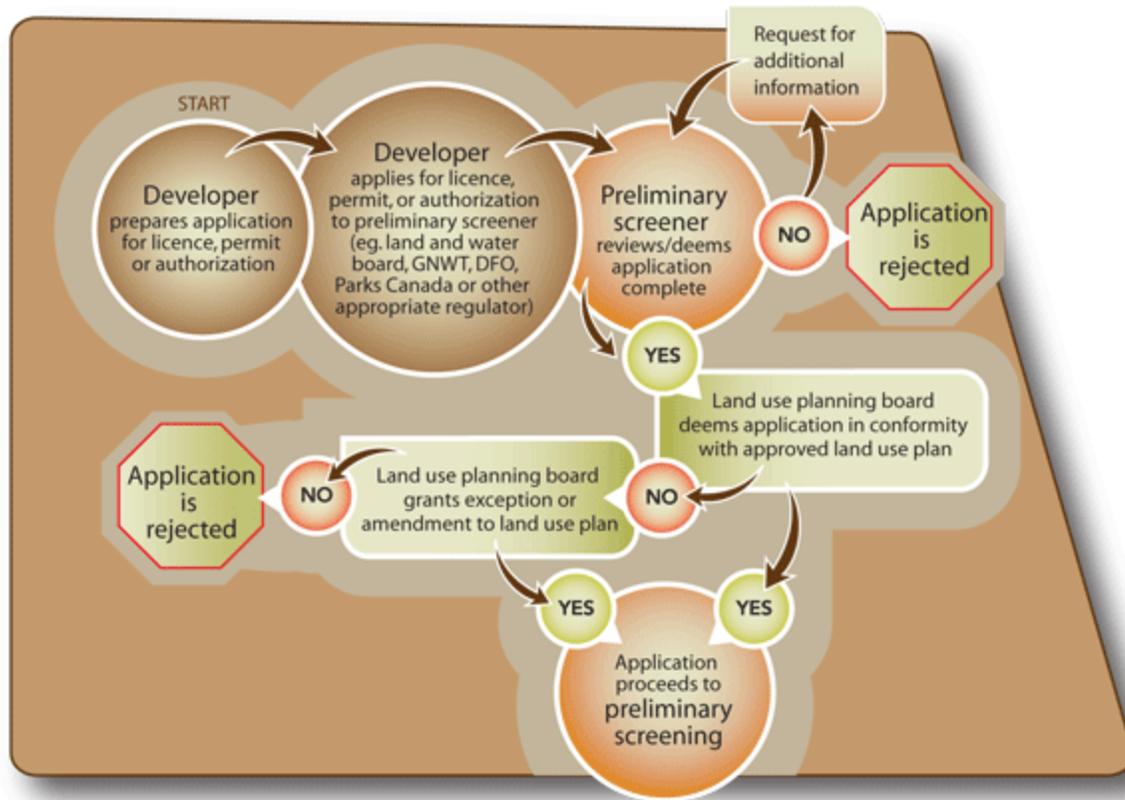


Figure 2.3: Review Board process diagram for Application for Licence/Permit/Authorization (MVEIRB, 2019f)

Fourth, the *MVRMA* (ss. 126(2)(b)-(c)) grants Settled land claimants what I call **referral** powers at Preliminary Screening. They can refer projects to EA even if the Land and Water Boards approve them. Local governments also have referral powers (*MVRMA*, s. 126(2)(d)), as does the Review Board on its own motion (*MVRMA*, s. 126(3)). Unsettled land claimants, however, lack referral powers.

Fifth, the *MVRMA* explicitly requires Settled land claimants to be consulted in certain circumstances (e.g. ss. 8, 40, and 90). It does not extend this requirement to Unsettled land claimants.

Sixth, s. 75 of the *MVRMA* provides that the Gwich'in and Sahtu have the right to unaltered waters flowing through their lands or waters next to their lands. Their respective Land and Water Boards will not issue a licence where the above rights would be interfered with (*MVRMA*, s. 76). Furthermore, s. 77 of the *MVRMA* provides that those boards will only issue the licence if there is a compensation agreement. Section 79.1 of the *MVRMA* provides similar rights for the Tlicho Government.

Figure 2.4 below shows the decision-tree for Settled versus Unsettled land claimants in terms of referral and rejection powers at Preliminary Screening. Figure 2.4 shows that under ss. 61(1)-(2) of the *MVRMA* and in the Review Board process diagram, Unsettled land claimants cannot reject projects at Preliminary Screening for non-conformity with an approved land use plan, whereas Settled land claimants can when the Proponent first applies for the project. Since Unsettled land claimants cannot reject projects for non-conformity with an approved land use plan under the *MVRMA* or in the Review Board process diagram, they cannot stop projects from being approved at Preliminary Screening or being referred to EA.

Figure 2.4 also shows that Unsettled land claimants also cannot refer projects to EA, unlike Settled land claimants. However, Settled and Unsettled land claimants alike cannot stop others such as the Review Board or another Preliminary Screener from referring projects to EA.

These differential powers are important in their own right and they are important because they may lead to differential ability to influence EA decisions through participation. Differential powers may also affect the projects that get referred to EA.

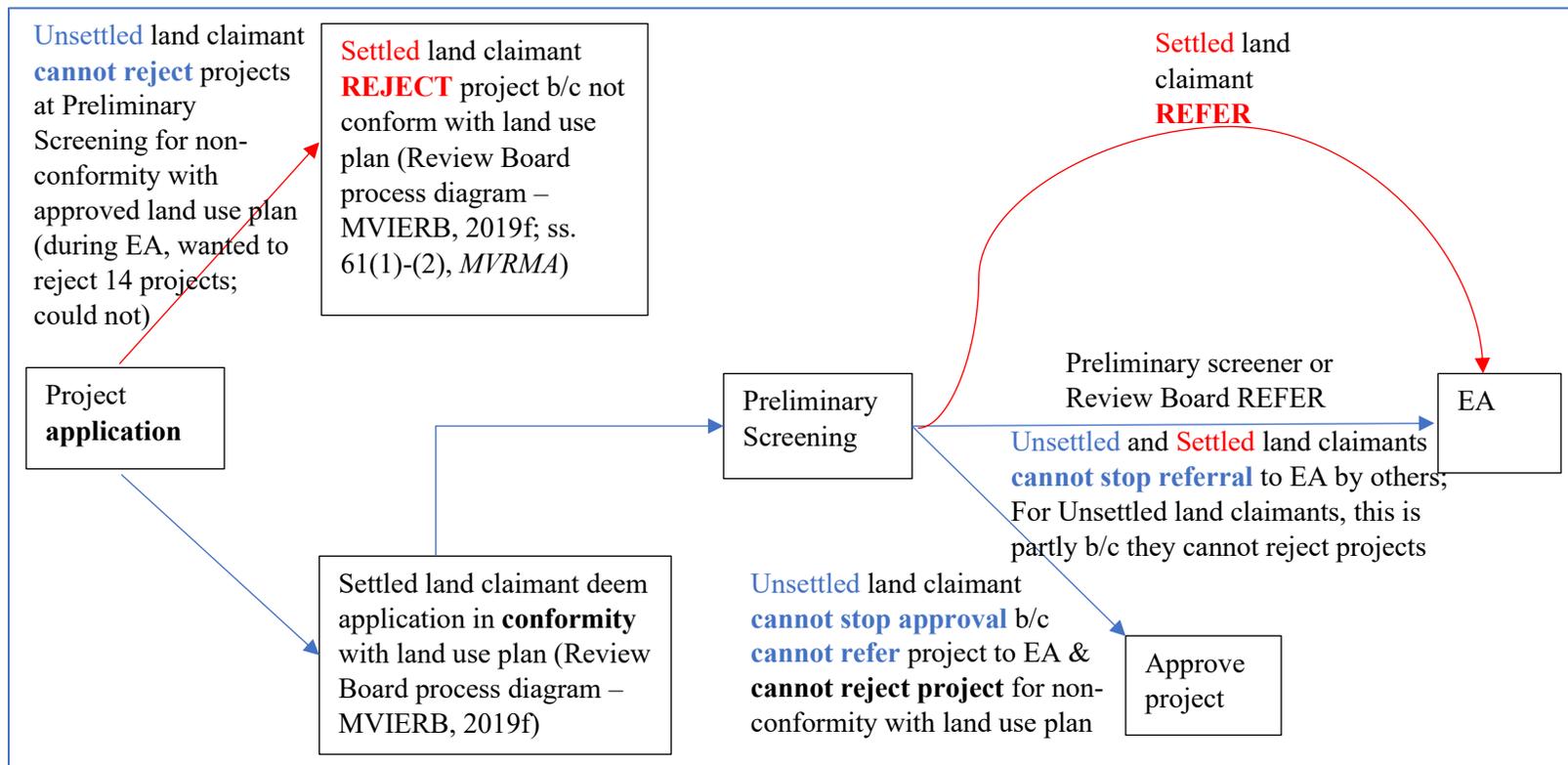


Figure 2.4: Decision-tree for Settled versus Unsettled land claimants into EA in terms of referral and rejection powers at Preliminary Screening

## 2.5 The Environmental Impact Assessment process

The *MVRMA* governs EA in the Mackenzie Valley. *CEAA* does not apply except if there is an agreement for cooperation or a joint review (*MVRMA*, s. 138). In 1998, the *MVRMA* was enacted as required by the settlements for the Gwich'in and Sahtu land claims (*MVRMA*, Preamble). It created the Mackenzie Valley's EIA process (*MVRMA*, s. 114). Section 114 of the *MVRMA* states that EIA entails three main stages: Preliminary Screening, EA, and Environmental Impact Review (EIR). It is important for readers to understand these stages in order to understand how projects get to EA and what can happen after EA.

Briefly, project Proponents apply to a Preliminary Screener for licences, permits, and other authorizations (MVEIRB, 2019g). Proponents tend to be private mining companies. Typically, one of four Land and Water Boards can conduct Preliminary Screening, as can certain government agencies such as Indigenous and Northern Affairs Canada (INAC), Department of Fisheries and Oceans (DFO), Parks Canada, or the Government of Northwest Territories (GNWT) among others (MVEIRB, 2019f). Indigenous Peoples with settled land claims (Gwich'in, Sahtu, and Tlicho) can also conduct Preliminary Screenings (*MVRMA*, s. 124(3)). Local governments can also conduct Preliminary Screenings if the project is within its boundaries or might affect the environment in its boundaries (*MVRMA*, s. 126(2)(d)).

The Review Board's process diagram shows that when a Proponent applies for a licence, permit, or other authorization to the Preliminary Screener, the Preliminary Screener reviews if the application is complete (MVEIRB, 2019f). If the application is complete, the process diagram suggests that the application goes to a land use planning board (if there is one in the region for which the project is applied) to determine if the application is in conformity with an approved land use plan (MVEIRB, 2019f). If so, the application proceeds to Preliminary

Screening. However, if it is not, the process diagram suggests that the application goes to the land use planning board to decide whether they will grant an exception or amendment to the land use plan. If they do so, the application proceeds to Preliminary Screening. If not, the process diagram shows that the application is rejected, such that it never goes to Preliminary Screening. Section 2.4 discusses the empirics of how often this has happened.

The Preliminary Screener evaluates if the project “might have significant adverse impacts on the environment, or might cause public concern” (MVEIRB, 2019f). If so, the Preliminary Screener refers the project to EA for more scrutiny. Else, the application may continue through permitting and licensing (MVIERB, 2019f).

The Review Board must conduct an EA if a project is referred to EA (*MVRMA*, s. 126(1)). The *MVRMA* requires the Review Board to make certain Decisions. First, the Review Board says it must decide if the development “is likely to have significant adverse impacts on the environment, or likely to cause public concern” (MVEIRB, 2019e). Section 128(1)(a) of the *MVRMA*, however, says that the Review Board must decide if the project will likely cause “**significant** public concern”. At the end of EA, the Review Board issues a Report of Environmental Assessment (REA) (MVEIRB, 2016a). In this Report, the Review Board decides if the project will likely have Significant Adverse Impacts on the environment or if it is likely to cause [Significant] Public Concern. Second, the Review Board also decides how many Measures and Suggestions to impose, if any. Third, the Review Board also recommends to the Responsible Minister whether to approve the project, reject it, or refer it to EIR for further study (*MVRMA*, s. 128(2)). If the project goes to EIR, the Review Board appoints an independent panel to conduct the EIR (*MVRMA*, s. 128(2)).

The Responsible Minister, who is the Minister of Aboriginal Affairs and Northern Development Canada, which became Indigenous and Northern Affairs Canada (INAC), for projects on federal lands or the GNWT Minister of Lands for projects on GNWT land, receives the REA and decides the actual outcome (MVEIRB, 2016a). I presume the current Responsible Minister for projects on federal lands is now the Minister of Crown-Indigenous Relations and Northern Affairs Canada, one of the two federal government departments that INAC became.

The Minister may adopt the Review Board's recommendation, refer the recommendation back to the Review Board for further consideration, start a consult-to-modify process with the Review Board to make any changes, or order an EIR independent of the Review Board's recommendation (*MVRMA*, s. 130). In between the REA and the Minister's decision, anyone can write to the Minister to raise concerns and try to influence the Minister's decision. If the Minister approves the project, it will proceed to the regulatory phase, where the appropriate Land and Water Board will issue the Land Use Permit and/or Water Licence (MVEIRB, 2019f).

Previous sections of this dissertation used "decision" and "outcome" interchangeably. However, in the Mackenzie Valley EA process, they differ. The Review Board first makes "decisions" as to SAI/SPC, mitigation Measures, and Suggestions for the project and recommends the Minister to approve, reject, or refer the project. The Minister decides the final "outcome". This study focuses on the Review Board's "decisions".

A mitigation Measure is "to control, reduce, eliminate or avoid an adverse environmental impact" (MVEIRB, 2004a, p. 6). The Review Board can also impose Measures for "follow-up monitoring, analysis and management" (MVEIRB, 2004a, p. 33). Suggestions are non-binding and for "good environmental management" (MVEIRB, 2004a, p. 34). For example, in the most recently completed EA as of February 2020 (GNWT TASR), the Review Board imposed

Measure 5-5, which requires the Proponent to engage with the Communities of Whati and Behchoko. Its Suggestion 5-4 suggests that the Tlicho Government and the Proponent explore shuttle service for employees.

This study focuses on the EA process because these projects have more severe impacts than those at Preliminary Screening.

## 2.6 Review Board

In 1998, the *MVRMA* established the Review Board as an independent administrative tribunal (MVEIRB, 2019a) to govern the EIA process in the Mackenzie Valley. It is independent of any order of government (Mullan, 2011), although it is funded by the federal government (MVEIRB, 2019c).

The Review Board is also a co-management board, which means it includes representatives of Indigenous Peoples and the Government (MVEIRB, 2019a). It must have at least seven members including the Chairperson (*MVRMA*, s. 112(1)). The federal and territorial governments nominate half of the members. The Gwich'in Tribal Council, Sahtu Secretariat, and Tlicho Government nominate the other half (*MVRMA*, ss. 112(2) and (3)). The federal Minister of INAC appoints members (MVEIRB, 2019a). Once appointed, the members nominate a Chairperson, who is then appointed (MVEIRB, 2019a). Terms are three years, but the Minister may renew them (MVEIRB, 2016a). The *MVRMA* guarantees representation on the Review Board to the Gwich'in, Sahtu, and Tlicho, but not the Indigenous Peoples in the Dehcho and Southeast NWT. Representation by the latter may occur but is not guaranteed in the *MVRMA*. Section 57 of the 2001 Dehcho Interim Measures Agreement invites the Deh Cho First Nations to nominate a member to the Review Board.

## 2.7 EA phases

The following describes the phases in an EA in the Mackenzie Valley. This information is for understanding how EA works and how participants can participate in EA.

An EA starts with **referral** or start-up by the Review Board (MVEIRB, 2011a).

**Notification** follows, including on the public registry at [www.reviewboard.ca/registry](http://www.reviewboard.ca/registry) (MVEIRB, 2011a). The public registry contains almost all the documents for the EA (MVEIRB, 2016a).

Notification is followed by **scoping**, which involves the Review Board asking interested groups and the public to say what they think the Review Board should focus on in the EA (MVEIRB, 2011e). The Review Board will then **review the Preliminary Screening** (Dillon Consulting, 2016). The Review Board also typically circulates a draft **workplan** for comment (MVEIRB, 2011h).

The next phase is **Terms of Reference**, which outlines the information that the Proponent must give the Review Board and other parties. Traditionally, the Review Board issued the Terms of Reference, which is supposed to be a recipe for the Proponent to write a **Developer's Assessment Report (DAR)**. For example, the Terms of Reference may ask the Proponent to describe their project, the potential impacts, and commitments to mitigation Measures (MVEIRB, 2011g).<sup>1</sup>

**Technical Analysis** then ensues, to clarify issues and identify information the Review Board will need to make its decision (MVEIRB, 2011f). This involves the Review Board checking the **DAR**. The Review Board may hold **technical sessions**, which are public meetings

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<sup>1</sup> In the 2015 EIA Practitioner's workshop, the Review Board described how it added some steps to this process. The Review Board first develops a framework for Terms of Reference that is specific to the project or industry. Then the Proponent creates a Developer's Proposed Terms of Reference, which the Review Board distributes for review. The Review Board then uses comments from the scoping sessions and online review comments to draft its Terms of Reference, which it circulates for review by participants. Finally, the Review Board issues the Terms of Reference (MVEIRB, 2015b).

where the Proponent, Parties, and public discuss the evidence presented in the DAR.

**Information requests** (written question exchanges) may occur at any time but usually precede or follow technical sessions (MVEIRB, 2011c). While Parties may suggest them to the Review Board, only the Review Board issues information requests (MVEIRB, 2011c). Parties can submit **technical reports** before a final hearing to the Review Board (MVEIRB, 2017). The Party states if it thinks the project will likely cause significant impacts, either environmental, social, economic, or cultural (MVEIRB, 2017). The Review Board will then meet with registered presenters in a **pre-hearing conference** to ensure a subsequent public hearing goes smoothly (MVEIRB, 2011d). At the **final public hearing**, the Proponent and other Parties give their final presentations (MVEIRB, 2011b).

The EA closes with the **decision** phase. The Review Board produces a **REA** (MVEIRB, 2016a). In addition, during the EA, the Review Board can hold community hearings (MVEIRB, 2011b). Parties can also engage in **requests for rulings** at any time, where they request the Review Board to issue a ruling (MVEIRB, 2004a). This study focuses on the REAs to elicit variables on participation and Review Board decisions. Table 2.2 summarizes the typical phases in EA by updating a 2016 figure by the Review Board (Dillon consulting, 2016, p. 83).

Table 2.2: Typical phases in EA

Start up	Scoping	Technical analysis	Decision phase	Follow-up
<ul style="list-style-type: none"> <li>• Referral to EA</li> <li>• Review Board has Minimum information requirements before starting an EA</li> <li>• Review Board notifies of EA</li> <li>• Distribution list</li> </ul>	<ul style="list-style-type: none"> <li>• Review Board issues Workplan for comment</li> <li>• Proponent submits Developer's Proposed Terms of Reference</li> <li>• Scoping sessions</li> <li>• Review Board reviews Preliminary screenings</li> <li>• Review Board circulates draft Terms of Reference for comments</li> <li>• Participants comment on draft Terms of Reference</li> <li>• Review Board issues Terms of Reference to Proponent</li> </ul>	<ul style="list-style-type: none"> <li>• Proponent submits Developer's Assessment Report</li> <li>• Review Board conducts Adequacy review of DAR</li> <li>• Participants can make <b>Information requests</b> at any time, but usually precede or follow Technical sessions</li> <li>• Participants submit Technical Reports</li> <li>• Technical sessions</li> <li>• Parties submit final submissions</li> <li>• Pre-hearing conference</li> <li>• <b>Public hearings</b></li> </ul>	<ul style="list-style-type: none"> <li>• Review Board writes REA</li> <li>• Review Board submits REA to Minister</li> <li>• Minister makes decision</li> </ul>	<ul style="list-style-type: none"> <li>• Licensing / permitting (also called Regulatory phase)</li> <li>• Monitoring and reporting</li> </ul>

## 2.8 Who: Proponent, parties, non-parties, participants, technical reviewers, experts

The following clarifies the roles of the Proponent, Parties, Non-parties, Participants, Technical reviewers, and Experts. The **Proponent** proposed the project. **Parties** are participants who have declared an intention to participate formally (MVEIRB, 2019j). Non-party members of the public may still participate by writing to the Review Board before the hearing or making presentations during the part of hearings reserved for public views (MVEIRB, 2004a). This study uses the broader term “**participants**”, because some groups participate but never apply for Party status. **Technical reviewers** are recognized to hold specialized knowledge that makes impact prediction and analysis more accurate. Such reviewers can include government agencies, NGOs, traditional knowledge (TK) holders, and independent expert advisors. The Review Board can also hire external or internal **experts** (MVEIRB, 2004a).

The following section reviews literature that provides relevant background to the research question: how does participation by various groups of participants influence the EA decisions in the Mackenzie Valley?

### 3 Selected literature review on participation and influence

In order to answer the research question, Objective 1 of this study is to identify indicators of participation and decisions from Reports of EA. In order to identify indicators of participation and decisions, section 3.1 reviews the applied literature on how public participation influences bureaucratic decision-making processes, especially for methodological direction for this study. Since this study seeks to examine how participation influences decisions *in the Mackenzie Valley EA process*, section 3.2 reviews studies of participation and influence in the Mackenzie Valley EA process. Chapter 1 showed that participation and influence by Indigenous Peoples and knowledges is important while Chapter 2 showed that the Mackenzie Valley EA system treats Indigenous Peoples with and without settled land claims differently. Since the objectives of this study are to examine how participation by various participant groups influences decision-making, this study examines Indigenous Peoples with and without settled land claims separately. Therefore, section 3.3 reviews the literature on the effect of unsettled land claims on EA in the Mackenzie Valley, which provides another context within which this study is situated. Finally, since Indigenous Peoples often contribute TK, section 3.4 reviews the literature on challenges of EA incorporating TK, which might inform or explain the ability of Indigenous Peoples to influence EA decisions in the Mackenzie Valley.

#### 3.1 Applied research on how public participation influences bureaucratic decision-making processes

The applied research question situates this study in the context of research on how public participation influences bureaucratic decision-making for the environment and other matters. Here I review studies conducted in the US and Canada.

One reason to focus on the US literature is that there have been many studies of how public participants influence rules made by US federal government agencies. The reason is that in 1946, the US introduced the *Administrative Procedure Act* requiring federal agencies to undergo “notice and comment” by the public when making rules (Yackee, 2019). The US federal agency proposes a rule and then comments are received by various groups, following which the agency makes the final rule. To my knowledge, this uniform requirement does not exist in Canada. Rather, Canada has separate decision-making processes governing the environment that might involve public participation and each process is governed by its own statute. Given the dominance of studies on US rule-making in this review, Deaton, Lintner, and Harrington (2008) should be noted as a study of a Canadian environmental decision-making process using statistical regression. They evaluated the influence of comments on the Ontario Ministry of Environment’s decisions to allow or reject permit requests to use water or air under the *Environmental Bill of Rights* introduced in 1993.

Applied studies of the influence of public participation on bureaucratic decision-making processes have used qualitative methods, quantitative methods, and both. An example of a study that used qualitative methods is Shapiro (2007), which interviewed 7 high level staff within the rule-making US federal agency. The staff acknowledged that comments influenced their decision-making for just one rule. Several studies have used qualitative methods to examine how participation influences decision-making in the Mackenzie Valley EA process. These are canvassed in detail in section 3.2.

Other studies examine multiple cases and some have used quantitative indicators of participation, decisions, and influence, but not used statistical techniques to formally test hypotheses. Some of these studies extracted data from the written record (Golden, 1998; Shapiro,

2008), while others surveyed decision-makers (West, 2004) or interest groups (Furlong & Kerwin, 2005). For example, Golden (1998) studied the influence of participation on rule-making for 11 rules by 3 US federal government agencies. Golden (1998) classified the degree to which each rule changed due to comments in four degrees: “a great deal”, “some”, “minimal”, and “none”. The classification was presumably done by studying each agency’s detailed response to all comments received. The conclusion was that interest groups rarely influenced the decision significantly, as only 1 of 10 rules were changed a great deal. Shapiro (2008) studied the influence of comments on 9 rules by 2 agencies using Boolean analysis, which uses truth tables to show correlations between the dependent variable (degree of change in rule) and independent variables (number of comments, complexity, salience). Shapiro (2008) found that agencies are most likely to change their proposed rules when the volume of comments is high and the rules are complex but not politically salient. West (2004) studied the influence of public notice and comment on 42 rules by 14 agencies. Telephone interviews with informed agency staff were used to answer the question of influence. It was found that 16 of the 42 rules had significant changes but it was unclear if these changes were caused by the comments. Furlong and Kerwin (2005) surveyed interest groups instead and asked the 149 respondents how effective they thought their method of participation was at influencing the rule-making agency.

### 3.1.1 Studies that have used statistical regression

A smaller number of studies that have used quantitative methods have also used econometric or statistical methods, sometimes mixed with other methods (Balla, 1998; Cropper, Evans, Berardi, Ducla-Soares, & Portney, 1992; Cuellar, 2005; Daley, 2007; Deaton et al., 2008; Furlong, 1997; McKay & Yackee, 2007; Naughton, Schmid, Yackee, & Zhan, 2009; Yackee,

2006; Yackee & Yackee, 2006). Since these studies are especially germane to this dissertation, their methods are reviewed in some detail. The following dimensions are considered: data, unit of analysis, sample size, hypothesis testing and results, variables, and statistical methods.

**Data:** Studies have used three major sources of data to measure the influence of public participation on decision-making: (1) surveys or interviews with public participants (Furlong, 1997; Furlong & Kerwin, 2005; Yackee, 2015); (2) surveys or interviews with decision-makers (Shapiro, 2007; West, 2004); and (3) written records (Balla, 1998; Cropper et al., 1992; Cuellar, 2005; Daley, 2007; Deaton et al., 2008; Golden, 1998; Haeder & Yackee, 2015; Naughton et al., 2009; Shapiro, 2008; Yackee, 2006; Yackee & Yackee, 2006). Studies of the written records have used content analysis or other forms of qualitative analysis. Content analysis is used in this study and is discussed in more detail in section 4.1.3. For content analysis, most studies used human coding, while only a few used automated content analysis (Haeder & Yackee, 2015; McGetrick, Bubela, & Hik, 2017). Coding rules can be developed with or without studying the content of the public participation. For the latter, Jewell and Bero (2007) used a standard coding instrument, which they updated to accord with the particular content they faced after reading public participation submissions.

**Unit of analysis or observation:** Deaton et al. (2008) used individual permit applications as the unit of analysis. Most of the US rule-making studies used the rule or the agency's final decision as the unit of analysis. One study of US rule-making used a more disaggregated unit of analysis: the stage of rule-making, because each stage captured an opportunity for an agency to make a decision to incorporate participants' comments (Naughton et al., 2009).

**Sample size:** Many of the studies that used statistical regression had only 30-40 observations: 36 rules for Naughton et al. (2009), 39 rules for Yackee (2015), and 40 rules for

Yackee (2006), Yackee and Yackee (2006), and McKay and Yackee (2007). Other studies considered more decisions: 245 decisions for Cropper et al. (1992), 852 decisions for Daley (2007), and 973 decisions for Deaton et al. (2008). Studies that used surveys had a different range of the number of observations because they relied on the number of respondents: 178 for Furlong (1997), 149 for Furlong and Kerwin (2005), and 388 for Yackee (2015).

**Hypotheses and results:** Some studies tested the broad hypothesis of whether interest groups as a whole influenced US federal agency rule-making. For example, Yackee (2006) found that interest group comments as a whole did influence the rules. Deaton et al. (2008) tested the hypothesis that *negative* public comment increased the likelihood of the Ontario Ministry of Environment rejecting permit applications. They found that negative public comment had a positive, but statistically insignificant, effect.

McKay and Yackee (2007) tested the hypothesis that agencies responded in favour of commenters who made more comments. Their main explanatory variable was the difference between the number of pro-regulation and the number of anti-regulation comments. They found that agencies responded to the majority of commenters, whether they wanted more or less regulation.

Some studies tested which interest groups had most influence over decision-making. Cropper et al. (1992) found that environmental groups' comments increased the probability of the Environmental Protection Agency (EPA) cancelling cancer-causing pesticides, while grower organization comments had the opposite effect. Golden (1998) did not find clear patterns regarding who influenced the decisions most. Daley (2007) tested whether active citizen groups influenced the EPA to choose remedies that were more protective of health at US Superfund sites and found that the EPA was more likely to choose such remedies.

Other studies tested whether businesses influenced decision-making the most. Golden (1998) found that there was not undue influence by business interests, while Yackee (2015) found that participants thought agencies responded more to business interests than to individual citizens.

In addition to examining the influence on the agency's decision for the rule, some studies also examined the influence on the agency's acceptance of commenter suggestions or recommendations (Cuellar, 2005; Naughton et al.; Yackee, 2006). Cuellar (2005) found that commenter sophistication increased the probability of an agency accepting a suggestion, while Naughton et al. (2009) concluded that rule-makers were responsive to early commenters' recommendations.

**Variables:** In the US, given the nature of the rule-making process, the dependent variable is often whether the proposed rule changed as a result of the public participation. Often, it has been coded on a 3-point scale: more government regulation, no change, and less government regulation (McKay & Yackee, 2007; Naughton et al., 2009; Yackee & Yackee, 2006). Other studies had dependent variables specific to the process. Cropper et al. (1992) used a binary dependent variable for canceling or continuing pesticides. Daley (2007) coded EPA remedy decisions on a 7-point scale in order of health protection. Deaton et al. (2008) used a binary dependent variable for allowing or rejecting permit requests. Since Furlong (1997) used surveys, the dependent variable was a measure of the interest group's self-reported belief of its influence on a scale. Another group of studies used dependent variables for an agency accepting a commenter's suggestion or recommendation (Cuellar, 2005; Naughton et al., 2009; Yackee, 2006).

The main explanatory variable in most studies is some measure of comments, which can take various forms: dummies (comments or not), counts (number of comments), scales in terms of changes requested (more, equal, or less regulation), and other dimensions. Measures of comments can be for all interest groups or by interest group.

Particularly relevant for the current study is the work by Cuellar (2005). Cuellar (2005) went further than other US rule-making studies and analyzed the content of comments in terms of the “concerns” raised in the comments. Cuellar (2005) studied 200 comments, identified concerns from the comments, and grouped the concerns into types. Cuellar (2005) also studied the agency statements that followed the final rule to see how agencies characterized concerns in the comments. For example, for 172 financial privacy comments, 5 types of concerns were identified: law enforcement objectives, legal safe harbor for financial institutions, administrative cost associated with the regulation, technical drafting changes to simplify the regulation, and privacy. Cuellar (2005) then took the types of concerns and quantified the percent of comments by commenter group raising each concern. For example, for the first concern of law enforcement objectives, 12.9% of individual comments raised this concern, 100% of unofficial association comments raised this concern, 36.5% of business comments raised this concern, and 30.2% of business association or law firm representing business comments raised this concern. Cuellar (2005) did not use the concerns in further statistical regressions. The “issue” focus of this dissertation is somewhat similar to the focus on “concerns” by Cuellar, although this study goes further by identifying concerns under each issue and including concerns in this study’s regression analysis.

Analysts included control variables to account for variables other than participation that may affect the outcomes of rule-making processes. These studies used a range of control

variables and they are specific to each context. For example, Yackee (2006) and Naughton et al. (2009) used control variables for congressional attention to rule, presidential attention to rule, public salience of rule, and technical complexity of rule. Yackee and Yackee (2006) also used public salience and technical complexity. Daley (2007) controlled for the degree of site contamination and various socio-economic variables in assessing the influence of active citizen groups on the EPA's choice of remedies. Deaton et al. (2008) used three control variables: a dummy for a water-related permit request, a dummy for whether the median income exceeds the 75<sup>th</sup> percentile, and the population of the district or county. Cropper et al. (1992) used a dummy for the years when the EPA was administered by a controversial person.

**Statistical methods:** Statistical methods used include Ordinary Least Squares (Balla, 1998; Naughton et al., 2009), Probit (Cropper et al., 1992; Deaton et al., 2008), Logit (Cuellar, 2005; Naughton et al., 2009), and Ordered Probit (McKay & Yackee, 2007; Yackee, 2006; Yackee & Yackee, 2006). Daley (2007) used a selection model while Deaton et al. (2008) first used a zero-inflated poisson regression to investigate what influenced the number of comments provided per application and then a probit model to assess the Ministry of Environment's decision to reject an application. The following discusses dimensions of participation.

### 3.1.2 Dimensions of participation

In order to examine the influence of participation on decision-making, which is an important theoretical justification for public participation in EA, this study needs to measure participation. In order to measure participation, this study draws on the methodological choices in the section above and also the following dimensions of participation discussed in various studies. Dietz and Stern (2008, p. 14) listed five dimensions of participation: (1) "who is

involved”, (2) “when ... they are involved”, (3) “the intensity of involvement”, (4) “the extent of power or influence the participants have”, and (5) “the goals for the process”.

Regarding who participates, in a previous study of EA in the Mackenzie Valley, Fitzpatrick, Sinclair, and Mitchell (2008) considered four categories of participants: government, community and aboriginal government, NGO, and industry. McGetrick et al. (2017, p. 141) used five categories: “aboriginal communities, industrial proponents, territorial agencies, federal agencies, or regulators”.

Regarding an additional dimension of “how” or type of participation, the studies in section 3.1.1 measured participation using comment dummies, comment counts, scales in terms of changes requested, and other dimensions. Cuellar (2005) went further and analyzed the concerns raised in the comments and grouped the concerns into types.

Regarding the dimension of intensity of participation, Rega and Baldizzone (2015, p. 114) distinguished between “*deep* public involvement” and just “meeting minimal requirements”. However, they did not define “deep” public involvement.

Section 6.1.1 discusses the choices that this study makes for measuring who participates, the type of participation, and the intensity of participation.

Following a review of literature on the various methodological choices above, since this study seeks to examine how participation influences decisions *in the Mackenzie Valley EA process*, the following section reviews studies of participation and influence over EA decisions in the Mackenzie Valley to situate this study.

### 3.2 Studies of participation and influence over EA decisions in the Mackenzie Valley

The Mackenzie Valley EA process has been in effect for over 20 years, making it the subject of a series of mainly qualitative studies by academics. The following reviews some of the most notable of the studies that have evaluated participation and/or influence over EA outcomes. Most of these studies looked at barriers and opportunities for participation and influence. Most studies considered particular cases and all used some combination of document analysis and key informant interviews. None sought to statistically evaluate the influence of participation on decisions. The review is presented in two groups. The first group of studies evaluated public participation in general in the Mackenzie Valley EA process while the second group focuses on participation by Indigenous Peoples in the Mackenzie Valley EA process.

Starting with the first group, Galbraith, Bradshaw, and Rutherford (2007, p. 32) evaluated the EA process for three diamond mines (Ekati, Diavik, and Snap Lake) using criteria gleaned from the EA and environmental justice literature. Using documents and interviews with 18 key informants, they concluded that the Mackenzie Valley EA process for Snap Lake was effective in integrating public concerns and giving participants equal consideration.

Fitzpatrick et al. (2008) examined the extent to which the *MVRMA* enabled deliberative democracy by focusing on the EA of the De Beers Snap Lake diamond mine. One of the earlier phases of that EA was to set the “terms of reference” and “workplan” for how the EA would progress. Participants had suggested various amendments to the terms of reference and workplan. Fitzpatrick et al. (2008, p. 15) concluded that since the Review Board accepted most of the suggested changes, “participation had a direct impact”. This paper did not examine how participation influenced the Review Board’s final decision.

O'Reilly (2013) argued that public participation made a difference in the Giant Mine EA because the following conditions coalesced: Indigenous and public governments shared interests to improve the project, the NGO Alternatives North was dedicated and galvanized public concern, the Proponent had failed to obtain a social licence, and there was co-management.

Turning to the second group of studies, Armitage (2005) investigated the conditions underlying more collaborative EA in the NWT. He noted that the Sahtu Land and Water Board had increased opportunities for the public to participate in EIA by using an established referral list to inform groups of project applications. He also learned that the Gwich'in Land and Water Board perceived that the *MVRMA* had increased opportunities for participation.

White (2006) found that in the Paramount Resources Cameron Hills extension project EA, the Indigenous Peoples in the Dehcho region had trouble convincing the Proponent that they used the lands traditionally.

Christensen and Grant (2007) used key informant interviews to investigate the extent to which the *MVRMA* increased local authority when participating in decision-making about the environment. While Christensen and Grant (2007, p. 122) concluded that some respondents believed that the *MVRMA* *did* increase local decision-making, the authors argued that having decision-making vested in the federal government instead of the territorial government “tokeniz[ed]” local participation and barred “the meaningful involvement of indigenous knowledge and indigenous traditional knowledge holders” in the process.

Dokis (2015; 2017) studied the participation of the Sahtu Dene people in the Environmental Impact Review of the Mackenzie Gas Project. Dokis (2015) argued that although the Sahtu Dene participated more than before, their participation was limited in various ways and they were forced to participate in ways that did not fit their values. Dokis (2015, p. 9) contended

that even when Indigenous Peoples did participate in co-management, “their concerns are typically reinterpreted in the language of these new institutions”. She found that the EIR process privileged quantifiable and techno-rational data over TK. Therefore, it was very hard for the Sahtu Dene to prove anything contrary to the Proponent’s assertion of expected impacts. While Dokis’ work is illuminating, it is important to note that EIR differs from EA. EIR is a process that can follow EA to scrutinize the project even more. Therefore, conclusions about EIR cannot be applied to EA automatically.

In contrast to Dokis’ findings, in 2016, two studies found that the Tlicho Government’s participation did influence the Review Board’s decision and that their TK was especially influential. Kuntz (2016, p. 98) studied Tlicho women’s participation in the 2012 NICO project EA and found their participation via TK was important to the Review Board’s decision for the EA and mitigation Measures. Gibson et al. (2016) also discussed the case of Fortune’s NICO Project involving the Tlicho Government. They conjectured that two main factors caused the Report of EA to incorporate the Tlicho Government’s recommended Measures. First, the Tlicho Government could make decisions in the EA process as a Settled land claimant. Second, they accessed enough funding to produce their own TK or traditional land-use study, which the authors (2016, p. 171) say, “fundamentally changed the process and the outcome of the REA”.

Parlee, Sandlos, and Natcher (2018) revealed that despite LKDFN and YKDFN raising concerns and making recommendations during the Jay Project EA, their participation did not convince the Review Board to decide otherwise. Despite deciding that the project will likely cause Significant Adverse Impact, the Review Board recommended approval based on mitigation Measures. The LKDFN then even tried to sue the government to stop the project but could not continue the suit due to financial challenges (Parlee et al., 2018). We can infer from such

attempted legal action that the LKDFN was not satisfied with how their participation influenced the Review Board's decision.

Lastly, McGetrick et al. (2017) used automated content analysis ("ACA") to study the type of participation by Indigenous communities, Proponents, territorial and federal government agencies, and regulators who participated in two EAs in the Mackenzie Valley: Prairie Creek and NICO. They used computer programming scripts to interpret the transcripts of public hearings in the two EAs. First, they evaluated the complexity, relative priority (intensity), salience, and linguistic authority of participation by the different groups. Complexity was assessed by the average grade reading level of stakeholder groups' submissions in the public hearing transcript. Relative priority was calculated by the length of the stakeholder group's submissions as a ratio of the total transcript. The ratio of "total lemmatized vocabulary" was calculated, where lemmatization means taking away inflection from words and grouping the words linguistically as a proxy for salience (McGetrick et al., 2017, p. 141). They then used correspondence plotting to show how much stakeholder groups aligned with each other in the public hearings. They also used Term frequency-inverse document frequency methods to show the terms or phrases that stood out the most in the transcripts.

McGetrick et al. (2017) found that Indigenous participants talked with less linguistic authority (grade 6 to 8 reading level) than Proponents and federal government stakeholders (grades 9 to 11). Correspondence plotting for Prairie Creek showed Indigenous Peoples and regulators to be closest in alignment, while federal, territorial, and Proponent stakeholders were about the same distance away. The analysis for NICO, however, showed Indigenous Peoples differing particularly from others along one of the axes. Last, the Term frequency-inverse

document frequency results showed the issues raised in the transcript across the two EAs differed in nature and frequency.

While the McGetrick et al. (2017) quantitative study of two EAs contributed powerfully to increasing understanding about the nature of participation by different groups in the Mackenzie Valley EA process, it does not answer the research question here: how does participation *influence the final EA decision*. It studies participation in one phase of the EA process: the public hearing, rather than the final EA decision. It also considers only 2 of the 39 projects that have completed EA since 1998. Also, the authors admitted that it would be rare for ACA to be as reliable as detailed qualitative content analysis. In addition, for ACA results to be interpreted meaningfully, the results need to be validated each time and in the right context. Therefore, McGetrick et al. (2017) acknowledged that critical thinking by an analyst is irreplaceable. The authors said that one reason they used ACA is that studying all the documents in just one EA would take an incredible amount of resources and time. This study fills this gap by using detailed qualitative content analysis of Reports of EA to quantify participation by various participants and then statistically assess how that participation influences EA decisions.

This study fills the gap left by the studies reviewed in this section, which mainly used qualitative techniques to research one or a few projects to examine the ability of participation to influence the EA decision qualitatively. The gap is left because while some studies examined more than one case, none of the studies examined all 39 projects that completed EA since 1998, which means that generalizable insights about all 39 projects were not available in those studies. Furthermore, while qualitative analysis of multiple cases can generate generalizable insights, there may be idiosyncrasies in certain cases that prevents the identification of more generalizable

results using qualitative analysis alone. Qualitative analysis using statistical regression can fill this gap.

In this study, quantitative methods are used to measure participation and decisions (Objective 1) and assess the influence of participation on EA decisions for *all 39* projects that completed EA since 1998 (Objective 2). Rather than using ACA, this study relies on more reliable detailed qualitative content analysis.

Chapter 1 showed that participation and influence by Indigenous Peoples and knowledges are important while Chapter 2 showed that the Mackenzie Valley EA system treats Indigenous Peoples with and without settled land claims differently. Since the objectives of this study are to examine how participation by various participant groups influences decision-making, this study examines Indigenous Peoples with and without settled land claims separately. Therefore, the following section reviews the literature on the multiple effects of unsettled land claims on EA in the Mackenzie Valley, to provide another context within which this study is situated.

### 3.3 The effect of unsettled land claims on EA in the Mackenzie Valley

Table 3.1 shows that the effects can be organized into 12 related themes. In sum, the lack of land use plans and referral powers associated with unsettled land claims in the Mackenzie Valley have been found to result in more referrals to EA and more ad hoc planning, increasing uncertainty and complexity for the Land and Water Boards and the Review Board. Unsettled land claims have also been found to increase the number of consultation challenges, making things more complex, uncertain, expensive, and long. Finally, Unsettled land claimants have been found to feel alienation, low trust of Proponents and the EA process, and lack of legitimacy and fairness regarding the EA process.

Table 3.1: Effects of unsettled land claims on EA in the Mackenzie Valley

<b>Effect</b>	<b>Possible reasons</b>
1. Longer EA processes in regions without settled land claims	<ul style="list-style-type: none"> <li>• Lack of co-management boards and land use plans (AGC, 2010).</li> <li>• Communities feel unrepresented and try to influence decision-making in other ways (AGC, 2010).</li> <li>• Unsettled land claims make things more complex and uncertain (Senes Consultants Limited, 2011).</li> </ul>
2. More consultation challenges in unsettled areas	<ul style="list-style-type: none"> <li>• More consultation challenges in areas without settled land claims (Senes Consultants Limited, 2011).</li> <li>• Between 2005 and 2010, dozens of applications had been referred to the Crown for more consultation in unsettled land claimant regions, while there were no referrals for more consultation in the Tlicho territory (AGC, 2010).</li> </ul>
3. More projects referred to EA in unsettled areas	<ul style="list-style-type: none"> <li>• Large projects were concentrated in regions without settled land claims, and therefore, without land use plans (Senes Consultants Limited, 2011).</li> <li>• Anecdotal evidence to suggest that unsettled land claims caused more referrals to EA (Senes Consultants Limited, 2011).</li> <li>• Incomplete land use plans caused more projects to be referred to EA, which were otherwise avoidable (MVEIRB, 2008b).</li> </ul>
4. More expensive EIA	<ul style="list-style-type: none"> <li>• Unsettled land claims made EIA more expensive for all participants because of the prolonged process (Arcadis, 2016).</li> </ul>
5. Uncertainty for Proponents and complexity for Boards	<ul style="list-style-type: none"> <li>• Regions with unsettled land claims had fuzzier rules for development and people were likely to not know who to consult (Arcadis, 2016).</li> <li>• Incomplete land use plans increased Boards' workloads and complexity of their decision-making (Senes Consultants Limited, 2011).</li> </ul>
6. Ad hoc land use planning and less control over land use planning	<ul style="list-style-type: none"> <li>• The incomplete land use plans made planning ad hoc (AGC, 2010).</li> <li>• They also made it harder to plan because projects were already in place (Senes Consultants Limited, 2011).</li> <li>• A striking example is the Akaitcho government losing a lot of control over development in the Upper Thelon, an area in the Southeast NWT, because they could not withdraw lands there as many mineral claims had already been staked there (Ehrlich, 2010).</li> </ul>
7. Less effective management of cumulative impacts	<ul style="list-style-type: none"> <li>• Many stakeholders had concerns that prolonged land use planning makes it harder to address cumulative impacts (Senes Consultants Limited, 2011).</li> </ul>
8. Politics	<ul style="list-style-type: none"> <li>• Resource development projects in regions with unsettled land claims served as focal points for politics (MVEIRB, n.d.).</li> </ul>
9. Legitimacy and fairness	<ul style="list-style-type: none"> <li>• The Review Board found it challenging to keep showing that the EIA process is fair and objective for all participants (MVEIRB,</li> </ul>

	<p>2008b).</p> <ul style="list-style-type: none"> <li>• Unsettled land claimants participate reluctantly in EIA and have concerns with the process' legitimacy (MVEIRB, 2008b).</li> <li>• Some Unsettled land claimants felt that the <i>MVRMA</i> was forced onto them without enough consultation in creating the legislation (Christensen &amp; Grant, 2007).</li> </ul>
10. Conflict between Proponent and other land users and avoidable EAs	<ul style="list-style-type: none"> <li>• Incomplete land use plans caused conflicts between Proponents and other land users (MVEIRB, 2008b).</li> </ul>
11. Discouragement of trust	<ul style="list-style-type: none"> <li>• Lacking referral powers undermines trust that they are otherwise trying to establish with Indigenous communities (MVEIRB, 2008b).</li> </ul>
12. Alienation	<ul style="list-style-type: none"> <li>• The lack of representation for the Southeast NWT region on the Review Board alienates Indigenous Peoples there even more from the EIA process (MVEIRB, 2008b).</li> </ul>

Source: Author's summary of available evidence

In addition to this review of the effect of unsettled land claims in the Mackenzie Valley specifically, section 4.2 reviews economics studies on the effect of settling land claims on economic wellbeing.

Since Indigenous Peoples often contribute TK, the following section reviews the literature on challenges of EA incorporating TK, which might inform or explain the ability of Indigenous Peoples to influence EA decisions in the Mackenzie Valley.

### 3.4 Traditional Knowledge in EA in the Mackenzie Valley

The Berger Inquiry of 1974 to 1977 set the high standard for including Indigenous Peoples through participation in EA (Armitage, 2009; Gibson & Hanna, 2009). Mr. Justice Thomas Berger led a Royal Commission on the proposed Mackenzie Valley Pipeline (Berger, 1977). The Commission travelled to all 35 communities in the Mackenzie Valley, the Delta and Beaufort Sea, and Northern Yukon (Berger, 1977). Mr. Justice Berger listened to Indigenous

Peoples in their own communities and in their own languages (Berger, 1977). He concluded that it is imperative that Indigenous Peoples are listened to if the impacts of proposed projects are to be truly understood (Berger, 1977). Unfortunately, the Berger model of conducting EA has never been repeated in Canada (Gibson & Hanna, 2009). Instead, the EA process has struggled to incorporate Indigenous relationships and TK, as shown below. A process that favours scientific evidence over TK might impede the ability of Indigenous participants to participate in EA or for their participation to influence the Review Board's decisions.

#### 3.4.1 TK: A definition

Berkes (2018, pp. 7-8) proposes a “working definition” of Traditional Ecological Knowledge (TEK) as “a cumulative body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment”. There is much discussion about TEK versus TK versus Indigenous Knowledge (Stevenson, 1996). This study uses the wording TK.

The MVEIRB (2005a) issued *Guidelines for incorporating Traditional Knowledge in Environmental Impact Assessment*. The Guidelines do not define TK. Instead, the Guidelines (p. 6) identify “three important elements of traditional knowledge that will contribute to the EIA process”:

a) “**Knowledge about the environment**”: “This is factual or ‘rational’ knowledge about the environment. It includes specific observations, knowledge of associations or patterns of biophysical, social and cultural phenomena, inferences, or statements about cause and effect,

and impact predictions. All are based on direct observation and experience, shared information within the community and over generations”.

b) **“Knowledge about use and management of the environment”**: “This is the knowledge that people have about how they use the environment and about how they manage their relationship with the environment. Examples include cultural practices and social activities, land use patterns, archeological sites, harvesting practices, and harvesting levels, both past and current”.

c) **“Values about the environment”**: “This knowledge consists of peoples’ values and preferences, and what they consider ‘significant’ or valued components of the environment, and what they feel is the ‘significance’ of impacts on those valued components. Aboriginal spirituality and culture play a strong role in determining such values. This element of traditional knowledge includes moral and ethical statements about the environment and about the relationships between humans, animals, and the environment; the ‘right way’ to do things”.

These elements are the first three of the four categories that Usher (2000) used to classify TEK. Usher’s fourth category is the “knowledge system”, which is the underlying “framework with which people construct knowledge from facts” (Usher, 2000, p. 186).

#### 3.4.2 EA process cannot fully incorporate Indigenous relationships with nature or risk considerations

Dokis (2017) argued that institutionalized EA “objectifie[s] nature” (p. 195), seeks knowledge about the environment through scientific rationality, technocratizes industrial impacts, and quantifies the risks and impacts of development.

Dokis argued that such institutionalized EA cannot properly incorporate the Sahtu Dene's relationships with nature. The Sahtu Dene relate with nature as a "leader (k'aowe)" (Dokis, 2017, p. 195). They know nature through "sensory experience" and TK from being there (Dokis, 2017, p. 195). Ellis (2005) also stated that TK relies a lot on experience. According to Dokis (2017, p. 205), Indigenous Peoples' metaphysics includes "social ties" with the environment and the animals. Their relationship with land is embedded in "systems of meaning" and they hold "subjective values" (Dokis, 2017, p. 208).

Dokis (2015, p. 11) argued that institutionalized EA cannot fully capture the Sahtu Dene's relationship with nature because that relationship cannot fit into "quantifiable techno-rational categories". As Dokis (2017) further stated, how EA identifies risks and impacts of development through rational means often omits the risks considered by the Sahtu Dene because the process is quantifying what the Sahtu Dene find not quantifiable. Indeed, Dokis (2017, p. 207) argued that institutionalized EA can relegate "subjective experiences of land". Dokis (2017) argued that relegating such subjective experiences when evaluating risks and impacts of development also makes other aspects of Dene identity secondary. This reinforces Nadasdy's (1999) findings that resource managers and scientists usually perceived TK as a supplement. Nadasdy (1999, p. 9) also argued that because TK is more a "way of life" to Indigenous Peoples rather than knowledge, there are certain aspects of TK that do not get considered in EA processes, which focus on scientific data.

Therefore, Dokis (2017, p. 209) argued that "participation" or "consultation" is just repeating "coloniality" because bureaucracy is transforming local ways of relating with and understanding nature into "something disarticulated and wholly unfamiliar". The following sections focus on challenges of incorporating TK into EA.

### 3.4.3 Challenges to incorporating TK into EA

Ellis (2005) and White (2006) have critiqued how environmental decision-making in the NWT has tried to incorporate TK for several reasons. The first reason is that TK relies a lot on experience while environmental decision-making processes rely on scientific evidence (Ellis, 2005). In addition, TK relies on oral communication in the Indigenous language, while environmental governance meetings rely heavily on written English, which can also be highly technical and scientific (Ellis, 2005; White, 2006). TK experts often do not understand the process or the substantive content in those processes (Ellis, 2005).

The second reason is that meaningful participation in environmental decision-making requires technical expertise in fields such as “biology, hydrology, geology, law, and engineering” (Ellis, 2005, p. 70). Indigenous leaders stated that few Indigenous Peoples have the requisite qualifications and also know TK (Ellis, 2005). Indigenous governments tend to hire non-Indigenous experts who do not know TK (Ellis, 2005).

Third, there are “fundamental differences in concept and language” between Western and Indigenous systems (Ellis, 2005, p. 71). Translators might translate Western science words wrongly or over-simplistically to TK experts, which makes it hard for them to participate meaningfully. The mis-translation has two major sources. There are few translators well versed in both Western science and Indigenous languages. Some Western science words also have no equivalent in Indigenous languages, rendering their translation nearly impossible (Ellis, 2005). Conversely, participants may not understand TK due to challenges of translating it into English (Ellis, 2005). Moreover, participants may not understand the point of the TK contribution because TK often uses metaphors and stories (Ellis, 2005; White, 2006). TK experts may speak holistically and broadly rather than specifically about the proposed development project (Ellis,

2005). Government and industry participants may not understand the relevance of the TK (Ellis, 2005). Nadasdy (1999, p. 8) argued that “scientists and resource managers usually do not even acknowledge, much less attempt to make use of, the stories, beliefs, and values which inform the hunters’ view of the world”.

#### 3.4.4 Western science is privileged over TK and only “scientized” TK is accepted

Ellis (2005, p. 72) argued that environmental governance in the NWT tends to incorporate only TK that is perceived as “directly relevant” to Western rules of decision-making. It ignores TK that is perceived as being irrelevant by Western standards (Ellis, 2005).

Ellis (2005, p. 72) argued that TK often had to be legitimized through “scientization” or adaptation to a scientific narrative. This means separating the “analytic”, “systematic”, and “factual” from the “descriptive”, “anecdotal”, and “mythic” (Ellis, 2005, p. 72). Scientific criteria (“replicability, rationality, rigour, and universality”) is then used to “tes[t] and validat[e] relevant knowledge” (Ellis, 2005, p. 72). The process usually accepts TK that is “[d]irect, empirical, and preferably quantifiable information” as “valid and useful” (Ellis, 2005, p. 72). In contrast, the process usually ignores “[m]yths, practices, values, beliefs, and other contextual knowledge” (Ellis, 2005, p. 72). Stevenson (1996, p. 282) also argued that only the “facts” of TK were incorporated into EA, which omitted what these facts meant in a broader context.

Ellis (2005, p. 72) stated that most rules for including TK in environmental governance in the NWT involved “scientized” TK. I.e. the knowledge is usually an answer to “who, what, when, and where questions” in the form of “empirical observations” (Ellis, 2005, p. 72). TK that compares well with scientifically derived findings is often seen as credible (Ellis, 2005). In contrast, the process tends to reject TK that seems anecdotal, which violates the replicability and

universality criteria for science. For example, during the Snap Lake diamond mine EA, Review Board consultants said that Elders' statements were not "real information" because they were "individual opinions of an anecdotal nature", and therefore neither universal nor reliable (Ellis, 2005, p. 73).

Sam-Aggrey (2018) studied the extent to which Indigenous Local Knowledge has been included in the Mackenzie Valley EA process by interviewing members of various co-management boards. Sam-Aggrey concluded that co-management boards have increased the incorporation of Indigenous Local Knowledge in the EA process. However, Sam-Aggrey also found support for other researchers' assertions that often, Indigenous Local Knowledge was used to supplement Western Science rather than used as its own way of knowing.

Sandlos and Keeling (2016) argued that the degree to which the EA process for the Giant Mine remediation project included TK was "tokenistic" (p. 278), "weak" (p. 280), "superficial" (p. 282), and "shallow" (p. 285), despite the Proponent and Review Board stating that they wanted to incorporate TK.

#### 3.4.5 Considering TK, but is TK influencing the decision?

White (2006, p. 412) argued that decision making is "seriously consider[ing]" TK. However, the degree to which TK can "influence" that decision-making is limited (White, 2006, p. 412). White (2006) identified the Western legal and bureaucratic system surrounding environmental decision-making as the source of the limitation. White (2016, p. 406) argued that the values underlying this Western system are "inherently incompatible" with TK.

One participant in the Snap Lake EA told Fitzpatrick et al. (2008, p. 14) that the "structure of the proceedings naturally hinders participation". There may well be the opportunity

to participate, but it requires people to be able “to act like Western bureaucrats, and that is the real problem” (Fitzpatrick et al., 2008, p. 14).

Indeed, White (2006) gave another example of how the EA process’ Western norms excluded Indigenous ways of communicating knowledge. In the 2004 Paramount Resources Cameron Hills extension project EA, the Proponent and Indigenous Peoples disagreed about “traditional usage” of lands. The Proponent contended that since the Indigenous Peoples could not list the people “who had hunted or trapped in this area for the past few years”, therefore, there was no Indigenous use of the land (White, 2006, p. 405). The Indigenous Peoples said that they did use the land because there had been harvesting in the area and there may well be harvesting in the future if animal migration permits (White, 2006). However, the Proponent questioned this “aggressively and repeatedly” (White, 2006, p. 405).

This study seeks to build on the literature above by studying the 39 projects that completed EA since 1998. Building on the literature in section 3.2, this study assesses how participation by various stakeholder groups influences EA decisions in the Mackenzie Valley. Building on the literature in section 3.3, this study examines empirically if Unsettled land claimants and Settled land claimants differed in their participation in EA and in their ability to influence the Review Board’s EA decisions. The following chapter discusses the conceptual foundations for my empirical approach to achieving Objectives 1 and 2.

## 4 Concepts and approach

### 4.1 Indicators of participation and decisions in the Mackenzie Valley EA process

Objective 1 of this dissertation is to identify and quantify indicators of participation and EA decisions in the Mackenzie Valley EA process. Section 4.1.1 discusses indicators of participation, decisions, and influence. Section 4.1.2 discusses the attributes of good indicators for measuring participation and EA decisions to arrive at the influence of participation on EA decisions. Section 4.1.3 describes key concepts behind content analysis, the method used to elicit participation and decisions from Reports of EA.

#### 4.1.1 Indicators of participation, decisions, and influence

Section 3.1 reviews the applied literature on how public participation influences bureaucratic decision making. The indicators of participation used in empirical studies are almost all related to the number of comments, either in total or by a specific group of participants. Some studies represented the number of comments as a binary variable (comment or not), some studies used simple counts of the number of comments, some used counts of pro-regulation and anti-regulation comments, and others used scales in terms of changes requested (more, equal, or less regulation).

The indicators of decisions often took the form of whether the proposed rule changed as a result of the public participation in the US rule-making studies. Most studies used a 3-point scale to indicate the decision: more, same, or less government regulation, while some studies used a 5-point scale to account for even more nuance. Other studies used indicators for decisions specific to the process, such as a binary dependent variable for acceptance or rejection.

In the subset of studies that used statistical methods, indicators of influence took the form of estimated coefficients in participation–outcome relationships. Before describing the participation and influence indicators used in this study, we consider the attributes of good indicators and the way that information on participation and decisions will be gleaned from the public EA records. The reason is that identification and quantification of indicators of participation and EA decisions needs to be guided by attributes for good indicators.

#### 4.1.2 Attributes for good indicators of participation and EA decisions

Conceptually, an important attribute of indicators of participation and EA decisions is that they reflect the specific decision-making process under the particular legislative regime. Indeed, as will be discussed in section 4.1.3, the codes or variables to be elicited from documents should be relevant to answering the research question (Bowen, 2009; Elliott, 2018; Syed & Nelson, 2015) and specific to the practical realities surrounding each study (Elliott, 2018). The coding rules for defining the variables should be “systematic, logical, and scientific” (Hsieh & Shannon, 2015, pp. 1285-1286). In this case, the legal test that the Review Board must answer is whether the project will likely cause SAI or SPC. Given this legal test, the indicator of the decision should be a full and unambiguous reflection of the Review Board’s SAI/SPC decision, Measures, and Suggestions. Similarly, the indicators of participation should reflect the real opportunities that the Participants have to influence the Review Board’s SAI/SPC decision, Measures, and Suggestions.

Guidance for other desirable attributes of indicators can be found, for example, in health and development economics. In terms of developing indicators for the quality of health care in hospitals, Campbell, Braspenning, Hutchinson, and Marshall (2002) assert that indicators should

be acceptable to assessors and people being assessed, feasible in that data is available, reliable in the sense of minimum measurement error and inter-rater reliability, sensitive to change in the sense that the indicator can detect change in the variable being measured, and valid for prediction.

Guidance for desirable attributes of indicators also comes in the context of indicators for the 17 Sustainable Development Goals and its 169 targets (Hák, Janoušková, & Moldan, 2016). Indeed, in 2015, 330 indicators were proposed for the targets (Hák et al., 2016). Given the large number of indicators, the United Nations Statistics Division (2015) requires indicators to satisfy the following attributes: “relevant, methodologically sound, measurable, easy to communicate and access, limited in number and outcome focused” (Hák et al., 2016, p. 568). Relevant means the indicator is linked to the target, is relevant to policy making, and is applicable at the appropriate level for global, regional, national, and local levels (United Nations Statistics Division, 2015). Methodologically sound means that the indicator is based on sound methods, has been tested to be valuable, and is complementary to and coherent with other indicators (United Nations Statistics Division, 2015). Measurable means the indicator is capable of being measured, is disaggregated, and is managed by one or many responsible agencies (United Nations Statistics Division, 2015). Easy to communicate and access means people can understand the indicator easily and interpret it without ambiguity, and people can easily access the indicator (United Nations Statistics Division, 2015).

Not every attribute above applies to this study given differences in context. However, we can be guided by the following attributes. Again, relevance speaks to the indicator being linked to answering the research question. Feasible and measurable mean that data is available for the indicators, which can be measured and are disaggregated. Indicators of participation and EA decisions should cohere with and complement each other, as shown in section 6.1.7. Indicators

of participation and EA decisions should also be easily understood by people and interpreted unambiguously. Section 4.1.3.5 will discuss validity and reliability in detail.

Given the above, it is desirable for indicators of participation and EA decisions to be measurable and convincingly represented in numerical terms, represented by either discrete, count, intensity, or continuous variables. This is supported by the literature in section 3.1, where indicators of decisions are mainly dummies and scales while indicators of participation are comment dummies, comment counts, comment scales, and other measures. Given the relevance criteria for answering the specific research question, we need indicators that can be readily used to create variables suitable for statistical analysis of the relationship between the dependent variables (decisions), explanatory variables (participation), and control variables. In formal terms, the statistical analysis should allow for testing of specific hypotheses.

#### 4.1.3 Content analysis

In order to achieve Objective 1 (identify and quantify indicators of participation and EA decisions in the Mackenzie Valley EA process), this study conducts content analysis on Reports of EA. Section 6.1.2 describes the methods used by this study for content analysis.

Document analysis entails systematic review of documents and is frequently considered to be a qualitative research method (Bowen, 2009). There are many advantages to document analysis over other research methods such as surveys and interviews, including efficiency, the availability of documents, particularly public documents, and cost savings (Bowen, 2009). Document analysis also avoids the issues of research participants being affected by the research process or reacting to the researcher (Bowen, 2009). Documents are stable, which allows multiple rounds and intensities of study (Bowen, 2009). Documents also provide exact

information and cover a great deal of content (Bowen, 2009). Possible challenges of document analysis are that documents can lack sufficient detail, may not be easily accessible, or only a biased sample of documents may be available (Bowen, 2009). The following describes content analysis, which is one approach to conducting document analysis.

#### *4.1.3.1 What is content analysis?*

Content analysis is used for analyzing textual data (Hsieh & Shannon, 2005). It involves classifying the textual data into categories relevant to the research question (Bowen, 2009).

Content analysis systematically analyzes the content of textual data in a quantitative or qualitative way (Bhattacharjee, 2012). Quantitative content analysis involves using statistics to describe textual data that has been coded (Hsieh & Shannon, 2015). In contrast, qualitative content analysis extends beyond counting to studying language and classifying text into codes that share the same meaning (Hsieh & Shannon, 2015).

A key concept in content analysis is coding. Like Bowen (2009) above, Elliott (2018) states that coding enables researchers to make sense of the data in the context of a specific research question. Coding is for making sense of a large volume of text through a smaller number of codes or categories (Hsieh & Shannon, 2015). Codes or categories have been used interchangeably (Creswell, 2013). Specifically, coding entails applying codes to pieces or chunks of textual data (Bhattacharjee, 2012). Even more specifically, coding is about going through the text thoroughly, “line by line”, putting brackets around a “segment of text”, and then “assign[ing] a code label or term to the text segment” (Creswell, 2016, p. 154). The segment can also be called a “chunk” (Creswell & Creswell, 2018, p. 193; Elliott, 2018, p. 2856) or a “piece” (Elliott, 2018, p. 2856). The following describes how content analysis is conducted.

#### *4.1.3.2 How is content analysis conducted?*

In order to conduct content analysis, the researcher must create a strong coding framework (Syed & Nelson, 2015). The coding manual has also been called a “qualitative codebook” (Creswell & Creswell, 2018, p. 196). To create a strong coding framework, the researcher must think about the research question and decide what a “coding scheme” must include to answer the research question (Syed & Nelson, 2015). A coding scheme details the coding rules, which are “systematic, logical, and scientific” (Hsieh & Shannon, 2015, pp. 1285-1286). The coding scheme provides coders with directions on how to make coding decisions (Hsieh & Shannon, 2015).

The second step in creating a strong coding manual is for the researcher to familiarize themselves with the data (Braun & Clarke, 2006). This involves careful reading and re-reading of the data (Syed & Nelson, 2015).

Third, the researcher should create a “working” coding system (Syed & Nelson, 2015). This version of the coding system includes as exhaustive a list of codes as possible and all coding decisions (Syed & Nelson, 2015). The coding system should describe the code, its rules for inclusion and exclusion, and examples of units that should be coded or not coded as that particular code (Syed & Nelson, 2015). The following section details two main approaches to creating a coding scheme.

#### *4.1.3.3 Different approaches to creating a “coding scheme”: a priori or grounded*

There are two major approaches to creating a coding scheme. The first is called “a priori”, which uses pre-determined codes or categories (Elliott, 2018, p. 2855). The second is called “emergent” or “grounded” codes (Elliott, 2018). This involves starting with no pre-determined codes and letting codes emerge from the data (Elliott, 2018).

“A priori” coding is also called “deductive” while emergent coding is also called “inductive” (Elliott, 2018, p. 2855). The deductive approach is also called a “theory-driven top-down approach” while the inductive approach is also called a “data-driven bottom-up approach” (Syed & Nelson, 2015, p. 377). The former takes a theory and breaks it down into codes for coding the data, while the latter builds the coding scheme from codes from the data (Syed & Nelson, 2015). Creswell and Creswell (2018) call the two approaches pre-determined and emerging codes and states that social sciences has traditionally used emerging codes.

These two approaches are related to two other approaches to content analysis. The “directed” approach to content analysis uses theory to identify codes to begin with (Hsieh & Shannon, 2005, p. 1281). In contrast, the “conventional” approach to content analysis involves immersion by researchers in the data to allow codes to “flow from the data” (Hsieh & Shannon, 2005, p. 1279). In addition to these two approaches to content analysis, Hsieh and Shannon (2005) identify a third approach. The “summative” approach begins with counting the frequency of certain words (Hsieh & Shannon, 2005). However, it goes on to look for other ways in which those words are expressed (Hsieh & Shannon, 2005).

Usually, applied researchers use both a priori and grounded approaches (Elliott, 2018). Coding is also generally iterative (Elliott, 2018). Researchers learn about their data and codes, and often update codes and re-code (Elliott, 2018). Syed & Nelson (2015) recommend using both top-down and bottom-up approaches to create the coding scheme iteratively. The iterative process involves using initial coding categories, applying these categories to the data to make sure the categories are appropriate in terms of how specific they are, and refining the categories (Syed & Nelson, 2015). The researcher should code and refine until they have created a coding scheme they consider appropriate (Syed & Nelson, 2015). The researcher must decide when to

stop refining the coding manual and make it the basis for coding (Syed & Nelson, 2015). Creswell and Creswell (2018) also recommend allowing an initial codebook to be updated based on what is learned from the data. The following describes key decisions that must be made in content analysis or coding in general, all of which are relevant to the decisions that must be made in this study, which are described in section 6.1.2 and detailed coding rules in Appendix 2.

#### *4.1.3.4 Decisions in coding for content analysis*

Coding entails many decisions. Elliott (2018) argues that such decisions should be specific to each study's research question and the practical realities surrounding the study.

One decision is "how many codes" (Elliott, 2018, p. 2852). The researcher must decide the number of "codes", which is one of the most significant coding decisions (Syed & Nelson, 2015) and the "heart of qualitative data analysis" (Creswell, 2013, p. 184). Most studies recommend against an excessive number of codes (Elliott, 2018). More codes accounts for more nuance but comes at the cost of more complexity (Syed & Nelson, 2015). Syed and Nelson (2015) recommend refining the number of codes through an iterative process. Creswell (2013, p. 184) recommends starting with "lean coding", which uses five or six codes. Then, the researcher increases the number of codes as they go through the data (Creswell, 2013). Creswell (2013) states that he tries to stay under 25-30 codes. In the context of this study, the number of codes refers to the number of indicators of participation and decisions or the number of variables.

Another important decision for researchers is "how big a piece of data" to code (Elliott, 2018, p. 2856). In other words, what constitutes a "chunk" of data (Elliott, 2018, p. 2856)? Is it a word, some words, a line, or a paragraph (Elliott, 2018)? This question has "no simple answer" (Elliott, 2018, p. 2856). Creswell (2013) recommends coding progressively by first coding larger chunks of data (paragraphs) for broad strokes and then coding smaller chunks of data

through re-coding. The latter has been called “splitting”, for more nuance (Elliott, 2018, p. 2856). The refined re-coding would require line-by-line coding (Elliott, 2018). Researchers must also try to prevent the code definitions from drifting or changing in meaning by constantly checking (Creswell & Creswell, 2018).

Other coding decisions include whether multiple codes can be applied to a piece of data, and whether everything ought to be coded (Elliott, 2018). Many researchers would not code everything, such as “um” in an interview transcript (Elliott, 2018). Elliott (2018) recommends that it is equally important for researchers to learn the data very well to decide what not to code as it is to decide what to code. Creswell (2013) also states that not everything needs to be coded. Finally, researchers must decide between manual coding or using coding software (Creswell, 2016; Elliott, 2018). I would add that researchers now must decide between human coding, which includes both manual coding and coding software, and automated content analysis. Finally, the following section discusses two important qualities associated with content analysis: validity and reliability.

#### *4.1.3.5 Validity and reliability*

In qualitative research, validity refers to the results’ accuracy (Creswell & Creswell, 2018). The researcher is establishing the validity of their interpretation (Creswell, 2016). Syed and Nelson (2015) contend that validity includes four criteria. The analysis is “credible”, meaning it reflects participants’ experiences. The analysis is “authentic”, which means all participant voices are represented. The researcher must have also “critically” evaluated their results and shown “integrity” by admitting to potential mistakes with humility (Syed & Nelson, 2015).

Creswell and Creswell (2018) state that there are eight main ways to establish validity. These methods seem to assume that the documents are transcripts from interviews with participants. Indeed, Creswell (2016, p. 152) states that coding is about making sense of “transcribed text data”. The methods include studying other sources to justify the codes or themes, checking the results with interview participants, using rich detailed descriptions of the context, and revealing the researcher’s own biases (Creswell & Creswell, 2018). Other methods include revealing information that contradicts the themes and establishing a deep understanding of the topic by spending a long time in the field (Creswell & Creswell, 2018). Finally, to establish validity, a researcher can debrief with a peer or engage an external auditor (Creswell & Creswell, 2018).

Reliability is another important quality of content analysis. It is necessary, but insufficient, for validity (Syed & Nelson, 2015). Reliability refers to consistency between different assessments or rounds of coding (Creswell & Creswell, 2018; Syed & Nelson, 2015). Reliability, consistency, or replicability are important signs of rigour (Syed & Nelson, 2015).

Elliott (2018) contends there are two types of reliability. The first type is inter-rater or inter-coder reliability or agreement (Elliott, 2018; Creswell & Creswell, 2018). This study uses the term “inter-rater reliability”. Inter-rater reliability measures the degree of agreement in coding between independent coders (Syed & Nelson, 2015). In other words, it is the “stability of responses to multiple coders of data sets” (Creswell, 2013, p. 253). The second type of reliability is consistency between one researcher at different times (Elliott, 2018).

Syed and Nelson (2015) argue that researchers must view building reliability as a process with the following steps. First, the researcher creates a very strong coding manual. Second,

coder(s) are trained. Third, the researcher chooses an appropriate measure of inter-rater reliability. Such a measure can be qualitative or statistical (Elliott, 2018).

There are many statistics for indexing inter-rater reliability and researchers should choose the appropriate statistic very carefully (Syed & Nelson, 2015). Syed and Nelson (2015) present five statistics. Percentage Agreement is the easiest as it measures the percentage of pieces of data agreed upon by two independent coders out of the total number of pieces of data. The Kappa measure builds on percentage agreement by penalizing agreement by chance. The Delta measure accounts for marginal distributions that are very skewed. The Intraclass Correlation Coefficient is for ordinal data and continuous data. Finally, the Weighted Kappa measure is for ordered data.

In addition to the appropriate measure of inter-rater reliability, the question arises as to what levels of reliability are appropriate. Miles and Huberman (1994) recommended minimum 80% inter-rater reliability for good reliability.

Coding is very important in the context of this study to elicit variables on participation and decisions from Reports of EA. Section 6.1.2 describes the general coding decisions made in this study in light of this section (4.1.3) while Appendix 2 presents detailed coding rules in this study. The variables on participation and decisions are important for achieving Objective 2, which examines how participation influences decisions. The following presents conceptual foundations for approaching Objective 2.

#### 4.2 Conceptual foundations for approaching Objective 2

Objective 2 is to examine how participation by various groups (including Government, Indigenous Peoples, Environmental Groups, and others) in the Mackenzie Valley EA process

influences the Review Board's "decisions" on the 39 projects that completed EA since 1998. To complete that objective we need excellent indicators, as discussed above, and a suitable empirical strategy to relate the participation indicators to the decision indicators. For that purpose I need to measure participation, and its intensity, and a conceptual model of the relationship between participation and decisions. That model will be presented in the following section.

Before embarking on an econometric model of the relationship between participation and decisions, this section acknowledges relevant economic theory informing the research question. I argue that the most relevant economic theory here comes from regulatory economics. Stigler (1971) was an influential study, by theorizing the causes of supply and demand for regulation. Within regulatory economics, a particular concept (regulatory capture) was highlighted in Stigler (1971). Regulatory capture refers to a regulatory agency falling captive to special interests and favouring them (Bó, 2006). Regulatory capture has been studied by political scientists and economists. Most of the economics literature on regulatory capture studies public utility regulation (Bó, 2006). Stigler (1971) argued that firms that are supposed to be regulated sometimes capture regulatory agencies and that regulations mainly helped industry. Peltzman (1976) extended and generalized Stigler (1971). Tirole (1986) was likely the first to analyze regulatory capture using a principal/supervisor/agent three-tier model (Bó, 2006). Laffont and Tirole (1991) built on this further. Economists have also conducted empirical studies of regulatory capture. Most of these empirical studies focused on the influence of personal characteristics of regulators and the effect of "revolving doors" of individuals moving between regulators and regulated industries (Bó, 2006, p. 212).

This study does not formally develop a model of regulatory capture in the context of the Mackenzie Valley EA process. Most economics studies on regulatory capture focus on utilities and worry about *industry* capturing the regulatory agency. This study does not focus specifically on regulatory capture, as it is traditionally understood to pertain to *industry*. The reason is that this study examines the more open question of how participation by *various participant groups influences* the Review Board's decision-making. I would argue that various participant groups other than industry have different motivations for participation than industry and certain aspects of regulatory capture (e.g. revolving door between industry and decision-makers) are not so clear here.

Instead of focusing on regulatory capture, this study draws on the more general theory that participation from interest groups can influence regulatory decisions (Moore, Maclin, and Kershner, 2001). Moore et al. (2001) examined the Federal Energy Regulatory Commission's relicensing decisions for hydro projects in the US. Moore et al. (2001) contends that the "advocacy coalition framework" for explaining agency behaviour states that agencies respond to advocacy groups, and that this model emanates from Stigler's work. Moore et al. (2001) goes on to state that the hypothesis that agencies can be influenced by participation from different groups also builds off theory by Peltzman (1976) and is shown empirically by studies including Cropper et al. (1992), which was reviewed in section 3.1. Against this theoretical background (Stigler, 1971; Peltzman, 1976) and empirical work (studies reviewed in section 3.1), this study examines how participation by different groups influences the Environmental Assessment decisions in the Mackenzie Valley.

Delving deeper, the question arises as to how exactly it is theorized that the Review Board makes its SAI/SPC decision. Other studies such as Deaton et al. (2008) have modeled the

agency's decision in terms of cost-benefit analysis. Specifically, Deaton et al. (2008) studied the Ontario Ministry of Environment's decision to approve or reject applications for water or air permits. The government's choice of resource use level is modeled based on the assumption that government maximizes net social benefits from the resource use. That is, it chooses the resource use level at which marginal social benefit equals marginal social cost (Deaton et al., 2008). This model is entirely consistent with standard economic theory.

I would argue that it is challenging to model the Review Board's SAI/SPC decision here in exactly the same way for two reasons. First, as Moore et al. (2001, p. 424) clarified, the Federal Energy Regulatory Commission "does not apply a social benefit-cost framework". Second, the *MVRMA* does not instruct the Review Board to apply cost-benefit analysis either in carrying out its legal test. I.e., the *MVRMA* does not direct the Review Board to approve or reject a project because the benefits of approving a project exceed the costs of doing so. Instead, s. 128 of the *MVRMA* instructs the Review Board to determine whether the project will likely "have a significant adverse impact on the environment" or "to be a cause of significant public concern".

I would argue that modeling the Review Board's SAI/SPC decision can be thought of have some aspects of weighing costs and benefits, but is not amenable to mathematical modeling using standard economic theory, due to the guidance on how this decision should be made. Mr. Alan Ehrlich, Manager of EIA Staff for the Review Board, and Professor William Ross wrote a paper modeling how significance determinations are made. Ehrlich and Ross (2015, p. 93) model such determinations in four steps: "(1) Decide where on the spectrum of potential impacts to place the threshold of significance for that particular valued component. (2) Weigh the evidence (impact predictions). (3) Decide which side of the threshold the predicted adverse

impact falls on. (4) If the impact falls on the unacceptable side, decide if additional mitigation measures will shift the predicted impact to the acceptable side”.

Focusing on the second step, Ehrlich and Ross (2015, p. 93) clarify that “the decision-maker must weigh the evidence (the impact predictions) and consider the arguments of parties participating in the EIA”. Specifically, this step “may include carefully judging between the conflicting predictions of different participants” (Ehrlich and Ross, 2015, p. 93). Based on this guidance on how to determine significance, I argue that the Review Board is taking into account statements of concern and statements of no concern during this step to weigh where the impacts will lie. In this respect, statements assumed to oppose a project and statements assumed to support a project matter because according to this model, the Review Board is weighing such statements to determine where the impact lies. In this sense, the Review Board’s decision-making process can be viewed with certain cost-benefit analysis-like elements for this step. I theorize that statements of oppose will be considered as evidence of adverse impact, while statements of support will be considered as evidence against adverse impact. I argue that these considerations do not fully match with standard economic decision making, which would involve the weighing of benefits and costs associated with resource development and environmental impact. In addition, it is plausible that when the Review Board weighs statements in opposition and statements in support, they implicitly assign different weights to these two types of statements. That is, when groups who usually raise statements in opposition to a project raise statements in support of a project, the latter may carry more meaning. In sum, this is how theoretically, participation Oppose and participation Support matter in the Review Board’s determination of whether there will likely be SAI or SPC, but the Review Board’s SAI/SPC decision does not conform to a standard cost-benefit analysis model.

The above establishes that there is economic theory to suggest that participation by various groups can influence decision-making. In particular, this study focuses on the influence of participation by Settled land claimants on EA decisions relative to the influence of participation by Unsettled land claimants. The following studies show the importance of examining the effect of settled land claims in general, as they studied this effect on economic well-being for Indigenous Peoples. Most studies found that settling land claims mattered for improving economic well-being.

Anderson, Dana, and Dana (2006) studied the Inuvialuit Corporate Group that arose after the Inuvialuit settled land claims in 1984 and found that this group contributed significantly in economic terms to the Inuvialuit people. They found that the settled land claim paved the way for capital for the Inuvialuit to develop businesses and pursue entrepreneurship. Saku (2008) also found that the Inuvialuit Regional Corporation contributed positively to the region's economy through four major effects: it created a multiplier effect for cash flow into the Inuvialuit Settlement Region by investing the cash payments from settling the land claim, provided Inuvialuit people with significant income, created jobs for the region, and promoted Inuvialuit businesses vigorously.

However, using Analysis of Variance (ANOVA) statistical methods, Saku (2002) concluded that on their own, modern treaties do not guarantee economic success. Rather, settling land claims can have different effects on economic well-being, depending on the specific institutional arrangements associated with the land claim. Saku (2002) studied the effect of modern land claim agreements on the economics and socio-demographics of six Inuvialuit communities that had settled land claims in 1984, 19 Northern Quebec communities that had settled land claims in the 1970s, and 40 NWT communities that had not settled land claims

before 1991. Six of these NWT communities were designated as “fully integrated wage economies” while the remaining 34 were designated as “less integrated wage economies”. Saku (2002) studied 12 variables from the 1991 Census of Canada, classifying five variables as economic and the other seven as socio-demographic. The five economic variables were labour force participation, transfer payment as a proportion of total income, average male income, average female income, and employment income as a proportion of total income. Using ANOVA statistical methods, Saku (2002) found that the six Inuvialuit communities surpassed the Northern Quebec and the “less integrated wage economy” communities for all five economic variables. However, although the Inuvialuit performed very well on the economic variables, reflecting their involvement in the market economy, the Cree, Inuit, and Naskapi of Northern Quebec did not participate as actively in the market economy, despite also having settled land claims. Therefore, Saku (2002) concluded that the effect of settling land claims on economic well-being depends on the specific institutions of each land claim.

Two other studies used econometric methods to find that settling land claims enhanced income for Indigenous Peoples. Aragón (2015) studied the effects of enhanced property rights that result from settling land claims via modern treaties. Aragón found that settling modern land claims increased real income by approximately 13%. He found that the modern treaties also had a positive effect on real wages and housing costs. He used confidential Census micro-data of First Nations on reserves and a difference-in-difference approach using band fixed effects. He studied 15 modern treaties implemented between 1991 and 2006 in British Columbia, the Northwest Territories, and Yukon. These 15 settled land claims included those for the Gwich'in, the Sahtu, and the Tlicho.

Pendakur and Pendakur (2018) studied how Indigenous communities with and without modern agreements differed in household incomes. Modern agreements included self-government, comprehensive land claims, and opt-in legislation on authority for managing land and finances. Stand alone self-government agreements, stand-alone Comprehensive Land Claim Agreements, and combined agreements were examined. These agreements included all three in the Mackenzie Valley: the Gwich'in, Sahtu, and Tlicho agreements.

In Pendakur and Pendakur (2018), opt-in legislation included the *First Nations Land Management Act (FNLMA)* and the *First Nations Fiscal Management Act (FNFMA)*. The former allows First Nations to opt out of 34 provisions under the *Indian Act* governing land and opt into their own codes for managing land (Doidge, Deaton, & Woods, 2013; Kelly & Deaton, 2019; Pendakur & Pendakur, 2018). Opting into their own codes empowers Indigenous Peoples to control communal property in ways they could not previously by for example leasing or mortgaging. Indeed, for Indigenous Peoples, the *Indian Act* limited Indigenous Peoples to communal property rights (Flanagan & Alcantara, 2004), and this has been found to impede Indigenous entrepreneurship (Hindle & Moroz, 2010).

Pendakur and Pendakur (2018) used data from the Canadian Censuses (1991-2006) and National Household Survey (2011) and used a difference-in-difference regression approach. They found that Comprehensive Land Claims Agreements, both stand-alone and those combined with self-government agreements, enhanced household income for Indigenous Peoples. They also found that opting into both the *FNLMA* and the *FNFMA* also increased income, albeit to a much smaller extent.

Focusing on the *FNLMA*, two other studies used econometric methods to examine the determinants of a First Nation's decision to adopt the *FNLMA* (Doidge, Deaton, & Woods, 2013)

and to examine the effect of adopting the *FNLMA* on housing on reserves (Kelly & Deaton, 2019).

In light of these economics studies on the effect of settled land claims on economic well-being and section 3.3 on the effects of unsettled land claims in the Mackenzie Valley, it is important in this study to examine the influence of participation by Settled land claimants versus that by Unsettled land claimants on EA decisions in the Mackenzie Valley process.

It is also important to examine the influence of other participant groups on EA decisions. For example, the influence of Government agencies is important for examination because certain Government agencies' mandates are related to the subject matters examined in EA. Therefore, this study examines the influence of various participant groups on the Review Board's decisions.

Last, it is worth noting that this dissertation does not attempt to explicitly model or attempt to predict participation. An economic model of participation would consider the potential benefits (monetary and non-monetary) from participation, the costs of participation (financial, opportunity costs), the costs of non-participation, resources available for participation, and the probability that participation will lead to greater likelihood of desirable outcomes. Following the literature reviewed in Chapter 3, an economic model could relate resources and the costs of non-participation to land claim settlement status, and the probability that participation will lead to desirable outcomes to the gap between the language used by each participant and the language that is most privileged by the EA process. However, it is beyond the scope of this dissertation to further develop such an analysis. Admittedly, studies such as Lipka and Deaton (2015) model the influence of participation in a special kind of Municipal Type Agreements on the likelihood of a First Nations befalling a boil water advisory also model the determinants of participation. The concern motivating a recursive bivariate probit model in

that study is one of reverse causality. I would argue that in this situation, data challenges prohibit the modeling of participation in terms of its determinants. Theoretically, I would argue that the most important reasons influencing participation in EA are stake, capacity, other participants' participation, and potential additional reasons. These reasons include the need to speak for the sake of speaking and to feel heard, as well as possibly asserting Treaty and Aboriginal rights. I argue that it is tremendously challenging to measure these variables accurately. Even the most economically affiliated variable (capacity) involves challenges. I investigated GNWT Statistics and Statistics Canada and found that variables such as income were presented by geographical location. However, we are studying participation by participant groups. The reality is that one Indigenous Peoples can live in two geographical locations and/or two different Indigenous Peoples can live in one geographical community. Accurate apportionment or attribution is very challenging. In addition, there are challenges to using income of individuals as a proxy for capacity of a participant group for participation in EA. Therefore, participation is not modeled here. Instead, the focus is on understanding the influence of participation on decisions. Therefore, the following section turns to the specific research activities to understand this influence.

#### 4.2.1 Specific research activities to achieve Objective 2

To examine how “participation” influences the Review Board’s “decisions”, the following outlines how I quantify “participation”, “decisions”, and the influence of participation on decisions. I expand upon most of the studies reviewed in section 3.1.1 in studying the following dimensions of participation:

1. Who is participating (identifying specific participants and classifying them into groups) (categorical variable)
2. Type of participation (e.g. raising concerns, asserting that the project should be rejected, and making recommendations) (count variable)
  - a. Classifying types of participation as against the project (Oppose) or in support of the project (Support) (count variable)
3. Frequency of participation (e.g. number of distinct concerns raised) (count variable)
4. Intensity of participation (e.g. number of times one distinct concern has been raised throughout the phases of EA) (count variable)

The Review Board makes the following “decisions”:

1. whether there will likely be Significant Adverse Impacts (SAI) (binary variable)
2. whether there will likely be (Significant) Public Concern (SPC) (binary variable)
3. the number of mitigation Measures to impose, if any (count variable), and
4. the number of Suggestions to make, if any (count variable).

To examine how “participation” influences the Review Board’s “decisions”, this study conducts four concrete activities:

1. Statistical regression of the Review Board’s SAI/SPC decision on participation Oppose and participation Support by participant groups, where participation Oppose is defined as participants saying there will be SAI or SPC and raising Concerns, and participation Support is defined as participants saying there will not be SAI and saying they are Not concerned.

2. Regression of the Review Board's SAI/SPC decision on participant groups' assertions that the project should be rejected.
3. Examining the number of recommendations led by participant groups that became Measures.
4. Using one case study to examine the thresholds faced by participants through various stages of the EIA process.

#### 4.2.2 Econometric model of the relationship between participation and Review Board decision

The econometric model for Regressions 1 and 2 under the specific activities to achieve Objective 2 is as follows.

Let  $Y$  denote a binary variable where  $Y = 1$  indicates that the Review Board's decision was that the project will likely generate SAI or SPC regarding issue  $i$ . The probability of such a decision is modeled as:

$$(1) P(Y = 1|O, S, F)_i = \beta_0 + \beta_1 O_i + \beta_2 S_i + \sum_j F_j + \varepsilon_i,$$

where  $i$  is Issue observation,  $O$  is a vector that collects participation variables measuring opposition by various participant groups,  $S$  is a vector that collects participation by various groups in support of the project on the issue, and  $F_j$  captures fixed effect  $j$ , where  $j = 1, 2, \dots, 7$ , denoting:

$j = 1$ ; issue type effect

$j = 2$ ; project effect

$j = 3$ ; region effect

$j = 4$ ; chair effect

$j = 5$ ; proponent effect

$j = 6$ ; project type effect

$j = 7$ ; project resource effect

The REA is chosen as the data source from which variables are elicited to measure the Review Board's decisions, types of participation by participant groups, and various Fixed Effects. The unit of observation ( $i$ ) is defined at the Issue level, which corresponds to the most disaggregated level (sub-heading, heading, or even project) in a REA for which the Review Board makes decisions on SAI/SPC, Measures, and Suggestions. Participant groups are defined by classifying individual participants into these groups. The values of  $j = 1$  to  $7$  represent  $7$  Fixed Effects used to capture unobserved heterogeneity. The estimated parameters of the regression represent influence per unit of participation effort. A unit of participation effort is also known as a statement of participation.

- Fixed Effects are generally used to account for unobserved heterogeneity. These seven groups of Fixed Effects are included, because I theorize that they might influence the dependent variable and be correlated with participation. For example, if we take Chair Fixed Effects, we can imagine a situation where a particular Chair might lead to the Review Board being more likely to decide SAI/SPC. At the same time, the presence of this Chair might be correlated with more participation because the participant will want to participate more as they know the Review Board will be more receptive to deciding SAI/SPC. Alternatively, the presence of this Chair might be correlated with less participation because the participant thinks that the Review Board will be more likely to decide SAI/SPC anyways and so they will conserve their participation resources. The same thought process applies to other fixed effects that might lead to the Review Board being less likely to decide SAI/SPC. Such a fixed effect might be correlated with more

participation because the participant will want to prevent the Review Board from deciding no SAI/SPC. Alternatively, this fixed effect might be correlated with less participation because the participant thinks there is no hope and will conserve their resources. This kind of reasoning can be applied to the seven groups of fixed effects: Issue type, Project, Region, Chair, Proponent, Project type, and Project resource.

#### 4.2.3 Hypotheses

The following table summarizes the hypotheses for the research question of how participation assumed to oppose the project and participation assumed to support the project by various groups influence the Review Board’s decisions.

Table 4.1: Null hypotheses, expected signs, and significance: participation Oppose and Support

<b>Variable</b>	<b>Null hypothesis</b>	<b>Expected sign and significance</b>
“Oppose” variable by participant group	Their participation “Oppose” does not influence the Review Board to decide there will likely be SAI/SPC.	Expect “positive” sign because I assume that participation in opposition of the project should “increase” the likelihood of the Review Board deciding SAI/SPC regardless of who it comes from.  Insignificant coefficient for null.
“Support” variable by participant group	Their participation “Support” does not influence the Review Board to decide there will likely be SAI/SPC.	Expected “negative” sign because I assume that participation in support of the project should “decrease” the likelihood of the Review Board deciding SAI/SPC regardless of who it comes from.  Insignificant coefficient for null.

The research question is how participation by various groups influences the Review Board’s decisions. A specific question is how participation by Indigenous Peoples relative to other groups influences the Review Board’s decisions. This question arises given recognition in the literature that Indigenous Peoples have faced barriers to participation. Despite this

recognition, I hypothesize that Indigenous Peoples are among the participant groups most able to influence the Review Board’s decisions because the Mackenzie Valley EA system was set up as co-management to give Indigenous Peoples more say over decision-making than previously.

Table 4.2: Hypotheses for participant groups most able to influence the Review Board’s decisions

<b>Hypothesis</b>	<b>Rationale</b>
<p><b>Hypothesis 1:</b> The participants most able to influence the Review Board are the Big 4: Proponent total, Government, Unsettled land claimants, and Settled land claimants.</p>	<p>The Proponent influences the Review Board because it is seeking to have its proposed project approved.</p> <p>The Government influences the Review Board because its departments have mandates to evaluate the various aspects of the project.</p> <p>Unsettled and Settled land claimants influence the Review Board because the system was set up to give Indigenous Peoples more say over decision-making than previously.</p> <p>Therefore, I will run a model on participation by these 4 groups first.</p>
<p><b>Hypothesis 2:</b> The other participant groups also influence the Review Board.</p>	<p>The Review Board’s decision is responsive to participation by all groups.</p> <p>Then, I will include all participant groups.</p>

Last, an even more specific question is whether the influence of participation by Unsettled land claimants and that by Settled land claimants differs. This question arises given recognition in the literature that Settled and Unsettled land claimants have access to different financial and political resources and different rights. I hypothesize that Unsettled land claimants have less influence than Settled land claimants do on the Review Board’s SAI/SPC decision through their participation, given the factors above. However, as shown in Table 4.2, I

hypothesize that Unsettled land claimants are still among the participant groups most able to influence the Review Board because the system was set up to give Indigenous Peoples more say.

Table 4.3: Hypotheses for influence by participation from Unsettled and Settled land claimants

<b>Hypothesis</b>	<b>Rationale</b>
<b>Null hypothesis:</b> Unsettled land claimants and Settled land claimants have the <i>same</i> influence on the Review Board’s SAI/SPC decision through their participation.	They have the same influence.
<b>Alternative hypothesis:</b> Unsettled land claimants and Settled land claimants <i>do not</i> have the same influence on the Review Board’s SAI/SPC decision through their participation.	
<b>Part 1 of alternative hypothesis:</b> Unsettled land claimants have <i>less</i> influence on the Review Board’s SAI/SPC decision than do Settled land claimants through their participation.	Unsettled land claimants cannot access the same financial and political resources (section 2.3);  Unsettled land claimants have less rights under the <i>MVRMA</i> (section 2.4);  Literature on the effect of unsettled land claims on EA in the Mackenzie Valley (section 3.3).
<b>Part 2 of alternative hypothesis:</b> Unsettled land claimants have <i>more</i> influence on the Review Board’s SAI/SPC decision than do Settled land claimants through their participation.	There is recognition that Unsettled land claimants cannot access the same financial and political resources and that they have less rights under the <i>MVRMA</i> ; the effect is to mitigate these factors.

In sum, this study examines the extent to which different participant groups influence decision-making in the Mackenzie Valley process. Since influencing decisions is an important theoretical objective of public participation in EA, this study examines the extent to which different participant groups do achieve this theoretical objective of participation. Objective 1 is to identify and quantify indicators of participation and EA decisions in the Mackenzie Valley EA process. The methods in Chapter 6 will draw on guidance from section 4.1.2 on the desirable attributes of indicators and from section 4.1.3 on how to conduct content analysis, the method

chosen to elicit participation and decision variables. Objective 2 is to examine the influence of participation on decisions. The specific methods for achieving Objective 2 in Chapter 6 will draw on concepts discussed in section 4.2, including specific analyses to achieve Objective 2 and an econometric model of the relationship between participation and the Review Board's SAI/SPC decision.

Before embarking on Chapter 6, which explains the methods for achieving Objectives 1 and 2, Chapter 5 presents project-level data on the 39 projects under study. The purpose is to set the big picture empirical context for the rest of this study.

## 5 The 39 EA projects under study

This chapter shows the progression of all projects from Preliminary Screening to EA to completing EA to the Review Board's decisions and then focuses on the 39 projects studied in this dissertation. Section 5.1 presents the number of projects in Preliminary Screening since 1998. Section 5.2 shows the status of projects referred to EA since 1998. Section 5.3 describes the 39 projects that completed EA since 1998. Section 5.4 summarizes the Review Board's SAI/SPC decision for each project and the Review Board's project recommendations. Figure 5.1 summarizes sections 5.1 to 5.4. Other than section 5.2, which is presented on the Review Board's public registry, all other sections present information that has not been synthesized and presented this way previously to my knowledge.

This study analyzes the 39 projects that completed EA between 1998 and 2019. The reason is that this study uses the REA as the data source for eliciting variables on participation and Review Board decisions and a project that completed EA must have a REA. The following describes the progression of projects from Preliminary Screening to EA to the 39 projects that completed EA.

One consequence of focusing on the 39 projects that completed EA is that they are the population of projects that completed EA. They are not a sample for Preliminary Screening, which is a separate process. Although there is a process by which certain projects proceed from Preliminary Screening to EA, the latter are not a sample for the former. In addition, please see section 10.2.4 for a detailed discussion of data challenges for investigating the process of which projects proceeded to EA and which did not. The point is that we have the population of projects that completed EA. When drawing inferences from the results, I hope to draw inferences for

future projects that complete EA. If nothing changes in the procedures, then we have good reason to assume that these trends will continue.

### 5.1 Preliminary Screening to EA

From the start of fiscal year 1998 to the end of fiscal year 2018, approximately 1,800 projects went to Preliminary Screening, according to all Review Board Annual Reports (MVEIRB, 2019b). This number covers only up to 2018 because as of February 2020, the Review Board had not yet issued Annual Reports for 2018-2019. Most projects were approved and went to licensing or permitting. The Review Board states that about 5% of projects are referred to EA (MVEIRB, 2019g).

Table 5.1 shows the number of Preliminary Screenings by Screener. It is created by synthesizing 19 Annual Reports from MVEIRB (2019b). Cautions are warranted for the Table. First, the Screener does not tell which Region the project is in if it is “Other screener” or MVLWB, which also screens transboundary projects. Second, some Annual Reports did not decompose the numbers more finely by Screener. Third, these numbers can be supplemented by checking the Land and Water Board public registries. However, they only account for the four Land and Water Boards, not other Screeners. Fourth, as of February 2020, the Review Board had not yet issued Annual Reports for fiscal year 2018-2019. Note that for fiscal year 2013-2014, the Annual Report states there were 45 Preliminary Screenings but I used 52, because it is the sum of the decomposition of Preliminary Screenings by Screener.

Table 5.1: Preliminary Screenings by Screener from Review Board Annual Reports

Fiscal Year (April 1 – March 31)	PSs reviewed by RB	% of PS done by Mackenzie Valley Land and Water Board	% of PS done by other Land and Water Boards	% of PS done by Gwich'in Land and Water Board	% of PS done by Sahtu Land and Water Board	% of PS done by Wek'èezhì Land and Water Board	Other screener1	% of PS done by other screener 1	Other screener2	% of PS done by other screener 2	Other screener 3	% of PS done by other screener 3
2017-2018	62											
2016-2017	30											
2015-2016	48											
2014-2015	25	50%	32%				Parks Canada	16%				
2013-2014	52	52%		10%	27%	8%		4%				
2012-2013	63	57%		10%	30%	2%	GNWT	2%				
2011-2012	53	70%	26%				Government agencies	4%				
2010-2011	66	71%	22%				Government agencies	6%				
2009-2010	73	74%		5%	4%	8%	GNWT	5%	Parks Canada	3%		
2008-2009	81	57%		7%	14%	15%	GNWT	5%	NEB	2%		
2007-2008	85	66%		8%	15%	6%	GNWT	4%	Parks Canada	1%		
2006-2007	87	59%		10%	11%	5%	GNWT	8%	Federal government	3%	Other	3%
2005-2006	79	61%		9%	16%	3%		11%				
2004-2005	99											

2003-2004	162											
2002-2003	151											
2001-2002	220											
2000-2001	186											
1999-2000	161											
<b>Total</b>	<b>1783</b>											

## 5.2 Status of EAs since 1998

Since 1998, 75 cases have been referred to EA (MVEIRB, 2019h). The Review Board Public Registry breaks these down into 5 categories, as shown in Table 5.2.

Table 5.2: Status of projects referred to EA since 1998

<b>Status of project</b>	<b>Number</b>
Ongoing	4
Complete	<b>39</b>
Complete - Other Board Decision	7
Withdrawn	17
Cancelled	8
Total	75

As of February 2020, 39 projects have completed EA. Only these are studied because they all completed EA and have REAs, which is the source from which I choose to elicit variables on participation and Review Board decisions. Most of the other projects did not reach completion and therefore do not have a REA.

## 5.3 Description of the 39 projects

Table 5.3 shows the 39 projects that have completed EA. The Public Registry lists the **Year the REA was completed**, the **Proponent**, and the **Project name** on its main page. The **Project type**, **Project resource**, and **Region** were gleaned from the webpage for each Project and/or the REA. Specifically, Region is where a project is physically located. It is determined by the pinpoint on the Review Board page for the project, the route drawn in the REA (e.g. Mackenzie Gas Pipeline), or as written in the REA (e.g. Western Geco Seismic). The **Review Board Chair** is gleaned from the REA. The **Project Number** is assigned so projects are in descending chronological order in terms of when they completed EA.

Table 5.3: Projects that have completed EA (1998 to February 2020)

Project number	Year REA completed	Proponent	Project name	Project type	Project resource	Review Board Chair	Region
1	2018	GNWT	Tlicho All Season Road	road	all season access	Deneron	Tlicho
2	2017	Canadian Zinc Corp	Prairie Creek All Season Road Project	road	mine	Deneron	Dehcho
3	2016	Dominion Diamond Ekati Corp	Jay Project	mine	diamond	Deneron	Tlicho
4	2014	De Beers Canada	Snap Lake Amendment Project	mine	diamond	Deneron	Southeast NWT (non Drybones Bay)
5	2013	Avalon Rare Metals	Nechalacho Rare Earth Element Project	mine	rare earth elements	Edjericon	Southeast NWT & Dehcho
6	2013	INAC	Giant Mine Remediation Project	remediation	gold mine	Edjericon	Southeast NWT (non Drybones Bay)
7	2013	Fortune Minerals	NICO Project	mine	cobalt gold bismuth copper	Edjericon	Tlicho
8	2012	Alex Debogorski	Diamond exploration	exploration	diamond	Edjericon	Southeast NWT (Drybones Bay)
9	2011	Canadian Zinc Corp	Prairie Creek Mine	mine	lead zinc	Edjericon	Dehcho
10	2011	TNR Gold Corp	Mineral Exploration at Moose Property	exploration	lithium and tantalum	Edjericon	Southeast NWT (non Drybones Bay)
11	2009	Selwyn Resources Ltd	Mineral Exploration at Howard's Pass	exploration	lead zinc	Edjericon	Sahtu
12	2008	Tamerlane Ventures	Pine Point Pilot Project	mine	lead zinc	Mackenzie-Scott	Southeast NWT & Dehcho
13	2007	Ur Energy Inc	Screech Lake	exploration	uranium	Mackenzie-Scott	Southeast NWT (non Drybones Bay)
14	2006	Paramount Resources	SDL 8 2-D Geophysical Program	exploration	geophysical	Mackenzie-Scott	Dehcho
15	2006	De Beers Canada	Gahcho Kue Diamond Mine	mine	diamond	Mackenzie-Scott	Southeast NWT (non Drybones Bay)
16	2005	Canadian Zinc Corp	Prairie Creek Phase III Drilling Program	exploration	lead zinc	Mackenzie-Scott	Dehcho
17	2005	Imperial Oil Resources Ventures	Dehcho Geotechnical Survey	survey	geotechnical	Loomis	Dehcho
18	2004	Dehcho Bridge	Mackenzie River Bridge	bridge	not applicable	Burlingame	Dehcho

		Corporation					
19	2004	Paramount Resources	Cameron Hills Extension Project	drilling	oil and gas	Burlingame	Dehcho
20	2004	Imperial Oil Resources Ventures	Mackenzie Gas Project	pipeline	gas	Burlingame	Gwichin, Sahtu, and Dehcho
21	2004	Snowfield Development Corp	Drybones Bay mineral exploration	exploration	diamond	Burlingame	Southeast NWT (Drybones Bay)
22	2004	New Shoshoni Ventures	Drybones Bay mineral exploration	exploration	diamond	Burlingame	Southeast NWT (Drybones Bay)
23	2004	North American General Resources	Wool Bay exploration drilling	exploration	diamond	Burlingame	Southeast NWT (Drybones Bay)
24	2004	Encore Renaissance Resources Corp (formerly Consolidated Goldwin Ventures Inc)	Drybones Bay Preliminary Exploration	exploration	diamond	Burlingame	Southeast NWT (Drybones Bay)
25	2003	Northrock Resources	Summit Creek Exploration Well	exploration	oil and gas	Burlingame	Sahtu
26	2003	De Beers Canada	Snap Lake Diamond Mine	mine	diamond	Wray	Southeast NWT (non Drybones Bay)
27	2003	Western Geco Canada	Mackenzie River 2D Seismic Program	survey	seismic	Burlingame	Gwichin, Sahtu, and Dehcho
28	2001	Canadian Zinc Corp	Fuel Cache Retrieval and Clean-up development	road upgrade and fuel recovery	fuel	Lennie	Dehcho
29	2002	Canadian Zinc Corp	Underground Decline and Pilot Plant	exploration	lead zinc	Burlingame	Dehcho
30	2002	Paramount Resources	Cameron Hills Gathering System	pipeline	oil and gas	Pope	Dehcho
31	2001	Canadian Zinc Corp	Prairie Creek Phase II Mineral Exploration Drilling Program	exploration	lead zinc	Lennie	Dehcho
32	2001	Paramount Resources	Cameron Hills Exploratory Drilling Project	exploration	oil and gas	Lennie	Dehcho
33	2001	Patterson Sawmill	Pine Point Area Timber Harvest Proposal	timber harvest	timber	Burlingame	Dehcho
34	2001	Paramount Resources	Liard East Exploratory Drilling Program	exploration	oil and gas	Lennie	Dehcho
35	2001	Canadian Zinc Corp	Prairie Creek Phase I Mineral Exploration	exploration	lead zinc	Lennie	Dehcho

			Drilling Program				
36	2001	BHP Diamonds	Ekati - Sable, Pigeon and Beartooth Pipes expansion	mine	diamond	Lennie	Southeast NWT (non Drybones Bay)
37	2000	ExplorData	Liard Seismic survey	survey	seismic	Lennie	Dehcho
38	1999	Ranger Oil Ltd./Canadian Forest Oil Ltd./Chevron Oil Resources Ltd.	Integrated P-66A/N61/K-29 Gas Wells and Pipeline Tie-in	wells	gas	Lennie	Dehcho
39	1999	Bruce Domes	Timber Harvest Proposal	timber harvest	timber	Lennie	Dehcho

At the project level, 33 of the 39 projects are in Unsettled only regions (85%). Four projects are in Settled only regions (10%).

Two projects are in Both Settled and Unsettled regions (5%).

Table 5.4 shows the Review Board SAI/SPC decision, Measures, Suggestions, and recommendation by project.

Table 5.4: 39 Projects and Review Board SAI/SPC decision, recommendation, Measures, and Suggestions

Project number	Proponent	Project name	SAI for project	SPC for project	SAI/SPC project	Number of Measures	Number of Suggestions	Review Board project recommendation
1	GNWT	Tlichon All Season Road	1	.	1	23	18	approval with CMS
2	Canadian Zinc Corp	Prairie Creek All Season Road Project	1	.	1	16	19	approval with CMS
3	Dominion Diamond Ekati Corp	Jay Project	1	1	1	21	10	approval with CMS
4	De Beers Canada	Snap Lake Amendment Project	1	.	1	2	3	approval with CMS
5	Avalon Rare Metals	Nechalacho Rare Earth Element Project	1	.	1	5	6	approval with CMS
6	INAC	Giant Mine Remediation Project	1	1	1	26	16	approval with CMS

7	Fortune Minerals	NICO Project	1	1	1	13	7	approval with CMS
8	Alex Debogorski	Diamond exploration	0	0	0	0	4	approval with S
9	Canadian Zinc Corp	Prairie Creek Mine	0	0	0	0	3	approval with CS
10	TNR Gold Corp	Mineral Exploration at Moose Property	0	0	0	0	0	approval with C
11	Selwyn Resources Ltd	Mineral Exploration at Howard's Pass	0	0	0	0	7	approval with CS
12	Tamerlane Ventures	Pine Point Pilot Project	0	0	0	0	11	approval with CS
13	Ur Energy Inc	Screech Lake	1	.	1	0	3	rejection
14	Paramount Resources	SDL 8 2-D Geophysical Program	1	.	1	2	8	approval with CMS
15	De Beers Canada	Gahcho Kue Diamond Mine	.	1	1	0	0	referral to EIR
16	Canadian Zinc Corp	Prairie Creek Phase III Drilling Program	1	.	1	3	9	approval with CMS
17	Imperial Oil Resources Ventures	Dehcho Geotechnical Survey	1	.	1	15	11	approval with CMS
18	Dehcho Bridge Corporation	Mackenzie River Bridge	0	0	0	0	3	approval with CS
19	Paramount Resources	Cameron Hills Extension Project	1	.	1	17	6	approval with CMS
20	Imperial Oil Resources Ventures	Mackenzie Gas Project	.	1	1	0	0	referral to EIR
21	Snowfield Development Corp	Drybones Bay mineral exploration	1	.	1	5	5	approval with CMS
22	New Shoshoni Ventures	Drybones Bay mineral exploration	1	.	1	1	3	rejection
23	North American General Resources	Wool Bay exploration drilling	1	.	1	7	6	approval with CMS
24	Encore Renaissance Resources Corp (formerly Consolidated Goldwin Ventures Inc)	Drybones Bay Preliminary Exploration	1	.	1	6	6	approval with CMS
25	Northrock Resources	Summit Creek Exploration Well	1	.	1	5	5	approval with CMS
26	De Beers Canada	Snap Lake Diamond Mine	1	.	1	37	40	approval with CMS
27	Western Geco Canada	Mackenzie River 2D Seismic Program	1	.	1	3	6	approval with CMS

28	Canadian Zinc Corp	Fuel Cache Retrieval and Clean-up development	1	.	1	4	0	approval with CM
29	Canadian Zinc Corp	Underground Decline and Pilot Plant	1	.	1	15	9	approval with CMS
30	Paramount Resources	Cameron Hills Gathering System	1	1	1	20	7	approval with CMS
31	Canadian Zinc Corp	Prairie Creek Phase II Mineral Exploration Drilling Program	0	0	0	0	0	approval with C
32	Paramount Resources	Cameron Hills Exploratory Drilling Project	1	1	1	11	0	approval with CM
33	Patterson Sawmill	Pine Point Area Timber Harvest Proposal	1	1	1	1	0	approval with CM
34	Paramount Resources	Liard East Exploratory Drilling Program	1	.	1	9	0	approval with CM
35	Canadian Zinc Corp	Prairie Creek Phase I Mineral Exploration Drilling Program	1	.	1	0	0	approval with C
36	BHP Diamonds	Ekati - Sable, Pigeon and Beartooth Pipes expansion	1	.	1	64	0	approval with CM
37	ExplorData	Liard Seismic survey	0	0	0	1	0	approval with CM
38	Ranger Oil Ltd./Canadian Forest Oil Ltd./Chevron Oil Resources Ltd.	Integrated P-66A/N61/K-29 Gas Wells and Pipeline Tie-in	1	.	1	26	1	approval with CMS
39	Bruce Domes	Timber Harvest Proposal	0	0	0	0	0	approval
C = Commitments, M = Measures, S = Suggestions								

The number of Measures and Suggestions should be viewed with the overall project recommendation. For example, for the UR Energy EA (Project 13), the Review Board imposed 0 Measures and 0 Suggestions but also recommended it for rejection. The next section shows Review Board SAI/SPC decision and recommendation by project. Please note that “Commitments” in this Chapter are as defined as the specific term used in the EA process, instead of the expanded definition used later in this study.

#### 5.4 Project-level Review Board SAI/SPC decision and project recommendation

Table 5.5: Project-level Review Board SAI/SPC decision and project recommendation

<b>Review Board SAI/SPC decision for project</b>	<b>Number</b>	<b>Number</b>	<b>Review Board recommendation</b>
Yes	30	2	Rejection
Yes		2 (these were approved with Measures at EIR)	Environmental Impact Review
Yes		5	Approval with Commitments and Measures
Yes		20	Approval with Commitments, Measures, and Suggestions
Yes		1	Approval with Commitments
No	9	1	Approval with Commitments and Measures
No		4	Approval with Commitments and Suggestions
No		1	Approval with Suggestions
No		2	Approval with Commitments
No		1	Approval
		39	Total

Table 5.5 shows that for the 39 projects that completed EA since 1998, the Review Board decided there was SAI/SPC at the project-level for 30 projects while there was not SAI/SPC at the project-level for 9 projects. For the 30 projects with SAI/SPC, the Review Board recommended rejection for 2, referral to EIR for 2, and approval with varying degrees of Measures, Suggestions, and Commitments for 26. For the 9 projects that the Review Board decided did not have SAI/SPC at the project level, the Review Board recommended approval for all, with varying degrees of safeguards. In sum, the Review Board recommended approval (with varying degrees of safeguards) for 35, or 90%, of the 39 projects that completed EA since 1998.

Empirically, the Responsible Minister adopted the Review Board's core recommendation (approve, reject, or refer) 39 out of 39 times. The Responsible Minister might have changed the Measures and Suggestions, but it adopted the core recommendation every time.

In sum, Figure 5.1 below shows the number of projects since 1998 that went to Preliminary Screening, the number of projects that were referred to EA, and the number of projects that completed EA. Figure 5.1 also shows the Review Board's SAI/SPC decision for each of the 39 projects, the Review Board's project recommendation, and the presence of Measures, Suggestions, and Commitments for each project. Against the big picture backdrop provided in Chapter 5, the following chapter explains the methods for achieving Objectives 1 and 2.

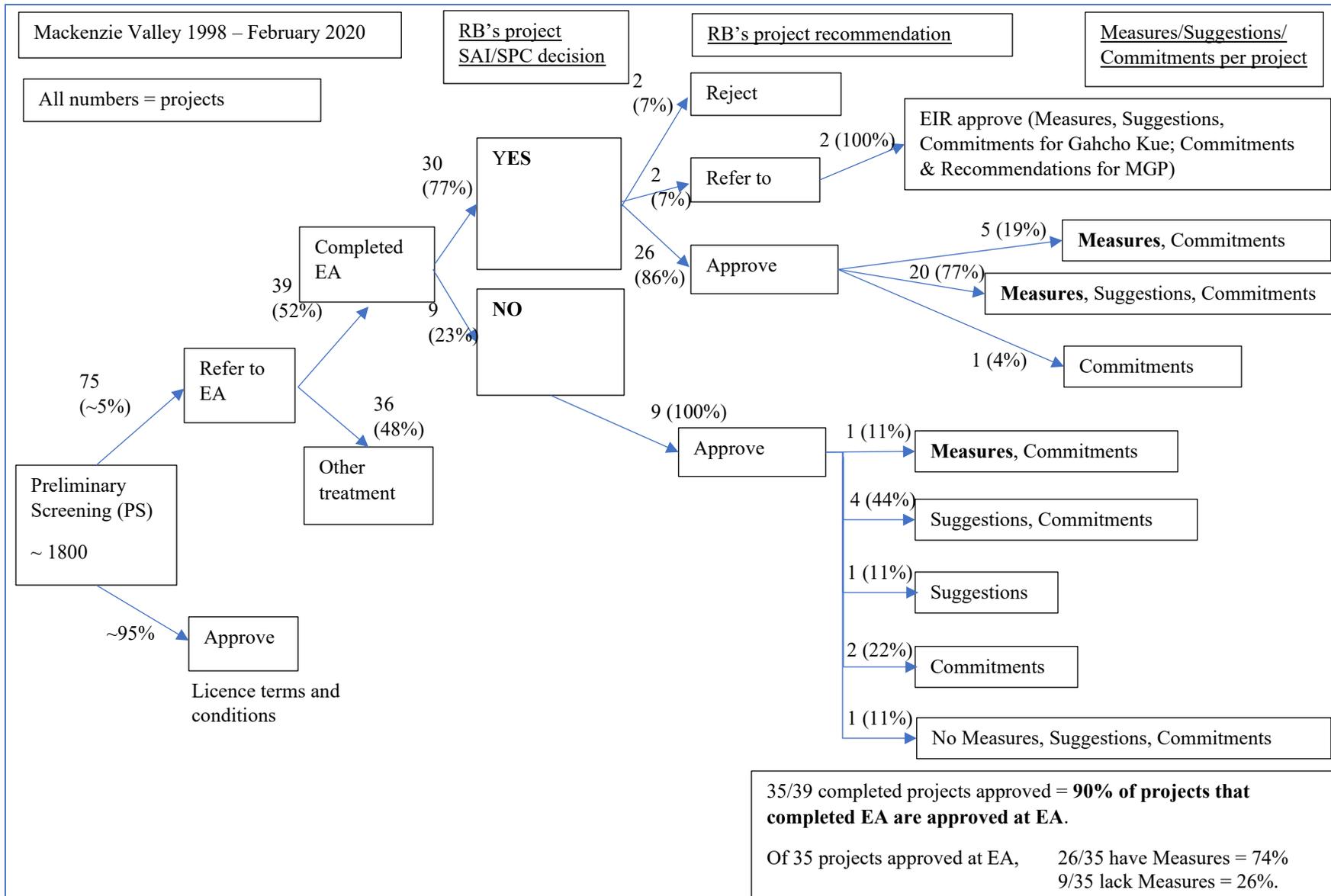


Figure 5.1: Number of projects in Preliminary Screening, EA, Review Board's SAI/SPC decision, project recommendation

## 6 Research methods

The two objectives of this study require methods that are distinct, yet complementary. Specifically, the indicators used to measure participation and EA decisions need to be appropriate for producing data that can be used to assess the statistical relationships between participation and Review Board decisions and to measure influence. Section 6.1 describes methods for eliciting data or indicators on participation and Review Board decisions from the 39 REAs based on the construction of detailed coding rules to achieve Objective 1. Section 6.2 describes the methods for quantitative analysis using the data on participation and Review Board decisions.

### 6.1 Methods for coding data on participation and Review Board decisions

Section 6.1.1 describes key concepts used in the measurement of participation. Section 6.1.2 describes the content analysis methods that were used to elicit variables on participation and Review Board decisions. The identification of indicators on participation and Review Board decisions were also guided by the desirable attributes of indicators reviewed in section 4.1.2. Section 6.1.3 discusses the rationale for using REAs as the data source. Section 6.1.4 discusses choosing the unit of observation (issues), while section 6.1.5 discusses how to code issue types. Section 6.1.6 describes the dependent variables, explanatory variables, and other variables elicited from the REAs. Section 6.1.7 explains how to count “specific participants” and organize them into “participant groups”. Section 6.1.8 shows two dimensions of participation: participant group and type of participation. Section 6.1.9 points to detailed coding rules developed to code the variables from the REAs.

### 6.1.1 “Dimensions” of participation

Of the five dimensions of participation identified by Dietz and Stern (2008), this study uses two of these indicators: **who participates** and how much they participate (**intensity**). Further, this study also considers the “how” or **type** of participation. The who, type, and intensity variables are then used as explanatory variables in the statistical analysis of decisions on participation. Given the large number of phases of each EA, discussed previously, this study does not seek to distinguish when during the EA process particular participants are involved.

Regarding measuring who participates, this study uses 12 participant groups because they are identified in the 39 REAs and because the disaggregation helps us to distinguish the different levels of influence that the different groups exert. Section 6.1.7 explains what these participant groups are and their constituent specific participants.

This study takes a different approach to the how question: how do participants express their support or opposition to a project with regards to a particular issue? This study identifies various *types* of participation raised by participants. The *MVRMA* requires the Review Board to decide whether there will likely be SAI or SPC. I hypothesize that participants who want to influence that decision are likely to have greatest success if they assert one of the following about a particular issue: there will be SAI, there will be SPC, they are concerned (raising concerns), the project should be rejected (reject) or, they recommend changes (recommendations). These assertions may be more successful than questions, or information statements. Section 6.1.7 explains in detail the rationale for each type of variable identified.

Regarding how to measure the intensity of participation, in the absence of clear guidance from the literature, this study uses the concept of a “distinct idea” to measure one statement of participation and uses a count of the “number of times” that distinct idea is raised to measure

intensity. Intensity is used because I propose that the greater number of times a participant raises a statement of participation, the greater the likelihood that they are able to influence the Review Board's decision. This proposition is not tested per se, but is maintained throughout this analysis.

### 6.1.2 Content analysis to elicit variables on participation and Review Board decisions

This study uses content analysis to code variables on participation and Review Board decisions from documents in the Mackenzie Valley EA process. Section 6.1.3 explains why Reports of EA are chosen as the documents for coding. The following describes the general coding decisions made in this study while Appendix 2 presents detailed coding rules in the coding scheme.

Following Creswell and Creswell (2018), Elliott (2018), and Syed and Nelson (2015), this study used both grounded and “a priori” approaches through an iterative process. First, I used a grounded approach to study the Reports of EA for each of the 39 projects to identify the types of participation (e.g. raising concerns, making recommendations, rejecting the project) and Review Board decisions (SAI, SPC, Measures, Suggestions). I developed detailed coding rules to convert the content in the Reports into quantitative data. Once the various types of participation were identified, I took an “a priori” approach to applying the coding rules.

A considerable amount of time and energy was expended in the development and implementation of the coding rules. The coding rules were developed and improved through an iterative approach of coding, learning, updating of coding rules, and re-coding. The 39 Reports, totalling 2,257 pages, were coded multiple times each to improve coding rules and application of those rules. This iterative approach maximizes replicability and the accurate and consistent application of the coding rules.

The detailed coding rules are presented in Appendix 2 of this dissertation. The coding scheme was created to answer the research question, following Bowen (2009), Elliott (2018), and Syed and Nelson (2015). The coding rules were also created to be systematic and logical, as per Hsieh and Shannon (2015). The coding manual was created following a lot of familiarization with the data and careful reading and re-reading, as recommended by Braun and Clarke (2006) and Syed and Nelson (2015). The coding manual describes the codes, their definitions, rules for inclusion and exclusion, examples of units coded that way, and examples of units that should not be coded that way, following Syed and Nelson (2015) and Creswell and Creswell (2018).

Coding decisions were specific to the research question and the study's practical realities, following Elliott (2018). Therefore, the number of codes or dependent and explanatory variables were chosen specific to the legislative scheme and therefore specific to answering the research question. Section 6.1.6 presents the decision variables and section 6.1.7 discusses rationale for each explanatory variable. The indicators of participation and EA decisions were measurable, disaggregated, and coherent and complementary with each other, following guidance on desirable attributes of indicators stated in section 4.1.2.

Regarding how large a piece of data to code, as Elliott (2018, p. 2856) stated, there is “no simple answer”. This study used the concept of a “distinct idea” to separate pieces, chunks, or segments of data. In addition, not everything is coded, following Creswell (2013) and Elliott (2018). Please see Appendix 2 for details. Regarding whether multiple codes are applied to a piece of data, this study assigns each piece of data only one code. Finally, I also looked for other ways in which specific concepts were expressed, following Hsieh & Shannon (2005).

Finally, a discussion of rationale for not using coding software is presented in Appendix 2. A discussion of steps taken to maximize validity and to create the conditions for maximum inter-rater reliability is also in Appendix 2.

The following discusses rationale for studying REAs as the data source. Many of the advantages of document analysis discussed by Bowen (2009) apply in this study, and the disadvantages do not apply because the documents are publicly available and comprehensive in coverage and detail.

### 6.1.3 Rationale for studying Reports of Environmental Assessment as the data source

To study each EA, there are two options of data sources to elicit variables on participation and Review Board decisions. The first is to analyze only the REAs, which are prepared at the conclusion of each EA. The second is to analyze all the documents from the start of EA through all the phases to the REA. The documents include, for example, scoping session documents, Terms of Reference, DAR, information requests, technical session transcripts, technical reports, public hearing transcripts, and closing arguments if any exist.

This study examines only the REAs at the end of each EA, instead of all the submissions by participants throughout all phases in an EA. There are two reasons. First, as of February 2020, there were a total of 8,514 documents on the Public Registry for all phases of the 39 EAs. Not only is this a huge number of documents, but also some documents have hundreds of pages. For example, for the most recently completed project, GNWT's Tlicho All Season Road, the technical session transcripts total 737 pages and the public hearing transcripts total 938 pages. These constitute only two of the many phases of that particular EA. Studying all submissions by participants throughout all phases would require studying many additional documents. These

include participant comments at scoping sessions, comments on draft terms of reference and other documents, information requests, and others. The time required for this process is far beyond the means of a single dissertation.

Second, in the REAs the Review Board identifies the issues that matter most for that project. In contrast, for a researcher to evaluate all submissions throughout the phases and identify issues that matter most to participants and to identify participation behaviour, there would be more room for multiple interpretations. For example, I took just one phase (scoping) in one project (Avalon Rare Metals Inc. Nechalacho Rare Earth Element Project) and evaluated the 38 documents submitted by various participants. I identified around 1,700 statements of concern or questions. Furthermore, some statements implicated multiple issues. There would be much subjectivity over which issue(s) to code each statement as. For example, questions around barging of concentrates of radioactive materials from the mine and in Great Slave Lake could be coded under the issues of radioactive, barging, and water quality. Evaluating all submissions throughout an EA to elicit participation behaviour is therefore very challenging. Thus, this study relies on the REAs to identify issues and elicit participation and Review Board decisions from the Report under that issue. Indeed, Mr. Alan Ehrlich (2018), Manager of EIA among the Review Board Staff, stated that the REAs are “research gold” because they “identif[y] the issues that matter most” and “empirically sho[w] parties’ priorities”.

By studying the REAs, this study assumes the REAs accurately reflect the intensity of participation by various participants throughout the EA process. The accuracy of this assumption naturally comes into question. Mr. Ehrlich (2018) stated that the Review Board goes through “progressive weighting of evidence”. It takes a “massive amount of information” and funnels that information so it goes from broad to deep at the end (Ehrlich, 2018). I infer that this

statement gives some support to the assumption that REAs accurately reflect the intensity of participation by various participants *throughout* the EA process.

6.1.4 Issue as the unit of observation

This quantitative analysis chooses the “issue” as the unit of analysis or observation since it is the most granular level at which decisions are made in EA in the Mackenzie Valley. The following explains what an “issue” is and how each issue was identified.

This study elicits variables on participation and Review Board decisions as stated in the REAs of 39 **projects**. Each REA has **headings** and **sub-headings**. For example, the most recently completed EA (GNWT TASR Project) has heading 5: Community well-being. This heading has sub-headings.

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Figure 6.1: Heading 5 in the GNWT TASR EA

For example, the next heading is 6. Boreal caribou.

6.	Boreal caribou (tǫdzì) .....	119
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Figure 6.2: Heading 6 in the GNWT TASR EA

I identify an issue as the most disaggregated level (sub-heading, heading, or even project) for which the Review Board makes decisions on SAI/SPC, Measures, and Suggestions. Using the most disaggregated level is the most precise way to capture how participation influences decision-making on that one issue.

Specifically, if the Review Board decided on whether the project will likely cause SAI and/or SPC on a **sub-heading** and Measures or Suggestions could be attributed to that sub-heading, this was counted as an observation (or **issue**) because it was the most specific or disaggregated level.

If the Review Board decided on SAI/SPC for the sub-headings under a heading but made Measures for the heading and I could not attribute the Measures to the specific sub-headings, all the data on the constituent sub-headings were aggregated and the **heading** was counted as an observation (or issue).

If the Review Board did not decide on SAI/SPC for all sub-headings under a heading, but did so for the heading, all the data on the constituent sub-headings were aggregated and the **heading** was counted as an observation (or issue).<sup>2</sup>

Thus, there are observations (or issues) for decisions at the sub-heading, heading, and project levels.

I call the observations “**issues**”, because that is the language used by the Review Board. The MVEIRB (2011e, p. 1) says that scoping helps it “identify and prioritize the *key issues*” [emphasis added]. It says: “[b]y knowing early in the [EA] process what the *most important issues* are, the Review Board can develop a focused Terms of Reference for the assessment, which allows everyone to dedicate their limited resources and time to the *most important issues* while making a solid [EIA] decision at the end” [emphasis added] (MVEIRB, 2011e, p. 1).

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<sup>2</sup> In two EAs, the REA does not make SAI/SPC decisions at the heading level. Therefore, for those two EAs, the “project” was counted as an observation (or issue). They were Project 15 (Gahcho Kue Diamond Mine) and Project 20 (Mackenzie Gas Pipeline).

### 6.1.5 Coding “Issue types”

Coding the data for the 39 REAs yielded 440 “issues” or observations. For analysis, this study categorizes these “issues” into seven mutually exclusive “issue types”. For example, an issue on caribou and an issue on fish are categorized into the “issue type” “wildlife”. The seven issue types are as follows:

Table 6.1: Issue types

<b>issue_type_id</b>	<b>Issue type</b>	<b>Frequency (Number of Issue Observations)</b>	<b>Percent</b>
1	Cumulative effects & closure & follow-up	54	12
2	Environmental	115	26
3	Other	43	10
4	Process & land use	43	10
5	Public concern	13	3
6	Socio-economic & culture & heritage & archaeology	89	20
7	Wildlife	83	19
	Total	440	100

Appendix 1 provides a detailed conversion table of literal “headings” and “sub-headings” into the seven issue types.

### 6.1.6 Decision variables

As stated above, it was necessary to develop measurable indicators of both participation and decisions. The Review Board makes decisions at the issue-level and at the project-level.

At the issue-level, it makes four decisions:

- a) whether SAI will be likely (binary yes / no variable)
- b) whether (S)PC will be likely (binary yes / no variable)
- c) mitigation Measures to impose, if any (count variable) and

d) Suggestions to make, if any (count variable).

At the project-level, the Review Board makes five decisions. In addition to the four decisions above, which will also be at the project level, the Review Board recommends whether the Responsible Minister should approve, reject, or refer the project to EIR.

This study elicits the Review Board's project-level and issue-level decisions. The Review Board's project-level decisions are analyzed in Chapter 5. Regression analysis uses the Review Board's issue-level decisions.

#### 6.1.7 Rationale for each explanatory variable

Recognizing these five decisions of the Review Board, this study identifies 16 different types of participation that are reflected in the REAs. These are listed and justified in Table 6.2. The list is roughly organized from the strongest type of participation (Reject) to the weakest type of participation (information). It is important to note that during EA, no one can reject the project. Only the Review Board can recommend rejecting the project at the end of EA. Here, it is shorthand for the participant stating that they do not want the project or they want the project to be rejected. Commitments are mainly raised by the Proponent and placed at the end.<sup>3</sup>

Table 6.2: Justification for each type of participation

<b>Variable by participant</b>	<b>Justification</b>
<b>Reject</b> (participant asserts that they do	- This is a recommendation that the Review Board can make for the project ( <i>MVRMA</i> , s. 128(1)(d)).

<sup>3</sup> This study also considers two other decision variables:

1. (number of) Recommendations led that became Measures
2. (number of) Recommendations led that became Suggestions

These variables are not explicitly used in the regression analysis, but instead are used in the descriptive analysis as another indicator of the influence of participation on EA decisions.

not want the project)	
<b>SAI</b> (participant stated there will be SAI)	- One of two decisions the Review Board is legally mandated to make for the project ( <i>MVRMA</i> , s. 128).
<b>SPC</b> (participant stated there will be SPC)	- One of two decisions the Review Board is legally mandated to make for the project ( <i>MVRMA</i> , s. 128).
<b>Not SAI</b> (participant stated there will not be SAI)	- Since the Review Board must decide if there is SAI, any instances of participants raising Not SAI must be included to include both sides of SAI
<b>Not SPC</b> (participant stated there will not be SPC)	- Since the Review Board must decide if there is SPC, any instances of participants raising Not SPC must be included to include both sides of SPC
<b>Number of concerns (about the project)</b>	<p>- Concern can go to SAI. The Review Board's 2006 Reference Bulletin (p. 8) defines adverse as "undesirable, damaging or injurious".</p> <p>- Concern can go to SPC (Review Board, 2006). The Review Board's 2006 Reference Bulletin (p. 11) says it may help detect if public concern exists by considering if the media is discussing the project, people have submitted letters of concern, a history of concerns exists about the area, the project is causing conflicts in communities, and if the type of project has created past problems.</p> <p>- The <i>MVRMA</i> also uses the language of "concern" and says in s. 114 that the "purpose of this Part is to ..." and (c) "to ensure that the <b>concerns</b> of aboriginal people and the general public are taken into account in that process".</p> <p>- The Review Board's 2007 Socio-Economic Impact Assessment Guidelines state that "roles and responsibilities" of "communities and other potentially affected groups" is to "identif[y] key <b>concerns</b> and issues about the proposed development" (p. 14).</p> <p>- REAs showed this type of participation behaviour, both using the word "concern" and also just stating the participant's concern, without using the word "concern".</p>
<b>Concerns intensity</b> ( $\Sigma$ number of concerns * number of times raised)	<p>- Incorporates the intensity dimension.</p> <p>- A 2009 Review Board discussion paper said it considered "frequency of concern" in determining public concern, among other things (p. 11).</p> <p>- I include intensity because I hypothesize that the more times participants raise a concern or make a recommendation or another type</p>

	of participation, the more they will influence the Review Board's decisions.
<b>Not concerned (intensity)</b> (participant stated not concerned about the project or supports the project or raises a benefit)	<ul style="list-style-type: none"> <li>- Includes the full story for "concerns" (both sides).</li> <li>- This implicitly includes intensity. Therefore, future references are "Not concerned (intensity)".</li> </ul>
<b>Number of recommendations led</b>	<ul style="list-style-type: none"> <li>- This type of participation behaviour differs from others above.</li> <li>- It can go to hypothesis testing that recommendations increase the likelihood of the Review Board imposing mitigation Measures.</li> </ul>
<b>Intensity of recommendations led</b> ( $\sum$ number of recommendations * number of times raised)	<ul style="list-style-type: none"> <li>- Incorporates the intensity dimension.</li> <li>- I include intensity because I hypothesize that the more times participants raise a concern or make a recommendation or another type of participation, the more they will influence the Review Board's decisions.</li> </ul>
<b>Number of recommendations supported</b>	<ul style="list-style-type: none"> <li>- This differs from "recommendations led".</li> </ul>
<b>Intensity of recommendations supported</b> ( $\sum$ number of recommendations * number of times raised)	<ul style="list-style-type: none"> <li>- Incorporates the intensity dimension.</li> <li>- I include intensity because I hypothesize that the more times participants raise a concern or make a recommendation or another type of participation, the more they will influence the Review Board's decisions.</li> </ul>
<b>Value or use</b> (participant stated something is important or valued or something is used)	<ul style="list-style-type: none"> <li>- Identified as a separate variable from "concerns", so as not to "inflate" the number of "concerns".</li> <li>- According to Ehrlich and Ross (2015), to determine if SAI will ensue from the project, the decision-maker must first decide where to draw the line for the significance threshold for each valued component. This step is devoid of the project and focuses on the valued component. How much the decision-maker values a valued component goes to the significance threshold. For example, there is an expectation that if the valued component is a wildlife species that is endangered or greatly valued by society, it would attract a lower significance threshold than a species that is not endangered or valued as much. Therefore, values are identified separately from "concerns".</li> </ul>
<b>Questions</b> (questions or requests for information)	<ul style="list-style-type: none"> <li>- Identified as a separate variable from "concerns" because they differ.</li> <li>- The Review Board's 2004 EIA Guidelines identify this as a type of participation behaviour: "Members of the public who choose to <b>participate</b> in a Review Board proceeding may respond to or ask</li> </ul>

	<b>questions</b> about any document or oral presentation” (pp. 55-56).
<b>Information statements</b> (stated information that is not any other type of participation)	- Identified as a separate variable, so as not to “inflate” the other types of participation.  - This variable is not used in the regressions but coded to account for participation.
<b>Commitments</b>	- It is a specific term in the EA process and sometimes identified specifically at the end of a REA.

### 6.1.8 Identifying specific participants and participant groups

The REA identifies “specific participants” participating in EA, e.g. YKDFN, NSMA, and others. For analysis, I organize “specific participants” into “participant groups”. For example, I group the “specific participants” in the Southeast NWT Region alphabetically in the dataset that is constructed in Excel: Akaitcho IMA Measures Office, DKFN, LKDFN, NSMA, NWTMN, YKDFN, and others. However, first, I must count “specific participants”.

#### *6.1.8.1 How to count “specific participants”*

Participants are people who participate in EA by making oral or verbal “submissions”. The REA identifies the participant expressing views for itself, e.g. the Tlicho Government speaking for itself in Project 1 (GNWT TASR).

However, participants can submit “additional” submissions such as reports. For example, Project 1 had several additional reports associated with the Tlicho Government, including the Tlicho Government Socio-economic Issues Scoping Study. These additional submissions can offer different views from the participant (the person) speaking for themselves.

In addition, sometimes, different participants submit a joint submission. For example, in the Giant EA, YKDFN (an Indigenous Peoples) and Alternatives North (AN) (an NGO) submitted a joint report in addition to expressing their own views.

To account for this, I count the additional submissions as additional “specific participants”. For example, I count the YKDFN\_AN\_Report as another “participant” to attribute the participation behaviour cleanly. I group it under YKDFN and again under AN. Please see Table A1.1.

#### 6.1.8.2 “Groups of participants”

The REAs for the 39 projects identified 157 “specific participants”, which include additional “submissions” and duplicates for joint submissions. These have been categorized into the following groups. These groups are not mutually exclusive.

Table 6.3: Participant groups and number of “specific participants” in each “group”

<b>Participant “group”</b>	<b>Number of “specific participants” in “group”</b>
Proponent total	27
Review Board total	7
Indigenous Peoples	63
Unsettled Land Claimant Indigenous Peoples	31
Southeast NWT	12
Dehcho	19
Settled Land Claimant Indigenous Peoples	25
Tlicho	11
Sahtu	10
Gwich’in	4
Other Indigenous Peoples	7
Government	18
Environmentally-oriented groups (Monitoring agencies, NGOs, and eco-tourism companies)	21
Municipalities	6
Industry	6
Politicians (MLAs / MPs / Senators)	2
Public total	6
Unidentified Participants	1
<b>Total “specific participants” in 39 REAs</b>	<b>157</b>

The **Proponent total** group includes the Proponent and its consultant. There are 26 distinct Proponents in the 39 projects, as shown in Table 5.3.

The **Review Board total** group includes when it is referred to as the Review Board, its consultant, legal counsel, expert advisor, technical advisor, staff, and members. To clarify, one may find it perplexing why the Review Board's participation should be included on the right hand side. The participation that is coded is that of specific participants affiliated with the Review Board, for example, including its consultant, counsel, and others. The participation that is coded is only what appears in the Report of EAs, which is true for all participant groups. It may well be that during the Review Board's deliberations, the Review Board members express many views. It is not possible to capture those views, as those are closed proceedings. Instead, the participation that is captured here and grouped under Review Board total is participation by its affiliates, *as expressed* in the Reports of EAs.

**Indigenous** participants include three major types: Unsettled land claimant Indigenous participants, Settled land claimant Indigenous participants, and Other Indigenous participants. Other Indigenous participants include participants from outside the Mackenzie Valley and those within the Mackenzie Valley that do not clearly fit into Unsettled or Settled land claimants. Appendix 1 provides a specific definition of Other Indigenous Peoples and which specific participants were classified into this participant group.

**Government** departments are federal or territorial government departments.

**Municipalities** include municipalities, towns, and villages as well as the NWT Association of Communities.

**Environmentally**-oriented groups include monitoring agencies, NGOs, eco-tourism companies, and individuals. It includes an additional group: the Working Group comprising the Proponent and all parties in the Giant Mine Remediation project.

**Industry** includes businesses, Chambers of Commerce, the NWT Chamber of Mines, and the NWT Construction Association.

**Politicians** include Members of the Legislative Assembly (MLAs), Members of Parliament (MPs), and Senators.

The **Public** includes members of the public and schools.

For **Unidentified** participants, rules for attribution are provided in Appendix 2.

#### *6.1.8.3 How to organize “specific participants” into “groups of participants”*

When the REA identifies the specific participant (left column of Table A1.1 in Appendix 1), the statements associated with them are attributed to specific participant variable names (right column of Table A1.1 in Appendix 1). Appendix 1 shows how specific participants are grouped together in the Excel dataset and classified into participant groups. Appendix 1 also provides justification for categorizing specific Indigenous participants into certain groups.

#### 6.1.9 Two dimensions of participation: Who and Type

Participation can be envisioned in terms of a table with two dimensions of participation: participant groups and types of participation behaviour. This study elicits each cell of such a table by coding the 39 REAs. Please see Table 7.4 for summary statistics of participation in terms of type of participation behaviour by participant group.

## 6.2 Methods for data analysis: Quantitative analysis

Regression analysis is used to measure how participation in opposition and participation in support of the project by various groups influences the Review Board's SAI/SPC decision. Section 6.2.1 below describes the methods used for constructing the variables for the regression from the data gleaned from the REAs. Section 6.2.1.1 outlines construction of the main dependent variable: the Review Board's SAI/SPC decision. Section 6.2.1.2 describes the methods for constructing participant groups. Section 6.2.1.3 describes the methods for constructing the participation variables Oppose and Support for each participant group. Section 6.2.2 describes the estimation strategy.

### 6.2.1 Constructing variables

The following methods describe how variables are created from the raw elicited data.

#### *6.2.1.1 Constructing the dependent variable "decision"*

The variable (SAI or SPC) "decision" was constructed to equal one if the Review Board decides that there is Significant Adverse Impact and/or Significant Public Concern, is equal to zero if the Review Board decides that there is neither SAI nor SPC, and is missing if I was not able to make a clear determination of whether or not the Review Board found SAI or SPC. In Chapter 7, I explain that the value of "." was assigned for 21 of the 440 issues identified in the 39 projects.

#### *6.2.1.2 Constructing participant groups by aggregating specific participants*

The raw dataset records types of participation for each specific participant identified in the REAs. I then constructed variables to represent participant groups according to the

classification in Table A1.1. For example, for any type of participation, the entries for the specific participants in the Southeast NWT (AIMAO, DCC, DKFN, Fort\_Resolution\_IP, FRMC, LKDFN, NSMA, NWTMN, YKDFN, YKDFN\_AN, YKDFN\_CityYK\_AN, and YMNL66) were aggregated to create the variable for the Southeast NWT.

### *6.2.1.3 Constructing Oppose and Support for each participant group*

For each participant group, various types of participation were aggregated to create participation Oppose and participation Support variables. Oppose variables aggregate all types of participation that are assumed to oppose the project. There are many possible ways to define Oppose. Here, Oppose measures the number of times that participants say there is SAI, say there is SPC, and raise concerns, specifically using concerns intensity. I argue this is the most defensible measure of Oppose, because summing these three variables is closer to adding apples and apples than, for example, summing Concerns with Questions with Recommendations. Support variables aggregate all types of participation that are assumed to support the project. Support measures the number of times that participants say Not SAI and not concerned, which implicitly includes intensity. Information statements are assumed to be neutral and omitted.

A caveat is in order for the use of Oppose as a name to define various types of participation. Admittedly, participants raising SAI, SPC, and concerns might not necessarily mean that they oppose the project. For example, they might still want the project to go ahead, but they have concerns about its current form and want modifications before approval is given. I acknowledge this nuance and use the name Oppose as a shorthand because I assume that raising SAI, SPC, and concerns intensity are more likely in opposition to the project than in support. The same caveat applies for Support.

In addition to Oppose, I use Reject, which I hypothesize is the most important variable to influence the Review Board's SAI/SPC decision, because it is the strongest form of opposition. However, it is not the main explanatory variable (Oppose), because empirically, only four groups raise Reject. Again, to clarify, this is shorthand for the participant saying that they do not want the project or they want the project to be rejected. During EA, no participant has the power to reject projects. Only the Review Board recommends project rejection at the end of EA.

Finally, we can test the robustness of our results using alternative definitions of Oppose and Support. For example, we can broaden Oppose to include Reject. In the extreme, we can broaden Oppose to include all other weaker forms of variables opposing the project, including Recommendations, statements of Value or use, and Questions. The corresponding measure for Support would also include all weaker forms of variables supporting the project, including Commitments. When we do broaden Oppose to include Reject, the descriptive and econometric results are very similar to simply using Oppose. Even when we broaden the definitions of Oppose and Support to include all weaker forms of variables, the key results remain.

### 6.2.2 Estimation strategy

The economic problem is how does participation by different participants and of various types influence the Review Board's SAI/SPC decision at the issue-level for the 39 projects?

#### *6.2.2.1 Linear Probability Model*

Since the dependent variable "decision" is binary, either a Linear Probability Model or Probit/Logit are appropriate. Here, I chose a Linear Probability Model to cluster standard errors. Given that the issue-level data comes from the 39 projects that completed EA, clustering by project is an intuitive dimension for clustering because it is likely the case that decision residuals

are corrected within a project. Since Probit and Logit are inconsistent under mis-specified heteroskedasticity (Greene, 2012), neither is used. Admittedly, a Linear Probability Model has disadvantages, including the possibility for fitted values to go beyond [0,1] (Greene, 2012). However, Greene (2012) states that the Linear Probability Model is “not beyond redemption”, citing papers that have used it despite the limitations. Fitted values are checked viz the 0 to 1 interval.

#### *6.2.2.2 Identification strategy: Fixed Effects*

Fixed Effects capture unobserved heterogeneity in the following 7 dimensions, with the number of classifications for each Fixed Effect group in parentheses:

- Issue type (7)
- Project (39)
- Region (7)
- Chair (8)
- Proponent (26)
- Project type (11)
- Project resource (17)

#### *6.2.2.3 Clustering issue observations*

Issue observations are clustered by project because it is the most intuitive dimension by which observations are correlated. That is, I postulate that Review Board Decision variables for one issue are likely to be positively correlated with decisions for other issues in the same project. Clustering was also done by Issue type, Chair of the Review Board, and Project-Issue type.

Clustering by Project-Issue type assumes that Review Board Decision variables are corrected within Issue Types within Projects. Appendix 4 shows the results.

In sum, this study seeks to examine how various participant groups influence decision-making in the Mackenzie Valley EA process, which reflects the extent to which each group achieves a theoretical objective of public participation in EA: influencing decision-making. Section 6.1 described the methods for eliciting data on participation and Review Board decisions while section 6.2 described the methods for quantitative analysis using the data. The following chapter presents summary statistics for the data that are the subject of this study.

## 7 Data and descriptive statistics

This chapter presents summary statistics for the data. Section 7.1 presents the summary statistics for the Review Board decisions at the issue-level. These include the 419 observations of the Review Board’s SAI/SPC decision and the 440 observations of the Review Board’s Measures and Suggestions. Section 7.2 presents the summary statistics for the mean values for types of participation by participant group. Section 7.3 presents the summary statistics for Oppose, Support, and Reject by participant group. Sections 7.4 to 7.10 present summary statistics on Issue types, Projects, Regions, Chairs, Proponents, Project types, and Project resources.

### 7.1 Dependent variables: Review Board decisions at the issue-level

Table 7.1: Summary statistics: Review Board decisions at the issue-level

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Review Board’s SAI/SPC decision	419	0.34	0.48	0	1
Number of Measures	440	0.93	1.67	0	11
Number of Suggestions	440	0.54	1.02	0	9

Out of the 39 REAs, 440 observations were obtained for Review Board Measures and Suggestions. The number of observations for Review Board SAI/SPC decisions is 419, because 21 observations have both SAI and SPC coded as “.”. These observations (419 and 440) represent issue-level Review Board decisions in all 39 projects that completed EA since 1998. The 39 projects are all the projects that completed EA since 1998. In other words, the sample of projects and issues used in this analysis is equal to their respective populations.

Table 7.1 shows that at the issue-level, out of 419 observations, for 34% of the issues, the Review Board decided there is SAI or SPC. This means that for 66% of the issues, the Review

Board decided there is neither SAI nor SPC. There are an additional 21 observations for which it cannot be inferred whether the Review Board decided there was or was not SAI or SPC.

On average, the Review Board imposes 1 Measure per issue, although 60% of the issues have no corresponding Measure. The maximum number of Measures per issue was 11. The Review Board makes fewer Suggestions, on average 0.5 Suggestions per issue. The maximum number of Suggestions made for any issue was 9.

Table 7.2: Frequency of Measures per issue

<b>Number of Measures per issue</b>	<b>Number of Issue Observations</b>	<b>%</b>
0	262	60%
1	80	18%
2	48	11%
3	20	5%
4	11	3%
5	9	2%
6	1	0%
7	3	1%
8	1	0%
9	1	0%
10	3	1%
11	1	0%
	440	100%

For 60% of the 440 issue-level observations, the Review Board did not impose Measures. For 18% of the 440 issue-level observations, the Review Board imposed 1 Measure. For 11% of the 440 issue-level observations, the Review Board imposed 2 Measures.

Table 7.3: Frequency of Suggestions per issue

<b>Number of Suggestions per issue</b>	<b>Number of Issue Observations</b>	<b>%</b>
0	298	68%
1	85	19%
2	37	8%
3	14	3%
4	2	0%
5	1	0%
6	1	0%
7	1	0%
9	1	0%
	440	100%

For 68% of the 440 issue-level observations, the Review Board did not make Suggestions. For 19% of the 440 issue-level observations, the Review Board made 1 Suggestion. For 8% of the 440 issue-level observations, the Review Board made 2 Suggestions.

## 7.2 Summary statistics: Mean values for Types of participation by Participant group

Table 7.4 below shows the mean values per Type of participation by Participant group per issue. The variables that measure opposition against a project are listed first. The last three variables are measures of support for a project.

Table 7.4: Mean values for Types of participation by Participant group at the issue-level (n=419)

Variable	Proponent total	Review Board total	Indigenous Peoples	Unsettled land claimants	Settled land claimants	Other Indigenous Peoples	Gov.	Env.	Muni.	Industry	Poli.	Public total	Unidentified
<b>Reject project</b>			0.177	0.172	0.005		0.002	0.007					
<b>SAI</b>	0.014	0.007	0.315	0.265	0.050		0.134	0.053					0.033
<b>SPC</b>			0.057	0.045	0.012			0.012			0.010	0.019	0.017
<b>Concerns intensity</b>	1.680	0.625	9.286	6.621	2.365	0.301	6.079	1.267	0.174	0.112	0.060	0.186	2.695
<b>Intensity of recommendations led</b>	0.031	0.076	2.267	1.776	0.442	0.050	3.525	0.558	0.005	0.017	0.002	0.024	0.291
<b>Intensity of recommendations supported</b>			0.141	0.126	0.014		0.050						
<b>Value or use</b>	0.912		3.334	2.644	0.609	0.081	0.430	0.279	0.002				0.284
<b>Questions</b>	0.007	2.523	0.399	0.339	0.041	0.019	0.501	0.045	0.076			0.021	0.649
<b>Not SAI</b>	1.095	0.002	0.014	0.005	0.010		0.155						0.012
<b>Not concerned (intensity)</b>	10.721	0.112	0.926	0.193	0.704	0.029	1.301	0.007	0.062	0.110	0.002	0.010	0.103
<b>Commitments</b>	11.938		0.162		0.162		0.036						

Note: Indigenous Peoples is the sum of Unsettled land claimants, Settled land claimants and Other Indigenous Peoples.

Note: “Reject project” means the participant states they do not want the project or it should be rejected.

The results show that different participants are most involved in different types of participation. Overall, Unsettled land claimants lead in many of the variables assumed to oppose a project, while Proponent total leads in raising the three types of participation assumed to support a project. The Government leads in average intensity of Recommendations led, and the Review Board itself leads in Questions.

Only four participant groups have said that they do not want a project. Unsettled land claimants say they do not want a project the most. Environmentally-oriented groups are the next most vocal in saying that they do not want the project, followed by Settled land claimants and the Government. The only Government agency that wanted a project to be rejected is the Nahanni National Park Reserve.

Unsettled land claimants say there is SAI the most, at 0.265 times per issue on average. Government says there is SAI half as often, at 0.134 times per issue on average. Environmentally-oriented groups and Settled land claimants say there is SAI about the same number of times, at 0.053 and 0.050 per issue on average. They are followed by Proponent total, the Review Board total, and Unidentified participants.

Unsettled land claimants also say there is SPC the most, at 0.045 times on average per issue. The Public total and Unidentified participants are the next most vocal in raising SPC, at 0.019 and 0.017 times per issue on average respectively. Environmentally-oriented groups and Settled land claimants follow, each raising SPC 0.012 times per issue on average. Last, Politicians raise SPC 0.010 times per issue on average.

The magnitude for Concerns intensity is defined as the number of times that all the distinct concerns have been raised. The number could be one distinct concern times all the times that concern was raised throughout EA, many distinct concerns all raised once each throughout

EA, or a combination. Unsettled land claimants raise Concerns most intensely, at 6.621 times per issue on average, but Government follows as a close second (6.079). They are followed by Unidentified participants, Settled land claimants, Proponent total, Environmentally-oriented groups, Review Board total, Other Indigenous Peoples, Public total, Municipalities, Industry, and Politicians.

Government makes the greatest number of Recommendations the most times (3.525 per issue on average). Unsettled land claimants make about half that (1.776). Settled land claimants make Recommendations less intensely (0.442).

Unsettled land claimants support Recommendations the most intensely at 0.126 times per issue on average, while Government follows with 0.050 and Settled land claimants end with 0.014.

Unsettled land claimants say they value or use something the most, at 2.644 per issue on average. Proponent total, however, acknowledges something is valued or used quite a bit (0.912). It is followed by Settled land claimants (0.609) and Government (0.430), with other groups raising “Value or use” less.

Review Board total raises the most questions or information requests (2.523), followed by Unidentified participants (0.649). Government asks questions next frequently (0.501), followed by Unsettled land claimants (0.339). Other groups ask questions less.

In terms of the variables assumed to support a project, as expected, Proponent total says there is Not SAI the most (1.095 times per issue on average), followed by Government (0.155). Unidentified participants, Settled land claimants, Unsettled land claimants, and Review Board total say there is Not SAI less frequently.

Proponent total says they are not concerned about something or support the project or the project has benefits the most intensely (10.721 times per issue on average), followed by Government (1.301). Settled land claimants raise this the next most frequently (0.704). Unsettled land claimants raise this less (0.193) while other groups raise it even less.

Proponent total makes the most Commitments (11.938 on average per issue). Settled land claimants make some Commitments (0.162), as does Government (0.036). I define Commitments broadly to include more than the specific term in EA, which are actions that the Proponent commits to. I also include original mitigations that the Proponent or another participant made at the start of EA, mitigation Measures the Proponent or another participant proposed during EA, agreements during EA to do something, agreements to Recommendations, and changes to the project. Please see Appendix 2 Coding Proponent’s submissions.

### 7.3 Summary statistics of Oppose, Support, and Reject by Participant group

Table 7.5: Summary statistics of Oppose, Support, and Reject by Participant group

<b>Participant group</b>	<b>Oppose Mean</b>	<b>Reject Mean</b>	<b>Support Mean</b>
Proponent total	1.695		11.816
Government	6.212	0.002	1.456
Unsettled land claimants	6.931	0.172	0.198
Southeast NWT region	5.229		0.043
Dehcho region	1.539		0.150
Settled land claimants	2.427	0.005	0.876
Tlicho region	2.294		0.714
Sahtu region	0.160		0.002
Gwich’in region	0.136		0.002
Other Indigenous Peoples	0.301		0.029
Environmentally-oriented	1.332	0.007	0.007
Industry	0.112		0.110
Review Board total	0.632		0.115
Municipalities	0.174		0.062
Politician	0.069		0.002

Public total	0.205	0.010
Unidentified participants	3.969	0.115

Note: “Reject” means participants stating that they do not want the project or that it should be rejected. No participant has the power to reject a project during EA. Only the Review Board can recommend rejection at the end of EA.

Table 7.5 shows that on average, using Oppose, defined as SAI + SPC + Concerns intensity, Unsettled land claimants raise statements assumed to oppose a project the most, at 6.9 times per issue on average. Government follows with 6.2 opposition statements on average. Unidentified participants are next (4), then Settled land claimants (2.4), Proponents (1.7), Environmentally-oriented groups, and Review Board total (0.6). Other groups raise SAI + SPC + Concerns intensity less.

Using Support, defined as Not SAI + Not concerned (intensity), Proponent total leads by raising statements assumed to support a project nearly 12 times per issue on average. Government raises statements assumed to support a project next frequently, at 1.5 times per issue on average. Settled land claimants follow at 0.9 times per issue on average. Other groups raise statements assumed to support a project less frequently.

#### 7.4 Issue types

Table 7.6: Issue types and frequency of observations per issue type at issue-level analysis

Issue type id	Issue type	Number of Issue Observations	%
1	Cumulative effects & closure & follow-up	49	12%
2	Environmental	115	27%
3	Other	42	10%
4	Process & land use	36	9%

5	Public concern	11	3%
6	Socio-economic & culture & heritage & archaeology	83	20%
7	Wildlife	83	20%
		419	100%

The issue type most frequently raised in the EA process is “environmental” (115), followed by “socio-economic & culture & heritage & archaeology” (83) and “wildlife” (83).

## 7.5 Projects

Table 7.7: Projects and frequency of observations per project at issue-level analysis

Project number	Year REA completed	Proponent	Project name	Number of Issue Observations	%
1	2018	GNWT	Tlicho All Season Road	15	4%
2	2017	Canadian Zinc Corp	Prairie Creek All Season Road Project	12	3%
3	2016	Dominion Diamond Ekati Corp	Jay Project	20	5%
4	2014	De Beers Canada	Snap Lake Amendment Project	7	2%
5	2013	Avalon Rare Metals	Nechalacho Rare Earth Element Project	19	5%
6	2013	INAC	Giant Mine Remediation Project	11	3%
7	2013	Fortune Minerals	NICO Project	8	2%
8	2012	Alex Debogorski	Diamond exploration	4	1%
9	2011	Canadian Zinc Corp	Prairie Creek Mine	20	5%
10	2011	TNR Gold Corp	Mineral Exploration at Moose Property	5	1%
11	2009	Selwyn Resources Ltd	Mineral Exploration at Howard’s Pass	7	2%
12	2008	Tamerlane Ventures	Pine Point Pilot Project	15	4%
13	2007	Ur Energy Inc	Screech Lake	6	1%
14	2006	Paramount Resources	SDL 8 2-D Geophysical Program	10	2%
15	2006	De Beers Canada	Gahcho Kue Diamond Mine	1	0%
16	2005	Canadian Zinc Corp	Prairie Creek Phase III Drilling Program	7	2%
17	2005	Imperial Oil Resources Ventures	Dehcho Geotechnical Survey	9	2%
18	2004	Dehcho Bridge Corporation	Mackenzie River Bridge	7	2%
19	2004	Paramount Resources	Cameron Hills Extension Project	8	2%
20	2004	Imperial Oil Resources Ventures	Mackenzie Gas Project	1	0%
21	2004	Snowfield Development Corp	Drybones Bay mineral exploration	9	2%
22	2004	New Shoshoni Ventures	Drybones Bay mineral exploration	7	2%

23	2004	North American General Resources	Wool Bay exploration drilling	9	2%
24	2004	Encore Renaissance Resources Corp (formerly Consolidated Goldwin Ventures Inc)	Drybones Bay Preliminary Exploration	10	2%
25	2003	Northrock Resources	Summit Creek Exploration Well	5	1%
26	2003	De Beers Canada	Snap Lake Diamond Mine	47	11%
27	2003	Western Geco Canada	Mackenzie River 2D Seismic Program	8	2%
28	2001	Canadian Zinc Corp	Fuel Cache Retrieval and Clean-up development	12	3%
29	2002	Canadian Zinc Corp	Underground Decline and Pilot Plant	11	3%
30	2002	Paramount Resources	Cameron Hills Gathering System	17	4%
31	2001	Canadian Zinc Corp	Prairie Creek Phase II Mineral Exploration Drilling Program	3	1%
32	2001	Paramount Resources	Cameron Hills Exploratory Drilling Project	11	3%
33	2001	Patterson Sawmill	Pine Point Area Timber Harvest Proposal	7	2%
34	2001	Paramount Resources	Liard East Exploratory Drilling Program	12	3%
35	2001	Canadian Zinc Corp	Prairie Creek Phase I Mineral Exploration Drilling Program	13	3%
36	2001	BHP Diamonds	Ekati - Sable, Pigeon and Beartooth Pipes expansion	25	6%
37	2000	ExplorData	Liard Seismic survey	7	2%
38	1999	Ranger Oil Ltd./Canadian Forest Oil Ltd./Chevron Oil Resources Ltd.	Integrated P-66A/N61/K-29 Gas Wells and Pipeline Tie-in	12	3%
39	1999	Bruce Domes	Timber Harvest Proposal	2	0%
				419	100%

Project 26 (Snap Lake Diamond Mine) accounts for 11% of the 419 issue observations.

Across all 39 projects, an average of 10.5 issues were raised and addressed in the EAs. Two projects, Gahcho Kue Diamond Mine and Mackenzie Gas project, had one issue coded in the EA because I could not find Review Board SAI/SPC decisions at more disaggregated levels.

## 7.6 Regions

Table 7.8: Regions and frequency of observations per region at issue-level analysis

Region id	Region	Settled/Unsettled	Obs	%	Total %
1	Dehcho	Unsettled	180	43%	85%
4	Southeast NWT & Dehcho	Unsettled	34	8%	
5	Southeast NWT (Drybones Bay)	Unsettled	39	9%	
6	Southeast NWT (not Drybones Bay)	Unsettled	102	24%	
2	Gwichin, Sahtu, and Dehcho	Both	9	2%	2%
3	Sahtu	Settled	12	3%	13%
7	Tlicho	Settled	43	10%	
			419	100%	100%

As expected, the large majority of the EAs were conducted for projects in the Regions with unsettled land claims.

A question might arise as to why projects located in Settled only regions or Both Settled and Unsettled regions would get referred to EA. A key reason is that Settled land claimants cannot stop other participants from referring the project to EA.

The nine observations for projects in the Both Settled and Unsettled regions belong to two projects. The Mackenzie Gas Project accounts for one observation. The MVLWB had referred it to EA (MVEIRB, 2004b). The Mackenzie River 2D Seismic Program by Western Geco Canada accounts for the other eight observations. The NEB and DFO referred it to EA (MVEIRB, 2003b).

The 12 observations for projects in the Sahtu region belong to two projects. Selwyn Resources Ltd. Mineral Exploration at Howard's Pass accounts for seven observations. It was an "advanced exploration drilling project of up to 100 holes in the Sahtu region" exceeding 5 years to "define sub-surface zinc and lead resources" (MVEIRB, 2009, p. iv). The Tulita District Land Corporation, member organization of the Sahtu Secretariat Incorporated, requested that the

project be referred to EA over concerns (p. iv). The second project is Northrock Resources’ Summit Creek Exploration Well. It was an access route and well site. The Sahtu Land and Water Board referred it to EA “citing potential for public concern” (MVEIRB, 2003a, p. 8).

The 43 observations for projects in the Tlicho region belong to three projects. INAC’s predecessor referred the Jay Project to EA (MVEIRB, 2016b, p. 5). INAC referred the NICO Project to EA (MVEIRB, 2013, p. 3). The Review Board referred the Tlicho All Season Road to EA (MVEIRB, 2018, p. 4).

## 7.7 Chairs

Table 7.9: Chairs and frequency of observations per Chair at issue-level analysis

<b>RB Chair id</b>	<b>Number of Issue Observations</b>	<b>%</b>
2	54	13%
3	74	18%
6	39	9%
5	9	2%
1	82	20%
8	47	11%
4	97	23%
7	17	4%
	419	100%

As noted in Chapter 2, the Review Board members are nominated by representatives of Indigenous Peoples and governments, who then nominate a Chairperson. Since its establishment, the Review Board has had seven chairs. Table 7.9 is ordered as chronologically as possible. The Chair id’s were assigned to the Chairs alphabetically.

## 7.8 Proponents

Table 7.10: Proponents and frequency of observations per proponent at issue-level analysis

Proponent id	Number of Issue Observations	%
1	4	1%
2	19	5%
3	25	6%
4	2	0%
5	78	19%
6	55	13%
7	7	2%
8	20	5%
9	10	2%
10	7	2%
11	8	2%
12	15	4%
13	11	3%
14	10	2%
15	7	2%
16	9	2%
17	5	1%
18	58	14%
19	7	2%
20	12	3%
21	7	2%
22	9	2%
23	5	1%
24	15	4%
25	6	1%
26	8	2%
	419	100%

There are 26 proponents for the 39 projects, with four proponents having multiple projects. Canadian Zinc Corporation has seven projects (Prairie Creek All Season Road Project, Prairie Creek Mine, Prairie Creek Phase III Drilling Program, Fuel Cache Retrieval and Clean-up development, Underground Decline and Pilot Plant, Prairie Creek Phase II Mineral Exploration Drilling Program, and Prairie Creek Phase I Mineral Exploration Drilling Program). De Beers

has three projects (Snap Lake Amendment Project, Gahcho Kue Diamond Mine, and Snap Lake Diamond Mine). Paramount Resources has five projects (SDL 8 2-D Geophysical Program, Cameron Hills Extension Project, Cameron Hills Gathering System, Cameron Hills Exploratory Drilling Project, and Liard East Exploratory Drilling Program). Imperial Oil Resources Ventures has two projects (Dehcho Geotechnical Survey and Mackenzie Gas Project). The Proponent id's were assigned to the Proponents alphabetically. Table 5.3 contains the Proponents.

### 7.9 Project types

Table 7.11: Project types and frequency of observations per project type at issue-level analysis

<b>Project type id</b>	<b>Project type</b>	<b>Number of Issue Observations</b>	<b>%</b>
1	Bridge	7	2%
2	Drilling	8	2%
3	Exploration	129	31%
4	Mine	162	39%
5	Pipeline	18	4%
6	Remediation	11	3%
7	Road	27	6%
8	Road upgrade and fuel recovery	12	3%
9	Survey	24	6%
10	Timber harvest	9	2%
11	Wells	12	3%
		419	100%

Mine is the project type with the greatest number of observations, accounting for 39% of all 419 observations. Exploration has the second greatest number of observations, accounting for 31% of all observations.

## 7.10 Project resources

Table 7.12: Project resources and observations per project resource at issue-level analysis

<b>Id</b>	<b>Project type resource</b>	<b>Number of Issue Observations</b>	<b>%</b>
1	All season access	15	4%
2	Cobalt gold bismuth copper	8	2%
3	Diamond	139	33%
4	Fuel	12	3%
5	Gas	13	3%
6	Geophysical	10	2%
7	Geotechnical	9	2%
8	Gold mine	11	3%
9	Lead zinc	76	18%
10	Lithium and tantalum	5	1%
11	Mine	12	3%
12	Not applicable	7	2%
13	Oil and gas	53	13%
14	Rare earth elements	19	5%
15	Seismic	15	4%
16	Timber	9	2%
17	Uranium	6	1%
		419	100%

I identified 17 types of project resources, as listed above. Diamond is the project type resource with the most issue observations, accounting for 33% of all 419 issue observations. Lead zinc follows, accounting for 18% of all issue observations. Next is oil and gas (13%).

In sum, this study examines the extent to which various participant groups influence decision-making in the Mackenzie Valley EA process, or the extent to which they achieve a theoretical objective of public participation in EA (influencing decision-making). The following chapter presents the statistical results from applying the methods in Chapter 6 onto the data in Chapter 7.

## 8 Statistical results

This chapter presents the statistical results. Section 8.1 discusses the regression results. Those results provide the first insight into the marginal effects of participation that opposes projects and participation that supports projects due to their effects on issues. Section 8.2 uses the results from the OLS model in order to decompose the mean fitted value for the Review Board's SAI/SPC decision into contributions from the participation variables and Fixed Effects. Section 8.3 discusses the number of Recommendations led that became Measures or Suggestions.

### 8.1 Basic Linear Probability Model of influence of participation on SAI/SPC decision

#### 8.1.1 Linear Probability Model results of influence of participation Oppose and participation Support on SAI/SPC decision

The dependent variable in the basic statistical model is the Review Board Decision regarding whether or not there will likely be SAI or SPC. A *positive* coefficient on an explanatory variable means that increasing the variable increases the likelihood that the Review Board decides that there is SAI/SPC. A variable that is positive and statistically significant has positive influence over the decision. A *negative* and statistically significant coefficient on an explanatory variable means that the variable has a negative influence over the decision. I expect the sign of coefficients on all Oppose variables to be positive (greater opposition leads to greater likelihood of SAI or SPC) and the sign of coefficients on all Support variables to be negative (greater support leads to lower likelihood of SAI or SPC), regardless of participant. Oppose variables that have the largest positive coefficients and Support variables with the largest negative coefficients have the greatest influence.

Table 8.1 reports results for a Linear Probability Model in which the dependent variable is the Review Board’s SAI/SPC decision on the issue and the explanatory variables measure opposition and support from different groups of participants. The column for Model (1) reports results for the intensity of opposition and support by the four groups that are assumed to have greatest influence over the decisions: Proponent total, Government, Unsettled land claimants, and Settled land claimants. The column for Model (2) reports results for the intensity of opposition and support from all participant groups. The model also includes all 7 fixed effects, and errors are clustered by project.

Table 8.1: Linear Probability Model of Review Board SAI/SPC decision on Oppose and Support by 4/12 groups, with 7 Fixed Effects, clustering by project

Dependent variable: Review Board SAI/SPC decision = 1	(1)	(2)
“Proponent total” Oppose	0.0066** (0.0032)	0.0026 (0.0041)
“Proponent total” Support	-0.0011 (0.0016)	-0.0015 (0.002)
Government Oppose	0.0069*** (0.0025)	0.0074*** (0.0026)
Government Support	-0.0064 (0.0038)	-0.0107* (0.0063)
Unsettled land claimants Oppose	0.0038* (0.0019)	0.0021 (0.0024)
Unsettled land claimants Support	-0.0149 (0.0116)	-0.0270* (0.0155)
Settled land claimant Oppose	0.0032*** (0.0011)	0.0020** (0.0008)
Settled land claimant Support	-0.0034** (0.0015)	-0.0018 (0.0011)
Other Indigenous Peoples Oppose		-0.0040** (0.0015)
Other Indigenous Peoples Support		-0.0389 (0.0326)
Environmental Oppose		0.0028 (0.0023)

Environmental Support		-0.5322***	(0.0695)
Industry Oppose		-0.0210***	(0.0027)
Industry Support		0.0305	(0.0235)
“Review Board total” Oppose		0.0122***	(0.0031)
“Review Board total” Support		-0.0210**	(0.0093)
Municipalities Oppose		-0.0057	(0.0039)
Municipalities Support		0.0585	(0.0383)
Politicians Oppose		0.0369	(0.0403)
Politicians Support		0.2306	(0.3359)
“Public total” Oppose		-0.0267	(0.0161)
“Public total” Support		-0.0684	(0.1086)
Unidentified Oppose		0.0045	(0.0039)
Unidentified Support		-0.0065	(0.0189)
Constant	-0.0196	0.008	(0.0526) (0.0509)
R <sup>2</sup>	0.482	0.508	
Adjusted R <sup>2</sup>	0.408	0.412	

Linear Probability Model regressions. N = 419.

All regressions include fixed effects for Issue type, Project, Region, Chair, Proponent, Project type, and Project resource.

Standard errors are in parentheses and are clustered by Project. \* p<0.1, \*\* p<0.05, \*\*\* p<0.01

For Linear Probability Models, the interpretation of coefficients is that all else equal, one more unit of an explanatory variable increases the Probability that the Dependent Variable = 1 by

the coefficient (Wooldridge, 2009). In other words, the Marginal Effect of one more unit of an explanatory variable on the Probability that the Dependent Variable = 1 is the coefficient.

The first key result is that some of the Participant groups other than Proponents, Government, Settled land claimants, and Unsettled land claimants exert statistically significant influence over the decisions. For that reason, in what follows I focus on the results of the model with the full list of 12 participant groups (the right hand column of Table 8.1: Model (2)).

The second key result is that the Participant groups whose opposition has the most influence on the decisions are the “Review Board total” itself (0.0122\*\*\*) and the Government (0.0074\*\*\*), which have coefficients that are statistically significant at the 1% level of confidence. To clarify again, the “Review Board total” includes participation by Review Board affiliates during EA (i.e., its consultant, legal counsel, expert advisor, technical advisor, staff, members, and when it is referred to as the Review Board), *as expressed* in the REAs. This variable does not purport to capture the views of the Review Board members as expressed during their closed deliberations.

The next largest magnitudes of coefficients on Opposition is from Settled and Unsettled land claimants, which have near identical coefficients, although the coefficient for Settled land claimants Oppose is statistically significant at the 5% level, while the coefficient for Unsettled land claimants Oppose is not statistically significant at the 10% levels of confidence. We thus cannot reject the null hypothesis that Unsettled land claimants do not influence the Review Board to decide SAI/SPC. When they raise SAI + SPC + Concerns intensity, Government and the Review Board total influence the probability that the Review Board decides SAI/SPC much more than Unsettled and Settled land claimants do.

This result is tempered by hypothesis testing in section 8.1.2, where we cannot reject the null hypothesis that Government Oppose = Unsettled land claimants Oppose at the 10% level and we cannot reject the null hypothesis that Unsettled land claimants Oppose = Settled land claimants Oppose at the 10% level. Table 8.1 also shows that the standard error on Unsettled land claimants Oppose is 0.0024, which is larger than the coefficient of 0.0021. This suggests that the estimate is not very precise. Therefore, the result that the coefficient on Unsettled land claimants Oppose is insignificant is sensitive to model specification. Future research can check the robustness of these results by, for example, exploring complementarities between participation by certain groups through interaction terms. Future research ought to minimize any model dependence.

However, even if the significance of the coefficient on Unsettled land claimants Oppose is sensitive to model specification, here, the magnitude of the coefficient is still much smaller than those for Review Board total Oppose and Government Oppose. That is, even if the coefficient on Unsettled land claimants Oppose becomes statistically significant, the magnitude of their influence is smaller than that for Review Board total and Government, when they raise participation opposing a project.

The coefficients on Environment Oppose (0.0028), Politicians Oppose (0.0369), Unidentified Oppose (0.0045), and Proponent total Oppose (0.0026) are all insignificant. This means that we cannot reject the separate null hypotheses that Politicians (MLAs and Senators), Unidentified participants in the REAs, and the Proponent and its consultant do not influence the Review Board to decide SAI/SPC when they raise SAI + SPC + Concerns intensity respectively.

The coefficient on Other Indigenous Peoples Oppose (-0.0040\*\*) is unexpectedly negative and significant. This means that the more Other Indigenous Peoples raise SAI + SPC +

Concerns intensity, the less likely that the Review Board will decide there is SAI/SPC. We can infer thus that Other Indigenous Peoples do not influence the Review Board to decide SAI/SPC the way they want when they participate in EA. However, this is tempered by the low magnitude of participation by Other Indigenous Peoples. From Table 7.5, Other Indigenous Peoples raise SAI, SPC, and concerns 0.3 times per issue on average, whereas Unsettled land claimants raise SAI, SPC, and concerns 6.9 times per issue on average and Settled land claimants raise SAI, SPC, and concerns 2.4 times per issue on average.

The coefficient on Industry Oppose is also unexpectedly negative and significant ( $-0.0210^{***}$ ). This means that the more Industry (excluding the Proponent) raises SAI + SPC + Concerns intensity, the less likely that the Review Board will decide SAI/SPC. This is unexpected. The unexpected sign is tempered by the low magnitude of Industry Oppose. Table 7.5 shows that Industry Oppose is 0.112 times per issue on average.

Finally, the coefficients on Muni Oppose ( $-0.0057$ ) and “Public total” Oppose ( $-0.0267$ ) are negative and insignificant. We cannot reject the separate null hypotheses that Municipalities and “Public total” do not influence the Review Board to decide SAI/SPC when they raise SAI + SPC + Concerns intensity respectively.

In terms of Support results, the coefficient on Unsettled land claimants Support ( $-0.0270^*$ ) is negative and significant. This means that the more Unsettled land claimants say there is Not SAI and that they are Not concerned, the less likely that the Review Board will decide there is SAI/SPC. This is the expected direction of influence. Interestingly, its coefficient is larger than that on Government Support ( $-0.0107^*$ ). Perhaps this is because, on average, Unsettled land claimants raise Oppose (6.9) much more than they raise Support (0.2). Therefore, in the rare instances when Unsettled land claimants do raise Support, that participation influences the

Review Board more. Unexpectedly, the coefficient on Settled land claimants Support is insignificant.

Also unexpectedly, the coefficient on “Proponent total” Support (-0.0015) is insignificant. I expected that if the Proponent and its consultant raise Not SAI + Not concerned (intensity), they would be able to influence the Review Board to decide no SAI/SPC at conventional levels of statistical significance. However, note that the Review Board still decided there was no SAI/SPC for 66% of the observations, almost double the observations for which it decided there was SAI/SPC (34%).

The coefficient on Env Support (-0.5322\*\*\*) is expectedly negative, significant, and the largest in magnitude. This means that the more Environmentally-oriented groups say there is Not SAI + Not concerned (intensity), the less likely that the Review Board will decide SAI/SPC. I conjecture the magnitude is so large because, like Unsettled land claimants, Environmentally-oriented groups raise Oppose (1.33) much more than they raise Support (0.007) on average. Therefore, when they say there is Not SAI or they are Not concerned, this reduces the probability that the Review Board decides SAI/SPC profoundly.

The coefficient on Review Board Support (-0.0210\*\*) is expectedly negative and significant. This means that the more the Review Board’s entities say there is Not SAI or they are Not concerned, the less likely the Review Board will decide SAI/SPC. To clarify again, the “Review Board total” includes participation by Review Board affiliates (i.e., its consultant, legal counsel, expert advisor, technical advisor, staff, members, and when it is referred to as the Review Board), *as expressed* in the REAs. This variable does not purport to capture the views of the Review Board members as expressed during their closed deliberations.

The coefficients on Other Indigenous Peoples Support (-0.0389), “Public total” Support (-0.0684), and Unidentified Support (-0.0065) are expectedly negative but statistically insignificant. We cannot reject the separate null hypotheses that the more each of these groups raise Not SAI + Not concerned (intensity), they do not influence the Review Board to decide SAI/SPC.

The coefficients on Industry Support (0.0305), Muni Support (0.0585), and Poli Support (0.2306) are unexpectedly positive but insignificant. Therefore, we cannot reject the separate null hypotheses that the more each of these groups raise Not SAI + Not concerned (intensity), they do not influence the Review Board to decide SAI/SPC.

While the above shows that the coefficient on Support for certain participant groups is statistically significant and exhibits the expected sign, this study focuses on the Oppose results, because the Review Board’s job is to determine whether there will likely be SAI/SPC. That is, the process is designed to determine if there are problems and as Table 7.4 shows, most participants raise more Oppose than Support. Chapter 5 also shows that of the 39 projects, most are approved. In this context, I would argue that it is more important to examine whether participants who have problems with a project can influence decision-making, when most projects are approved. That is, the empirical reality is not that many projects are being rejected despite many participants saying they are not concerned and that they want the projects. This study in no way purports to say that only Oppose matters and that Support does not matter. It is simply the context of this study that leads to the focus on the Oppose coefficients.

Focusing on the key result above, that the coefficient on Gov Oppose is larger than those for Unsettled land claimants Oppose and Settled land claimants Oppose, hypothesis testing is conducted on the equality of these three coefficients.

### 8.1.2 Hypothesis testing

Table 8.2 summarizes tests of hypotheses regarding the equality of coefficients for Government Oppose, Unsettled land claimants Oppose, and Settled land claimants Oppose. The one hypothesis that is rejected is that gov\_Oppose equals settledip\_Oppose at the 10% level of confidence.

Table 8.2: Hypothesis testing for Gov Oppose, Unsettled land claimants Oppose, Settled land claimants Oppose under regression with all 12 groups

<b>H<sub>0</sub>:</b>	<b>F-calc</b>	<b>p-value</b>	<b>Conclusion</b>
gov_Oppose = unsettledip_Oppose	F(1, 38) = 2.33	Prob > F = 0.1350	cannot reject null that gov_Oppose = unsettledip_Oppose even at 10% level because p- value > 0.1
gov_Oppose = settledip_Oppose	F(1, 38) = 3.30	Prob > F = 0.0770	reject null that gov_Oppose = settledip_Oppose at 10% level because p-value < 0.1
unsettledip_Oppose = settledip_Oppose	F(1, 38) = 0.00	Prob > F = 0.9561	cannot reject null that unsettledip_Oppose = settledip_Oppose even at 10% level because p- value > 0.1

It is a limitation of this study that the null hypothesis that gov\_Oppose = unsettledip\_Oppose cannot be rejected at the 10% level, because comparing the coefficients shows that the coefficient on Government Oppose is significantly different from zero while that on Unsettled Oppose is not. It is also a limitation that the null hypothesis that unsettledip\_Oppose = settledip\_Oppose cannot be rejected at the 10% level, because comparing the coefficients shows that the coefficient on Unsettled land claimants Oppose is insignificant while that on Settled land claimants Oppose is. Therefore, it would be good for future research

to examine different model specifications (e.g. incorporating complementarities through interaction terms) as robustness checks.

### 8.1.3 Range of fitted values

One potential disadvantage of using a Linear Probability Model compared to Probit or Logit is that fitted values can exceed the  $[0,1]$  range. This is undesirable since the dependent variable only takes values of 0 or 1. Therefore, the fitted values are checked to ensure they are close to being between 0 and 1. The fitted values for the Review Board's SAI/SPC decision under the regression with 12 groups range from -0.27 to 1.52. I fully acknowledge that this exceeds the  $[0,1]$  range, which is a limitation of Linear Probability Models in general and in this study. More importantly is the number of observations for which the fitted value exceeds the  $[0,1]$  range. In this regard, 60 observations had fitted values below 0 and 21 observations had fitted values above 1. The remaining 338 observations (or 81% of the 419 observations) had fitted values within  $[0,1]$ . However, I would argue that since the Probit Maximum Likelihood Estimator is inconsistent under mis-specified heteroskedasticity, the Linear Probability Model was chosen.

### 8.1.4 Dimensions for clustering

Appendix 4 shows the results when clustering observations by four other dimensions than by Project: No clustering, by Issue type, by Chair, and by Project-Issue type, which clusters issues within projects as well. In general, the results are very similar.

In terms of our key results, the coefficients on Gov Oppose and "Review Board total" Oppose are statistically significant across the five dimensions of clustering. This means that

these particular results are especially robust across all five dimensions of clustering. The coefficients on Unsettled land claimants Oppose and Env Oppose are insignificant across the five dimensions of clustering. This means that these particular results are especially robust across the five dimensions of clustering. The only difference is that the coefficient on Settled land claimants Oppose is no longer significant if there is no clustering or clustering is by Issue type or Project-Issue type. Like clustering by Project, when clustering is by Chair, the coefficient on Settled land claimants Oppose is significant.

On the Support side, the coefficient on Env Support is significant across the five dimensions of clustering. The coefficients on Gov Support, Unsettled land claimants Support, Settled land claimants Support, and “Review Board total” Support can change in significance depending on the dimension of clustering.

#### 8.1.5 Linear Probability Model results using Reject

Table 8.3: Linear Probability Model of Review Board SAI/SPC decision on Reject, with 7 Fixed Effects, clustering by project

DV: RB decision =1	Reject
Gov Reject	-0.2988 (0.3874)
Unsettled land claimants Reject	-0.0015 (0.0262)
Settled land claimants Reject	0.1780*** (0.0636)
Env Reject	0.1705 (0.3835)
Constant	-0.0344 (0.0553)
R <sup>2</sup>	0.428
Adjusted R <sup>2</sup>	0.353

Linear Probability Model regressions. N = 419.

Regressions include Issue type, Project, Region, Chair, Proponent, Project type, and Project resource fixed effects.

Standard errors are in parentheses and are clustered by Project. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$   
Note: Reject means a participant stating that they do not want the project or that they want the project to be rejected.

It is important to note for this whole section that “Reject” is shorthand for the participant group stating that they do not want the project or that they want the project to be rejected. It is not them actually rejecting the project, as no participant can during EA. Only the Review Board can recommend project rejection at the end of EA.

The Review Board SAI/SPC decision is regressed on Reject by the groups that raise it. I expect any group raising Reject to increase the probability of the Review Board deciding there is SAI/SPC. That is, I expect positive coefficients. The coefficient on Unsettled land claimants Reject is insignificant, which means Unsettled land claimants raising Reject do not influence the Review Board’s SAI/SPC decision at conventional levels of statistical significance. This is a profound result and is backed up by analysis of the thresholds faced by participants under the legal rules through various stages of the EIA process in Appendix 5.

In contrast, the coefficient on Settled land claimants Reject is positive and significant. Hypothesis testing confirms that the coefficients differ for Unsettled land claimants Reject and Settled land claimants Reject. We can reject the null that  $\text{UnsettledIP\_Reject} = \text{SettledIP\_Reject}$  at the 5% level.

Please take note that as shown in Table 7.5, Unsettled land claimants raise Reject the most (0.172 times per issue on average), but the other participant groups raise Reject far less (Environmentally-oriented groups at 0.007, Settled land claimants at 0.005, and Government at 0.002).

### 8.1.6 Fixed effects

Table 8.4 investigates if controlling for different combinations of Fixed Effects, the coefficient on Indigenous Peoples' Concerns Intensity is still significant in a regression of "decision" on Indigenous Peoples' Concerns Intensity using a Linear Probability Model.

Table 8.4: Different combinations of Fixed Effects

DV: RB decision =1	(1)	(2)	(3)	(4)	(5)	(6)
Indigenous Peoples' Concerns intensity	0.0028*** (0.0009)	0.0028*** (0.0009)	0.0029*** (0.0009)	0.0028*** (0.0009)	0.0028*** (0.0009)	0.0028*** (0.0009)
Constant	-0.0900 (0.2258)	0.2251 (0.1524)	0.4227 (0.3012)	0.7380*** (0.2728)	-0.0224 (0.1527)	-0.0224 (0.1527)
Issue type	Yes	Yes	Yes	Yes	Yes	Yes
Project	Yes	Yes	No	Yes	Yes	Yes
Region	Yes	Yes	Yes	No	Yes	Yes
Chair	No	Yes	Yes	Yes	Yes	Yes
Proponent	No	No	Yes	Yes	Yes	Yes
Project type	No	No	No	Yes	Yes	Yes
Project resource	No	No	No	No	No	Yes
R <sup>2</sup>	0.440	0.440	0.424	0.440	0.440	0.440
Adjusted R <sup>2</sup>	0.373	0.373	0.373	0.373	0.373	0.373

N = 419

\* p<0.1, \*\* p<0.05, \*\*\* p<0.01

This Table shows that controlling for Issue type, Project, Region, Chair, Proponent, Project type, and Project resource effects, the coefficient on Indigenous Peoples' Concerns Intensity remains very similar and statistically significant for all specifications. The last model is the most robust. Therefore, all 7 Fixed Effects are included.

### 8.1.7 Linear Probability Model results using broadened definitions of Oppose and Support

As discussed in section 6.2.1.3, there are other possible formulations of the participation Oppose and participation Support variables. Regression analysis has used Oppose and Support.

When Oppose is broadened to include Reject, the results are very similar to those using Oppose and Support. Even when the definitions of Oppose and Support are expanded to include all types of participation assumed to oppose and support projects, the key results remain.

### 8.2 Prediction and overall determinants of decisions

While the OLS regression model results provide insight into marginal effects of participation by different participant groups, this analysis considers the total effects of such participation in the 419 issues over the course of the 39 EAs conducted. For this analysis, I use both the estimates from the OLS model with Oppose and Support for 12 groups and the descriptive statistics on the extent of participation from Chapter 7. I decompose the mean fitted value for the Review Board's SAI/SPC decision ( $\hat{Y}$ ) into the contributions from the participation variables and the Fixed Effects. Here, I remove the Constant in order to include all individual Fixed Effects. In the main model, I kept the Constant but dropped the first individual Fixed Effect in each Fixed Effect group. I.e. I removed Region1, Project1, Issuetype1, and other first Fixed Effects in each Fixed Effect group in the main model. The decomposition is as follows:

$$\hat{Y} = \hat{\beta}_1 \bar{x}_1 + \hat{\beta}_2 \bar{x}_2$$

$$0.344 = 0.050 + 0.293$$

The key result is that most of the predicted value of decision (0.293 of 0.344 or 85%) comes from Fixed Effects. This is a positive result because it shows that we are capturing many of the important Fixed Effects. The following table shows the contributions to the mean fitted

value from each participation variable. The Mean represents the mean amount of participation and the Coefficient represents the influence per unit of participation effort by that group in opposition or in support of the project on the Review Board’s SAI/SPC decision.

Table 8.5: Contributions to mean fitted value from participation variables

	<b>Coeff.</b>	<b>Mean</b>	<b>Coeff.*Mean=Contribution to mean fitted value</b>
“Proponent total” Oppose	0.0026	1.695	<b>0.004</b>
“Proponent total” Support	-0.0015	11.816	<b>-0.018</b>
Government Oppose	0.0074	6.212	<b>0.046</b>
Government Support	-0.0107	1.456	<b>-0.016</b>
Unsettled IP Oppose	0.0021	6.931	<b>0.015</b>
Unsettled IP Support	-0.027	0.198	<b>-0.005</b>
Settled IP Oppose	0.002	2.427	<b>0.005</b>
Settled IP Support	-0.0018	0.876	<b>-0.002</b>
Other IP Oppose	-0.004	0.301	<b>-0.001</b>
Other IP Support	-0.0389	0.029	<b>-0.001</b>
Environmental Oppose	0.0028	1.332	<b>0.004</b>
Environmental Support	-0.5322	0.007	<b>-0.004</b>
Industry Oppose	-0.021	0.112	<b>-0.002</b>
Industry Support	0.0305	0.110	<b>0.003</b>
“RB total” Oppose	0.0122	0.632	<b>0.008</b>
“RB total” Support	-0.021	0.115	<b>-0.002</b>
Municipality Oppose	-0.0057	0.174	<b>-0.001</b>
Municipality Support	0.0585	0.062	<b>0.004</b>
Politician Oppose	0.0369	0.069	<b>0.003</b>
Politician Support	0.2306	0.002	<b>0.001</b>
“Public total” Oppose	-0.0267	0.205	<b>-0.005</b>
“Public total” Support	-0.0684	0.010	<b>-0.001</b>
Unidentified Oppose	0.0045	3.969	<b>0.018</b>
Unidentified Support	-0.0065	0.115	<b>-0.001</b>
		<b>Sum</b>	<b>0.050</b>

Of the participation variables, Government Oppose contributes the most to the mean fitted value (0.046 of the 0.344). It is followed by Unsettled land claimants Oppose (0.015).

“Review Board total” Oppose has the next largest contribution to the mean fitted value (0.008).

Settled land claimants Oppose follows in contribution (0.005). The next table shows the contributions to the mean fitted value by the 7 groups of Fixed Effects.

Table 8.6: Contributions to mean fitted value from 7 groups of Fixed Effects

<b>Contribution to mean fitted value</b>	
Region Fixed Effects	0.346
Project resource Fixed Effects	0.064
Chair Fixed Effects	-0.224
Proponent Fixed Effects	0.095
Project type Fixed Effects	-0.217
Project Fixed Effects	0.062
Issue type Fixed Effects	0.168
Sum	0.293

Table 8.6 shows that Region Fixed Effects as a group contribute a lot to the mean fitted value (0.346 compared to 0.344). Chair Fixed Effects, Project type Fixed Effects, and Issue type Fixed Effects also contribute a lot to the mean fitted value, respectively. I leave further decomposition of the 7 groups of Fixed Effects for future research so as to focus on the research question of this study: how does *participation* influence the Review Board’s EA decision.

### 8.3 Recommendations led that became Measures or Suggestions

As indicated above, one of the Decisions of the Review Board is the imposition of Measures or Suggestions for implementation in the event of the project proceeding. Here we report a descriptive analysis of the number of recommendations that became Measures or Suggestions. Regression analysis is not used for this analysis for the following reasons. First, I argue that the variables (the number of recommendations led that became Measures and the number of recommendations led that became Suggestions) are the most direct indicators because

they result from an analyst's critical thinking, which is not substitutable in the view of McGetrick et al. (2017). Specifically, McGetrick et al. (2017) acknowledged that it was rare for automated content analysis using a computer to be as reliable as qualitative content analysis by a human coder, where an analyst was applying critical thinking. This is precisely how these variables were generated: by reading the recommendations in the REAs, reading the Measures and Suggestions, and identifying the number of recommendations that became Measures or Suggestions based on the meaning of the words.

Second, modeling Measures is complex, because it is not merely a function of the Review Board's SAI/SPC decision. The reason is that there are observations for which the Review Board decides no SAI/SPC, but imposes a positive number of Measures. I theorize that for these observations, participation (especially recommendations led) is influencing the Review Board to impose Measures despite finding no SAI/SPC. Thus, the number of Measures is a function of both the Review Board's SAI/SPC decision and participation, but the Review Board's SAI/SPC decision is in turn a function of participation.

Third, modeling the number of Measures becomes even more complex because there are both Measures and Suggestions. I argue that theoretically, the number of Suggestions ought to be an explanatory variable in the regression for the number of Measures and vice versa.

Fourth, it is standard to model decisions in a two-step model, such as in Moore et al. (2001). However, here, the Review Board's SAI/SPC decision and the Review Board's decision for the number of Measures (and Suggestions) do not follow a strict two-step model. The reason is again that there are observations for which the Review Board decides no SAI/SPC, but imposes a positive number of Measures. This differs from the situation in Moore et al. (2001), for example, where the second decision is only invoked if the first decision goes down a certain

path. Since I theorize that the Review Board’s SAI/SPC decision is primary, while the number of Measures and Suggestions comes after, this study leaves regression analysis of Measures and Suggestions (alone or with the Review Board’s SAI/SPC decision) to future research. Instead, the direct variables of the number of recommendations led that became Measures are used.

Table 8.7: Number of recommendations led by participant group that became Measures

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
<b>Government</b>	440	<b>0.436</b>	1.9	0	25
<b>Unsettled land claimants</b>	440	<b>0.214</b>	0.9	0	8
<b>Environmental</b>	440	<b>0.095</b>	0.6	0	9
Settled land claimants	440	0.077	0.6	0	9
Unidentified participants	440	0.030	0.4	0	8
Public total	440	0.020	0.3	0	5
Other Indigenous Peoples	440	0.009	0.2	0	3
Municipalities	440	0.005	0.1	0	2
Industry	440	0.002	0.0	0	1
Proponent total		none			
Review Board total		none			
Politician		none			

Table 8.7 shows that on average per issue, the Government has the most recommendations led that became Measures (0.4). This is followed by Unsettled land claimants (0.2 recommendations led became Measures per issue on average). Environmentally-oriented groups are next (0.1). Other groups have fewer number of recommendations led that became Measures. For example, on average per issue, Settled land claimants had 0.08 recommendations led becoming Measures.

Table 8.8: Number of recommendations led by participant group that became Suggestions

<b>Variable</b>	<b>Obs</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
<b>Government</b>	440	<b>0.109</b>	0.6	0	10
<b>Unsettled land claimants</b>	440	<b>0.050</b>	0.4	0	5
<b>Proponent total</b>	440	<b>0.027</b>	0.4	0	6
<b>Settled land claimants</b>	440	<b>0.027</b>	0.3	0	6
<b>Environmental</b>	440	<b>0.025</b>	0.2	0	4
Unidentified participants	440	0.018	0.2	0	4
Review Board total	440	0.009	0.2	0	4
Other Indigenous Peoples	440	0.002	0.0	0	1
Municipalities		none			
Industry		none			
Politician		none			
Public total		none			

Table 8.8 shows that on average per issue, the Government had the most recommendations led that became Suggestions (0.1). Unsettled land claimants are next with 0.05 recommendations led becoming Suggestions. “Proponent total”, Settled land claimants, and Environmentally-oriented groups are similar in each having around 0.03 recommendations led becoming Suggestions per issue on average. Other groups have even less. Finally, Table 8.9 shows the average number of recommendations led, number of recommendations led that became Measures, and number of recommendations led that became Suggestions by group.

Table 8.9: Averages for number of recommendations led and number of recommendations that became Measures/Suggestions by participant group

<b>Means for all</b>	<b>Number of recs led</b>	<b>Number of recs led that became Measures</b>	<b>Number of recs led that became Suggestions</b>	<b>Number of recs led that became Measures / Number of recs led</b>	<b>Number of recs led that became Suggestions / Number of recs led</b>
<b>Government</b>	3.009	<b>0.436</b>	<b>0.109</b>	15%	4%
<b>Unsettled land claimants</b>	1.568	<b>0.214</b>	<b>0.050</b>	14%	3%
<b>Environmental</b>	0.532	<b>0.095</b>	<b>0.025</b>	18%	5%
<b>Settled land claimants</b>	0.411	0.077	<b>0.027</b>	19%	7%
Unidentified participants	0.275	0.030	0.018	11%	7%
Review Board total	0.073	0.000	<b>0.027</b>	0%	37%
Municipalities	0.068	0.005	0.000	7%	0%
Other Indigenous Peoples	0.048	0.009	0.002	19%	5%
Proponent total	0.030	0.000	0.000	0%	0%
Public total	0.023	0.020	0.000	90%	0%
Industry	0.016	0.002	0.000	14%	0%
Politician	0.002	0.000	0.000	0%	0%

Table 8.9 shows that on average, Government makes the most recommendations led per issue (3.0). Unsettled land claimants make the next greatest number of recommendations led per issue (1.6). Environmentally-oriented groups and Settled land claimants follow, with 0.5 and 0.4 number of recommendations led per issue, respectively.

On average, in terms of magnitude, Government has the most recommendations led becoming Measures (0.44), followed by Unsettled land claimants (0.21), and Environmentally-oriented groups (0.1).

In terms of the number of recommendations led becoming Measures as a proportion of the number of recommendations led, Government, Unsettled land claimants, Environmentally-

oriented groups, and Settled land claimants are more on par, at 15%, 14%, 18%, and 19%, respectively.

The following chapter discusses conclusions and implications of the statistical results presented in this chapter.

## 9 Conclusions and implications

The two objectives of this dissertation feed into each other. The first objective is to identify and quantify indicators of participation and decisions of EA in the Mackenzie Valley EA process. Data generated from that process is then used to achieve the second objective, assessing how participation by various groups has influenced the Review Board's decisions for all 39 projects that have completed EA between 1998 and 2019. Both objectives were fully achieved.

Section 9.1 is primarily concerned with the first objective, developing indicators and quantitative measures of participation and decisions. Sections 9.2 to 9.8 address the research question of how participation influences Review Board decisions and discuss implications for the Mackenzie Valley EA process from the regression results and other results. Section 9.9 discusses implications for "meaningful participation" in Bill C-69 and harmonizing laws with UNDRIP. Section 9.10 summarizes the intended contributions of this study.

### 9.1 Quantitative indicators of EA participation and decisions

For the project-level, this study offered the first summary of Review Board decisions on SAI/SPC, Measures, Suggestions, and the Review Board's project recommendations for the 39 projects that completed EA from 1998 to 2019.

The headings and sub-headings of the 39 REAs were used as issues, an important unit of analysis. It is at the issue level that this study also quantified participation and Review Board decisions from REAs for the 39 projects that completed EA. Participation was quantified in terms of who, how (type), frequency, and intensity, following guidance from studies in section 3.1.2 on the dimensions of participation. Specific participants were classified into participant groups. This study identified different types of participation that are theorized to influence EA

decisions, following guidance from content analysis in section 4.1.3 to choose codes to address the research question and guidance on desirable attributes of indicators in section 4.1.2 for indicators to be relevant to answering the research question. The indicators of participation and decisions coded from the Reports were measurable, disaggregated, and coherent and complementary with each other, following guidance on desirable attributes of indicators from section 4.1.2. The variables on participation and decisions were also coded following guidance from the content analysis literature in section 4.1.3. The variables were coded as dummies or counts following the applied literature in section 3.1 on how participation in bureaucratic decision-making influences outcomes. The types of participation were classified into those opposing and supporting projects.

Various other dimensions of the 39 projects were also identified. These include 7 Issue types, Regions in which projects were located, Chairs of the Review Board, Proponents, Project types, and Project resources. Information on these dimensions are provided in Chapter 5.

## 9.2 Influence of participation on the Review Board SAI/SPC decision: Key results

From section 8.1.1, the first key result is that the coefficient on “Review Board total” Oppose is the largest among Oppose coefficients, expectedly positive, and statistically significant. Therefore, when the Review Board’s own experts, technical advisors, consultants, counsel, staff, members, and such raise SAI + SPC + Concerns intensity, this increases the probability of the Review Board deciding SAI/SPC on an issue the most.

A likely reason is that the Review Board’s consultant raises concerns that most other participants lack the technical capacity to raise. One implication of this result is that when the Review Board hires consultants to evaluate the proposed project, this can help participants

seeking to influence the Review Board to decide SAI/SPC. Indeed, the MVEIRB (2014) hired an independent consultant exactly in response to participants' concerns that their capacity constraints prevented them from evaluating the Proponent's very technical proposal within the tight deadlines in the De Beers Snap Lake Water Licence Amendment EA. The consultant was hired to evaluate the project proposal and submit a public report. The REA stated that the intent behind hiring the independent consultant was to help the participants conduct a technical evaluation of the project proposal.

The second key result is that the second largest coefficient among Oppose coefficients is Gov Oppose. This means that when Government raises SAI + SPC + Concerns intensity, it is second greatest at influencing the Review Board to decide SAI/SPC on an issue.

This key result needs to be understood with the third and fourth key results, that the coefficient on Unsettled land claimants Oppose is statistically insignificant, while the coefficient on Settled land claimants Oppose is of similar magnitude, but statistically significant at the 5% level. The third key result means that we cannot reject the null hypothesis that Unsettled land claimants Oppose has no influence on the Review Board to decide SAI/SPC. Combining these three key results, the coefficient on Gov Oppose is larger than those for Settled land claimants Oppose and Unsettled land claimants Oppose. Therefore, Government has a larger influence through Oppose than do Settled land claimants and Unsettled land claimants.

This result suggests that in some sense, Indigenous Peoples rely on the Government to raise concerns to influence the Review Board. There is evidence from particular EA cases in which Unsettled land claimants relied on the Government to even *participate*, let alone *influence* the Review Board (LKDFN, 2014).

It may be important for Government departments to participate in EA to evaluate the proposed project thoroughly and to participate, especially when Unsettled land claimants lack capacity to participate, let alone have the ability to influence the Review Board's SAI/SPC decision.

Perhaps the most striking result is that the coefficient on Unsettled land claimants Oppose is statistically insignificant. In contrast, the coefficient on Settled land claimants Oppose is significant at the 5% level. The high standard error on Unsettled land claimants Oppose is larger than the coefficient, suggesting that the influence of Unsettled land claimants Oppose on the Review Board's SAI/SPC decision is highly variable. In contrast, the influence of Settled land claimants Oppose on the Review Board's SAI/SPC decision appears to be more certain.

It is important to note, as done in Chapter 8, this result is tempered by hypothesis testing in section 8.1.2. Table 8.1 also shows that the standard error on Unsettled land claimants Oppose is 0.0024, which is larger than the coefficient of 0.0021. Therefore, the result that the coefficient on Unsettled land claimants Oppose is insignificant is likely sensitive to model specification. Future research can check the robustness of these results by, for example, exploring complementarities between participation by certain groups through interaction terms. It would be good for future research to minimize any model dependence.

However, even if the significance of the coefficient on Unsettled land claimants Oppose is sensitive to model specification, here, the magnitude of the coefficient is still much smaller than those for Review Board total Oppose and Government Oppose. That is, even if the significance turns on, and Unsettled land claimants do influence the Review Board's SAI/SPC, when they raise statements in opposition of the project, the magnitude of their influence is smaller than that for Review Board total and Government, when they raise participation

opposing a project. The following considers possible reasons for an insignificant or small coefficient on Unsettled land claimants Oppose.

One possible reason why the coefficient on Unsettled land claimants Oppose is insignificant and small may be related to the way that the Review Board hears and responds to the concerns raised by the Unsettled land claimants and other participants.

For example, it is possible that Unsettled land claimants participate more through TK than through Western science compared to the Government and the Review Board. Alternatively, Unsettled land claimants might raise more general concerns than specific concerns compared to other participants. The Review Board might be influenced more by certain types of evidence. Investigating this possibility would require future research that extends beyond the scope of this study. See Chapter 3 for a review of these issues and how they may affect the EA process in the Mackenzie Valley.

The EA rules may also contribute to the insignificant coefficient on Unsettled land claimants Oppose in two ways. First, the *MVRMA* does not guarantee representation by Unsettled land claimants on the Review Board, unlike for Settled land claimants. Lack of direct representation could contribute to the lack of influence. I have no evidence that this is the case. Instead, I conjecture that the lack of rejection powers by Unsettled land claimants at Preliminary Screening for non-conformity with an approved land use plan under the *MVRMA* and the Review Board process diagram is an important factor. The reason is that in 14 of the 39 projects, at least one Unsettled land claimant wanted the project to be rejected. The Review Board approved 12 of these projects and rejected only 2. I hypothesize that the lack of rejection powers at Preliminary Screening for non-conformity with an approved land use plan under the *MVRMA*

and the Review Board process diagram induces Unsettled land claimants to participate more than they would if they had those powers.

### 9.3 Implications of insignificant and small coefficient on Unsettled land claimants

#### Oppose

The following discusses the implications of the insignificant coefficient on Unsettled land claimants Oppose and the implications of the possible reasons. Overall, this result is worrying because this EA system was set up as co-management to give Indigenous Peoples more say over decision-making about resource management than previously, yet we found that Unsettled land claimants do not have statistically significant influence over the Review Board's SAI/SPC decision. Even if I am wrong and the significance may turn on, the magnitude of the coefficient here is still smaller than those for Review Board total Oppose and Government Oppose. Certainly, it would be best to conduct future research to test the robustness of these results by, for example, including interaction terms. I argue that other investigation is also warranted as follows.

First, it may be worthwhile for future research to investigate the nature of participation by Unsettled land claimants versus other participants (e.g. Government) and how this might influence the Review Board's SAI/SPC decision. Future research can study TK versus Western science, general versus specific concerns, and other dimensions. Other dimensions could include those studied by McGetrick et al. (2017), specifically, language grade level, term frequency, and others.

Second, regarding the lack of representation on the Review Board being a possible theoretical factor for the insignificant coefficient, I acknowledge that this is a highly political

topic and that it is perhaps highly controversial even to raise as a theoretical possibility. I acknowledge fully that this topic likely has many complexities that exceed the boundaries of my knowledge. Therefore, I leave it to those who think it is appropriate to contemplate this as a possibility and to investigate if this did occur to do so.

Finally, regarding the lack of rejection powers at Preliminary Screening for non-conformity with an approved land use plan under the *MVRMA* and the Review Board process diagram possibly contributing to the insignificant coefficient, I would submit that this idea can prompt more investigation into the consequences of lacking this power for Unsettled land claimants. This could include calculating the time and money costs spent by Unsettled land claimants trying to get projects rejected. Another avenue is to interview the Unsettled land claimants who actually participated in EA and said they wanted the projects to be rejected.

#### 9.4 Influence of other participants

The regression analysis also distinguishes the influence of other participants in the EA process. The coefficient on Env Oppose is of similar magnitude to the coefficients on Oppose by Unsettled and Settled land claimants and is insignificant (0.0028). Therefore, we also cannot reject the null that Environmentally-oriented groups raising SAI + SPC + Concerns intensity do not influence the Review Board to decide SAI/SPC.

This result is worrying because if Unsettled land claimants do not influence the Review Board's SAI/SPC decision, one might want other participant groups to be able to influence the Review Board's SAI/SPC decision to compensate. Environmentally-oriented groups might be especially desirable to fill the gap because they often raise concerns on behalf of the environment, many of which are shared by Unsettled land claimants.

The coefficients on other groups' Oppose are insignificant and/or unexpectedly negative, indicating that they either do not influence the Review Board's SAI/SPC decision or do so in an unexpected way when they raise SAI + SPC + Concerns intensity.

On the Support side, expectedly, when Government, Unsettled land claimants, and Environmentally-oriented groups say Not SAI + Not concerned (intensity), this reduces the probability of the Review Board deciding there is SAI/SPC. The magnitudes of the coefficients by Unsettled land claimants Support and Env Support are large. I conjecture this is because they raise Not SAI + Not concerned (intensity) so rarely that they have disproportionate influence on the Review Board when they do so. The summary statistics show that they raise Oppose much more than they raise Support.

#### 9.5 Influence of saying a project is unwanted on the Review Board's SAI/SPC decision

The next part to answering how participation influences EA decisions is examining the effect of raising Reject on the Review Board's SAI/SPC decision. Since the coefficient on Unsettled land claimants Reject is insignificant, when they say that they do not want a project, they do not influence the Review Board's SAI/SPC decision at conventional levels of statistical significance. This is a profound result and discussed further in Appendix 5.

Appendix 5 shows an institutional economics analysis of the thresholds faced by participants before, during, and after EA that arguably make it difficult for Unsettled land claimants wanting to reject projects. The case of Alex Debogorski's Diamond exploration is studied as a cautionary tale of legislative gaps, barriers, and rigidities under the *MVRMA*.

## 9.6 Recommendations led becoming Measures or Suggestions

As shown in section 8.3, on average, Government has the most recommendations led that became Measures (0.4). Unsettled land claimants follow this with half the number (0.2). Environmentally-oriented groups are next. Other groups have even less.

Government again has the most recommendations led that became Suggestions (0.1). Unsettled land claimants again follow this with half (0.05). “Proponent total”, Settled land claimants, and Environmentally-oriented groups are next with 0.03 recommendations led becoming Suggestions. Other groups have even less. Overall, Government leads in having the most recommendations led becoming Measures or Suggestions.

## 9.7 Implications in terms of power and Arnstein’s ladder

Relating back to various objectives of public participation in EA in section 1.1.3, this study focuses on the objective of influencing decision-making, shown to be important in section 1.1.4. Since this study examines the extent to which various participant groups influences decision-making in the Mackenzie Valley EA process, the results can reflect the extent to which such groups achieve a theoretical objective of public participation in EA: influencing decision-making.

Arnstein (1969) made the connection between influencing decision-making and power by classifying higher degrees of citizen influence on decision-making as reflecting degrees of citizen power. Following this idea, since we use the influence of participation on decision-making to measure a dimension of power, we can say something about relative power by different participant groups in this decision-making process. To classify the statistical results in

terms of Arnstein's ladder, I use the three broad categories of non-participation, tokenism, and degrees of citizen power, because the specific rungs are less applicable here.

Since "Review Board total" Oppose and Government Oppose have the largest coefficients and are statistically significant, we can say that the Review Board's entities and the Government have more power than other groups to influence the Review Board to decide SAI/SPC in the Mackenzie Valley EA process when they participate in opposition to the project in this process. In contrast, since the coefficient on Unsettled land claimants Oppose is not statistically significant, we cannot say that Unsettled land claimants fall on the rungs of Arnstein's ladder associated with degrees of citizen power when they participate in opposition to the project in this process. Since the coefficient on Settled land claimants Oppose is statistically significant, we can say that Settled land claimants seem to have more power than Unsettled land claimants do in influencing the Review Board to decide SAI/SPC when they participate in opposition to the project. However, Settled land claimants still have less power than the Review Board's entities and the Government because they have a smaller coefficient on Oppose. Since the coefficient on Environmentally-oriented groups Oppose is also not statistically significant, we cannot say that Environmentally-oriented groups achieve the rungs of Arnstein's ladder corresponding to degrees of citizen power in this process when they participate in opposition to the project.

Comparing these results with other views on where public participation in EA falls on Arnstein's ladder, there seems to be consistency. As stated in section 1.1.5, Noble (2015) argued that the public rarely has full control while Sinclair and Diduck (2016) stated that Environmental NGOs and activist citizens either did not participate or influence decision-making adequately. Similarly, the public, such as Unsettled land claimants and Environmentally-oriented groups,

cannot be said to have influence or power statistically. This study adds to Noble (2015) and Sinclair and Diduck (2016) by providing a numerical basis for classification on Arnstein's ladder. This study also shows that groups like the Review Board's entities and the Government do rank high on Arnstein's ladder.

Focusing on Indigenous Peoples, a comparison can be made to the ideal, the top of Arnstein's ladder. The top of that ladder, citizen control, would arguably equate to Free, Prior, and Informed Consent. Evaluated against that standard, Unsettled land claimants are certainly not there, as they do not even reach the rungs associated with degrees of citizen power. Settled land claimants are also not there, because they can only reject projects that do not conform with land use plans under ss. 61(1)-(2) of the *MVRMA* and the Review Board process diagram and they cannot stop others from referring projects to EA.

As mentioned before, this study focuses on examining whether participant groups can influence decision-making *when they raise participation assumed to oppose a project*. I do not suggest that Support does not matter. Rather, the Review Board's job is to determine whether there will likely be SAI/SPC. Since Table 7.4 shows that most participants raise Oppose instead of Support in terms of magnitude, and Chapter 5 shows that most projects are approved, the empirical context seems to be more about participants raising Oppose to influence the Review Board when most projects are approved. This is in contrast to most participants raising Support and trying to get projects approved yet the Review Board rejects most projects.

## 9.8 Comparison to studies of participation and influence specific to the Mackenzie Valley

These results are compared with studies of participation and influence on decision-making in the Mackenzie Valley EA specifically, as canvassed in section 3.2. Those studies fell

into two groups. The first group studied public participation in general while the second focused on Indigenous Peoples.

The first group included three studies. While these studies concluded that public participation influenced the Mackenzie Valley EA process, all of them examined only one EA each (Galbraith et al., 2007; O'Reilly, 2013), while one study drew this conclusion based on only one phase of one EA (Fitzpatrick et al., 2008). Compared to these studies, this study does not make general claims about whether “public participation” influences the Review Board’s decision-making in the Mackenzie Valley EA process. Rather, the conclusions are specific to each participant group.

The second group of studies focused on Indigenous participation and influence was mixed in its conclusions. Christensen and Grant (2007) argued that meaningful Indigenous participation was being hampered, where I infer meaningful participation to denote influence on decision-making. It is unclear if they referred to Unsettled or Settled land claimants.

Focusing on studies about Settled land claimants, Kuntz (2016) and Gibson et al. (2016) found that the Tlicho Government’s participation influenced the Review Board’s decisions in Fortune’s NICO Project. In contrast, although the Sahtu Dene have settled land claims, Dokis (2015; 2017) argued that they were still limited in their participation and they had trouble proving things contrary to the Proponent’s assertions in the Mackenzie Gas Project EIR.

Focusing on studies about Unsettled land claimants, White (2006) found that Indigenous Peoples in the Dehcho had trouble convincing the Proponent of their traditional land usage in the Paramount Resources Cameron Hills extension project EA. It can also be inferred from the LKDFN’s attempted legal action to stop the Jay Project described in Parlee et al. (2018) that the LKDFN were not satisfied with how their participation influenced the Review Board’s decision.

Comparing the results of this study to the studies above is challenging because the latter are few. However, broadly speaking, within studies on Settled land claimants, Kuntz (2016) and Gibson et al. (2016)'s findings seem to be consistent with this study's finding that the coefficient on Settled land claimants Oppose is statistically significant. Dokis' conclusions (2015; 2017) about the Sahtu Dene are in the context of EIR, not EA, and should not be transplanted without further study of the EIR process. The studies on Unsettled land claimants (Parlee et al., 2018; White, 2006) also seem to be consistent with this study's finding that the coefficient on Unsettled land claimants Oppose is not statistically significant. This study builds on all the studies above by studying all 39 projects that have completed EA since 1998 and quantitatively examining the influence of Unsettled and Settled land claimants on the Review Board's SAI/SPC decision in the Mackenzie Valley EA process. By doing so, this study seeks to offer even more generalizable insights from studying all the projects that completed EA and from using statistical regression, which can account for idiosyncrasies in each project that might limit generalizability from qualitative methods of multiple projects.

### 9.9 Implications for Indigenous participation in EA in Canada

As noted in Chapter 1, the Government of Canada has recently passed Bill C-69 to amend *CEAA 2012*, seeking to give effect to "meaningful participation" or the ability to influence EA decisions through participation. I argue two types of actions are necessary for this to occur. First, as Bill C-69 already recognizes, participants need more opportunities and capacity to participate.

However, this study shows that a second type of action is also necessary: EA legislation needs to remove barriers to participation and barriers for participation to influence EA decisions.

This is shown by the fact that at least one Unsettled land claimant wanted the project to be rejected in 14 EAs. This is also shown by the cautionary tale of Alex Debogorski Diamond Exploration in Appendix 5.

The results from the Mackenzie Valley EA process also may have implications for the debate surrounding harmonizing Canada's laws with UNDRIP. Toward this end, the NWT has become the second jurisdiction after BC in Canada to proclaim that it will introduce law to implement UNDRIP (Last, 2019). To give effect to the right to self-determination, the right to participate with their own institutions, and the right to FPIC, it may be necessary to remove explicit barriers to those rights and unintended consequences of laws that result in barriers.

### 9.10 Contributions

This study contributes to the literature on the theory of public participation in EA, specifically the objective of influencing decision-making by providing empirical measures of influence by various participant groups. That is, by measuring the extent to which various participant groups influence decision-making in the Mackenzie Valley EA process, this study reflects the extent to which such groups achieve an important theoretical objective of public participation in EA: influencing decision-making. This study also contributes to the literature on public participation in EA and power because influence is being used to measure a dimension of power. This study adds to previous views of where public participation in EA in Canada fits on Arnstein's ladder (Noble, 2015; Sinclair & Diduck, 2016) by providing empirical bases for classification onto Arnstein's ladder.

This study is also situated in the literature on how public participation influences bureaucratic decision-making, and in particular, within the subset that converted qualitative data

into quantitative data, on which statistical analysis was conducted. While many of those studies examine US rule-making, this study adds to the few studies on environmental decision-making processes in Canada, such as Deaton et al. (2008). Methodologically, to my knowledge, this study contributed even more specific analysis than the studies above through two major ways. First, while almost all studies used the bureaucratic agency's final decision as the level of analysis, and few used the agency's interim decisions within a process as the level of analysis (Naughton et al., 2009), this study adds to the latter by using issue-level analysis within projects. This provides more specificity. Second, while studies measured participation using comment dummies, comment counts, scales, and other indicators, this study contributes even more detailed analysis by quantifying various types of participation by various participant groups.

This study also contributes to the literature specific to the Mackenzie Valley EA process. This study offers a more comprehensive analysis and quantitative analysis by studying all 39 projects that have completed EA since 1998. In addition, to my knowledge, this study presents the first synthesis of the number of projects in Preliminary Screening since 1998. It is also the first to synthesize the progression of all projects from Preliminary Screening to EA to completing EA. This study offers the first summary of Review Board's decisions on SAI/SPC, Measures, Suggestions, and the Review Board's project recommendations for the 39 projects that completed EA since 1998. It also found that the Responsible Minister adopted the Review Board's core recommendation (accept, reject, or refer) for all 39 projects.

This study identified and quantified indicators of participation and EA decisions in the Mackenzie Valley process using 39 REAs. Review Board decisions were also quantified at the issue-level. Various types of participation by various groups were quantified.

This study quantified the influence of participation on EA decisions through three activities: 1) regressing the Review Board's SAI/SPC decision on participants raising SAI + SPC + Concerns intensity and participants raising Not SAI + Not concerned (intensity), using 7 Fixed Effects and clustering by project, 2) regressing the Review Board's SAI/SPC decision on Reject raised by participants, using 7 Fixed Effects and clustering by project, and 3) recommendations that became Measures.

In the first regression, the coefficients on Government Oppose and Review Board total Oppose influence the Review Board's SAI/SPC decision at conventional levels of statistical significance and are the two largest coefficients. The coefficient on Settled land claimants Oppose is also statistically significant. However, the coefficients on Unsettled land claimants Oppose and Environmentally-oriented groups Oppose are insignificant. In the second regression, the coefficient on Unsettled land claimants Reject is also insignificant. Government has the most recommendations led becoming Measures. Future research can check the robustness of these results by, for example, incorporating interaction terms.

This study also found that of the 39 projects, in 14 projects, at least one Unsettled land claimant wanted to reject the project. The Review Board rejected 2 of the 14 projects.

Finally, the institutional analysis of thresholds faced by participants from Preliminary Screening to EA showed barriers, particularly for Unsettled land claimants.

The following chapter discusses limitations, caveats, and future research.

## 10 Limitations, caveats, and future research

Section 10.1 discusses limitations and future research associated with the coding rules and the issue-level analysis. Section 10.2 examines further econometrics considerations. Section 10.3 acknowledges that not all Indigenous Peoples are against development and acknowledges positives from development. Section 10.4 recognizes many positive aspects about the Review Board and the Mackenzie Valley EA system.

### 10.1 Data elicitation: Coding rules and issue-level analysis

There is always potential for bias and subjectivity in content analysis by human coding. That is, how I code a segment of text may be viewed differently by another coder. As stated in section 4.1.3.5, revealing the researcher's own biases is one of eight main ways to establish validity (Creswell & Creswell, 2018). Following this instruction, I openly acknowledge that personally, I care about the environment and social justice and thus value the well-being of Indigenous Peoples. However, I take integrity, scientific rigour, and doing the right thing extremely seriously and have been absolutely committed to these criteria first and foremost throughout. This is why I coded the 2,257 pages on average 5 times each to ensure that I created the most internally consistent and logical coding rules possible and that I applied the coding rules for maximum consistency and replicability, which is desired in economics and also in content analysis through an inter-coder reliability score. Appendix 2 explains the limitations of each coding rule transparently and in full under each coding rule. It explains that, for example, if I over-count SAI on the explanatory variable side, I will consistently apply the same rules to also over-count SAI on the decision side. Appendix 3 is a transparent 47-page detailed record and explanation of coding decisions for all situations that I thought would be unclear. Where there

was ambiguity for whether to code a statement one type of participation or another, for example, between Concerns and Recommendations, or Questions and Recommendations, I would track all such instances across projects additionally and ensure that I applied the same coding rule in the same way to such instances to ensure maximum consistency.

I declare clearly that I did not at any time apply the coding rules to favour the environment or Indigenous Peoples. I only applied the coding rules for a “distinct idea” logically and consistently for all participants. However, from my thorough study of the 39 Reports of EA, I suspect that it is possible that the Reports present participation by Government more succinctly, while the Reports present participation by Indigenous Peoples with more quotations. This can result in statements by Indigenous Peoples being coded into more concerns. Despite this, the actual coding rules were always implemented the same way for all participants and throughout all 39 Reports of EA. This study takes the participation presented in the Reports of EA as given and assumes that the participation presented in the Reports reflects the actual submissions by participants throughout EA proportionately. Future research can study different coding rules, for example, in combination with techniques in McGetrick et al. (2017) or other linguistic analysis.

I also acknowledge that given the literature review in section 3.4, scholars have found that EA processes have tried to make Indigenous Peoples quantify what is inherently not quantifiable for them, such as their relationship with the land. I declare that I never purported to try to quantify Indigenous Peoples’ relationship with the land and such or even assign different values to their relationship with the land versus something else, for example. Rather, I coded *expressions* or *statements* of concern as stated in the REAs.

There are limitations with how concerns are counted. Future research can compare different kinds of concerns more specifically. This includes comparing concerns based on

negative past experience, uncertainty about lack of data, and worries about future negative impacts. General concerns can be compared against specific concerns. Subjective versus objective concerns can be contrasted. Concerns based on TK versus Western science can be compared. Concerns raised by different types of TK can even be compared: “scientized” versus non-scientized TK (Ellis, 2005). “Confined” TK (harvesting or traditional land use) can also be contrasted against broader TK (past environmental injustices, colonialism) (Sandlos & Keeling, 2016). This would require more expertise to discern what is TK and what is not TK.

There are limitations associated with an issue-level analysis. It cannot answer questions that require a “concern”-level analysis, which is even finer and would involve much more complex coding and tracking. A concern-level analysis could track when a concern caused a recommendation. It could also answer the question of whether it is more important that, for example, Government and Indigenous Peoples are opposed or aligned on the same concern. This would require re-coding to account for alignment or opposition at the concern-level. Concern-level and recommendation-level analyses would require a tremendous amount of time and much more complexity.

This study is limited in not currently accounting for which participants were constrained by capacity. This is due to data challenges as not every REA states whether participants were constrained by capacity and therefore did not participate or participated little. Future research can account for capacity constraints and other stated barriers to participation by studying all participant submissions throughout all EA phases in all projects. Note that the documents in all EA phases for all 39 projects totals 8,514 documents.

Future research can classify the Measures and Suggestions into types: monitoring, mitigation, and management.

Future research can also identify other indicators of how participation influences the EA decisions. First, the number of recommendations minus the number of Measures and Suggestions can be calculated. However, this needs to be complemented by an exhaustive qualitative check, because not all recommendations were meant to be formalized into a Measure or Suggestion and the coding rules might have caused over-counting of recommendations. Post-REA letters by participants including Indigenous Peoples raising outstanding concerns need to be studied qualitatively, to add to the picture of how participation influences EA decisions.

## 10.2 Econometric analysis

### 10.2.1 Observations are issue-level, not project-level

An important caveat for the regression results is that they are issue-level SAI/SPC decisions. There needs to be a relationship with project-level SAI/SPC decisions and project recommendations. Although the Review Board found 30 of 39 projects had SAI/SPC, it still recommended approval for 35 (90%) of 39 projects. Therefore, even if participants do influence the Review Board to decide SAI/SPC per issue, which will influence the Review Board to decide SAI/SPC for the project, it does not guarantee that the Review Board will recommend anything other than approval. Furthermore, there is no guarantee that the Review Board will impose Measures. Of the 35 projects it approved, it only imposed Measures on 26 or 74% of them. Nine projects had no Measures.

For example, a group can influence the Review Board to decide SAI/SPC statistically when they raise SAI + SPC + Concerns intensity. However, there is no guarantee that this translates into influencing the Review Board to make the project recommendation and apply Measures that some participants would like. Therefore, the regression results only answer the

research question of how participation influences the EA decision partially. In addition to going from issue-level SAI/SPC decisions to project recommendations and Measures, see sections 8.1.5 and 8.3 that discuss additional facets of how participation influences EA decisions.

### 10.2.2 Omitted variable bias

In modeling the Review Board's SAI/SPC decision as a function of participation, it is important to avoid omitted variables, which would cause biased estimators. What might affect participation? The first factor is capacity, because it is assumed that lower capacity by Unsettled land claimants, for example, decreases the number of EAs participated in and the intensity of participation in each EA. The second factor is the location of key resources (gold, diamonds, and others) in Unsettled regions, which presumably increases the number of projects in EA being in Unsettled regions. The third factor is that Unsettled land claimants cannot reject projects at Preliminary Screening for non-conformity with an approved land use plan under ss. 61(1)-(2) of the *MVRMA* and the Review Board process diagram while Settled land claimants can at the outset if a project fails to conform with its approved land use plan so that the project cannot proceed to Preliminary Screening. The lack of such powers for Unsettled land claimants might increase the number of EAs they participate in and the intensity of participation, compared to if they had this power, because they really oppose those projects.

While these factors certainly affect participation, I argue that if the EA process is fair, they should not affect the Review Board's SAI/SPC decision. In theory, under a fair process, the Review Board's SAI/SPC decision should only be based on the weight of evidence submitted by various participants. The Review Board should not favour or shun Unsettled land claimants just because they are Unsettled land claimants. Nor should the Review Board favour a participant

just because they have more capacity. That is, in theory, the three factors above that influence participation should only influence the Review Board's SAI/SPC decision via participation. They should not influence the Review Board's decision directly.

If I am wrong and capacity is also correlated with the Review Board's decision, there are challenges to obtaining data on "capacity" by participant group. Monetary capacity, for example, is very private information. Furthermore, since EA spans a period of time, there would need to be decisions made about the time for which the capacity measures are sought.

### 10.2.3 Projects in Unsettled versus Settled only regions and Participation by Unsettled versus Settled land claimants

There are three potential dimensions to selection into EA in terms of projects being in Unsettled versus Settled land claim regions and participation by Unsettled versus Settled land claimants. First, are projects more likely to be in Unsettled only regions or Settled only regions? Second, do Unsettled land claimants participate in more projects than do Settled land claimants? Third, do Unsettled land claimants participate more "intensely" in EA than do Settled land claimants?

For the first question, there are two competing hypotheses. Hypothesis 1 is that projects in Unsettled land claim regions are more likely to get referred to EA. This is supported by three theoretical reasons and opposed by one theoretical reason. First, there are more resources in Unsettled land claim regions. Second, the MVLWB sees around 50-70% of applications at Preliminary Screening per year, according to Table 5.1. Third, Unsettled land claimants cannot stop referrals to EA partially because they cannot reject projects. However, Unsettled land claimants cannot refer projects to EA. This decreases the likelihood that more projects in Unsettled land claim regions will get referred to EA. The data shows that more projects are in

Unsettled only regions (33 or 85% of 39). Two projects are in Both Unsettled and Settled regions (5%). Four projects are in Settled only regions (10%). Furthermore, Unsettled land claimants wanted to reject many projects at Preliminary Screening, but could not, and so the projects were referred to EA.

Hypothesis 2 is that projects in Settled only regions are more likely to get referred to EA or more projects in EA are likely to be in Settled only regions. This is supported by one theoretical reason: Settled land claimants can refer projects to EA, unlike Unsettled land claimants. The data shows only one of the 39 completed EAs were referred by Settled land claimants. The other three projects in Settled only regions were referred by other participants.

For the second question, do Unsettled land claimants participate in more projects than do Settled land claimants? In theory, Unsettled land claimants participate in more projects because they have more unwanted projects in EA since they cannot reject them. Therefore, they have more projects in which they have a stake and therefore they participate in more EAs. This is borne out in the data in an interesting way.

Unsettled land claimants participated in 32 projects while Settled land claimants participated in only seven projects, as expressed by the REAs. For the 18 projects in the Dehcho Region, Unsettled land claimants participated in 14 projects, as expressed by the REAs. Unsettled land claimants participated in the two projects that are in the Gwich'in, Sahtu, and Dehcho, the two projects in the Southeast NWT & Dehcho, the five projects in the Southeast NWT (Drybones Bay), the seven projects in the Southeast NWT (non Drybones Bay), and the three projects in the Tlicho Region. Unsettled land claimants did not participate in the two projects in the Sahtu Region.

In contrast, Settled land claimants did not participate in any of the 32 projects located in Unsettled only regions. They only participated in the two projects that are in the Gwich'in, Sahtu, and Dehcho, the two projects in the Sahtu Region, and the three projects in the Tlicho Region.

Table 10.1: Participation by Unsettled and Settled land claimants in projects by region of project location (n=419)

<b>id</b>	<b>Region</b>	<b>Region = Settled or Unsettled</b>	<b>Unsettled IP Oppose mean</b>	<b>Settled IP Oppose mean</b>	<b>Unsettled IP Support mean</b>	<b>Settled IP Support mean</b>
1	Dehcho	Unsettled	3.21	0	0.32	0
4	Southeast NWT & Dehcho	Unsettled	6.32	0	0.26	0
5	Southeast NWT (Drybones Bay)	Unsettled	16.00	0	0.23	0
6	Southeast NWT (not Drybones Bay)	Unsettled	9.20	0	0.05	0
2	Gwichin, Sahtu, and Dehcho	Both	6.56	10.22	0.11	0.11
3	Sahtu	Settled	0	2.67	0	0.08
7	Tlicho	Settled	11.40	20.77	0.02	8.49

For the third question, do Unsettled land claimants participate more intensely than do Settled land claimants? In theory, they might participate less because they have less capacity than do Settled land claimants. However, they might participate more because they have more at stake in terms of, for example, sacred areas that prompted them to want to reject projects. If Unsettled land claimants perceive no hope of influencing the Review Board, they might participate less. However, if they are unsure whether they will be able to influence the Review Board, they might participate more in order to increase the likelihood of influencing the Review Board.

Table 10.1 shows that for the 32 projects located in Unsettled regions, Unsettled land claimants participated more than Settled land claimants do, because the latter did not participate in those projects. For the two projects located in the Sahtu, Settled land claimants participated more because Unsettled land claimants did not participate in those projects.

For the two projects in the Gwich'in, Sahtu, and Dehcho, Unsettled land claimants participated more than Settled land claimants did on average although the levels are comparable. The reason is that for the Mackenzie Gas Project, Settled land claimants Oppose exceeded Unsettled land claimants Oppose on average while for the Mackenzie River 2D Seismic Program, Unsettled land claimants Oppose exceeded Settled land claimants Oppose.

For the three projects in the Tlicho region, Settled land claimants participated more than Unsettled land claimants did. This follows Settled land claimants participating more than Unsettled land claimants did in two projects (the Tlicho All Season Road and the NICO Project), but Unsettled land claimants participating more than Settled land claimants did in the Jay Project.

#### 10.2.4 Sample selection

This section investigates if there are sample selection issues.

First, I argue that there is no sample selection because although there is a process by which certain projects proceed from Preliminary Screening to EA, our dataset for EA is **not** a sample for the population of Preliminary Screening. EA is its own process. This dataset covers the population for projects that completed EA.

Second, I argue that there is no sample selection because this differs from the classic example of the wage offer model that has sample selection problems. In that model, there is only data on wages for working people. However, here, we have the Dependent Variable for

participation and non-participation. For any given issue, even if no one participated, we still have the Dependent Variables for those situations.

Third, if I am wrong and there is sample selection, I need to examine if it is exogenous or endogenous. In the classic sample selection problem, an unobservable in the error affecting the Dependent Variable wage is correlated with an explanatory variable. I need to examine if this exists here.

We have regressions of the Review Board's SAI/SPC decision on Participation. As discussed in section 10.2.2, I argue that 3 factors potentially affect Participation: (1) Unsettled land claimants have less capacity and thus participate less, (2) there are more projects in Unsettled only regions, so Unsettled land claimants participate more, and (3) Unsettled land claimants cannot reject projects at Preliminary Screening for non-conformity with an approved land use plan and thus participate more than if they could. I argue that these factors do not affect the Review Board's decisions except through Participation.

Finally, although there is a process by which certain projects proceed from Preliminary Screening to EA, data challenges limit the studying of how 75 of nearly 1,800 projects at Preliminary Screening get referred to EA. Although the four Land and Water Boards have public registries, this omits the other projects before other Preliminary Screeners (e.g. NEB, DFO, and INAC). These specific departments and other Preliminary Screeners would need to be contacted for their Preliminary Screening decisions from 1998 to 2019. The MVEIRB (2019e) has a page for Preliminary Screenings, but it only goes back as far as 2014. It also only shows one document per project, rather than all documents at Preliminary Screening, including indications of participation. Even in the Land and Water Board public registry data, not every project has a staff report, which usually outlines who participated and possibly the extent of their

participation. Even if there was a staff report, it might not state *who* participated. We would need to go through the individual submissions at Preliminary Screening to check who participated. However, I found that the electronic registry for the Land and Water Boards is far less complete than that for the Review Board. Having travelled to the MVLWB physical registry in Yellowknife, I found that the number of documents missing from the electronic registry can be substantial. Therefore, I treat the dataset in this study as the population for EA. It is not a selected sample from Preliminary Screening, which is a different process. I address two main dimensions influencing entry into EA (project location in Unsettled/Settled regions and Unsettled/Settled land claimants wanting to reject the project) instead in the regression through the Region Fixed Effect and by broadening the definition of Oppose to include Reject.

#### 10.2.5 Learning from past Review Board decisions

Theoretically, participants might or might not incorporate past Review Board decisions into current participation decisions. If they do, they might do so in two ways in response to past unwanted Review Board decisions. First, if they wanted the Review Board to find SAI/SPC in past EAs but the Review Board did not do so, they might participate more at this time to try to influence the Review Board to find SAI/SPC this time. Second, they might participate less at this time given past unsuccessful attempts to influence the Review Board to decide SAI/SPC because they feel there is no hope this time.

Practically, it is very challenging to try to model the incorporation of past Review Board decisions into current participation decisions for the following reason. It is not simply a matter of including past Review Board decisions for the past 38 projects as lags because we do not know which past Review Board decisions apply to each current participation decision. For

example, participants might incorporate past Review Board decisions only for projects in the same Region, the same Project type, the same Proponent, or the same Issue type into their participation decisions in the current project. They might not incorporate past Review Board decisions for projects in other Regions, Project types, and such into their participation decisions. Given the heterogeneous lag structure of past Review Board decisions, I choose to take participation as given for every observation and do not model it as a function of past Review Board decisions. Future research can build on Fitzpatrick (2006), who interviewed participants in the Snap Lake EA to find out if they learned during EA.

#### 10.2.6 Future econometric research

As discussed in Chapters 8 and 9, the significance of the coefficient on Unsettled land claimants Oppose might be sensitive to model specification. In future research it would be good to check the robustness of these results and minimize any model dependence. For example, complementarities between participation by certain groups could be incorporated via interaction terms.

#### 10.3 Indigenous Peoples not all against development

This study does not seek to dichotomize Indigenous Peoples from industry. This study does not suggest that all Indigenous Peoples are against development. Indeed, the dataset captures expressions of support for projects from Indigenous Peoples. Furthermore, this study acknowledges that Indigenous Peoples can be very supportive of development. For example, many Indigenous Peoples are seeking ownership of the Trans Mountain Expansion pipeline (Yourex-West, 2019).

This study also acknowledges that firms can bring positive benefits, such as employment, business opportunities, and services to residents via tax revenue. For example, in 2017, GNWT ITI said Gahcho Kue was expected to contribute \$6.7 billion to Canada's economy, including \$5.3 billion to the NWT. In some cases, the Proponent paid participants to participate (MVEIRB, n.d., p. 20). Some Proponents also give resources for collecting TK (Senes Consultants Limited, 2011, p. 5-2). This study focuses on preventing negative externalities.

#### 10.4 Review Board helping participants

Since this study focuses on the research question of how participation influences the Review Board's decision, the preceding sections did not take the opportunity to acknowledge many positive things about the Review Board. For example, Parkins and Mitchell (2016) noted that the Review Board has led in developing socio-economic and cultural Impact Assessment.

The Review Board has recognized participants' constraints and even changed the rules or changed operations to reduce the burden on participants. Earlier REAs were excellent in identifying which participants faced participation constraints, so that readers know when the participation was compromised. In 2014, in the De Beers Snap Lake Water Licence Amendment EA, the Review Board hired an independent consultant to evaluate the project proposal in order to help capacity-constrained participants. In 2015, the Review Board required the Proponent's DAR to meet a higher standard (MVEIRB, 2015a). Previously, the Review Board checked if the DAR answered each point in the Terms of Reference. With the new rule, the Review Board checked if the DAR's quality of information constituted an adequate response to the Terms of Reference. The Review Board's reasons for this rule change included providing participants

with better information earlier, helping participants focus on key issues sooner, and improving detailed evaluation of key issues.

Recently, the Review Board took issue with Parks Canada's Preliminary Screening of a new National Park near Lutsel K'e called the Thaidene Nene National Park Reserve (Blake, 2019). Parks Canada conducted Preliminary Screening of the proposed National Park. The Park, however, received Royal Assent on June 21, 2019, before Parks Canada completed Preliminary Screening on July 5, 2019. The North Slave Metis Alliance then requested the Review Board to order an EA, citing concerns about their ability to use their rights in the Park. The NWT/Nunavut Chamber of Mines also asked the Review Board to conduct an EA, citing concerns that the Park does not have an access corridor and the Preliminary Screening had omissions. Although the Review Board did not order an EA, it was only because the Park had already received Royal Assent. The Review Board criticized Parks Canada's approach for being "inconsistent" with the *MVRMA* (Blake, 2019). It was inconsistent because steps had already been taken to create the Park before finishing Preliminary Screening, including Royal Assent. I argue that the Review Board's reasons for decision here show that it is looking out for the other participants (Chamber of Mines and NSMA), who had outstanding concerns after the Preliminary Screening. This is likely one of many examples where the Review Board looks out for participants' concerns.

The Mackenzie Valley EA process likely has many other positive and pioneering aspects. This study does not diminish those and only focuses on answering the research question.

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Appendix 1: Classification of specific participants into participant groups and justification for categorizing specific Indigenous participants into Groups

Table A1.1: Specific participant variable names and classification to participant groups

<b>Participant (or group)</b>	<b>Participant (or group) variable name</b>
<b>Proponent total group</b>	<b>ptotal</b>
Proponent	P
Proponent's consultant	P_cons
<b>Review Board total group</b>	<b>rbtotal</b>
Review Board	RB
Review Board consultant	RB_cons
Review Board counsel	RB_counsel
Review Board expert advisor	RB_expert
Review Board members	RB_member
Review Board staff	RB_staff
Review Board technical advisor	RB_technical
<b>Indigenous Participants</b>	<b>ip</b>
<b>Unsettled Land Claimant Indigenous Participants</b>	<b>unsettledip</b>
<b>Southeast NWT (Region)</b>	<b>southeastnwt</b>
Akaiicho IMA Measures Office	AIMAO
Deninoo Community Council	DCC
Deninu Kue First Nation	DKFN
Fort Resolution Indigenous Participants	Fort_Resolution_IP
Fort Resolution Metis Council	FRMC
Lutsel K'e Dene First Nation	LKDFN
North Slave Metis Alliance	NSMA
Northwest Territories Metis Nation	NWTMN
Yellowknives Dene First Nation	YKDFN
Yellowknives Dene First Nation_ Alternatives North Taylor and Kenyon Report	YKDFN_AN
Yellowknives Dene First Nation_City of Yellowknife_ Alternatives North Affolder Report	YKDFN_CityYK_AN
Yellowknife Metis Nation Local 66	YMNL66

<b>Dehcho (Region)</b>	<b>dehcho</b>
Dehgha Alliance Society (DFN's Pipeline Working Group)	DAS
Dehcho region community members	Dehcho_com
Dehcho First Nations	DFN
Deh Gah Got'ie Dene Council or Deh Gah Got'ie First Nation	DGGDC
Enterprise Settlement Council	ESC
Fort Liard	Fort_Liard_com
Fort Simpson Indigenous Participants	Fort_Simpson_IP
Fort Providence Metis Council	FPMC
Fort Providence Resource Management Board	FPRMB
Hay River indigenous participants	Hay_River_IP
Hay River Metis Council	HRMC
Katlodeeche First Nation	KFN
Ka'a'Gee Tu First Nation	KTFN
Liidlii Kue First Nations	LKFN
Nahanni Butte Dene Band	NBDB
Pehdzeh Ki First Nation	PKFN
Sambaa K'e Development Corporation	SKDC
Sambaa K'e First Nation	SKFN
West Point First Nation	WPFN
<b>Settled Land Claimant Indigenous Participants</b>	<b>settledip</b>
<b>Tlicho (Region) [Attribution to Settled/Unsettled – see below]</b>	<b>tlicho</b>
Community Government of Behchoko	CGB
Community Government of Whati	CGW
Dogrib Treaty 11 Council (much of what's now Tlicho Government; but before TG settled land claim in 2003)	DT11C
Interagency meetings (TG, TCSA, CGW)	Interagency
Metis Nation, Rae-Edzo Local #64	MNREL64
Tlicho Government	TG
Tlicho Government Indigenous Communities and Industrial Camps Report	TGICIC
Tlicho Government Socio-economic Issues Scoping Study	TGSISS
Tlicho Government Traditional Knowledge Study	TGTK
Whati community members	Whati_com
Wek'èezhìi Renewable Resources Board	WRRB

<b>Sahtu (Region)</b>	<b>sahtu</b>
Fort Good Hope community members	FGH_com
Fort Norman Metis Land Corporation community members	FNMLC_com
Norman Wells community members	Norman_Wells_com
Sahtu region community members	Sahtu_com
Sahtu Heritage Places and Sites Joint Working Group	SHPSJWG
Sahtu Land Use Plan	SLUP
Sahtu Land Use Plan Board	SLUPB
Sahtu Renewable Resources Board	SRRB
Sahtu Secretariat Incorporated	SSI
Tulita District Land Corporation	TDLC
<b>Gwich'in (Region)</b>	<b>gwichin</b>
Fort McPherson community members	Fort_McPherson_com
Gwich'in Renewable Resources Board	GRRB
Gwich'in region community members	Gwichin_com
Tsiigehtchic community members	Tsiigehtchic_com
<b>Other Indigenous Participants</b>	<b>otherip</b>
Athabasca Denesuline	AD
Beverly Qamanirjuaq Caribou Management Board	BQCMB
BQCMB and GNWT joint presentation	BQCMB_GNWT
Dene Nation	Dene_Nation
Kitikmeot Corporation	KC
Kitikmeot Inuit Association	KIA
Kugluktuk community members	Kugluktuk_com
<b>Government</b>	<b>gov</b>
Canadian Coast Guard	CCG
Department of Fisheries and Oceans	DFO
Environment Canada	EC
Environment Canada Recovery Strategy	EC_RS
Government of NWT (includes RWED Resources Wildlife Economic Development)	GNWT
Government of GNWT Communities and Diamonds Report	GNWT_CAD
BQCMB and GNWT joint presentation	GNWT_BQCMB
GNWT Recovery Strategy	GNWT_RS
GNWT Status Report	GNWT_SR

Health Canada	HC
Indigenous and Northern Affairs Canada	INAC
National Energy Board	NEB
Nahanni National Park Reserve	NNPR
Natural Resources Canada	NRCan
Parks Canada	PC
Prince of Wales Northern Heritage Centre	PWNHC
Transport Canada	TC
Transportation Safety Board of Canada	TSBC
<b>Environmentally-oriented group (Monitoring agencies, NGOs, eco-tourism companies, and individuals)</b>	<b>env</b>
Alternatives North	AN
Alternatives North ANDRA (Nuclear Waste Management Organization of France) Report	AN_ANDRA_Report
Alternatives North Designation Options Report	AN_DO_Report
Alternatives North Kuyek Report	AN_Kuyek_Report
Alternatives North Raffensberger Report	AN_Raffensberger
Yellowknives Dene First Nation_ Alternatives North Taylor and Kenyon Report	AN_YKDFN
Yellowknives Dene First Nation_ City of Yellowknife_ Alternatives North Affolder Report	AN_YKDFN_CityYK
Blachford Lodge	Blachford_Lodge
Canoe Arctic	Canoe_Arctic
Canadian Arctic Resources Committee	CARC
Canadian Parks and Wilderness Society	CPAWS
David Pelly	David_Pelly
Great Canadian Ecoventures	GCE
Independent Environmental Monitoring Agency	IEMA
Sierra Club	Sierra_Club
UNESCO	UNESCO
Wildlife Conservation Society	WCS
Working Group (consisting of all participating Parties)	Working_group
World Wildlife Fund	WWF
World Wildlife Fund-Toronto	WWFTO
World Wildlife Fund-Yellowknife	WWFYK

<b>Municipalities</b>	<b>muni</b>
City of Yellowknife	City_YK
Yellowknives Dene First Nation_City of Yellowknife_Alternatives North Affolder Report	CityYK_YKDFN_AN
NWT Association of Communities	NWTAC
Town of Hay River	Town_Hay_River
Town of Norman Wells	Town_Norman_Wells
Village of Fort Simpson	Village_Fort_Simpson
<b>Industry</b>	<b>industry</b>
Diavik	Diavik
Fort Simpson businesses	Fort_Simpson_businesses
Fort Simpson Chamber of Commerce	FSCC
Norman Wells & District Chamber of Commerce	NWDCC
NWT Chamber of Mines	NWT_Chamber_Mines
NWT Construction Association	NWTCA
<b>Politicians</b>	<b>poli</b>
Member of Legislative Assembly	MLA
Senator	Senator
<b>Public</b>	<b>publictotal</b>
Fort Providence public	Fort_Providence_public
Fort Simpson public	Fort_Simpson_public
Public	Public
Public outside MV	Public_outside_MV
Yellowknife Catholic Schools	YK_Catholic_Schools
Yellowknife public	YK_public
<b>Unidentified Participants</b>	<b>unidentified</b>

Please kindly note for the Proponent participant group that there are two types of “specific participants”: Proponent and the Proponent’s consultant. There are 26 distinct Proponents in the 39 projects. Please see Table 5.3 for the specific Proponents.

## Justification for categorizing specific Indigenous participants into Groups

### Southeast NWT Region

Given section 2.2, DKFN, LKDFN, YKDFN, NSMA, and NWTMN are in the Southeast NWT Region. The Akaitcho IMA Measures Office represents the Akaitcho Dene First Nations (Akaitcho Territory Government, 2019). The Yellowknife Metis Nation Local 66 is also in the Southeast NWT Region because it states Yellowknife. Since the DKFN are in Fort Resolution (Akaitcho Territory Government, 2019), Fort Resolution Metis Council is included. Fort Resolution Indigenous Participants is a separate participant, because it cannot be shown whether Indigenous Participants in Fort Resolution are from Dene or Metis participants. Deninoo Community Council is included because they are also in Fort Resolution (MVEIRB, 2008a).

### Dehcho (Region)

Given section 2.2, the DFN and member communities Deh Gah Got'ie Dene Council or Deh Gah Got'ie First Nation, Fort Providence Metis Council, Ka'a'Gee Tu First Nation, Liidlii Kue First Nation, Nahanni Butte Dene Band, Pehdzeh Ki First Nation, Sambaa K'e First Nation, and West Point First Nation are in the Dehcho Region. The Dehguh Alliance Society is also included because it is the DFN's Pipeline Working Group (MVEIRB, 2005b). Since Fort Providence Metis Council and Sambaa K'e First Nation are DFN member communities, Fort Providence Resource Management Board and Sambaa K'e Development Corporation are also included.

Since Enterprise, Fort Liard, Fort Simpson, and Hay River are communities identified in the Dehcho Interim Measures Agreement Area, the following are included in the Dehcho Region: Enterprise Settlement Council, Fort Liard, Fort Simpson Indigenous Participants, Hay River Metis Council, and Hay River Indigenous participants (GNWT EIA, 2019i). Katlodeeche First Nation is also included because it is in Hay River (K'atl'odeeche First Nation, 2019).

### Tlicho (Region)

The Tlicho Government is in the Tlicho Region. Given the four Tlicho communities, the Community Government of Behchoko, the Community Government of Whati, Whati community members, and the Wek'èezhì Renewable Resources Board are included as participants.

Metis Nation, Rae-Edzo Local #64 is included because Behchoko was Rae-Edzo (Tlicho Government, 2017c).

Interagency is included as a participant, because it consists of the Tlicho Government, Tlicho Community Services Agency, and Community Government of Whati.

The Dogrib Treaty 11 Council is included because it's much of what's now Tlicho Government (Tlicho History, 2014).

### Categorizing Tlicho Region as Settled or Unsettled

On August 25, 2003, the Tlicho Government settled its land claim (GNWT EIA, 2019d). Therefore, for projects completed before then, the Tlicho Region is counted in Unsettled land claimants. These are Projects 25-39, because the Project 25 REA was completed on August 8, 2003. For Projects 1-24, the Tlicho Region is counted in Settled land claimants, because the Project 24 REA was completed on February 10, 2004.

### Sahtu (Region)

The following are included: Sahtu region community members, Sahtu Heritage Places and Sites Joint Working Group, Sahtu Land Use Plan, Sahtu Land Use Plan Board, and Sahtu Renewable Resources Board.

The Sahtu Secretariat Incorporated is included as a participant because it represents the Sahtu First Nation (*MVRMA*, s. 2). Given the five communities in the Sahtu region, the following are included as participants: Fort Good Hope community members, Norman Wells community members, and the Tulita District Land Corporation.

Fort Norman Metis Land Corporation community members are also included as a participant, because Fort Norman Metis Land Corporation is in Tulita (GNWT EIA, 2019c).

### Gwich'in (Region)

The following are included as participants: Gwich'in Renewable Resources Board and Gwich'in region community members. Given the four Gwich'in communities, Fort McPherson community members and Tsiigehtchic community members are included in the Gwich'in Region.

### Other Indigenous Participants

The Athabasca Denesuline are included in Other Indigenous Participants because they live in Northern Saskatchewan and Northern Manitoba (GNWT EIA, 2019a).

The Kitikmeot Corporation and Kitikmeot Inuit Association are included in Other Indigenous Participants because they are from Nunavut (Kitikmeot Corporation, 2015). Kugluktuk community members are also included because Kugluktuk is also in Nunavut (Travel Nunavut, 2019).

The Dene Nation is a political organization in the Northwest Territories. Its leadership has representatives from all five Regions (Dene Nation, 2019). Therefore, it is included in Other Indigenous Participants.

The Beverly Qamanirjuaq Caribou Management Board is a co-management board with eight community board members from southern NWT and Kivalliq, Nunavut, northern Saskatchewan, and northern Manitoba (Beverly Qamanirjuaq Caribou Management Board, 2019a). It is counted as an Other Indigenous Participant because its website states that four

NWT communities are on the ranges of the Beverly and Qamanirjuaq herds and depend on the caribou: Fort Resolution, Fort Smith, Lutsel K'e, and Wekweeti (Beverly Qamanirjuaq Caribou Management Board, 2019b). Since Fort Smith, Fort Resolution, and Lutsel K'e are in the Southeast NWT Region, and Wekweeti is in the Tlicho Region, the BQCMB is counted as an Other Indigenous Participant.

## Appendix 2: Detailed coding rules

The following sections will describe:

1. How to code Issue types
2. Rule behind the rules
3. Rules for attributing participation behaviour to participants
4. Which sections to code
5. What to code: distinct ideas
6. Rules for intensity
7. Rules for identifying participation behaviour
8. Coding Proponent submissions
9. Rules for identifying Review Board decisions
10. Specific steps for eliciting data
11. General weaknesses when identifying types of participation behaviour
12. Rationale for not using coding software (e.g. NVivo)
13. Validity and inter-rater reliability

In addition to these detailed coding rules, please see Appendix 3 for a list of specific or notable coding decisions, which clarify ambiguity and state exceptions.

### 1. How to code Issue types

The literal “headings” and “sub-headings” were classified into the seven aggregated types of issues according to the following conversion table.

Table A2.1: Conversion from literal (sub)heading into aggregated issue types

<b>Issue_literal or subissue_literal</b>	<b>Issue_specific</b>	<b>Issue_semiaggregated</b>	<b>Issue type</b>	<b>Issue type id</b>
Cumulative effects Sustainability	Cumulative effects	Cumulative effects	<b>cumulative effects &amp; closure &amp; follow-up</b>	1
Closure & reclamation Diavik diamond mine ability to close Closure Surface reclamation Reclamation Abandonment & restoration	Closure & reclamation	Closure		
Adaptive management, follow-up, and monitoring Follow-up Reporting & follow-up Downstream monitoring Monitoring and management Oversight Community environmental monitors Implementing commitments and measures Formulation of long term goals and objectives Perpetuity	Adaptive management, follow-up, and monitoring Follow-up	Follow-up		

Implementation				
Permafrost Climate change Sustainability Water quality and quantity Vegetation Water quality Lady of the Falls Atmosphere Nahanni National Park Reserve Effect on land and water from winter road construction and operation Air quality Ecotourism Water resources Forest resources K'Eotsee (Traynor) Lake watershed Blackwater river area Other sensitive sites near Wrigley Biophysical cumulative Terrain and soils Effects of the environment on the development Geology and terrain Ecological land classification and biodiversity Resource uses Biophysical cumulative Proposals for expanding Nahanni Ecological integrity General water Environmental concern Hydrology Geotechnical Geochemical and thermal Hydrogeology Environmental health cumulative effects	Permafrost Climate change Sustainability Water Vegetation Forest	various	<b>environmental</b>	2
Accidents & malfunctions Radiation Barging – accidents & malfunctions Perpetuity Flood Design and dam safety standards Stability of the water storage pond and back slope Emergency use of Harrison Creek for mine effluent discharge Road safety Road issues Breachings of dams and dykes	Human safety Radiation	Accidents & malfunctions	<b>other</b>	3
Alternative means BATEA Alternatives Freezing environmental optimization	Alternatives	Alternatives & techniques		
Overall	Overall	Overall		
Health impacts		Other		

Human environment Dissent Noise				
Consultation and accommodation Barging – public engagement Crown consultation Engagement Community engagement Adequacy and quality of submissions Temporal and spatial boundaries Findings of significance Participant funding	Consultation and accommodation	Process	<b>process &amp; land use</b>	4
Land use planning issues Mineral tenure regime and RB's role in consultation Land claims		Land use		
Significant public concern Public concern		Public concern	<b>public concern</b>	5
Community well-being Minimizing impacts on communities Maximizing benefits and minimizing impacts on communities Blachford Lodge Social, economic & cultural impacts Socio-economic impacts Socio-economic impacts & TK Social issues Access and benefit agreements Economy Harvester compensation Social and economic Economic	various	Socio-economic	<b>socio-economic &amp; culture &amp; heritage &amp; archaeology</b>	6
Cultural well-being Traditional harvesting Culture and heritage Cultural aspects & TK Traditional use Traditional land use and culture Barging – traditional uses Culture Traditional use Cultural impacts Harvesting Ongoing TK studies Cultural cumulative effects Cultural & heritage resources Socio-cultural Hunting pressure		Culture		
Heritage and archaeological resources Heritage resources		Heritage		
Archaeological sites Burial sites		Archaeology		

Boreal caribou Barren-ground caribou Fish and water Bird species at risk and their habitat Wildlife other than caribou Wildlife and wildlife habitat Fish and fish habitat Project effects on fish habitat Project effects on fish populations and fish health Caribou Migratory birds, other wildlife and species at risk Barging – fish Wildlife Species at risk Caribou and caribou habitat Fish and aquatic life Wildlife monitoring Protection of the Narrows Wildlife monitoring and management Species at risk or other animals Other wildlife Caribou & moose Access Effects on wildlife and human health	Caribou Fish Water Birds Wildlife other than caribou Wildlife and wildlife habitat Fish and fish habitat	various	<b>wildlife</b>	7
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## 2. Rule behind the rules

There are myriad decision-rules below. It is important to have an overarching rule that guides the subsequent decision-rules.

The overarching rule has the following purposes:

- a) to elicit the maximum participation behaviour from the REAs, as expressed in the REA
- b) to attribute participation to the original participant
- c) to reflect the participant’s truest position
- d) to most accurately reflect the extent to which that participation influences the Review Board’s decisions

## 3. Rules for attributing participation behaviour to specific participants

There are 9 rules for attributing participation behaviour to specific participants.

Table A2.2: Summary of Rules for attributing participation behaviour to specific participants

<b>Rule 1:</b> Attribute “Indigenous participants” to Indigenous participants, not Public.
<b>Rule 2:</b> Attribute “public” to public, even if predominantly Indigenous community.
<b>Rule 3:</b> Attribute “community members” to the community (implicitly Indigenous community).
<b>Special rule for Project 1:</b> Attribute “community members”, Elders, harvesters, and youth to

“Whati com”, which is counted under Indigenous participants.
<b>Rule 4:</b> Attribute “community scoping sessions” and other sessions to community members (implicitly Indigenous community).
<b>Rule 5:</b> Attribute evidence from sessions in communities to community members, not the Political entity (Town/Village/Municipality).
<b>Rule 6:</b> Attribute to specified primary participant despite citing a different secondary source.
<b>Rule 7:</b> Attribute to the secondary source where it is unclear who the primary participant is.
<b>Rule 8:</b> Attribute unspecified participation behaviour without Public Registry document references to Unidentified participants.
<b>Rule 9:</b> Attribute unspecified participation behaviour with Public Registry document reference.
<b>Possibility 1:</b> The Appendix and the name of the document clearly state who the document belongs to. Rule: Attribute to the document’s originator.
<b>Possibility 2:</b> The Appendix on the Public Registry Index does not state who created the document. Rule: Attribute to Unidentified participants.

Rules 1 and 2 are to clarify attribution to Indigenous participants and the Public.

Rule 1: Attribute “Indigenous participants” to Indigenous participants, not Public

E.g. The REA refers to Hay River “**Indigenous participants**”. Create a specific participant called Hay River Indigenous participants and group in the Indigenous participants group, not the Public group.

Rule 2: Attribute “public” to public, even if predominantly Indigenous community

E.g. However, the REA refers to the Fort Providence “**public**”. I created a specific participant called Fort Providence public and grouped it under the Public group, even if they are primarily inhabited by Indigenous Peoples because I cannot assume they are *all* Indigenous inhabitants. This might be a mistake because they are primarily Indigenous inhabitants. However, without more information, I cannot simply assume that the public are all Indigenous Peoples.

Rule 3: Attribute “community members” to the community (implicitly Indigenous community)

Attribute statements of participation behaviour from “community members” to that community’s members.

E.g. Project 2, page 151 REA. “LKFN community members said they were concerned ...” is attributed to LKFN.

Special rule for Project 1: Attribute “community members”, Elders, harvesters, and youth to “Whati com”, which is counted under Indigenous participants

In Project 1, the Tlicho Government and the Community Government of Whati wanted the project. However, many community members in Whati opposed the project.

Therefore, statements by “community members”, Elders, harvesters, and youth are attributed to “Whati\_com”, which represents the community members of Whati, as distinguished from the Community Government of Whati. “Whati\_com” is counted in the Indigenous participants group, because Whati is an Indigenous community.

E.g. Project 1, page 79 REA. “Evidence from the community input sessions (Table 1.4 in PR#96 p22) indicates that some **community members**” is attributed to “Whati\_com”.

Rule 4: Attribute “community scoping sessions” and other sessions to community members (implicitly Indigenous community)

Attribute statements of participation behaviour from “community scoping sessions” to the community’s members.

E.g. Project 1, 5.2. “several socio-economic concerns were identified during the **Community of Whati scoping session**” is attributed to “Whati public”, which represents community members in Whati.

Weakness: This rule is an assumption, because anyone can attend community scoping sessions. Participants other than community members could have raised these concerns. However, the assumption is made that they came from the community members. The alternative is to attribute such statements to Unidentified participants. However, I assume concerns from community scoping sessions are more likely to be from community members than Unidentified participants.

Rule 5: Attribute evidence from sessions in communities to community members, not the Political entity (Town / Village / Municipality)

Sometimes the REA refers to participation from sessions in a community, e.g. Fort Simpson. It is not always clear if it is from Fort Simpson as the political entity (municipality) or its Indigenous community members (counted under Indigenous participants).

E.g. Project 2, page 159 REA. “The evidence from ... cultural technical sessions in Nahanni Butte and Fort Simpson ... provide compelling evidence to suggest that impacts ... were underestimated”.

This is counted as 1 concern each to NBDB and Fort Simpson Indigenous Peoples, rather than The Village of Fort Simpson, which is counted as a municipality. The reason is that it refers to sessions in Fort Simpson, which is attributed to Indigenous community members in Fort Simpson.

Rule 6: Attribute to specified primary participant despite citing a different secondary source

If the REA states that a participant (e.g. Whati community members) exhibited participation behaviour but references a document from another source, the behaviour is attributed to the original participant.

E.g. Project 1, page 81 REA. “housing was identified as a concern for the community of Whati ... (PR#7 Appendix B)”. This is attributed to “Whati com” for Whati community members, despite referencing the TG SISS Study. The reason is that the REA named the participants here.

E.g. Project 1, page 72 REA. The two concerns from “Female elder” and “Whati councillor” are attributed to “Whati com” despite referencing the TG SISS Study.

Rule 7: Attribute to the secondary source where it is unclear who the primary participant is

E.g. Project 1, page 83 REA. “[A]dditional infrastructure concerns for Whati” citing the TG SISS Study are attributed to the TG SISS Study, because it is unclear if the concerns are from Whati community members or the Community Government of Whati.

E.g. Project 1, page 91 REA. “Elders are already recognized as being economically marginalized” is attributed to the TG SISS Study, because Elders here are the object, not subject. The TG SISS Study is expressing its views about Elders. Elders are not participating.

However, in the sentence after the next sentence, “Elders feel they will be” is attributed to “Whati com” despite referencing the TG SISS Study because the REA states the Elders as exhibiting some participation behaviour.

Rule 8: Attribute unspecified participation behaviour without Public Registry document references to Unidentified participants

E.g. Project 1, page 63 REA. “The Tł̄chq̄ Government response to information requests quoted ...”. This is coded as Unidentified participants’ questions.

E.g. Project 1, page 131 REA. “This evidence led parties to express concerns that boreal caribou (t̄q̄dz̄ı) in the area of the road may not be self-sustaining at present, because the road is proposed within an area of high habitat disturbance and a potentially declining population.” This is attributed to Unidentified participants.

Rule 9: Attribute unspecified participation behaviour with Public Registry document reference

If the REA states participation behaviour but does not state who it is from in the text and references a Public Registry document, check the REA Appendix on the list of Public Registry documents to see the document’s originator. There are two possibilities here.

Possibility 1: The Appendix and the name of the document clearly state who the document belongs to. Rule: Attribute to the document’s originator.

E.g. Project 1, page 55 REA. “Potential impacts to community infrastructure from project-related effects were also identified as a cause for public concern (PR#7 Appendix B p4-43)”.

The REA Appendix on the list of Public Registry documents states that PR#7 Appendix B is the SISS Study. I attributed this study to the Tlicho Government because it was “conducted for the [TG]”, although “submitted by the developer”. Therefore, unspecified statements of participation behaviour referenced to PR#7 Appendix B were attributed to the TG SISS Study instead of Unidentified participants.

Possibility 2: The Appendix on the Public Registry Index does not state who created the document. Rule: Attribute to Unidentified participants.

E.g. Project 2, page 234 REA. “Parties commented that existing work was “limited in scope ... (PR#200 p6)”.

The Appendix on Public Registry Index states that PR#200 is entitled “Online Review System Comments Table - Round 1 Information Request and Responses”. Since it was unclear from this title who contributed the specific statement, I attributed it to Unidentified participants. Future research can check the original document and pinpoint reference and attribute even more precisely.

4. Which sections to code

4.1 Code the general section that does not go toward a specific SAI/SPC decision separately

Sometimes, under a heading, the sub-headings have their own SAI/SPC decision, but a general section precedes the specific sub-headings. That general section describes participation behaviour but does not go toward a specific SAI/SPC decision.

These general sections are coded for a full record of participation behaviour. However, they are not counted as usual observations because they lack associated Dependent variables. Therefore, they are excluded from the study.

They are numbered starting from observation number 900. The usual observations are numbered from 1. The following Table lists these observations.

Table A2.3: Observations of participation behaviour counted but not going to SAI/SPC decisions

Observation number	Project number	Year REA completed	Proponent	Project name	Heading or subheading	Specific sections

900	1	2018	GNWT	Tlichio All Season Road	Boreal caribou	6.1-6.4
901	9	2011	Canadian Zinc Corp	Prairie Creek Mine	Impacts to water quality	3.1.2 Water as a key line of inquiry Impacts to water quality
902	26	2003	De Beers Canada	<u>Snap Lake Diamond Mine</u>	hydrogeology	2.4.1-2.4.2
903	26	2003	De Beers Canada	<u>Snap Lake Diamond Mine</u>	surface water quality	Under heading 2.6 2.6.1 Summary of Developer's Submissions Under heading 2.6.2 Summary of Responses from the Parties 2.6.2 Baseline Data Collection
904	26	2003	De Beers Canada	<u>Snap Lake Diamond Mine</u>	2.7 Aquatic Organisms and Habitat	2.7.1 Summary of Developer's Submissions
905	26	2003	De Beers Canada	<u>Snap Lake Diamond Mine</u>	2.10 Wildlife and Wildlife Habitat	Under heading 2.10 2.10.1 Summary of Developer's Submissions 2.10.2 Summary of Responses from the Parties
906	26	2003	De Beers Canada	<u>Snap Lake Diamond Mine</u>	2.12 Air Quality	2.12.1 Summary of Developer's Submissions 2.12.2 Summary of Responses from the Parties
907	26	2003	De Beers Canada	<u>Snap Lake Diamond Mine</u>	biophysical cumulative	2.15.1 Summary of developer's submissions Cumulative Effects Assessment Approach Air Quality Noise Heritage Resources Environmental Health Wildlife 2.15.2 Summary of Responses from the Parties
908	26	2003	De Beers Canada	<u>Snap Lake Diamond Mine</u>	economic	2.16.1 Approach on Project-specific & Cumulative Effects 2.16.2 Summary of Developer's Submissions 2.16.3 Summary of Responses from the Parties
909	26	2003	De Beers Canada	<u>Snap Lake Diamond Mine</u>	socio-cultural	2.17.1 Approach on Project-specific & Cumulative Effects 2.17.2 Summary of Developer's Submissions Scope and Sources of Information Evolution of Mitigation Measures to Address Key Concerns Description of Core Socio-Cultural Mitigation Measures Measure Implementation and Monitoring

						Residual Impacts 2.17.3 Summary of Responses from the Parties
910	26	2003	De Beers Canada	<u>Snap Lake Diamond Mine</u>	alternatives	Under heading 2.20 2.20.1 Summary of Developer's Submissions 2.20.2 Summary of Responses from the Parties
911	26	2003	De Beers Canada	<u>Snap Lake Diamond Mine</u>	abandonment & restoration	2.21.1 Summary of Developer's Submissions 2.21.2 Summary of Responses from the Parties

#### 4.1.1 Code “evidence from the Proponent and parties” only for participation behaviour

For certain headings, the REA presents two major parts. The first part discusses the “**evidence** from the Proponent and parties”. The second part is the “**Review Board’s analysis** and conclusions”. See Figure 6.1 for an example. 5.3 is the “evidence” part. 5.4 is the “Review Board’s analysis” part.

The rule is to code only statements of participation behaviour in the “evidence” part and not the “Review Board’s analysis” part. The rationale is that for most REAs, the “Review Board’s analysis” part repeated the participation behaviour already stated in the “evidence” Part. While the “Review Board’s analysis” part sometimes stated new participation behaviour that was not stated in the “evidence” part, this was rare.

The weakness in this decision-rule is *under*-counting participation behaviour. Future research can check the “Review Board’s analysis” parts and add new statements of participation behaviour.

#### 4.1.2 Do not code statements that are REA analysis

E.g. Project 1, page 64. “This long-term planning has allowed for the meaningful consideration of how a permanent highway would change ...” is not coded, because it is REA analysis. Such REA analysis is not participation behaviour.

#### 4.1.3 Do not code participation behaviour in Preliminary Screening unless the Review Board refers to it

E.g. in Project 1, participation behaviour from Preliminary Screening in the REA is not coded because it was before EA.

However, in latter projects, the REA’s statements of participation behaviour from Preliminary Screening are coded because the Review Board refers to them.

### 5. What to code: Distinct ideas

Table A2.4: Summary of Rules for what to code

<b>Rule 1:</b> Count Distinct ideas.
<b>Rule 1.1:</b> If a statement describes many effects, count them all.
<b>Rule 1.2:</b> Count distinct ideas, even splitting phrases with an “and”.
<b>Rule 1.3:</b> Count all distinct ideas enumerated after a colon.
<b>Rule 1.4:</b> If a statement expresses a main idea and then enumerates more ideas, count all distinct ideas.
<b>Rule 1.5:</b> Count multiple distinct ideas in a bullet.
<b>Rule 1.6:</b> Count distinct ideas in “additional” clauses, e.g. “including”, “particularly”, “in particular”, “such as”, “because”, “as”, “given”, “since”, “resulting in” etc.
<b>Rule 2:</b> Do not count signposting behaviour in Introductory sections.
<b>Rule 3:</b> Do not count signposting topic sentences.
<b>Rule 4:</b> Count ideas in topic sentences that are distinct from subsequent statements.
<b>Rule 5:</b> Count expressions; do not count magnitudes of impacts in expressions.

### 5.1 Count Distinct ideas

A key coding principle is to count “distinct ideas” versus e.g. sentences, for several reasons. First, I assume “distinct ideas” will influence the Review Board’s decision-making. Second, this avoids over-counting or under-counting participation. Third, this stays true to the ideas, regardless of how the REA is written, e.g. in sentences or as bullets.

#### 5.1.1 If a statement describes many effects, count them all

E.g. Project 1, page 159 REA.

“The Tłıchǵ Government’s Traditional Knowledge study report also notes concerns by Elders that the road would lead to increased use of trails, increased hunting and fishing, and increased industrial development (PR#28 p41).”

This is counted as 4 concerns due to 4 distinct ideas: concerns ... would lead to increased use of trails; increased hunting; increased fishing; and increased industrial development.

#### 5.1.2 Count distinct ideas, even splitting phrases with an “and”

E.g. Project 1, page 159. “increased hunting and fishing” is counted as 2 distinct ideas: hunting, and fishing, although “increased hunting and fishing” was one phrase in the REA.

The rationale is that another participant might raise the concerns separately (e.g. increased hunting, increased fishing). It would have been counted as 2 distinct ideas there.

#### 5.1.3 Count all distinct ideas enumerated after a colon

E.g. Project 1, page 81 REA.

“and ... case studies ... observed that ... increased public access from new roads has reduced sense of community cohesion: break-ins, loss of social relationships because of out-migration, loss of satisfaction with life in the community for those who remain, and reduced participation in community activities have all been noted”.

Distinct ideas after the colon are counted, because each idea provides one more piece of information that can influence the Review Board’s decision-making.

5.1.4 If a statement expresses a main idea and then enumerates more ideas, count all distinct ideas

E.g. Project 1 (GNWT TASR), 5.3.1.

“Study **identified** the most vulnerable populations in Whati as youth, young women and Elders”.

This is counted as 3 concerns because there are 3 vulnerable populations.

The next sentence:

“Other vulnerable groups include the chronically unemployed, substance abusers and mothers of school age children”.

This is counted as 3 concerns because there are 3 vulnerable groups.

An alternative decision-rule counts only the main idea (Study identified the most vulnerable populations in Whati) and not each enumerated distinct idea (youth, young women, and Elders). This would treat having 50 vulnerable populations the same as having 1 vulnerable population, which is unfair.

5.1.5 Count multiple distinct ideas in a bullet

If a bullet expresses multiple distinct ideas, count the distinct ideas. The rationale is consistency with counting multiple distinct ideas expressed in non-bullet form.

E.g. Project 1, page 51.

- . access to the lake and fishing;
- . jobs and economic opportunities;
- . uncertainty over the road and access, as well as effects on culture and the character of the community;
- . safety along the road; and,
- . controlling access to the road.

This is counted as 10 distinct ideas:

1. Access to the lake
2. and fishing
3. Jobs
4. and economic opportunities
5. Uncertainty over the road
6. and access,
7. as well as effects on culture
8. and the character of the community
9. Safety along the road
10. Controlling access to the road

5.1.6 Count distinct ideas in “additional” clauses, e.g. “including”, “particularly”, “in particular”, “such as”, “because”, “as”, “given”, “since”, “resulting in” etc.

The REA sometimes states “additional” clauses, such as “including”, “particularly”, “in particular”, “such as”, “because”, “as”, “given”, “since”, “resulting in”, etc. The decision-rule is to count the distinct ideas in these clauses. The rationale is that they provide additional evidence in support of the participant’s position, which can influence the Review Board’s decision-making.

E.g. Project 1, page 82 REA.

In response, to a Review Board question on housing pressures (PR#73 p8), the Community Government of Whatì and Tł̓ch̓q̓ Government stated they “recognize housing as an ongoing barrier for community well-being and preparedness, **including** the insufficient information available to adequately assess housing adequacies in the community”, and “in-migration may lead to more expensive housing through inflationary pressures on limited housing stock” (PR#96 p69, p87).

The “including” clause is counted as 1 more distinct idea.

E.g. Project 1, page 56 REA.

The Tlicho Government acknowledged the “potential for these vulnerable groups to experience harm, **particularly** young women”.

This is counted as 2 distinct ideas: “potential ... experience harm”, and “particularly young women”.

E.g. Project 1, page 71 REA.

The report focuses on how **women**, and **Aboriginal women in particular**, “can experience negative impacts ...”.

This is counted as 2 distinct ideas: “women ... can experience negative impacts” and “Aboriginal women in particular”.

E.g. Project 1, page 225 REA.

... the WRRB pointed out that Elders’ and harvesters’ comments at the hearing and during WRRB engagement include evidence of negative changes to local fish populations, **such as smaller sizes, unusual distribution, fewer numbers and different species.**

This is counted as 5 concerns: “evidence of negative changes to local fish populations”, “smaller sizes”, “unusual distribution”, “fewer numbers”, and “different species”.

E.g. Project 1 (GNWT TASR), 5.3.

“In the community, people look forward to the road **because** of its potential to bring new jobs and opportunities and lower the cost of living”.

This is counted as “Whati com” Not concerned = 4 because I infer three distinct assertions here: people look forward to the road, because of its potential to bring new jobs, potential to bring opportunities, and the potential to lower the cost of living.

E.g. Project 1, page 57.

“[TG] ... anticipated these **issues** would manifest as increased social pressures, **resulting in** increased pressures on policing ”

This is counted as 2 distinct ideas: increased social pressures; resulting in increased pressures on policing.

The same rules apply to other “additional” clauses, such as “given”, “as”, “since”, “due to”, etc.

In order to count distinct ideas and avoid over-counting redundant statements of participation, the following rules apply to introductory sections and topic sentences.

## 5.2 Do not count signposting behaviour in Introductory sections

Statements of participation behaviour in introductory sections are not counted where they signpost more specifically attributed statements in subsequent sections.

E.g. Project 1, 6.3 “Parties raised many concerns” is not counted because subsequent sections spell out which participants raised which concerns.

## 5.3 Do not count signposting topic sentences

Topic sentences that signpost more specific participation behaviour subsequently are not counted, unless they contain ideas distinct from the more specific statements. The purpose is to avoid over-counting participation.

E.g. Project 1, page 75 REA.

“Parties to the EA sought greater clarification on the issue of bison vehicle collisions. The NSMA called for clear guidance from the GNWT to drivers, citing the vulnerability of wood bison and the frequency of collisions (PR#214 p36). In its technical report, the NSMA also recommended deliberate effort be taken by the GNWT to study the relationship between bison collisions and the application of road salts, which are thought to attract the animals to the road (PR#214 p52). See Section 10.2.2 for further discussion on this topic.”

The topic sentence is not counted because it merely signposts the actual behaviour stated in the next sentence.

#### 5.4 Count ideas in topic sentences that are distinct from subsequent statements

However, if the topic sentence expresses ideas distinct from the subsequent statements, count those ideas.

E.g. Project 1, page 85 REA.

Steinwand-Deschambeault elaborated on the impact of the Project extending beyond economics (PR#272 pp190-192):

*Opportunities for more employment. For a community of 500 there's limited jobs here. The road will help to create additional jobs for the people. Even when we look at training, building skills in our people-- that alone helps with people's mental health and well-being, knowing that they can do something; that they can contribute to the community; that their children can see them making a positive impact in their community. There's a lot of positive spinoffs.*

The topic sentence expresses an idea distinct from the subsequent statements. I.e. it states that the impact of the Project extends beyond economics. The subsequent statements then spell out what those impacts are. In other words, since the topic sentence expresses an idea that cannot be found in the subsequent statements, that idea is counted.

Weakness: It can be open to interpretation when a topic sentence is signposting versus expressing ideas distinct from subsequent statements. The list of specific coding decisions in Appendix 3 can provide clarity.

#### 5.5 Count expressions; do not count magnitudes of impacts in expressions

E.g. Project 27:

“four trappers were impacted”

This is counted as 1 concern expressed.

E.g. Drybones Bay cases:

a statement that 64 sites were found

This is counted as 1 Value\_or\_use expressed.

There are several reasons for this decision-rule. First, the alternative decision-rule of counting the “magnitude” as separate concerns under-counts the impacts when the REA states “our members are impacted”. The latter scenario is counted as 1 concern, because it is impossible to know the number of members at a specific time in every EA. Counting the explicitly stated magnitudes would inflate concerns substantially for those instances.

Second, counting the “magnitude” of impacts as separate concerns can inflate concerns substantially, depending on the magnitude. E.g. DKFN stated there are 10,000 caribou. If the magnitude was counted, this would skew the regression substantially.

Third, the Proponent often states the magnitude of impacts but other participants don’t. This imbalance would skew the numbers too much. E.g. Project 1, page 74. The Proponent said there were 113 vehicle collisions. Other participants did not report any magnitude. Counting it as 113 concerns would skew it too much.

Fourth, it can be unclear which magnitude to count because the Proponent can report different magnitudes. E.g. Project 1, page 75. The GNWT had 30 collisions since 1991. The Tlicho Government had 7 collisions between 1989 and 2016.

## 6. Rules for counting Intensity of participation behaviour

Intensity refers to the number of times something has been expressed.

The rules for counting Intensity apply to the following types of participation behaviour: Reject, SAI, SPC, Not SAI, Not SPC, Concerns intensity, Not concerned (intensity), Recommendations intensity led, Recommendations intensity supported, Value or use, Questions, and Information statements.

The rules for counting Intensity do *not* apply to the following variables: Number of (distinct) concerns, Number of (distinct) recommendations led, Number of (distinct) recommendations supported, and Commitments.

Indeed, the reason “Number of concerns” and “Concernsintensity” are identified as separate variables is to track the number of distinct concerns separately from all the times that all concerns have been raised (the variable used in regressions). The same logic applies to Recommendations led and Recommendations supported.

The following Intensity rules use “concern” as the type of participation behaviour. However, they apply to other applicable types: e.g. SAI, SPC, and others.

Table A2.5: Summary of Rules for counting Intensity

<b>Rule 1:</b> Count Phases for 1 distinct idea.
<b>Rule 2:</b> Count Public Registry document references for 1 distinct idea.
<b>Exception:</b> Do not count the document if it is just the Review Board re-stating the recommendation in an Appendix.
<b>Rule 3:</b> Count page number ranges for 1 distinct idea.
<b>Rule 4:</b> Do not count Public Registry documents or page number ranges for Bullets.
<b>Rule 5:</b> Do not count Public Registry documents or page number ranges for multiple Distinct ideas listed out separated by commas.
<b>Rule 6:</b> Multiple statements and multiple page number ranges: If the number of distinct ideas matches the number of page number ranges, count as if each reference matches each idea.
<b>Rule 7:</b> Multiple statements and multiple Participants.
<b>Rule 8:</b> Unspecified number of but plural “Questions”, “commitments”, “recommendations” = 2; “Concerns” = 1.

#### 6.1 Count Phases for 1 distinct idea

If the REA states the number of **phases** that a participant raised a concern, count the number of phases as the intensity.

E.g. Project 1 (GNWT TASR) 5.3.2. “These concerns were expressed by Whati residents during the **scoping session** and at the **public hearing**”. This is counted as 1 concern \* 2 phases = 2 concerns intensity.

If the REA states “many phases”, this is coded as **four** phases to represent technical session, technical report, public hearing, and closing arguments.

#### 6.2 Count Public Registry document references for 1 distinct idea

If the REA states a distinct idea (but not as bullets) and references multiple **Public Registry documents**, count the number of documents as the intensity.

E.g. Project 1 (GNWT TASR), 5.3.2. “These **challenges** are **anticipated** to be particularly hard on the Community of Whati (PR#7 Appendix B; PR #31)”. This is counted as 1 distinct concern \* 2 times raised = 2 concerns intensity.

**Exception:** However, do not count the document if it is just the Review Board re-stating the participants’ recommendations in an Appendix. The reason is that intensity aims to count the number of times the participant has raised that recommendation.

E.g. Project 2 (CZC Prairie Creek Road), page 63 REA. “DFN submitted a recommended measure to the Review Board related to human safety (PR#549 p5; Appendix D,

DFN recommendation #1). This is counted as 1 recommendation \* 1 times raised = 1 recommendation led intensity.

### 6.3 Count page number ranges for 1 distinct idea

If the REA states the distinct idea (but not as bullets) and references Public Registry documents *and* the **page number ranges** in those documents, count the number of **page number ranges** as the number of times the concern has been raised.

E.g. Project 1 (GNWT TASR), 5.3.2. “the Project is expected to result in a number of potential adverse effects (PR#7 pp7-8, 8-32, 8-33)”. This is counted as 1 distinct concern \* 3 page number ranges raised = 3 concerns intensity.

Page number “ranges” are chosen instead of the number of pages to represent the number of times the concern has been raised. The reason is that pages can vary in terms of font, spacing, figures, and such. In contrast, here, I propose that the number of page number “ranges” better represents the number of “times” the concern has been raised.

### 6.4 Do not count Public Registry documents or page number ranges for Bullets

If the REA states the concerns in bullets, the distinct concerns are counted out of the bullets. Even if there are Public Registry document references or page number ranges, these are not counted.

E.g. Project 1 (GNWT TASR 5.2.2) lists 14 bullets and references four Public Registry documents.

The number of documents is not counted because it is unclear if the 14 bullets are made up from all the document references (e.g. 1 document contributes 3 bullets, another document contributes 6 bullets, so the four documents together contribute the 14 bullets), or if the 14 bullets repeat in each document. If I count the distinct concerns in the 14 bullets and multiply by the 4 documents, I could be significantly over-counting the number of times the distinct ideas have been raised.

### 6.5 Do not count Public Registry documents or page number ranges for multiple Distinct ideas listed out separated by commas

Similarly, if the REA states e.g. questions about more than one distinct idea and Public Registry document references are provided, only the distinct ideas are counted. The reason is I do not know if all distinct ideas are repeated in all documents.

E.g. Project 2, page 172 REA.

“During IRs and at the technical sessions, questions were raised about the road design standard and potential impacts on the road and watercourse crossings in relation to peak flow estimates, debris, ice jams, channel movement, floods, borrow

pits in floodplains, and water flowing over the road (PR#237; PR#282; PR#277; PR#200 p28; PR#188 PDF p57)”.

Here, 7 questions are counted because there are questions about 7 distinct ideas. The 5 documents are not counted.

6.6 Multiple statements and multiple page number ranges: If the number of distinct ideas matches the number of page number ranges, count as if each reference matches each idea

E.g. Project 2 (CZC Prairie Creek Mine), page 176 REA.

“The Review Board heard from parties, particularly DFN and LKFN, that they are concerned that the Project will ... result in significant adverse impacts ... (PR#549 p5; PR#550 p5)”.

This is counted as DFN and LKFN raising SAI once each. It is assumed that the 2 document references refer to the two distinct ideas. I.e. do not over-count by multiplying the participation behaviour by 2 document references.

6.7 Multiple statements and multiple Participants

However, if there are multiple statements of participation behaviour and multiple participants, all the statements are attributed to each participant.

E.g. Project 2, page 212 REA.

the first round of information requests, parties including DFO, DFN, Environment and Climate Change Canada (ECCC) and Parks Canada requested additional details about when blasting was likely to occur, and if CanZinc had considered the potential indirect effects of blasting on fish and fish habitat, including changes to surface and shallow groundwater flow, and increased sedimentation (PR#200 pp2/70; PR#200 pp 29/70).

The multiple questions are attributed to each participant because I infer from the REA that all the parties requested these details. This may over-count the number of questions by each participant. However, there is no other way to know from this wording which participant asked which question. Therefore, they are all attributed to each participant.

6.8 Unspecified number of but plural “Questions”, “commitments”, “recommendations” = 2; “Concerns” = 1

“Many **questions**” is counted as 2 because it is plural. E.g. Project 1, page 74 REA.

If the REA does not specify the number of **commitments** but states the Proponent made commitments, this is counted as 2 because it is plural.

A participant making “**recommendations**” is counted as **2** because it is plural.

However, if the REA states “**concerns**”, this is assumed to be **1** because if one has concerns, this can be more like 1 concern. This avoids over-counting concerns.

## 7. Decision rules for identifying participation behaviour (Explanatory variables)

### 7.1 **Reject project (explanatory variable)**

**Rule 1:** Code “Reject” as 1 if the REA states the participant does not want the project or wants the project to be rejected.

**Rule 2:** Code “Reject” as 1 even if the word “reject” is not used but the meaning is the same.

E.g. Project 1 (GNWT TASR) 5.3.3. Youth: “and did not want the Project to go ahead” is counted as Whati community reject = 1.

**Rule 3:** Do **not** code rejection as a recommendation as well.

This is to avoid double counting.

**Rule 4:** Apply rules for Intensity to counting the number of times Reject has been raised.

I.e. this variable *implicitly* includes intensity.

### 7.2 **SAI (explanatory variable)**

Table A2.6: Summary of Rules for counting participants raising SAI (explanatory variable)

<b>Rule 1:</b> Code SAI as <b>1</b> if a participant explicitly states that the project will likely cause SAI (or less restrictive variations).
<b>Rule 2:</b> Code SAI as <b>0</b> if a participant does not state any of the above.
Ambiguity between raising SAI and raising concerns.
<b>Rule 3:</b> Code current Concerns of SAI as raising SAI.
<b>Rule 4:</b> Code evidence of past SAI as Concern.
<b>Exception to Rule 4:</b> for Cumulative impacts, code past SAI as raising SAI.
<b>Rule 5:</b> Count Synonyms to “adverse impacts” but not exact wording as Concerns.
<b>Rule 6:</b> Apply rules for intensity for counting the number of times SAI has been raised.

The strict legal test that the Review Board must meet is whether the project will *likely* cause SAI. I define the variable less restrictively because participants might want to express that the project will likely cause SAI but do not do so in the exact terms of the legal test.

**Rule 1:** Code SAI as **1** if a participant explicitly states that the project:

- a) The clearest case: “likely to cause SAI”, “will cause SAI”, “would cause SAI”, “extremely likely to cause SAI”.
- b) Less than “likely”: “could result in SAI”, “there is the potential for SAI”, “concerns about SAI”, “may be a cause of [SAI]”, “there is a risk of [SAI]”.
- c) Without “significant”: “would likely be adverse effects”, “will ... adverse effect”, “would have an adverse impact”, “is causing adverse impacts”, “has already experienced some of these adverse effects”, “expressed fears of ... potential adverse impact”.
- d) Without “adverse” because it is assumed implicitly: “has resulted in significant impacts”, “effects ... are significant”, “suffered irreversible ... impacts”, or
- e) Less than “likely” and without “significant”: “could be adversely affected”, “potential for an adverse impact”, “could potentially cause adverse impacts”, “can result in adverse socio-economic impacts”.

Rule 2: Code SAI as 0 if a participant does not state any of the above.

#### Weakness of rules

This inclusive definition *over*-estimates the degree to which participants state the project will (likely) cause SAI on the issue. I argue this is justifiable because the alternative decision-rule would be too restrictive.

#### Ambiguity between raising SAI and raising concerns

The line between raising SAI and raising concerns can be ambiguous.

#### Rule 3: Code current Concerns of SAI as raising SAI

E.g. Project 1, page 246 REA. “The TK Study states that Elders ... are **concerned** that the Project **will** have **adverse impacts** on wildlife ...” is counted as SAI = 1.

#### Rule 4: Code evidence of past SAI as Concern

E.g. Project 1, page 246 REA. “Elders related their experiences with the construction of Highway 3 from Behchoko to Yellowknife as an example of the adverse impacts from road development ...” is counted as a **concern** instead of SAI, because the participant is not saying there will be SAI about the current project.

The reason is to avoid over-counting SAI. When in doubt, I err on the side of counting more concerns than raising SAI.

#### Exception to Rule 4: for Cumulative impacts, code past SAI as raising SAI

However, when the issue is “**cumulative impacts**”, statements of **past SAI** are counted as **SAI**. **Synonyms** to SAI but without the exact wording are still counted under “**concerns**” to avoid over-counting SAI.

E.g. Project 3, pages 110 REA.

In its technical report, the LKDFN observes that the 95% reduction in the Bathurst herd’s population from the 1980s to present has already lead to significant impacts for traditional land users due to harvest restrictions. The impacts of the Jay Project are significant to the LKDFN because even small additional impacts from the Jay Project to caribou may inhibit herd recovery. This would result in the continued inability of the community to practice subsistence harvesting for food and continue to inhibit the community’s cultural practices (PR#521 p5).

This is counted as LKDFN SAI = 4 because of 4 distinct ideas: “has already led to significant impacts”, “due to harvest restrictions”, “impacts ... are significant”, “because ...”.

#### Rule 5: Count Synonyms to “adverse impacts” but not exact wording as Concerns

Words with similar meanings to “adverse impacts” such as “may harm” are counted as a concern, instead of raising SAI, because it does not fit the exact language of “adverse impacts”.

The first reason is to avoid over-counting SAI, which is a very specific term that the *MVRMA* mandates the Review Board to decide.

The second reason is that I am not qualified to evaluate if that concern amounts to SAI. Decision-rules should be guided by how the Review Board makes decisions. The Review Board determines if there will likely be SAI by weighing the evidence of *all* predicted impacts and deciding if the *total* predicted adverse impacts exceed the significance threshold (Ehrlich & Ross, 2015). Therefore, I code the statements as “concerns”, and let the regression tell us if raising more concerns influenced the Review Board to decide SAI.

Thus, only when the participant explicitly states there will be “adverse impacts” or its variations (a to e above) is it counted as raising SAI.

#### Weakness of rule

This rule *over*-counts Concerns and *under*-counts participants raising SAI. Given the special meaning of SAI, I argue this is justifiable. This weakness is addressed by creating a variable that adds these together (e.g. SAI, SPC, and Concerns intensity).

#### Rule 6: Apply rules for intensity for counting the number of times SAI has been raised.

I.e. this variable *implicitly* includes intensity.

### **7.3 SPC (explanatory variable)**

Table A2.7: Summary of Rules for counting participants raising SPC (explanatory variable)

<b>Rule 1:</b> Code SPC as 1 if a participant explicitly states the project will cause “significant public concern” or “public concern”.
<b>Rule 2:</b> Code SPC as 0 if a participant does not state the above.
Ambiguity between raising (S)PC and raising concerns
<b>Rule 3:</b> Count expressions as Concerns if the participant does not explicitly state there will be “public concern”.
<b>Rule 4:</b> Apply rules for intensity for counting the number of times SPC has been raised.

The strict legal test that the Review Board must meet is whether the project will *likely* cause (S)PC. I state (S)PC because it is unclear whether the test is Significant Public Concern or just Public Concern. The *MVRMA* and the Review Board website differ on this.

I define the variable less restrictively than “will likely cause (S)PC” because participants might want to express that the project will likely cause (S)PC but lack the legal knowledge to express it exactly so.

Rule 1: Code SPC as 1 if a participant explicitly states:

- a) The clearest case: “will likely cause SPC”, or
- b) Without “significant”: “this is a cause of public concern”.

E.g. Project 1, page 79 REA. “Whati residents expressed some **public concern** about the effect of an influx of newcomers to the feeling of the community and to safety”. This is counted as the Whati public raising (S)PC = 1.

Rule 2: Code SPC as 0 if a participant does not state the above.

Weakness of decision rule above

This *over*-estimates the degree to which participants state the project will (likely) cause SPC by including statements of “public concern” without significant. However, this is appropriate because it is unclear if the legal test is SPC or PC.

Ambiguity between raising (S)PC and raising concerns

Rule 3: Count expressions as Concerns if the participant does not explicitly state there will be “public concern”

The first reason is to avoid over-counting (S)PC, which is a very specific term that the *MVRMA* mandates the Review Board to decide. When in doubt, I err on the side of counting more concerns than (S)PC.

The second reason is that I am not qualified to evaluate if that concern amounts to SPC. The Review Board determines if there will likely be SPC based on myriad factors. Therefore, I code the statements as “concerns”, and let the regression tell us if raising more concerns influenced the Review Board to decide SPC.

Thus, only when the participant explicitly states there will be (significant) “public concern” is it counted as raising SPC.

#### Weakness of rule

This rule *under*-counts SPC and *over*-counts concerns. The weakness is addressed by creating a variable that adds these together (e.g. SAI, SPC, and Concerns intensity).

Rule 4: Apply rules for intensity for counting the number of times SPC has been raised.

I.e. this variable *implicitly* includes intensity.

#### **7.4 Not SAI (explanatory variable)**

Rule 1: Code Not SAI as 1 if a participant states:

- a) Clearest case: “is not likely to cause SAI”, “does not anticipate SAI”.
- b) Without “significant”: “will not adversely affect”, or
- c) Without “adverse” because it is assumed implicitly: “not likely to have significant impacts”.

#### Weakness of rule

By including cases other than the clearest case, this inclusive definition *over*-estimates the degree to which participants state the project will not (likely) cause SAI.

I only count “Not SAI” if a participant explicitly states there will be no SAI.

I do not count two other scenarios because I cannot assume they imply the participant states there will be not SAI:

First, the REA states a participant did not express SAI.

Second, the REA is silent on a participant.

This *over*-counts “Not SAI” only when the REA explicitly states it and *under*-counts “Not SAI” in the other two scenarios. However, I cannot infer Not SAI from silence.

Rule 2: Apply rules for intensity for counting the number of times Not SAI has been raised.

I.e. this variable implicitly includes intensity.

### 7.5 Not SPC (explanatory variable)

Rule 1: Code Not SPC as 1 if a participant states:

- a) Clearest case: there is no Significant Public Concern
- b) Without “significant”: there is no Public Concern

Rule 2: Apply rules for intensity for counting the number of times Not SPC has been raised.

### 7.6 Number of concerns

Table A2.8: Summary of Rules for counting the “Number of concerns” raised by participants

<b>Rule 1:</b> Concerns are with respect to the Project going ahead.
<b>Rule 2:</b> Definition of concern used in this research. “Concern” is defined very broadly here, including every expression of distinct ideas against the project or Proponent or process, excluding other types of participation behaviour (e.g. question, reject project, recommendation, and such). “Concern” includes every assertion of evidence in support of one’s own position (against the project, Proponent, or process) instead, including assertions of what is true or important instead.
<b>Rule 3:</b> A participant expressing a distinct idea is counted as expressing a “concern” if: The REA states the participant was “concerned” or “raised concerns” or had “issues” or similar words, or The REA states the participant was “worried”, “anxious”, “dissatisfied”, had “fears”, and other synonyms, or Statements <i>of</i> the actual concern without using the words “concern”, or Assertions of what is true or important instead (assumed to oppose the Proponent’s approach, which likely omits these), or Assertions of alternative approaches, or Assertions of information in support of own position (against Proponent’s position), or Concerns about <i>past developments</i> are also counted as concerns.
<b>Rule 4:</b> Ambiguity between Concern and Recommendation. Please see Recommendations below.
<b>Rule 5:</b> Do <b>not</b> count the number of times the concern has been raised.

Rule 1: Concerns are with respect to the Project going ahead

“Concerns” are with respect to the Project going ahead. “Not concerned” is with respect to the Project going ahead.

This is clarified because sometimes, the REA states the Proponent has concerns. However, the Proponent may have “concerns” about other participants raising concerns about the project. Those Proponent “concerns” are coded as Proponent “Not concerned” (with the project going ahead).

#### Other definitions of “concern”

The Review Board stated in a 2006 Reference Bulletin that it views public concern as widespread “anxiety” or “worry” (pp. 8-9).

The Reference Bulletin defines adverse as “undesirable, damaging or injurious” (p. 8).

The Merriam-Webster dictionary defines “concern” as “a matter that causes feelings of unease, uncertainty, or apprehension”. Its synonyms include agitation, anxiety, fear, nervousness, worry.

#### Rule 2: Definition of concern used in this research

“Concern” is defined very broadly here, including every expression of distinct ideas against the project or Proponent or process, excluding other types of participation behaviour (e.g. question, reject project, recommendation, and such).

“Concern” includes every assertion of evidence in support of one’s own position (against the project, Proponent, or process) instead, including assertions of what is true or important instead.

The rationale for this broad definition is the assumption that these pieces of information will influence the Review Board’s decision-making.

#### Rule 3: A participant expressing a distinct idea is counted as expressing a “concern” if:

- a) The REA states the participant was “concerned” or “raised concerns” or had “issues” or similar words, or
- b) The REA states the participant was “worried”, “anxious”, “dissatisfied”, had “fears”, and other synonyms, or
- c) Statements of the actual concern without using the words “concern”, or

E.g. Project 1 (GNWT TASR), 5.3.2.

“The Tlicho Government and Community Government of Whatì acknowledged the likelihood that social pressures would increase when the road initially opens”.

This is counted as 1 concern each to TG and CGW.

- d) Assertions of what is true or important instead (assumed to oppose the Proponent's approach, which likely omits these), or

E.g. Project 1, page 136 REA.

“importance of the range plan was emphasized in the [TG] technical report”.

This is counted as 1 concern.

- e) Assertions of alternative approaches, or

E.g. Project 1, page 147 REA.

“the NSMA, YKDFN, and Tłıchǫ Government did provide evidence of what a meaningful study area would be for assessing effects to its members' harvesting.”

This is counted as 1 concern each, because it is evidence against the project or Proponent's approach.

- f) Assertions of information in support of own position (against Proponent's position), or

E.g. Project 2, 5.1.3.

The Review Board's consultant explains the factors it considered in reaching its conclusion that the Proponent's approach is inadequate.

These factors are included as “concerns” because they are evidence against the Proponent.

- g) Concerns about *past developments* are also counted as concerns

A counterargument might be that these concerns should not be counted toward *this project*, i.e. counting them inflates the number of concerns. However, they are included because the 2006 Review Board Reference Bulletin says it may help detect if public concern exists by considering if a history of concerns exists about the area or the type of project has created past problems, among other factors (p. 11). Moreover, they are stated in the REA and are assumed to affect a reader. Concerns about past developments may also legitimately cause a participant to be concerned with the current proposed development. Furthermore, Sandlos and Keeling (2016, p. 284) stated that Indigenous participants can include concerns about past developments' negative impacts as part of articulating their concerns with the specific project. Ellis (2005, pp. 71-72) also found that TK experts may speak holistically and broadly rather than specifically about the proposed development project, but those broad statements are still relevant to the specific project.

Rule 4: Ambiguity between Concern and Recommendation. Please see Recommendations below.

Rule 5: Do **not** count the number of times the concern has been raised.

The rationale is that it is counted in Concerns intensity.

#### Weaknesses of rules

Differences in gravity of concerns are not captured. E.g. a neutrally stated concern and a very emotionally stated concern are counted the same.

Currently, concerns about the project, Proponent, and process are not distinguished.

Furthermore, the dataset does not distinguish between types of concerns: a) due to past negative experience, b) due to fear or risk of future negative impacts, c) uncertainty or lack of information and other types. Future research can investigate these distinctions.

#### **7.7 Concerns intensity = $\sum$ (concern<sub>i</sub> \* intensity)**

**Rule 1: Apply rules for intensity for counting Concerns intensity.**  
I.e. this variable *explicitly* includes intensity.

#### **7.8 Not concerned**

Table A2.9: Summary of Rules for counting “Not concerned” raised by participants

<b>Rule 1:</b> Count “Not concerned” as 1 if a participant is not concerned, supports the project, states benefits of the project, is concerned if the project does <i>not</i> proceed, or expresses distinct ideas that suggest it is not concerned about the project.
<b>Rule 2:</b> Supporting commitments is not counted as “Not concerned”.
<b>Rule 3:</b> If the participant’s end position <i>on a matter</i> is “Not concerned”, count “Not concerned” and do not count previous concerns <i>on that matter</i> .
<b>Rule 4:</b> If the participant’s end position <i>on a matter</i> is “Concerned”, count “Concerns” and do not count previous “Not concerned” <i>on that matter</i> .
<b>Rule 5:</b> Apply rules for Intensity for counting the number of times “Not concerned” has been raised.

Rule 1: Count “Not concerned” as 1 if a participant is not concerned, supports the project, states benefits of the project, is concerned if the project does *not* proceed, or expresses distinct ideas that suggest it is not concerned about the project.

E.g. Project 1 5.3.4. “[TG] believes it has the necessary tools at its disposal to manage any Project-related adverse impacts” is counted as 1 Not concerned.

### Weaknesses of definition

I only count “Not concerned” if the REA states a participant is not concerned.

I do not count two other scenarios because I cannot infer they mean the participant is not concerned: First, the REA states a participant did not raise any concerns. Second, the REA is silent on a participant.

The weakness is that this approach *over*-counts “Not concerned” only when the REA explicitly states it and *under*-counts “Not concerned” in the other two scenarios. However, I argue it is justifiable because I cannot infer silence to mean Not concerned. Furthermore, I believe a participant explicitly stating they are Not concerned is stronger than a participant not saying anything.

Rule 2: Supporting commitments is not counted as “Not concerned”.

A participant can support commitments *precisely because they are concerned with the project* and they want the commitments to safeguard against negative consequences.

Rule 3: If the participant’s end position on a matter is “Not concerned”, count “Not concerned” and do not count previous concerns on that matter.

If a participant initially raised concerns on a matter but states they are no longer concerned on that matter at the end of EA, only count the “Not concerned”.

E.g. Project 1 page 213 REA. “Elders were concerned” ... but in the end “Elders were satisfied by the trip to see the culvert locations”. This is counted as Not concerned = 1.

E.g. Project 2, page 177 REA. “The NBDB closing arguments indicated that NBDB knows there is potential for spills to contaminate water, but that NBDB believes CanZinc will build and operate the Project in a safe manner (PR#548 p4).” This is counted as NBDB Not concerned = 1.

The earlier concerns on the matter are not counted because doing so would cancel out the “Not concerned” at the end and dilute the fact the participant here states they are Not concerned in conclusion. Furthermore, the Review Board’s analysis often relies on the participant’s end position. Finally, such situations are rare.

This rule does not apply if the “Not concerned” and “concern” go to different matters. Count the concerns for the other matters.

Rule 4: If the participant’s end position on a matter is “Concerned”, count “Concerns” and do not count previous “Not concerned” on that matter.

If a participant initially raises “Not concerned” but concluded “concerns” on a matter, only the latter concerns are counted.

The reason is that alternatively, if the initial “Not concerned” is counted too, the concern in the end would be diluted.

This rule does not apply if the “Not concerned” and “concern” go to different matters. Count the initial “Not concerned” for the other matters.

Rule 5: Apply rules for Intensity for counting the number of times “Not concerned” has been raised.

I.e. this variable *implicitly* includes intensity.

### 7.9 Number of recommendations led

Table A2.10: Summary of Rules for counting “Number of recommendations led”

<b>Rule 1:</b> Count explicitly stated “Recommendations” and “Suggestions” as Recommendations.
<b>Rule 2:</b> Count “requests” as Recommendations, except if they are information requests.
<b>Ambiguity between Concerns and Recommendations</b> <b>Rule 3:</b> Counting beyond explicitly stated “Recommendations”. <b>Concerns</b> include statements that something is wrong with the Project or approach and statements that something is “ <b>important</b> ”. The line between Concerns and Recommendations is drawn at “important”. <b>Recommendations</b> include statements that something “ <b>should</b> ” be done, “ <b>needs</b> ” to be done, “ <b>must</b> ” be done, is “ <b>required</b> ”, is “ <b>necessary</b> ”, “ <b>critical</b> ”, or “ <b>wants</b> ” something, something should be a certain way, something should be done, and such.
<b>Rule 4:</b> Count distinct ideas in Recommendations as separate Recommendations; Ignore Recommendation numbers.
<b>Rule 5:</b> Break bullets under Recommendations into distinct ideas and count as separate Recommendations.
<b>Rule 6:</b> Count additional clauses in Recommendations as separate Recommendations, unless they are a reason for a Recommendation (see below).
<b>Rule 7:</b> Count Reasons for Recommendations as Concerns.
<b>Rule 8:</b> Do not apply the Rules for Intensity to “Number of recommendations led”. Just count the distinct ideas.

Rule 1: Count explicitly stated “Recommendations” and “Suggestions” as Recommendations.

Rule 2: Count “requests” as Recommendations, except if they are information requests.

See “Ambiguity between Questions and Recommendations” under Questions.

### Ambiguity between Concerns and Recommendations

Ambiguity between Concerns and Recommendations is rectified when they are combined in the most inclusive version of the Oppose variable.

Rule 3: Counting beyond explicitly stated “Recommendations”.

**Concerns** include statements that something is wrong with the Project or approach and statements that something is “**important**”.

The line between Concerns and Recommendations is drawn at “important”.

**Recommendations** include statements that something “**should**” be done, “**needs**” to be done, “**must**” be done, is “**required**”, is “**necessary**”, “**critical**”, or “**wants**” something, something should be a certain way, something should be done, and such.

The reason for this “inclusive” approach to counting “Recommendations” is to count which Recommendations became measures. The alternative decision-rule (counting should/must/need and such as concerns) would not allow this.

The disadvantage of this decision-rule is *over*-counting recommendations beyond what the REA explicitly calls “recommendations”. Therefore, the gap between Recommendations made and Recommendations that became measures or suggestions is also over-estimated. It is also difficult to discern if a statement is a concern or a recommendation. However, this prevents over-counting concerns.

E.g. Project 1, page 75 REA. “NSMA **called for** clear guidance” is counted as 1 recommendation.

E.g. Project 1, page 77 REA. “[CGB] **expressed a desire to be part** of the discussion on emergency response” is also counted as a recommendation. In fact, the Review Board made it into a Measure.

E.g. Project 1, page 80 REA. “**highlighted that in-migration modeling for Whati ... is critical**” is counted as 1 recommendation.

E.g. Project 1, page 137 REA. “WRRB **argued that the [WRMA] is the appropriate scale**” is counted as 1 recommendation.

E.g. Project 1, page 194 REA. “described **ways proposed by Tlichu Elders to mitigate adverse impacts**” is counted as 1 recommendation.

E.g. Project 1, page 200 REA. “in the view of the WRRB, an **alternative approach** to the lack of completed plans is to expand and intensity mitigation” is counted as 1 recommendation.

E.g. Project 1, page 166 REA. “[TG] stated ... increased predation risks that result ... **should be considered**” is counted as 1 recommendation.

Please see Appendix 3 List of specific coding decisions for case-by-case evaluations.

Rule 4: Count distinct ideas in Recommendations as separate Recommendations; Ignore Recommendation numbers.

Unlike “concerns”, “Recommendations” and “Commitments” are numbered in the REA. This decision-rule ignores the numbers and splits “Recommendations” open into “distinct ideas”. The reason is to be consistent with other types of participation.

An alternative decision-rule (counting Recommendation numbers instead of distinct ideas) would overcount concerns, SAI, and such, and under-count recommendations.

One counterargument is that it is hard to compare this definition of “Recommendations” with Measures, which combine multiple distinct ideas into 1 Measure. However, the variable “Recommendations that became Measures” will rectify this difference and provide a better indication than comparing “Recommendations” with “Measures”.

Rule 5: Break bullets under Recommendations into distinct ideas and count as separate Recommendations.

Rule 6: Count additional clauses in Recommendations as separate Recommendations, unless they are a reason for a Recommendation (see below).

Rule 7: Count Reasons for Recommendations as Concerns.

The rationale is to avoid “inflating” the number of Recommendations. Furthermore, the nature of many “reasons” for Recommendations are Concerns themselves. Also, “concerns” is defined broadly to include any assertions against the Project.

The disadvantage is this separates “reasons” for Recommendations from Recommendations. Therefore, the “forcefulness” behind the Recommendation is separated from the Recommendation.

However, the alternative decision-rule of counting “reasons” for Recommendations under Recommendations would “inflate” the number of Recommendations. This would be misleading because “Recommendation” is a very specific type of participation behaviour.

E.g. Project 1, page 74 REA.  
Project 1, page 75 REA.  
Project 1, page 80 REA.  
Project 1, page 172 REA.

Rule 8: Do not apply the Rules for Intensity to “Number of recommendations led”. Just count the distinct ideas.

7.10 **Recommendations intensity led** =  $\sum$  (number of recommendations led \* intensity)

Rule 1: Apply the rules for Intensity to count the number of times all recommendations led have been made.

I.e. this variable *explicitly* includes intensity.

7.11 **Number of recommendations supported**

Rule 1: This variable is the number of recommendations from another participant that a participant supports. All rules for “Number of recommendations led” apply.

Rule 2: Do not apply the rules for Intensity for this variable.

7.12 **Recommendations intensity supported** =  $\sum$  (number of recommendations supported \* intensity)

Rule 1: Apply the rules for Intensity to count the number of times all recommendations supported have been made.

I.e. this variable *explicitly* includes intensity.

7.13 **Value or use**

Table A2.11: Summary of Rules for counting participants raising Value\_or\_use

<b>Rule 1:</b> Code Value_or_use as 1 if a participant states “something” is important, valued, or used.
<b>Rule 2:</b> Count statements that “something” is important under Value_or_use only if the “something” is related to the physical environment: e.g. caribou, water quality and such.
<b>Rule 3:</b> Regarding “something is used”, humans do not have to be the only ones using it.
<b>Rule 4:</b> Apply rules for intensity for counting the number of times Value or use has been raised.

Rule 1: Code Value\_or\_use as 1 if a participant states

- a) Something is **important**, or
- b) Something is **valued**, or
- c) Something is **used**.

E.g. an Indigenous participant may say water quality is important.

Another participant may say they use the area for harvesting.

This variable is created to avoid inflating concerns. E.g. one may state that water quality is important 10 times yet have no concerns about the *specific project* when it comes to water quality. Not counting such statements as concerns is to avoid inflating concerns.

Rule 2: Count statements that “something” is important under Value or use only if the “something” is related to the physical environment: e.g. caribou, water quality and such.

In contrast, statements that “something” is important where the “something” is a consideration are counted as concerns. E.g. a statement that a “range plan” is important is counted as a concern, because it speaks to a consideration that the participant asserts as being important.

Rule 3: Regarding “something is used”, humans do not have to be the only ones using it.

E.g. Project 1, page 154 REA “the Tłı̨chǫ Government also identifies that boreal caribou (t̨ǫdzı) use the area” is coded as Value or use = 1.

Rule 4: Apply rules for intensity for counting the number of times Value or use has been raised.

I.e. this variable *implicitly* includes intensity.

Weakness of definition

This construction of variables separates value statements from concerns, and concerns from recommendations. Future research may investigate the number of value statements that drove a concern, and the number of concerns that drove a recommendation, and then what became of that recommendation. This would require a concern-level analysis, which is far more voluminous than an issue-level analysis.

Given Sandlos and Keeling (2016), which states that Indigenous Peoples sometimes express they value something as part of raising their concerns, Value or use and Concerns intensity may be combined as a variable. Indeed, this is done in the broadest definition of Oppose.

**7.14 Questions**

Table A2.12: Summary of Rules for counting participants raising Questions

<b>Rule 1:</b> Code Question as 1 for every distinct idea that a participant asks a question about or requests information about.
Ambiguity between Question and Concern
<b>Rule 2:</b> Code statements as Questions if the context suggests a participant asked a question.
<b>Rule 3:</b> Code statements as Concerns if it implies doubt instead of asking a question or seeking information.

### Ambiguity between Requesting information as Question or Recommendation

**Rule 4:** Code explicitly stated Recommendations as Recommendations. Else, code requests for information or assessments of impacts *earlier during* EA as Questions and code requests for information or assessments made nearer the *end* of EA or for *after* EA as Recommendations.

**Rule 5:** Apply rules for intensity for counting the number of times Questions have been raised.

Rule 1: Code Question as 1 for every distinct idea that a participant asks a question about or requests information about.

Information requests are counted as Questions.

Regarding seeking information, in Project 1, page 135 REA, “parties’ wishes to understand” is counted as a question.

### Ambiguity between Question and Concern

“Questioned” something can be a question in some cases but can be a concern in others.

### Questions

Rule 2: Code statements as Questions if the context suggests a participant asked a question.

E.g. Project 1, 5.3.4. “The Review Board **questioned** the Tłıchǫ Government and Community Government of Whatì on the stability of the funding mechanisms to support these commitments and whether the GNWT, as the developer, would be providing financial support to offset its project-related impacts. The Tłıchǫ Government replied in the public hearing that”. This is counted as a question because the context suggests the Review Board asked a question.

### Concerns

Rule 3: Code statements as Concerns if it implies doubt instead of asking a question or seeking information.

In contrast, in Project 1, page 133 REA. “**Questioned** if there are discreet boreal caribou” is counted as a concern, because it is later referred to as a “doubt”.

Similarly, in Project 1, page 198 REA. “WRRB **questions** the conclusion of the developer that cumulative impacts ... will be “small”” is counted as a concern, not a question, because it implies doubt instead of asking a question to seek information.

### Ambiguity between Requesting information as Question or Recommendation

Since I define the variable Question to include information requests, it can be ambiguous when to code a request for information as a Question and when to code it as a Recommendation. There is no perfect rule. The working rule is below. However, a list of coding decisions tracks specific situations. If any variables are mis-coded as Questions versus Recommendations, this is rectified using the version of Oppose that includes both in the variable.

Rule 4: Code explicitly stated Recommendations as Recommendations. Else, code requests for information or assessments of impacts *earlier during* EA as Questions and code requests for information or assessments made nearer the *end* of EA or for *after* EA as Recommendations.

The reason is that Questions or Information requests are usually for *during* EA while Recommendations are really meant for things to be done at the *end* of EA or *after* EA. I.e. Recommendations have a specific meaning in EA.

E.g. a participant can ask for information first during EA. This is coded as a Question. If the Proponent does not comply, the participant might make a formal Recommendation that they give such information. Although the nature of the request is the same (for information), it is coded as a Recommendation here, because the participant meant it as a Recommendation.

Furthermore, Recommendations are asking something to be done. If requests are for operations, which is *after* EA, these are counted as Recommendations.

#### Questions

E.g. Project 1, page 217 REA. The Adequacy statement “required ... assess ... [3 things]” is counted as the Review Board **Questions** = 3. The reason is that the Review Board is asking the Proponent to give information on these things *during* EA.

E.g. Project 1, page 276 REA. “ECCC request for baseline information” is counted as a **Question** because they first requested it. ECCC subsequently made a formal recommendation for the baseline information.

E.g. Project 2, page 89 REA. “requested baseline information on ... [3 bullets]” is counted as a **Question** because it was *during* EA. Furthermore, the Review Board told Parks Canada it could later suggest baseline requirements (i.e. make Recommendations). Therefore, these were counted as Questions.

E.g. Project 2, page 100 REA. “in a ... information request, [EC] requested a revised effects assessment of habitat loss” is counted as a **Question** because it is an information request.

#### Recommendations

E.g. Project 1, page 80 REA. “[TG] asked ... developer of the proposed NICO Mine for an in-migration study” is counted as a **Recommendation** because they are asking for someone else for something.

E.g. Project 2, page 220 REA. “requested baseline information” is counted as a **Recommendation** because it was followed by “warranted”, which is usually counted as a Recommendation along with “necessary”, “required”, “needed”, etc.

E.g. Project 2, page 174 REA. “requested a detailed monitoring plan for long-term impacts during operations” is counted as a **Recommendation** because it is asking for something to be done *during operations*, which is *after* EA.

E.g. Project 2, page 184 REA. “requested at least one more model to increase confidence in the current hydraulic model” is counted as a **Recommendation** because it is equivalent to a stated Recommendation asking for the same thing for the regulatory phase, which is *after* EA: “one recommended measure ... requesting ... conduct at least one supplementary hydrotechnical calculation ... during the regulatory phase”.

The decision between coding statements as Questions versus Recommendations requires case-by-case evaluation. Please see the list of specific coding decisions.

Rule 5: Apply rules for intensity for counting the number of times Questions have been raised.

I.e. this variable *implicitly* includes intensity.

## 7.15 Information statement

Rule 1: Code Information statement as 1 if a participant stated a piece of information that does not fit any other type of participation (e.g. concern, question, recommendation, and such).

These statements are often presumed to be neutral. It is hard to discern if they support or oppose the project.

These statements include clarifying statements.

These statements are recorded for a full account of participation, but not used in the definition of “Oppose” used in regression analysis.

E.g. Project 1 (GNWT TASR) 5.3.2. “[SSIS] identified 12 adverse ways the winter road **currently** affects the community”. This is counted as 12 information statements instead of concerns because they are about the status quo (current winter road). They are not about the proposed project, the all-weather road.

Rule 2: Apply rules for intensity for counting the number of times Information statements been raised.

I.e. this variable *implicitly* includes intensity.

## 8. Coding Proponent submissions

Table A2.13: Summary of Rules for coding Proponent submissions

<b>Rule 1:</b> Concerns and Not concerned are with respect to the Project going ahead.
<b>Rule 2:</b> Count only the Proponent’s <b>end position</b> regarding <b>concerns</b> and <b>Not concerned</b> .
<b>Rule 3:</b> Count only the Proponent’s <b>end position</b> regarding <b>SAI</b> .
<b>Rule 4:</b> Count Proponent’s Commitments, original mitigations at the start of EA, mitigation Measures proposed during EA, agreements during EA to do something, agreements to Recommendations, and changes to the project as Commitments.
<b>Rule 5:</b> For Commitments, count distinct ideas and ignore Commitment numbers.
<b>Rule 6:</b> For Commitments, do not count intensity.
<b>Rule 7:</b> Count only Commitments stated in the REA main text, not the Appendices.
<b>Rule 8:</b> Count actions as Commitments and mere statements as “Not concerned”.
<b>Rule 9:</b> Count commitments by other participants other than Proponent.

### 8.1 Rule 1: Concerns and Not concerned are with respect to the Project going ahead.

The REA might state the Proponent has concerns, e.g. with the Review Board’s consultant’s assessment in Project 2, heading 5. However, these are coded as Proponent “Not concerned” because they are in favour of the Project.

### 8.2 Rule 2: Count only the Proponent’s **end position** regarding **concerns** and **Not concerned**.

The Proponent sometimes admits many possible impacts. At the end, it states it is Not concerned. Only the end position is counted, to reflect its truest position. The previous possible impacts are counted as Information statements.

### 8.3 Rule 3: Count only the Proponent’s **end position** regarding **SAI**.

E.g. Project 1, page 276. The REA first states “[t]he developer predicted the **potential** for adverse impacts to nesting sites for bird species at risk along the right-of-way, at quarry stockpiles and on construction and maintenance camp structures”.

But then the Proponent clearly submits there will not be SAI.

This is coded as Proponent Not SAI = 1, and the previous “potential for adverse impacts” is counted as Information statements.

### 8.4 Rule 4: Count Proponent’s Commitments, original mitigations at the start of EA, mitigation Measures proposed during EA, agreements during EA to do something, agreements to Recommendations, and changes to the project as Commitments.

Commitments are a specific term used in EA. The Proponent may officially “commit” to doing something. This becomes recorded as a “Commitment” in the REA.

First, count commitments or “committed” to doing something as Commitments.

In addition, count the following as Commitments:

- a) Original mitigation Measures proposed by the Proponent at the start of EA
- b) Mitigation Measures proposed by the Proponent *during* EA
- c) Agreements *during* EA to do something
- d) Agreements to Recommendations
- e) Changes to the project *during* EA (E.g. Project 1, page 63).

8.5 Rule 5: For Commitments, count distinct ideas and ignore Commitment numbers.

8.6 Rule 6: For Commitments, do not count intensity.

Do not count the number of times the Proponent says it commits to something. The reason is that they will only do the action once.

8.7 Rule 7: Count only Commitments stated in the REA main text, not the Appendices.

Do not check the Appendix for the actual number of Commitments. The reason is that not all Appendices separate the commitments by heading and sub-heading. Classifying the Commitments in the Appendices into the corresponding headings and sub-headings would be a monumental task and involve a lot of room for error.

Admittedly, the weakness of the chosen decision-rule is an under-estimation of Commitments, sometimes substantially.

Future research can rectify this by checking the Commitments in the Appendices. However, the Commitments must be assigned to the appropriate issues meticulously.

8.8 Rule 8: Count actions as Commitments and mere statements as “Not concerned”.

Count agreements to do things as Commitments.

In contrast, count Proponent’s statements of being not concerned with the project or evidence in support of the project as “Not concerned”. This includes the Proponent not agreeing to recommendations.

8.9 Rule 9: Count Commitments by other participants other than Proponent.

## **9. Rules for coding Review Board’s decisions**

### **9.1 SAI (dependent variable)**

There are two types of (sub)headings:

- (1) the Review Board makes a SAI/SPC determination;
- (2) it is less clear that the (sub)heading is amenable to a SAI/SPC decision.

The decision rules for these two scenarios are described in turn.

#### Category 1: Decision rule for issues clearly subject to SAI/SPC determination

In general, SAI is coded as

= 1 if the Review Board decides the project will *likely* cause SAI on the issue *after* the Proponent makes any Commitments but *before* the Review Board imposes any mitigative Measures or Suggestions

= 0 if not

= . if not applicable (i.e. the question is about SPC, not SAI).

The strict legal test that the Review Board must meet is whether the project will *likely* cause SAI. I define the variable less restrictively to avoid being overly restrictive.

#### Rule 1: SAI is coded as = 1 if the Review Board states:

- a) The clearest case: “likely cause SAI”, “will cause SAI”, or
- b) Less than “likely”: “have the potential to cause SAI”, “could have SAI”, “may result in SAI”, or
- c) Without “significant”: “likely to have an adverse impact”, or
- d) Without “adverse” because it is assumed implicitly: “likely to cause significant impacts”, “will impact”, or
- e) Less than “likely” and without “adverse”: “potential to cause significant impacts”, “significant impacts ... could result”, or
- f) Less than “likely”, without “significant”, and without “adverse”: “has the potential to affect”, “might impact”, “may impact”, or
- g) If the REA does not explicitly state the SAI decision but states “to prevent SAI”, “to minimize [SAI]”, “there is insufficient mitigation to effectively mitigate”, “concerned that without [mitigative measures] in place ...”, or recommends Measures.

E.g. Project 1, page 178 REA. “[RB] will leave questions on monitoring ... to these qualified experts ... recommended ... as a **measure**” is counted as SAI = 1 because the Review Board recommended a measure.

E.g. Project 1, page 296 REA. “there is **insufficient mitigation** to effectively mitigate ...” is counted as SAI = 1 because the Review Board says as the Project stands, the mitigation is insufficient.

Rule 2: SAI is coded = 0 if the Review Board states:

- a) The clearest case: will not likely cause SAI or there will not be SAI, or
- b) Also: “would have no impact”, “would not significantly affect”, “[SAI] can be avoided if ... commitments are implemented”, “satisfied with ... mitigation Measures”.

Rule 3: SAI is coded = “.” if:

- a) The REA does not state the SAI decision and it is unclear.

E.g. Project 1, Heading 12 (Climate change). It is unclear what the Review Board decides. Therefore, SAI is counted as “.”.

- b) “cannot make findings of significance”.
- c) The Review Board states it cannot rule on it, e.g. matters outside its mandate.
- d) It is inapplicable, e.g. if the decision is about SPC instead of SAI.

Weaknesses of definition

The inclusive definition *over*-estimates the degree to which the Review Board finds SAI will be likely. However, I argue it is justifiable because it matches the inclusive definition for participants raising SAI.

Category 2: Decision rule for issues less clearly subject to a strict SAI/SPC determination

For other headings, it is less clear that it is amenable to a SAI/SPC decision. For example, these include consultation, boundaries, adequacy of submissions, and such.

The Review Board decides whether there is a problem with these headings but does not explicitly use the words SAI/SPC.

Rule 4: Assume these issues are SAI/SPC decisions too and code SAI = 1 if the Review Board decides there is a problem and code SAI = 0 if the Review Board decides there is no problem.

In general, where the Review Board decided things are “sufficient”, “satisfied”, “adequate”, and such, SAI is coded as 0.

In contrast, if the Review Board decided the Proponent “has not provided adequate information”, or there is no “adequate justification”, SAI is coded as 1.

E.g. for **Crown consultation**, the Review Board has decided “accepts consultation”, “was generally reasonable”, “is not convinced that the SDL8 should not proceed due to concerns”, and “Crown has the opportunity to further address”. These are coded as SAI = 0 even though they are not explicitly SAI decisions. The reason is that they are decisions by the Review Board as to whether there is a problem on the heading.

Another example is **participant funding**. Where the Review Board has decided “need for participant funding”, SAI is coded as 1.

For **community engagement**, where the Review Board decided “further community engagement is needed”, SAI is coded as 1. Where the Review Board decided they “did engage” and was “satisfied”, SAI is coded as 0.

### Weaknesses of definition

These issues are not strictly subject to SAI/SPC determination and increases the number of observations. However, since issues are labeled, these types of observations can be omitted if desired.

## **9.2 SPC (dependent variable)**

### Rule 1: Generally, SPC is coded:

= 1 if the Review Board decides the project will *likely* cause (Significant) Public Concern on the issue *after* the Proponent makes any Commitments but *before* the Review Board imposes any mitigative Measures or Suggestions

= 0 if the REA explicitly mentions SPC and determines it is 0

= . if not applicable (i.e. the question is about SAI, not SPC). This often happens when the REA does not mention SPC.

The legal test that the Review Board must meet is whether the project will (likely) cause (S) Public Concern. It is less clear if the test is “likely” and indeed if “Significant” is included because the *MVRMA* and the Review Board’s website differ. I define the variable less restrictively to avoid being overly restrictive.

Specifically, SPC is coded as =1 if the Review Board states:

- a) The clearest case: “will likely cause SPC”.
- b) Less than “likely”: “may SPC”, or
- c) Without “significant”: e.g. “are a source of public concern”, “recognizes the public concern”.

### Weakness of rule

This inclusive definition *over*-estimates the degree to which the Review Board decides there will be SPC. However, I argue it is justifiable because it matches the inclusive definition for counting participants raising SPC.

### **9.3 Number of Measures (dependent variable)**

**Rule 1:** Count the Number of Measures as stated by the REA for each issue.

I.e. do not break the Measures into distinct ideas, because each Measure combines multiple distinct ideas.

**Rule 2:** For EAs before 2005, count the Review Board’s “Recommendations” as Measures.

Since 2005, the Review Board has been using the language of “Measures” and “Suggestions”. Before then, the Review Board used the language of “Recommendations” and “Suggestions”. For those EAs, the Review Board’s “Recommendations” were counted as “Measures”, because they were distinguished from “Suggestions”.

**Rule 3:** For seven observations that are “0 with a caveat”, count the Number of Measures for the associated observation.

There are seven observations for which the REA states 0 Measures on this issue, but states that there are Measures imposed for other issues. The rule is to count the number of Measures in the associated issue and count it toward these observations. I.e. for these seven observations, do not count the number of Measures as 0. The reason is that the Review Board imposed 0 Measures for that observation, *because* Measures had been imposed elsewhere.

Table A2.14: Observations with “0” Measures in the REA but Measures on associated issue

Observation number	Project number	Year REA completed	Proponent	Project name	Issue_literal	Imposed number of Measures
18	2	2017	Canadian Zinc Corp	Prairie Creek All Season Road Project	traditional harvesting	5
46	3	2016	Dominion Diamond Ekati Corp	Jay Project	closure & reclamation	3
49	4	2014	De Beers Canada	Snap Lake Amendment Project	Lady of the Falls	2
92	7	2013	Fortune Minerals	NICO Project	caribou and caribou habitat	2
207	21	2004	Snowfield Development Corp	<u>Drybones Bay mineral exploration</u>	4.4.2. Burial Sites	5
208	21	2004	Snowfield Development Corp	<u>Drybones Bay mineral exploration</u>	4.4.3. Cultural Cumulative Effects	5
318	29	2002	Canadian	<u>Underground</u>	aquatic resources and	10

			Zinc Corp	<u>Decline and Pilot Plant</u>	habitat	
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#### 9.4 Number of Suggestions (dependent variable)

**Rule 1:** Count the number of Suggestions made by the Review Board for the issue.

Do not break into distinct ideas, which are multiple.

#### 10. Specific steps for eliciting data

The following four steps are applied to elicit the data:

- a) Read the REA; highlight salient parts.
- b) Write down the participation behaviour by issue in a Microsoft Word document, organizing by Participant and type of participation.
- c) Create the Microsoft Excel sheet.
- d) Write the list of coding decisions for specific situations.

#### 11. General weaknesses when identifying types of participation behaviour

It can be hard to classify statements into the “types” of participation. This is seen in the sections on Ambiguity between SAI and Concern, Ambiguity between Question and Concern, Ambiguity between Question and Recommendation, and Ambiguity between Concern and Recommendation.

Given the qualitative nature of the REAs, there can be no perfect classification into types of participation. The chosen decision-rules and their application are a best attempt given detailed analysis of the Mackenzie Valley EA process. However imperfect the attempt, it is still better than counting everything as “participation” and counting e.g. a Question equal to a Concern equal to a call for Rejection, and such. Ways to counteract this weakness include aggregating the different types of participation into 1 variable, as done in the broadest version of Oppose.

#### 12. Rationale for not using coding software (e.g. NVivo)

In addition to the limitations of automated content analysis acknowledged by McGetrick et al. (2017), NVivo and other automated search engines were not used for five main reasons.

First, not every Report was searchable. Some were uploaded as images and could not be searched. They would have to be converted to a searchable format and there could be conversion error.

The second reason is speed and accuracy. It is faster to read a REA from start to finish than to use the search function in NVivo. For example, searching for “suggest” identifies each

instance of “suggest”. However, using the search function in NVivo would then require manually reading each sentence or sentences surrounding that search result to evaluate if that instance really represents “suggest” as in “recommend” or something else. This requires jumping from “suggest” to “suggest” and takes the reader out of context. This can take more time reading the context around the search result to make a correct evaluation. In contrast, reading from top to bottom keeps the logical flow and increases accuracy in evaluation by keeping the right context.

The third reason is accuracy. Admittedly, any search program would search for words and their variations (different endings) more accurately than a human reader. However, the challenge comes in identifying all variations of how “concern”, for example, is expressed. That is, statements of concern exist in the REAs without the word “concern”. For example, leading words included “indicated”, “noted”, “it was INAC’s opinion”, “it was the view of” and others. Alternatively, no leading words existed, and the REA simply expressed a statement of concern in one sentence. I had to learn from reading each REA how it expressed statements of concern. Therefore, using the search function would require reading all reports to exhaustively identify all the different ways “concern” was expressed and then designing NVivo or other automated search programs to search for all these variations.

The most challenging part of data elicitation is evaluating what type of participation behaviour to code a statement given ambiguity. For example, “advised” can be stating something rather than recommending something. “Asked” can be a recommendation or a question. Therefore, while a search function might identify words quickly, the most challenging part is still the evaluation. Thus, the REAs were read manually to conduct this evaluation.

Fourth, it is hard to delineate which parts of the original REA represent which “distinct” ideas by coding the REAs in NVivo or other software. This is particularly true given the complexity of the detailed coding rules in Appendix 2. Instead, I argue that it is easier and clearer to highlight the REA but then write out the distinct ideas by Participant and by Type in a Microsoft Word document under the corresponding headings and sub-headings, which is what I did.

Last, the coding function in NVivo or other software was not used because even if the REA was coded by NVivo, the frequency of each variable under each *heading* or *sub-heading* would still have to be manually counted. Since the variables are not grouped together by Participant or by Type, this would take a long time and add room for error. Instead, I count the frequency of each variable in the Microsoft Word document, and create the Microsoft Excel sheet. The organization of participation by Participant and by Type in the Word document allows for a clearer picture of participation under that issue and faster and more accurate counting of each variable for entry into Excel.

### 13. Validity and inter-rater reliability

Regarding validity, this study did not use the eight ways to establish validity as recommended by Creswell and Creswell (2018) due to severe budget constraints with this project and because many of those methods are more appropriate for interview transcripts versus

Reports of Environmental Assessment. However, among those eight methods, I developed a deep understanding of the topic by spending a long time with the data. Regarding reliability, this study did not have another independent coder due to budget constraints again.

However, to increase validity, this study coded all 39 Reports at least 5 times each. The comprehensive refining and re-coding created the most comprehensive, detailed, and logical coding manual I could have produced. It is 46 pages single spaced. The extensive re-coding also maximized the accuracy with which the coding manual was applied. In addition, I created a very detailed Appendix 3, which lists specific or notable coding decisions. This 47 page single-spaced Appendix provides detailed guidance on many very difficult decisions, many of which had much ambiguity. Appendix 3 helped to increase the accuracy with which the coding manual was applied and also increased the consistency with which the coding manual was applied across coding decisions. Therefore, Appendices 2 and 3 go toward maximizing validity and setting the stage for maximum inter-rater reliability.

### Appendix 3: List of specific or notable coding decisions

All pages refer to REA.

#### Project 1 (GNWT TASR)

For this project only, where GNWT is the Proponent, code GNWT as the Proponent (see pages 68-69, etc.), except where it appears another department of GNWT is telling the Proponent what to do, in which case, code GNWT as GNWT.

Page 50. Did not code how GNWT, TG, and CGW identified benefits, because this is an introduction or topic sentence. The participants will state these more specifically later.

Page 50. Did not code that the Review Board agreed “that the Project will have a positive economic effect” because the Review Board “also expects that the Project would likely cause certain [SAI]”.

Page 51. Attributed “concerns ... identified during the Community of Whati **scoping session**” to “Whati com”, which stands for Whati community members.

Split 5 bullets of concerns into 10 distinct ideas, which were counted as 10 concerns.

Did not count potentially affected valued components because it is not part of the analysis.

Page 52. RB 8 questions because ToR: “eight subtopics ... required further assessment”

Page 52. 5.2.1 History of the project. Did not code anything because seemed to be REA analysis.

Page 53. Did not code any intentions of the project. Intentions are not impacts.

Page 53. Attributed “beneficial socio-economic impacts” to TG because in the same paragraph and some Public Registry document references are to TG.

Pages 53-54. Split 14 bullets into 29 distinct ideas, so TG Not concerned = 31.

Page 54. What TG did coded as Commitments.

Page 54. 5.2.3. Did not code the Information requests, because they are assumed to be topic sentences for more specific statements later.

Page 55. 5.2.3. Attributed “Whati Administrative Officer” to “CGW”. Split excerpt into 10 Not concerned.

Page 55. 5.3. Checked **PR#7 Appendix B**. This is the [SISS] Study “conducted for the [TG] and submitted by the developer”. This is attributed to the TG, because it was “conducted for” it.

Moving forward, **PR#7 Appendix B = TG SISS**, unless otherwise coded.

Page 55. 5.3. Checked **PR#96**. Attributed to both **TG** and **CGW**.

Page 55. 5.3. Checked **PR#273**. This is the Public hearing transcript. Attributed to Whati com because “In the community, people ...”.

Page 57. “[SISS] study ... identified 12 adverse ways the winter road” is coded as 12 Information Statements. They are not coded as concerns because the “winter road” is the status quo. The proposed project is the all-season road.

Page 57. However, “Study also outlined that these existing issues ... could be ‘magnified’ because of the all-weather road” is coded as 12 concerns from the TG SISS.

Page 58. Did not code second-to-last paragraph, because in the end, TG and CGW say the Project will improve 10 of the 12 harmful behaviours.

Coded this as 10 Not concerned for TG and CGW.

Did not code Table 5-2 because relies on the paragraph before saying “improve ten of the harmful behaviours”.

Page 63. “Some community members ... acknowledged the potential for increased drug and alcohol problems, but emphasized the roles of personal responsibility” is coded as Whati com Information statements because it is unclear if it is for or against.

Page 63. “A 2011 survey of Whati residents showed approximately 80% support for the road (PR#268). But of the 103 respondents, 26% expressed concerns over changes to bad behavior. Of those supporting the road, approximately 15% cited concerns over changes in social behavior.” Percentages in statements are not counted because they cannot be added with other counts of concerns.

Page 64. “The Tlicho Roads Steering Committee was formed in 2010 and the Whati Inter-Agency Working Group in 2013” is coded as 2 “Proponent” commitments, because they are what has been done. However, the next sentence “This long-term planning has allowed for the meaningful consideration of how a permanent highway would change ...” is not coded, because it is REA analysis.

Page 65. TG and CGW clarifying the commitments are counted as “Information statements” because they clarify, rather than state concern or not concern.

Page 66-67. Counted the 10 programs as 10 commitments.

Page 68. Family violence. GNWT has a number of initiatives ... counted as 7 Commitments, because GNWT is Proponent and these programs are like mitigations.

Page 68. “the Review Board heard from the GNWT ... about a new strategic framework”. This is counted as 1 commitment because the GNWT is the Proponent.

Pages 68-69. Mind and spirit strategic framework. Proponent Not concerned = 13.

Page 70. PR#273 p59 attributed to Unidentified participants because PR#273 is the Public hearing transcript but the text in the REA do not prompt who raised this.

Page 70. “The GNWT has anticipated two main work camps ... 150 people” is coded as Proponent Information statements = 3 because it is unclear if these are concerns or Not concerns.

Pages 70-72. Women’s safety at construction camps. Proponent Not concerned = 8.

Pages 71-72. Coded 5 bullets as 10 distinct ideas = 10 concerns.

Page 72. “need to provide education” and “awareness ... vital” = 2 other Recommendations.

Page 72. Attributed “concern from youth and parents” to Whati com, although cited to PR#7 Appendix B (TG SISS).

Attributed “Female elder” and “Whati councillor” to Whati com, although cited to PR#7 Appendix B (TG SISS).

Page 74. Attributed “reasons” for recommendations from TG ICIC report to TG ICIC concerns.

Page 74. Road safety. Proponent information statements = 10.

Page 74. Wildlife collisions. Didn’t count the “magnitudes” of wildlife killed (113, 74, 15, 22) because other Participants didn’t raise a countering number. Including just these numbers (and which one) would increase the number of concerns by the Proponent by so much. It would skew this number. Therefore, counted as 8 concerns.

Page 76. Attributed sentence cited to PR#96 p82 to CGW because the Appendix shows PR#96 is TG/CGW Information Request response.

Page 77. PR#96 = TG/CGW IR response. Therefore, attribute to both TG and CGW.

Page 77. Although it says [TG] “made the following commitments”, they are coded as CGW commitments, because they read: [CGW] will work with ... and [CGW] will continue public education ...

Page 80. “it had not considered the effect” = Proponent information statement.

Page 80. “highlighted that in-migration modeling for Whati in “road alone” and “road and mine” scenarios is critical” is counted as 2 Recommendations to TG SISS.

“[TG] asked ... developer of the proposed NICO Mine for an in-migration study” is counted as a Recommendation instead of a Question, because they are asking for someone else to give a study.

The reasons for that Recommendation are counted under TG concerns (“to understand ...”).

Page 81. Counted only the end position by TG and CGW (will result in a ‘net benefit’) as Not concerned = 1. Omitted previous concerns *on the same matter*. However, counted previous concerns on a different matter (see earlier paragraph).

Page 82. Attributed statements cited to PR#96 where it does not say if it’s CGW or TG to both CGW and TG.

Page 83. Attributed “additional infrastructure concerns for Whati” to TG SISS Study, because unclear if they are from Whati com or CGW.

Page 83. Attributed “letters of support were provided by the respective communities” to CGB and CGW Not concerned 1 each because assumed communities of Behchoko and Whati here referred to the Community Governments of each.

Page 83. Last paragraph. Attributed to Proponent only, because unclear which to CGW too.

Page 85. “Former Chief Jimmy Nitsiza” is assumed to be Tlicho Government because it is in the same paragraph and has the same Public Registry document reference.

Page 86. “four of the 13 measures listed require additional funding” is attributed to TG concerns = 4. “nine measures are covered through existing budgets” is counted as 9 TG Not concerned.

Page 87. Coded “[TG] does not anticipate any negative impacts ...” as TG Not SAI = 1.

Page 87-88. Project economics and the NICO Project. First 3 paragraphs not coded because = REA analysis.

Page 90. Attributed “[NWT] Bureau of Statistics reported ...” to CGW and TG because this study was in the past (2013) and references CGW and TG.

Page 91. “In Whati, it was estimated that 78% of residents relied on country foods in 2009” is attributed to TG SISS Study because it’s unclear if it’s to CGW or Whati residents.

“Elders are already recognized as being economically marginalized” is attributed to TG SISS Study, because it is NOT FROM Elders.

In the next sentence, “According to Elders, the largest Project risks come from “the potential for lack of support from younger generations, and decreased food security” (PR#110 ...)” is attributed to Whati com concerns = 2, because it says it’s according to Elders.

In the next sentence, “Elders feel they will be” is attributed to “Whati com” despite referencing the TG SISS Study because the REA states the Elders as exhibiting some participation behaviour.

Page 92. Counted “[TG] concluded that the Project **will not adversely affect** harvesting” as TG Not SAI = 1.

Page 92. Although it says TG makes commitments, they are attributed to the specific parties making them. E.g. CGW, TG and Proponent, and TG.

Page 108. 5.4.11. Review Board conclusions. Counted as SAI = 1 because “will have a short-term [SAI] on community well-being ... unless additional mitigation occurs” and Measures and Suggestions. Omitted “Over the long-term, [RB] concludes that the Project will improve the overall well-being”. Also, the Review Board “concludes that the significant adverse short-term impacts from the project can be mitigated through the addition of the measures below”. Therefore, coded SAI (Dependent variable) as 1.

Page 119. 6.1. “listed as threatened under the National and Territorial SARA” not coded because assumed covered in detail in subsequent subheadings and because this subheading did not have a SAI decision.

Page 121. 6.2. “[TG TK Study], Elders expressed concern” is not coded because this is assumed to be covered in detail in subsequent subheadings and because this subheading did not have a SAI decision.

Page 127. 6.3. “parties raised many concerns” is not coded because this is assumed to be covered in detail in subsequent subheadings and because this subheading did not have a SAI decision.

Page 128. 6.4. “GNWT ... reiterated the uncertainties” is not coded because this is assumed to be covered in detail in subsequent subheadings and because this subheading did not have a SAI decision.

Page 128. 6.5. Did not code Developer’s assertions because this is a summary of more specific subsequent sections.

Page 128. 6.5. “Parties’ concerns with the developer’s approach” were not coded because this is a summary. They are coded in subsequent sections where they are attributed more precisely.

Page 132. “This concern by the YKDFN ... supported by the ECCC document”. This document is attributed to ECCC. The same applies to pages 137 and 140 and 152.

Page 132. Attributed RS to GNWT RS.

Page 132. “ECCC concurred that filling knowledge gaps ... **high priority** ” = Recommendation supported.

Page 133. Preliminary screening behaviour not coded because not part of EA.

Page 133. Checked PR#106. Attributed to GNWT RS.

Page 135. Attributed National RS to EC RS.

Page 135. “developer noted that habitat fragmentation may occur but wouldn’t have a significant effect” = Proponent Not SAI = 1.

Page 138. “is required” = Recommendation.

Pages 138-139. A lot of what the Developer says it will do is coded as Information statements.

Page 146. RB SAI = 1 because “does not accept the developer’s prediction that significant adverse effects on caribou ... are unlikely”.

Page 159. Attributed “concerns by Elders ...” to Whati com, but then TG TK Study says “concerns ...” to TG TK Study.

Page 161. RB SAI = 1 because “insufficient evidence ... that the road will not cause significant adverse effects”.

Page 165. “The primary driver for this concern ...” to reference (PR#142) is coded as 5 concerns and attributed to TG, NSMA, and WRRB, despite PR#142 being from the Developer, because it makes sense for the reasons for the concerns to be attributed to the parties raising the concern.

Page 165. “This increase in moose ...” to reference (PR#110) is coded as Proponent 3 info statements, because PR#110 is the Developer’s.

Page 173. RB SAI = 1 because “the developer did not persuade ... that adverse impacts ... are unlikely”.

Page 178. RB SAI = 1 because “[RB] will leave questions on monitoring ... to these qualified experts ... recommended ... as a **measure**”.

Page 189. Attributed GNWT Status Report to GNWT\_SR.

Page 189. Attributed COSEWIC to Unidentified participants.

Page 191.

The developer predicts that regular interaction between the Project and caribou on their winter range is not expected (PR#110 pp4-26,4-27). However, the *K’agòò t̄lu Deè` Traditional Knowledge Study for the Proposed All-Season Road to Whatì* (TK Study) submitted by the T̄chq̄ Government documents barren-ground caribou (̄ekwò) winter use of the project area in the past. This was evident in the in the 1990s, when numbers of

caribou were higher (PR#28 p34-35). Barren-ground caribou use of the area and migration routes crossing the Project are documented in the Traditional Knowledge Study and shown in Figure 7-2. Harvester observations are also highlighted in the TK Study. These harvesters observe that in recent years hardly any caribou have been seen in the project area (PR#28 p34-35). In the words of Elder Francis Simpson, "...even close to Whatì, at one time there were always lots of caribou around....Today the caribou do not come to our area. They stopped coming."

The green highlighted statements are attributed to the TG TK Study.

However, the yellow highlighted statements are attributed to "Whatì com", because the REA states them as emanating from the harvesters, who I attribute to "Whatì com".

Page 195. "requires" = Recommendation.

Pages 199. Counted 1 WRRB Recommendation as "became measure" because part of it became a measure. This is the part about basing monitoring on Tlichò Elder's knowledge.

Page 215. Code statements citing PR#28 and PR#97 in last paragraph; omit statements citing PR#110, which is by the Proponent.

Page 217. The Adequacy Statement "required ... assess ... [3 things]" is counted as Review Board Questions = 3 instead of Recommendations because they are asking for such information *during* the EA.

Page 218. Coded "[n]either GNWT-ENR nor DFO have a plan to increase enforcement ..." as 1 concern each for GNWT and DFO. The reason is that on page 231, the REA states "Therefore, it is unclear to the Review Board how this will mitigate Project impacts".

Page 221. "need" = Recommendation; "required" = Recommendation; "particularly" = Recommendation.

Page 223. "The fisheries management plan, ... would ... [6 bullets] are counted as WRRB recommendations.

Page 226. Attributed PR #91 to DFO.

Page 226. Coded the 3 things that DFO told the Review Board would require further assessment as DFO recommendations instead of information statements. Indeed, on page 229, the REA says "DFO told the Review Board that to understand the impacts ... [3 things] would be required".

Page 239. Coded the potential negative impacts by the Proponent as Proponent concerns, because the Proponent does not say it is not concerned at the end, unlike in other situations.

Page 240. Coded "cultural benefits from harvesting" by [TG] as TG value or use, because it says at the last bullet "among other values". This is about how important harvesting is to TG.

Pages 250-251. Found 24 distinct ideas from the 13 listed concerns in the TG TK Study.

Page 258. Attributed “inter-agency meetings outlined that youth worry ...” and the excerpt to Whati com (which includes youth).

Page 258. Coded “strategies” identified by the Interagency Committee as Recommendations instead of Not concerned. Found 10 distinct ideas from 6 bullets on Potential benefits.

Page 259. For youth (Whati com), coded reasons for rejecting project to Concerns.

Page 260. “important” = Concern; “this requirement is necessary” = Recommendation.

Page 276. “ECCC pointed out ... SARA requires ...” is coded as 3 Recommendations under ECCC. “Eight species of concern ... listed under ... SARA” is coded as 8 Proponent concerns.

Page 276. “The developer predicted the **potential** for adverse impacts to nesting sites for bird species at risk along the right-of-way, at quarry stockpiles and on construction and maintenance camp structures” is counted as Proponent CONCERNS = 4 instead of Proponent SAI = 4, because in the next section, it is clear the Proponent submits there will NOT BE SAI.

Page 277. “ECCC request for baseline information” is counted as a Question because this is early in the EA. Later on, they make a formal Recommendation.

Page 277. 10 distinct ideas are gleaned from ECCC’s “reasoning for ... recommendation” and coded under ECCC concerns.

Page 284. Split Heading 10 into 2 SAI decisions: birds and (bison and moose). So 10.2.2 started the second SAI decision. But counted 10.2.3 under both issues.

Page 298. Like the rule, count the bullets of Recommendations, not the distinct ideas.

Page 304. Apply exception to rule of not using RB analysis, because here, there is no “Evidence from the parties” section. There is only RB analysis. Therefore, participation under it is counted.

Page 304. Under 12. Climate change . “developer described climate change as a ‘wildcard’” is put under 12.1.1.

Page 304. Coded sentence citing PR#7 Appendix B to TG SISS.

Page 304. Coded Proponent, TG SISS, and Whati community member statements as “not concerned”, because they are **not concerned** with respect to the proposed project (all-season road), because they **are** concerned about the status quo (the winter road).

Page 305. 12.1.2. Proponent and NSMA statements are coded as “concerns”, because they are concerned about the issue (climate change).

Page 306. “must” = Recommendation; “required” = Recommendation.

Page 307. RB SAI = 0 because “does not believe that the project’s contribution to climate change is likely significant”.

Page 309-312. RB SAI on whole issue = 0 because SAI on each sub-heading is 0:

Page 309. SAI (Dependent variable) = 0 because “measures ... make [SAI] ... unlikely”.

Page 310. SAI = 0 because “will provide net economic benefits”.

Page 311. “The Project may adversely affect some vulnerable groups” [not coded because concluded at the end of this heading “the overall impact ... will be reduced and will remain at a level that most ... will be acceptable”. ]

Page 312. SAI = 0 because “concluded that such Project impacts are not likely”.

Page 312. SAI = 0 because “will deliver lasting benefits while avoiding [SAI].

#### Project 2 (Canadian Zinc Corporation Prairie Creek Road)

Page 55. Coded Proponent consultant “but described typical mitigation options including ...” as 5 Not concerned.

Page 56. “If avalanche risk is determined to be unacceptable, options for mitigation should be considered”. “should be” = Recommendation. The REA also called it a recommendation later.

Page 57. “wants clearer commitments” = Recommendation.

Page 61. Proponent’s objections with Oboni Riskope are coded as Proponent Not concerned, because they are in support of the Project.

Page 62. Proponent’s questions to Oboni Riskope = Proponent Not concerned, because they challenge Oboni Riskope, which has concerns about the Project.

Pages 67-68. Access control.

GNWT counted as 1 Not concerned because “GNWT concluded ... expects the level of public access ... to be similar”.

Its previous statements that “GNWT believes ... the developments ... can act as barriers to access”, “However, ... individuals can still travel around”, “but this would be more difficult” are not coded because GNWT concluded access would be similar.

So in total under this heading, GNWT has 3 info statements, 1 question, 1 not concerned, and 4 recommendations.

Page 88. “21 federal and territorial species at risk” NOT coded because specific sections specify which species are at risk. Avoid double-counting.

Page 89. “requested baseline information on ... [3 bullets]” is counted as a **Question** because it was *during the EA*. Furthermore, the Review Board told Parks Canada it could suggest baseline requirements (i.e. make Recommendations). Therefore, these were counted as Questions.

Page 94. “**need** for more ... information” = Recommendation. “as well as for ... monitoring” = Recommendation.

Page 94. “**requested**” = Recommendation because another party “recommended” the same thing later.

Page 95. “[PC] also contended that the Project **could** have an adverse impact ... including” [5 bullets] is counted as SAI = 5.

Page 96. “However, the GNWT’s prediction ...” is coded as Unidentified participant Not concerned = 1 because PR#528 is a public transcript.

Page 99. “**asked** develop ... stated **must** be completed” = 2 Recommendations.

Pages 99-100. 6.1.6. before Impacts from habitat loss and fragmentation. General section not coded.

Page 100. “in a ... information request, [EC] requested a revised effects assessment of habitat loss” is counted as a **Question** because it is an information request.

Page 106. “baseline information required ... better understanding required” = 2 Recommendations.

Page 106. “Parks Canada re-stated its view that there are potential significant adverse impacts from the Project on forest birds, waterfowl, and migratory birds, including SARA-listed species” is counted as SAI = 4.

Page 111. “believes ... measure ... is **essential**” = Recommendation.

Page 114. “boreal caribou are listed as threatened under both the federal SARA” counted as unidentified participants concerns (2)

Page 120. “further **requires**” = Recommendation.

Page 121. “information ... **necessary**” = Recommendation.

Page 122. “**should** be included” = Recommendation.

Page 124. “number of parties expressed concern ... mitigation actions ... **need** to be formalized” = Recommendation, despite being called “concern”, because “need”.

Page 124. “triggers **must** be developed” = Recommendation.

Page 148. “**asking** you to stay away” = Recommendation, because asking you to do something.

Page 149. “The developer stated that the overall impacts on traditionally-harvested wildlife from access, changes to harvest areas and harvest patterns, would be moderate” is coded as 24 Proponent information statements, because Table 7-2 shows “moderate” in 24 cells. “and require specific management measures or plans for mitigation” is counted as Proponent concerns (2).

Page 150. “impacts on traditionally-harvested wildlife species from changes to harvest pressure would be low” is coded as 8 Proponent not concerned, because Table 7-2 show “low’ in 8 cells.

Page 151. NBDB 3 Not concerned; omitted all previous concerns because in the end, supports the project and supports its benefits.

Page 151. “monitoring still be **needed**” = Recommendation.

Page 152. “request ... commit” = Recommendation, because ask you to do something.

Page 152. All NBDB concerns omitted because in the end, support project.

Page 153. “requested ... explain methodology” = Question.

Page 155. “requested ... agreement be a condition” = Recommendation.

Measures for 7. Traditional harvesting = 5 because Page 162. “Measures described in chapters 5 and 6 will mitigate potential adverse impacts on traditional harvesting ...” and there are 3 measures and 2 measures respectively for Chapters 5 and 6.

Page 170. “considers ... necessary; ... requires” = Recommendations.

Page 174. “requested a detailed monitoring plan for long-term impacts during operations” is counted as a **Recommendation** because it is asking for something to be done *during operations*.

Page 177. “must”, “should be treated”, “must be disposed” = Recommendations.

Page 178. “should” = Recommendation.

Page 181. “what parameters **should** be measured” = Recommendation; “**expected** frequencies” = Recommendation.

Page 182. “expressed a **desire**” = Recommendation.

Page 182. “**suggested** ... could be a role for ... monitors” = Recommendation.

Page 198. PR#90 = Proponent.

Page 198. Attribute NBDB TK Report to NBDB.

Page 200. 9.1.2. ToR identified the following pathways ... nothing is coded because they’re not questions ..., plus likely will be repeated in more specific subsequent sections.

Page 204. “request a hydrological assessment of the diversion ...” = Questions because they are information.

Page 205. “need to consider and mitigate” = Recommendation; “need to account for” = Recommendation; “need for specific mitigations to protect Arctic Grayling” and “habitat” = Recommendations.

Page 205. “need to account for the dynamic variability” = Recommendation; “need for specific mitigations” = Recommendation; “need ... habitat” = Recommendation; “would require additional information” = Recommendation.

Page 209. “argued that measures are **required**” = Recommendation.

Page 212. “[COSEWIC] has ranked bull trout as a species of Special Concern” counted as Unidentified participant.

Page 213. Checked PR#368 and PR#371 = IR responses; unclear from whom; therefore, attributed to Unidentified participants.

Page 215. “both parties recommended ... two measures” is coded as 3 measures each, because of 3 distinct ideas.

Page 215. “asserted ... **should** take adequate steps to mitigate” = Recommendation.

Page 230. “urged ... to assess” = Recommendation.

Page 231. Attributed NBDB TK report to NBDB.

Page 232. Points West Heritage is attributed to Proponent consultant, because PR#196 is submitted by the Developer.

Page 232. Attribute Golder Associates to Proponent consultant too.

Page 233. Did not code Table 10-1.

Page 233. 10.1.2. Did not code anything because repetitive.

Page 234. Checked PR#200; attribute to Unidentified parties because not clear from Appendix.

Page 234. “requested ... AIA” = Recommendation, not Question because it’s asking for something to be done, not just for information.

Page 235. PR#55 = Proponent.

Page 235. Coded as NBDB Not concerned = 1 because site is inaccessible.

Page 236. “requested support for a TK study” = Recommendation.

Page 236. “developer referenced several documents” is counted as Proponent commitments = 9, because 9 document references.

Page 238. “informed ... believed additional TEK ... was required” = Recommendation; “additional collection ... required” = Recommendation.

Page 249. “[COSEWIC] also identifies the Nahanni aster ... as being of Special Concern” = Unidentified participant 1 concern.

Page 250. “requested additional baseline field work” = Recommendation because asking for something to be done (field work), not just information.

Page 251. “CanZinc pointed out that it completed rare plant surveys in 2009, 2010, and 2016 and ... stated that it has already committed to completing an early season rare plant survey ...” are counted as Proponent not concerned, because they are already counted as Proponent commitments.

Page 252. “LKFN ... stated that it ... supports [PC]’s recommendations” is counted as 2, because they are numbered as 2 PC recommendations.

Page 253. 11.1.2. Did not code anything.

Page 255. Proponent recommendations = Not concerned, because they are assertions by Proponent in support of its position.

Page 262. “stated ... active restoration practices are **required**” = Recommendation; “pointed out this is a first step that **must** be followed by ...” = Recommendation.

Page 283. Checked PR#200 and it’s unclear who it is. Attributed to unidentified parties.

Page 284. “additional information is still **required**” = Recommendation.

Page 286. “asked ... to monitor and mitigate any borrow sources” = Recommendation.

Page 287. “request to provide a draft permafrost mitigation and monitoring plan” = Recommendation.

Page 288. “concluded that complete characterization of conditions is necessary”, “further mitigation will be needed” = Recommendations.

Page 290 “noted that avoidance is the preferred mitigation” = Concern, not Recommendation.

Page 290 “agrees ... quantitative analysis to assess changing permafrost conditions ... is required” = Recommendation.

Page 293 all “should” = Recommendation.

Page 309. Review Board “notes that this information would be necessary to inform planning and actions to restore ...” is coded as RB concerns = 2, because there is no category for RB recommendations.

Page 310. “PC believes that potential [SAI] ... can be mitigated” is coded as PC NOT concerned = 1.

Page 310. “developer likely had no problem with the recommendation” is coded as Proponent commitment = 1.

Page 312. SAI = 0 because “[RB] is confident that the regulatory process will adequately address the closure and reclamation of the Project”.

Page 314. 15.1. Not coded, because summarize more specific sections to come.

Page 315. An exception to the rule that the RB analysis is not coded is made. It is coded for participant behaviour, because there is no Evidence by participants section. RB analysis is still not coded: i.e. RB recommendations.

Page 315. 15.2.1. Not coded.

Page 316. RB recommendations not counted, because they are RB analysis.

Page 318. Did not code RB concerns, because they are more RB analysis.

Page 318. SAI = 1 because “measures ... needed to inform [AM] to prevent impacts that would otherwise be significant”.

Page 327. It states “Over 30 Nahanni Butte residents ... travelled to Fort Simpson to participate.. community members ... expressed support”. However, I could not count 30 supported it, because it is unclear “how many” members expressed support. I only counted “expressed support” as 1 Not concerned.

Page 329. SAI = 0 because assumed from RB saying accepts there is broad support.

### Project 3 (Dominion Jay Project)

Did not usually code “Summary of Review Board’s findings” sections at the start of headings because there is usually no participation information in there and/or it signposts more specific statements in subsequent sections. However, please see exceptions.

Page 40 – 41: see references.

“partied questioned why ...” is attributed to RB and NSMA because the references say MVEIRB-IR and NSMA-IR.

“parties also asked whether” is attributed to NSMA because the reference says “NSMA-IR”.

“parties asked about phased ...” is attributed to NSMA because the reference says “NSMA-IR”.

Page 45. Did not code Table 4-1.

Page 64 coded “stated multiple times ... extremely important” as 2 Kugluktuk community value or use because “multiple times”.

Page 66 counted “questioned how potentially contaminated sediment from the dike construction would be managed” as “concerns” instead of questions, because the REA later referred to them as “concerns”.

Attributed 3 additional concerns to IEMA from PR#556 = IEMA\_TechReport\_Response from Dominion: “**concerns** were related to ...: **two** of the 59 sediment samples ... exceeded ... guidelines”.

Page 67. “could adversely affect public health ...” etc. are all coded as Proponent info statements, because on page 68, it says the Proponent “believes would make these effects unlikely”.

Page 71. Coded “It is also important as a source of drinking water in the winter when other water is frozen (PR#562 p31).” As YKDFN Value or use = 1 because PR#562 is from YKDFN. The names of the other PR#s in the same paragraph do not reveal the participants. Therefore, they are coded as Unidentified.

Page 75. PR#125 = Proponent.

Page 78. Coded “Dominion indicated that revisions to the [AEMP] ... will be reviewed through the ... [WLWB] approval process” as P agreed.

Page 83. Coded Proponent assessment of primary pathways and uncertainties as Info statements, instead of concerns, because Proponent concludes not SAI in the end.

Page 101. “The GNWT states in its technical report that Dominion’s effects assessment approach for impacts to caribou is generally sound in the absence of thresholds. However, the

GNWT does not believe that all of Dominion's conclusions necessarily follow from the analysis, particularly with respect to cumulative effects (PR#515 p34)." Is counted as GNWT concerns = 2, previous Not concerned not counted due to outstanding concerns.

Page 103. Coded statements about Environmental Agreement as Unidentified parties' recommendation (1) and info statement (1).

Page 104. Checked PR#353 and attributed to unidentified participants because it's transcripts and not readily clear who it's from.

Page 105. Attributed "Behchoko community hearing Elder" to TG, because unlike Project 1 (where TG and CGW differed in view from the community members), here, it would be too much to separate things more specifically. There are many more Indigenous Peoples; it is OK to attribute this to TG.

Page 109. PR594 = GNWT.

Page 109-110. Attributed WRRB and GNWT responses as information statements. Attributed other GNWT statements as information statements.

Page 110-111.

Past SAI included under SAI because this is the cumulative impacts section. E.g. attributed "NSMA have already suffered irreversible social and cultural impacts because of the declining population" to SAI. These are usually not coded under SAI.

However, subsequent statements are counted as "concerns" instead of SAI because they are not worded exactly as "~adverse impacts". E.g. "result in the continued inability of the community to practice subsistence" is counted as a concern for LKDFN.

Stated examples of "adverse impacts" are coded under SAI because it is exact wording. E.g. "cites examples of adverse impacts such as the lost opportunity to pass on cultural practices and practical skills ... including ... respect for the land ... etc." is counted under YKDFN SAI.

However, other past negative impacts that aren't stated as "~adverse impacts" are coded under "concern" instead of SAI because there isn't the exact wording. The purpose is to avoid over-counting SAI. E.g. "other lost economic benefits include producing traditional crafts ..." is counted under YKDFN concerns.

Page 139-140. Attributed all parts before Chief Lockart (LKDFN) to Unidentified participants.

Page 142. PR#647 is attributed to TG.

Page 144. "Parties made many information requests ..." became the following, based on the footnote "For example, PR#329 - DAR-DFO-IR-03; DAR-IEMA-IR-37; DARKIA-IR-60, 70, 76, and 77; DAR-Tlicho-IR-17 and 18; PR#459 p15-18". This is coded as Tlicho questions 2; KIA questions 4; DFO questions "IR"; IEMA questions 1.

Page 154. “predicts significant adverse socio-economic effects if the Project does not proceed – a position that was echoed by the GNWT, some Aboriginal parties, and organizations like the NWT Chamber of Mines, the Town of Hay River, and the Kitikmeot Inuit Association”. This is coded as GNWT Not Concerned = 1, NWT Chamber of Mines Not concerned = 1, Town of Hay River Not concerned = 1, KIA Not concerned = 1

Page 154. 8.2.1. First two paragraphs: parties’ wishes before the current EA project are not coded because they are not about the current project.

Page 160. PR#697 = LKDFN.

Page 162. Attribute “Community members felt they cannot sustain the continued effects of worsening health and well-being (PR#646 p92, pp197-198) “ to LKDFN because PR#646 = “Jay hearing transcripts - Day 5 - Lutsel K'e Sept 19, 2015.

Page 165. Attribute PR#647 to TG because Behchoko.

Page 185. Codes Proponent commitments in 9.3.1. Summary of RB findings. I.e. breaks from usual rule not to code things in Summary of RB findings, because here, there is actually participation information.

Page 185. Attribute “Canadian Council of Ministers of the Environment’s *Canada-wide Standards for Dioxins and Furans*” that GNWT submitted to GNWT.

Page 190. Also codes participation in 9.4.1 Summary of RB findings, because it describes participation behaviour.

Page 200. Primary pathways are coded as Proponent info statements, because the Proponent concludes not SAI.

Page 200. “During all phases ..., which include the analytical phase, public hearings and final submissions, Dominion consistently maintained that the Jay Project will not have [SAI] to migratory birds and wildlife including grizzly bears, wolverine, raptors and waterbirds” is coded as Proponent not SAI (birds \* 3 phases; wildlife \* 3 phases; then bears, wolverine, raptors, waterbirds). I.e. the 3 phases are applied to just “birds” and “wildlife”. The distinct ideas after “including” do not have 3 phases applied to them.

Page 206. Coded Table 7-1 as Unidentified participants’ concerns (6) because 6 species designated as special concern by COSEWIC.

Page 207. Attribute 6 species at risk in Table to Unidentified participants.

Page 209. RB SAI = 0 because “the potential effects ... can be addressed through closure planning”.

Page 221. Measures for 12. Closure and reclamation = 3 because Page 221 “Measures designed to mitigate adverse impacts to water quality ... are described in detail in this REA in sections 4.1.4 to 4.1.6 (Impacts to Water). In the Review Board’s view, mitigation measures set out in section 4.1.6 will mitigate adverse impacts and public concern during the closure phase as well”. And “To mitigate significant adverse impacts to people and culture after closure of the Jay Project, the Review Board requires Dominion to implement measures ... These measures along with the Review Board’s supporting analyses and conclusion are described in detail in sections 4.1.4 to 4.1.6 and 5.1.4 to 5.1.6 of this REA”.

The number of measures for 4. = 2.

The number of measures for 5. = 1.

Therefore, the number of measures for this issue = 3.

Page 224. RB SAI = 1 because “[SAI] ... are likely”.

#### Project 4 (De Beers Snap Lake Water Licence Amendment)

Given this REA is uniquely structured, the sections coded are as follows.

First, the issues are chosen according to the SAI decisions the Review Board makes at the end:

- Cumulative effects
- Lady of the Falls
- Accidents and malfunctions
- Alternatives
- Traditional use
- Downstream monitoring
- Closure
- Best available technology economically achievable

Then, participation behaviour that goes to each issue is counted from the following sections.

#### Cumulative effects

- 4.1.6 De Beers’ submission on cumulative effects
- 4.2.4 Parties’ submissions on cumulative effects

#### Lady of the Falls

- 4.4.5 Review Board analysis and conclusions on Lady of the Falls
- The **exception** is made to the rule that the RB analysis section is not coded, because there is no “evidence from parties” section for this issue.

Page 61. RB SAI = 0 because “evidence ... shows ... effects to water quality at the Lady of the Falls ... are highly unlikely”.

#### Accidents and malfunctions

- 4.1.7 De Beers’ submission on accidents and malfunctions
- 4.2.5 Parties’ submissions on accidents and malfunctions

## Alternatives

- 4.1.8 De Beers' submission on alternatives [coded Proponent's statements against other alternatives (i.e. supporting the method they chose) as Proponent not concerned]
- 4.2.6 Parties' submissions on alternatives

## Traditional use

Pages 62-63. RB SAI = 1 on traditional use.

The following sections are coded for participation behaviour going toward this SAI decision, because the SAI decision on traditional use involved analysis on TDS, etc.

### 4.1.1 Background

Page 23. MVLWB required De Beers to undertake ... is coded as Unidentified participants' questions.

### 4.1.2 De Beers' submissions on numeric SSWQOs

Page 27. Table 1 not coded.

Page 29. Table 2 not coded.

Page 33. Table 3 not coded.

### 4.1.3 De Beers' submission on mitigation to meet proposed SSWQOs

### 4.1.4 De Beers submission on impacts to traditional use of Snap Lake and downstream waters

### 4.2.1 Parties' submissions on traditional use

### 4.2.3 Parties' submissions on SSWQO guidelines

## 4.3 Review by Ecometrix

### 4.3.1 Methodology used to determine SSWQO and effects to aquatic life

Total Dissolved Solids

Chloride

Fluoride

Sulphate

Nitrogen

Strontium

### 4.3.2 Validity of modelling

## Downstream monitoring

- 4.1.4 De Beers submission on impacts to traditional use of Snap Lake and downstream waters

## Closure

- RB analysis (nothing except 1 suggestion)

## BATEA

- 4.1.5 De Beers' submission on [BATEA]
- 4.2.2 Parties' submissions on "pollute-up-to approach"

Measures for "Lady of the Falls" issue = 2 because Page 61: "The measures in section 4.4.8 below provide additional protection. The Review Board is satisfied that these measures will ensure that there will be no measurable trace of effluent ... nor at Lady of the Falls".

## Project 5 (Avalon Rare Metals Nechalacho Rare Earth Element Project)

AANDC = INAC

Page 47. "During public hearings in Yellowknife and Fort Resolution, Aboriginal leaders confirmed in their statements ... high value placed on clean water for drinking, fishing and other traditional uses" not coded because signposting.

Pages 47-48. RB questions 27 because "Terms of Reference required the Developer to specifically address ... 27 bullets".

Page 48-50. Do not code "summary of the sources of potential impacts".

Page 51. Under 3.1.2. Second paragraph, coded 4 Commitments. Next paragraphs were coded as Proponent Not concerned 21.

Page 55. SAI = 1 because "the Review Board finds that the use of narrative (qualitative) water quality objectives is appropriate during the environmental assessment".

Page 57. AANDC recommendations. Broken up only at 2 distinct ideas; "concentrations with the TMF" and "within Drizzle Lake must be monitored ...". The reasons are not counted as separate recommendations.

Page 61. Under 3.3.1. Page 63 not coded because Proponent made changes after. Page 64 2 paragraphs coded as 4 Commitments and 2 info statements.

Page 68. "heard public concern about radioactivity ... (many PR references)". The PR documents are checked. They are attributed according to page number ranges as:

- Unidentified parties' concerns = 5 from PR#19 (British Geological survey) and PR#24 (RB technical scoping session).
- NSMA concerns = 2
- GNWT concerns = 1
- LKDFN concerns = 3
- Fort Resolution IP concerns = 2 because Fort Resolution scoping session
- Hay River IP concerns = Hay River scoping session
- KFN concerns = 1 because KFN scoping submission

Page 71. Scoping session concerns not coded because coded above.

Page 80. Exception to rule to attribute to original participant. Proponent's statements that 1 Coast Guard confirmed ... tug boat and barges ... sunk and According to a tugboat captain that worked ... no barges sunk = Proponent concerns = 1; Proponent Not concerned = 2.

Page 88. Code "concerns ... Aboriginal parties" as Unidentified participants' concerns because unclear which Aboriginal parties.

Separate this section into 2 issues:

Barge related concerns on fish (2<sup>nd</sup> paragraph on page 88)

Barge related concerns on traditional use (3<sup>rd</sup> paragraph on page 88)

Page 89. "Nine are known to be fish-bearing" is counted as 1 expression of Proponent value or use, not 9. "One may be fish-bearing" is counted as 1 expression of Proponent value or use.

Page 90. Code "no residual effects" as Not SAI.

All Proponent concerns omitted because in conclusion, the Proponent argued Not concerned.

Page 99. 7.1 not included because subsequent sections are more specific.

Pages 95-98. 7.2 Developers' submission. Not included because in more specific sections below.

Page 100. "Potential threats" by Proponent = Info statements because it clearly states later there is no SAI, etc.

Page 100. Proponent saying species do not exist in study areas = Not concerned.

Page 101. "Impacts to bird species at risk" = Proponent info statements, instead of Proponent concerns, because Proponent clearly states there is no SAI later.

Page 109. Code Table 6 Species at Risk as 14 EC value or use for 14 species.

Page 114. Attribute PR#219 to EC because checked Appendix.

Page 119. SAI = 1 because "concerned that without both the WWHPP and WEMP in place ... monitoring to determine whether wildlife impact predictions are accurate or not will not be undertaken".

Page 120. Bathurst caribou and cumulative impacts in 1 issue. SAI = 1 because will likely be cumulative impacts.

Pages 122-123. 8.1 Developer's submissions. Potential impacts are coded as Proponent info statements.

Page 123. Nechalacho mine site. All coded as Proponent info statements.

Page 127. Sources of noise = Proponent info statements.

Page 134. 10.1 "Key potential adverse ... impacts" are coded as Proponent concerns, instead of usually Proponent info statements, because the Proponent does not conclude there is no concern like in other situations.

Page 138. Lessons learned that the Developer has incorporated = 10 Proponent Mitigations, because they seem to be learned before the EA.

Page 146. "GNWT also requested that the Developer provide" = GNWT questions, not recommendations.

Page 149. "GNWT requested that the Developer provide a more detailed assessment" = Question instead of Recommendation because I infer it's during EA.

Page 149. "The contracted archaeologists recommended ..." = Unidentified participants' recommendations = 2.

#### Project 6 (INAC Giant Mine Remediation Project)

Page 26. "Dene and Metis residents ... afraid" = YKDFN concern = 1 ; NSMA concern = 1.

Page 26. "They have described ... killing us slowly" is counted as YKDFN concerns = 2 because PR#575; PR#577 assumed to be them; because PR#264 = NSMA and so NSMA concerns = 2 because 2 page number ranges.

Pages 32-33. 5.1.1 All Proponent statements coded as Info statements.

Page 35. Last two paragraphs = YK public SPC = 9.

Page 38. "Parties observed the need for development of ..." attributed to Unidentified because (PR 355 Tech session transcript – Unidentified; PR 356 Unidentified).

Page 38. "concerns and views voiced at the recent Perpetual Care Workshop" = Unidentified because do not know who voiced the concerns at this workshop.

Page 38. "Many submissions from Parties emphasized the lack of perpetual care planning to date": YKDFN 2 because PR 459; PR 605. NSMA 1 because PR 606. Unidentified 4 instances because PR 578 = public hearing = Unidentified; PR 461 and PR 471 = Developer → attributed to Unidentified because I assume it's the Developer submitting a report, which cites other Parties raising these concerns, instead of the Developer raising this concern.

Page 38. “Several examples of perpetual care planning at other sites were provided or described by Parties” \* 7 because (PR 333; PR 362; PR 442; PR 443; PR 445; PR 446; PR 453 – Unidentified).

Page 38. “Several examples of perpetual care planning at other sites were provided or described by Parties” \* 2 because (PR 452; PR 455 = ANDRA).

Page 38. “many **members of the public** emphasized the challenge ...” \* 4 instances = YK Public concerns.

Page 45. “concerns of Parties ...” = Unidentified participants’ concerns 2 because PR 471.

Page 45. “argued that the Project ... interim solution ... more a plan for stabilizing” = AN concerns 2; YK public concerns 2 (because PR 585); Unidentified concerns 2 because PR 579.

Page 48. “issue was raised” PR 90 Public; PR 179 YKDFN; PR 355 Unidentified; PR 452 ANDRA; PR 482 AN.

Page 48. AN cited Nuclear waste management report in France. Attributed to AN, not created as separate report.

Page 49. Potential adverse effects identified by Proponent = Proponent info statements.

Page 50. Most Proponent statements coded as Info statements (27).

Page 52. Federal Aviation Administration guidelines = Unidentified; NASA = Unidentified.

Page 60. “Nuclear Waste Management Organization ...” attributed to AN.

Page 75. “YKDFN, [AN], MLA ... and members of the public voiced their concerns ...” = YKDFN 1; AN 1; MLA 1; YK public 3 because PR 583; 584; 604; Unidentified 10 because PR576 \* 4 + 3 + 2 + PR 579.

Page 76. YKDFN 3 recommendations became measures, because assumed “trust fund” = “reserve fund”.

Page 77. Treasury Board report attributed to AN, because AN submitted it.

Page 81. importance of local involvement” \* 5 because (PR 534 – Unidentified; PR 575 – Unidentified; PR 579 \* 3 – Unidentified).

fact ... do not live in \* 5 because (PR 534 – Unidentified; PR 575 – Unidentified; PR 579 \* 3 – Unidentified).

“Parties cited other concerns affecting their confidence” \* 5 because (PR 356 – Unidentified; PR 554 – Unidentified; PR 575 – Unidentified; PR 579 – Unidentified; PR 428 – Proponent).

“Parties cited other concerns affecting their confidence” YKDFN 1 (PR 459 – YKDFN); AN 2 (PR 482 – AN; PR 639 – AN); public 2 because (PR 486 – Public; PR 585 – Public)

Page 86. All Parties ... committed to form a working group = Proponent Commitment = 1.

Page 91. “several members of the public told the Board that they want an independent oversight agency” \* **5 YK Public recommendations** because (PR 581; PR 582; PR 583; PR 584; PR 604 Public).

several members of the public told the Board that they want an independent oversight agency” \* **8 Unidentified participants’ recommendations** because (PR 327 Unidentified because from Developer; PR 576 \* 7 Unidentified).

Page 103. Sandlos and Keeling study = Unidentified concerns = 2.

Page 116-117. 9.1.1. All Proponent statements = Proponent info statements, instead of concerns, because in 9.1.2, Proponent says they have managed flood risks.

Page 122. First paragraph. “public concern” attributed to Unidentified (SPC = 4).

Page 141. “Parties disagreed ... proposed treatment plant effluent was acceptable, and expressed many concerns ... not safe for people, fish, and other aquatic life” = YKDFN concerns 4 because PR 459 = YKDFN; AN concerns 4 because PR 482 = AN.

Page 147. “the area proposed for placement of the diffuser is about 400 m offshore of the tip of N’Dilo where there is a high amount of use by snowmobile traffic, dog sledding and other recreational uses in the fall after freeze-up, in winter and in spring before break-up (PR#179; PR#482, pp16-18; PR#605 pp4-5)” = YKDFN concerns 5 because PR 179; 605 = YKDFN; AN concerns 5 because PR 482.

Page 147. “Parties expressed concerns that the ice modelling was incomplete (PR#213 pp4-5; PR#353 p101, p104; PR#459 p12; PR#475, p11; PR#482 p14, pp16-18); PR#576 pp164-165; PR#605 pp4-5).” = Unidentified \* 5 because (PR 213 Unidentified; PR 353 \* 2 Unidentified; PR 475 Unidentified; PR 576); YKDFN 1 because PR459; AN 3 because PR 482 \* 2 AN; PR 605 AN.

Page 149. “Alternatives North ... do not accept the Developer’s conclusion of no significant effects because of the lack of far field and thermal modelling, or any site-specific ecological risk assessment ...” = AN Not SAI 4 because 4 distinct ideas.

Page 155. “information requests ...” = Unidentified questions \* 6 because PR#178; PR352-356.

Page 155. “criteria ... not yet been finalized PR 494; long-term criteria, such as changes that would require a management response, were still lacking (PR561; PR575)” = Unidentified concerns \* 4.

Page 155. “concerned about the lack of definitive criteria” = YKDFN concerns 1 because PR 605; YK Public concern = 1 because PR 582.

Page 163. “AANDC and GNWT acknowledge ...” = Proponent concerns; i.e. Proponent = AANDC + GNWT. Therefore, did not code GNWT concerns separately.

Page 181-182. Proponent many potential concerns and potential adverse effects = Proponent info statements (21) because in conclusion, not anticipated to cause adverse effects.

### Project 7 Fortune Minerals NICO

Page 30. “During public hearings in Whati, Yellowknife and Behchoko, Aboriginal leaders confirmed ... high value placed on clean water for drinking, fishing and other traditional land use activities” = YKDFN value or use 3; TG value or use 6 because Whati and Behchoko are Tlicho communities.

Page 34. “Objectives for water quality in the receiving environment” did not code because all information.

Page 35. AANDC citing the MVLWB Water and Effluent Quality Management Policy yields 4 INAC concerns.

Page 66. Chief Clifford Daniels = TG.

Page 70. Proponent saying have the potential to adversely affect ... = Proponent info statements, because later concludes will not cause SAI.

Page 94. “the project has the potential to cause significant impacts” means SAI = 1.

Page 94. Measures for observation 92 (3.3.2 boreal caribou) = 2 because “The Review Board notes that while some measures above requiring the collaborative development of a [WEMP] and [WWHPP]... The Review Board is of the opinion that these will prevent significant impact on boreal caribou from the project”. There are 2, 1 for WEMP, and 1 for WWHPP.

Pages 101-102. All “mitigations” counted as Commitments because the substance under “mitigations” repeats the Commitments made; therefore, they are things the Proponent proposes to do, as a result of the EA.

Page 103. “members of the Tlicho and Métis communities also participated in field investigations to determine if any additional sites might be threatened by the Project. Two previously recorded sites within the LSA were revisited but no new archaeological sites were identified. Community participants identified four historical and cultural use sites which included mine claim posts, hunting camps, and a possible portage trail.” = TG value or use (4); NSMA value or use (4).

Page 110. 3.4.2.1 First paragraph. All = Proponent info statements, because later on, the Proponent submits its actual position on the project's impacts. The first paragraph is just the potential impacts.

Project 8 (Alex Debogorski Diamond Exploration)

Page 20. PR79 = GNWT.

Page 28. PR 107 = AANDC (INAC).

Page 30. Letter by 6 Chiefs means multiply each statement by 6.

Page 35. Elder Alfred ... = YKDFN.

Page 39. Did not code anything.

Page 45. SAI = 0 because "Crown has the opportunity to further address potential effects ...".

Project 9 (CZC Prairie Creek Mine)

Page 31. "In its [DAR] ... [CZC] proposed SSWQOs that were established partly ..." = Proponent Mitigations 1, because it is what the proponent originally proposed. The next paragraph contains Proponent Commitments, because they are actions the Proponent took or will take as a result of the EA, i.e. changes they made during the EA.

Page 33. "Parties state that impacts ... from the release of mercury ..." = AANDC concern 1, PC concern 1, NBDB concern 1 because PR 389 = AANDC; PR390 = PC; PR388 = NBDB.

Page 37. SAI = 0 because "choice ... should be considered further during the water licensing phase; notes that the [CZC] commitments ... will have a beneficial impact; ... either ... will improve mine effluent quality".

Page 46. PR 390 = PC.

Page 50. PR 397 = TC.

Page 58. 3.5 before 3.5.1 nothing coded because all signposting for later.

Page 69. PR 460 = GNWT.

Page 70. "other community members and business owners of Fort Simpson spoke about the benefits that jobs and business opportunities would bring to the Dehcho Region." = Fort Simpson IP not concerned (2), grouped under IP; Fort Simpson business owners not concerned (2), grouped under industry .

Page 73. Heading "REA". Did not code anything because it's 2 dissenters critiquing the majority.

Page 76. PR 386 = EC.

Project 10 (TNR Gold Corp Mineral Exploration at Moose Property)

This REA is set up differently.

Under the headings “Issue”, there are questions in bullets. These “questions” are counted as concerns, because they are under the heading “Issue”.

This REA is not set up like the usual separation of “Evidence” and “RB analysis and conclusions”. Therefore, participation behaviour in “Issues” and “Analysis” are read; but not in the “Conclusion” sections.

Page 21. PR3 = TNR.

Pages 22-23. SAI = 0 because “has confidence that the agreement ... will ensure that an appropriate ... assessment will take place ... concludes that existing regulations will sufficiently protect any ... sites”.

Page 23. “many community members ... indicated that there was limited consultation ...” = Unidentified (1) because PR 92; YKDFN 2 because PR 68; PR 36; DKFN 1 because PR 39.

Page 26. SAI = 0 for Water because “accepts the developer’s statement ...”.

Project 11 (Selwyn Resources Ltd Mineral Exploration at Howard’s Pass)

This REA is set up differently.

Under the headings “Issue”, there are questions in bullets. These “questions” are counted as concerns, even if they are called questions, because they are under the heading Issue.

This REA is not set up like the usual separation of “Evidence” and “RB analysis and conclusions”. Therefore, participation behaviour in “Issues” and “Analysis” are read; but not in the “Conclusion” sections.

Page 21. PR 61 = SSI.

Project 12 (Tamerlane Ventures Pine Point Pilot Project)

Page 26-27. 6.1. 6.2. Did not code because signposting for more specific below and did not have own SAI/SPC decision.

Page 32. “**committed** to implement a variety of recommendations from the Review Board’s advisors on how to structure the gravity wells” \* 8 because C99-C105, C118. So coded as 8 commitments and 8 RB expert advisor recommendations.

Page 33. Consensus items attributed to Unidentified parties.

Page 33. “Community groups identified uncertainty about the gravity well technology. They were especially concerned about the potential for discharge water to resurface.” Attributed to DKFN concerns, because DKFN questions followed.

Page 39. “**Community groups** and experts had expressed concern about the amount and type of process chemicals added by the froth flotation circuits” is attributed to **DKFN**.

Page 40. “INAC **called** for the developer to evaluate the environmental fate and impact of these potentially harmful constituents before the end of the [EA]” = Recommendation, instead of Question, because I can compare it against Suggestion (do a fate analysis).

Page 41. “Community members also expressed concerns” = attributed to DKFN because followed immediately by DKFN participation.

Page 42. Did not code Proponent “commitments ... C98-C122” =  $122 - 98 + 1 = 25$  because mentioned before in specific sections.

Page 50. 7.1. Coded only last paragraph.

Page 56. NWT Environmental Audit attributed to Unidentified participants.

Page 59. PR#221 = EC.

Page 60. “mitigation” counted as Commitments, because of references to Commitment numbers in previous paragraph.

Page 66. EC recommendations 8; 6 counted became suggestions because assumed the details (TSP, PM10, PM2.5, etc.) became suggestions.

Page 68. 8.2 not coded because signpost for more specific subsequently and also not go to SAI/SPC decision.

Page 71. “The people of Fort Resolution” attributed to Fort Resolution Indigenous Peoples.

Page 75. “The Fort Resolution Métis Council and Deninu K’ue First Nation reiterated their concerns about potential impacts on the human environment in their public hearing submissions, as did the Deninoo Community Council. Concerns included losses of harvesting area and income, loss of language, and increase of drugs and alcohol in communities with no increase in wellness and addiction programs to combat them.” Concerns in last sentence attributed to FRMC, DKFN, and DCC each.

Page 77. 8.5. 1 suggestion because “see Section 8.8.2 for the Review Board’s suggestion”.

Page 79. 8.6. 1 suggestion because “see Suggestion 8”.

Page 79. “Members of all four aboriginal groups reported using the area for traditional harvesting” means DKFN, FRMC, KFN, and HRMC value or use = 1.

Page 79. “four trappers from the [DKFN] were identified as using the area” = DKFN value or use = 1.

8.8.1. Coded participation behaviour because not typical Conclusion section.

8.8.2. Coded participation behaviour in 2<sup>nd</sup> paragraph only; rest = RB analysis.

Page 83. I also attributed this suggestion to 8.3 because training; barriers.

Page 84. Did not code 9.1.

9.2 Wildlife = 1 issue

Page 84. [EC] “identified ten species at risk whose ranges overlap with the PPPP” = EC value or use = 10.

Page 85. “committed to a slate of mitigation measures ... C123-C140” is counted as 18 Commitments.

Page 85. Last 2 paragraphs. Starts: Caribou = 1 issue

9.3 Road safety = 1 issue.

Page 87. Proponent commitments = 5 because C86-87, C89-C92.

Page 99. RB SAI = . because cannot tell.

#### Project 13 (UR Energy Inc Screech Lake)

This REA is set up differently. The following decisions are made regarding which are Issues, and which subsections go to the Issues.

Issue 1 = Cultural impacts.

- For Participation behaviour:
- Count: “harvesting impacts” and “cultural significance” sections under Heading 7 Social and cultural impacts.
- Count 7.1 Developer’s submission and assume all of it goes toward this issue.
- Count 7.2.1 – 7.2.4
- For RB SAI decision: see 7.3.1 Findings on cultural impacts (SAI = 1).

Issue 2 = Social impacts.

- For Participation behaviour:
- Use same evidence as above because Page 38 “Findings on social impacts”.

- For RB SAI decision: Page 38. RB SAI = 1 because “it is a significant cumulative social impact”.

Page 28. 7.2.5 Planning issues starts a new issue (Land use planning issues).

- For Participation behaviour:
- Count “Conflicts with proposed protected areas and land use planning” under Heading 7.
- Count 7.2.5 Planning issues
- RB SAI decision: SAI = 1 because “Page 40: will contribute to cumulative impacts”. 1 suggestion

Page 40. New issue: Mineral tenure regime and RB’s role in consultation

- For Participation behaviour: pages 40-42.
- R SAI decision: SAI = 1 because 1 Suggestion.

Page 30. 7.2.6 Wilderness value and eco-tourism starts a new issue (ecotourism).

- For Participation behaviour:
- Count “tourism” under Heading 7.
- Count 7.2.6 Wilderness value and eco-tourism
- RB SAI decision: SAI = 1 because Page 43 “likely to cause significant adverse socio-economic impact on ecotourism”.

Page 21. All Proponent “mitigations” = Commitments.

Page 23. “Other submissions ... emphasize past use” = Proponent value or use 1 (PR1), LKDFN value or use 1 (PR57), WWF value or use (PR58).

Page 31. “Parties in the Lutsel K’e hearing described ...” is attributed to Unidentified participants, instead of LKDFN, because in this case, there seem to be many participants at the hearing, and I cannot say for sure they are from LKDFN.

Page 32. “Several other submissions emphasized the ecological and wilderness value of this area” = WWF value or use 4 because PR9, 19, 57, 91; LKDFN value or use 1 because PR58.

Coded David Pelly as Environmental group, instead of Member of public, because he is specifically an environmental author.

Page 45. Golder report attributed to Proponent value or use.

Page 45. “Based on information from the [CMB], the report states” attributed to CMB value or use.

Page 45. “mitigation” = Proponent commitments.

Page 47. “the [CMB] presentation” refers to the joint CMB\_GNWT presentation.

Page 50. Exception to rule of attributing to original participant. “WWF cited a ... paper by the [CMB]” ... attributed to WWF instead of CMB; else, it seems WWF did not participate here.

Page 50. “The [CMB] described its concerns ...” attributed to CMB only, because it seems like CMB participating only.

Project 14 (Paramount Resources SDL 8 2-D Geophysical Program)

Did not code right under Heading 4, because signpost.

Page 14. “GNWT, as well as aboriginal parties, confirm the presence of boreal caribou in the area”. PR57 = FPRMB; 62 = GNWT; 69 = KTFN; 70 = KFN.

Page 19. “Concerns about the potential impacts ...” = KTFN 1 [45]; KFN 1 [47].

Page 19. “Information later submitted ... confirmed that moose, waterfowl and fur-bearing animals ...” = FPRMB [57]; KFN [70]; KTFN [94].

Page 19. 62 = GNWT. Not concerned = 1.

Page 19. “**concerns** have been expressed about the use of reclamation seed mixes that may contain invasive species” is attributed to Hay River IP because PR 47 Summary of Hay River Issue Scoping Hearing.

Page 19. “approved by the MVLWB, NEB, and GNWT” as Proponent not concerned 3.

Page 20. Counted condition 50 of MVLWB draft LUP as Unidentified participants’ recommendation (became suggestion).

Page 21. “Concerns relating to ... were raised ...” = KTFN 1 (45), Hay River IP 1 because PR 47.

Page 21. “Such concerns included ...” is attributed as 3 concerns each (KTFN; Hay River IP).

Page 24. Condition 44 is counted as Unidentified participants’ recommendation (became suggestion).

Page 25. “Deh Cho First Nations Interim Measures Agreement” requirements = DFN recommendations.

Page 30. Issue = consultation. RB SAI = 0 because “is not convinced that the SDL8 should not proceed”.

Page 31. Issue = Access and benefit agreements. RB SAI = 0 because “cannot require such a measure”.

Project 15 (De Beers Canada Gahcho Kue Diamond Mine)

This REA is set up differently.

Only the Key lines of inquiry and Subjects of note table is coded (Pages 38-43), because “Key lines of inquiry are the areas of greatest concern that in the [RB]’s opinion require the most attention” (Page 11).

The tables give the document numbers by participant.

The assumption is made: count the number of documents for each participant for each issue. Assume the documents are concerns, and so code as the number of concerns.

The assumption is bold, but because the REA is set up so differently, this was decided as the way to count participation in this REA.

Future research can approach this REA differently.

Project 16 (CZC Prairie Creek Phase III Drilling)

Page 19. SAI = 0 because “can be avoided if all of the developer’s commitments are implemented”.

Page 22. EC all concerns not counted, because not concerned in end.

Page 24. [PR62] cannot tell who, so code as Unidentified participants.

Page 24. PR151 cannot tell, so code as Unidentified participants.

Page 25. RB SAI = 0 because “[SAI] ... can be prevented if the developer’s commitments...”.

Page 27. PR64 and 65 = EC.

Page 29. RB SAI = 1 because “likely to have a [SAI] on water quality if additional mitigation against drill waste ... is not implemented”.

Page 31. PR25 attributed to Developer.

Page 32. “members of the public expressing concern” is attributed to Public outside MV.

Page 33.

SPC = 0 because “does not however convince the Board that the level of this concern is significant enough to warrant an [EIR] ...”

But SAI = 1 on cumulative impacts because “likely to experience cumulative, significant environmental impacts”

Project 17 (Imperial Oil Resources Ventures Dehcho Geotechnical Survey)

Page 26. RB SAI = 1 because needs measures and suggestions to prevent SAI.

Counted SKFN TK study within SKFN.

DOT = GNWT.

Page 39. Only RB can issue info requests, but other participants can propose them to the RB. They are attributed to the originating participant. Therefore, here, it's attributed to DAS.

Page 41. Wrigley wanted ... attributed to DAS.

Page 41. DAS recommendation: they have to come to an agreement = \* 2 phases because saying from the beginning.

Page 44. All Proponent statements of potential (negative) impacts = Proponent info statements because in conclusion, Proponent says Not SAI.

Page 48. RB SAI = 1 because "has the potential to contribute to a significant cumulative impact".

Page 56. "In the Wrigley hearing, Elder Edward Hardisty ..." attributed to PKFN, because "Wrigley hearing" assumes community member of Wrigley, which is PKFN.

Page 59. RB SPC = 1 because "found public concern" and "finds that a measure is necessary".

Page 63. Wilson Dimsdale = PKFN, because stated earlier in REA. Assumed Chief Gabe = PKFN. Kelly Pennycook = PKFN, as stated elsewhere in the REA.

#### Project 18 (Dehcho Bridge Corporation Mackenzie River Bridge)

Page 14. NWT and Nunavut chamber of Mines – nothing coded because concern withdrawn.

Page 14. "members of the public in Fort Providence" coded as Fort Providence public, grouped under Public, because it says "members of the public".

Page 22. Mitigations are coded as Commitments.

Page 22. "various potential effects" are Info statements.

"main concern" = Proponent concerns.

"exists the potential for disruption" and rest in that paragraph are Proponent concerns.

Page 23. "concern as raised" PR130 = Unidentified participants.

#### Project 19 (Paramount Resources Cameron Hills Extension Project)

Page 17. SAI and SPC = .

Page 19. Mitigation measures called Commitments.

Page 28. 4.2.3 Split into 2 issues: Caribou; Wildlife other than caribou, because Conclusion RB makes different SAI/SPC decisions for these 2 issues.

Page 31. Measures and Suggestions from 4.2.4 apply to 4.2.3. Therefore, they are counted in 4.2.3 for Caribou. 3 Measures and 1 Suggestion. See page 43.

Page 32. 4.2.4 Split into 2 issues: Cumulative caribou; Cumulative not caribou, because Conclusion RB makes different SAI/SPC decisions for these 2 issues.

Page 43. 3 Measures for caribou and 1 Suggestion for caribou; 1 Suggestion for other than caribou.

Page 47. PR197 = KFN; 198 = FPRMB; 199 = KTFN.

Page 54. SAI = 0 because “finds that any other cultural considerations ... have either been addressed ... or are not sufficient for a determination”.

#### Project 20 (Imperial Oil Resources Ventures Mackenzie Gas Project)

This REA is set up differently. Codes pages 12-19.

This takes the project-level as the issue, because the REA does not give SAI/SPC at anything below the project level.

Gahcho Kue counts the Public Registry documents and assumes each document represents 1 concern. That is not done here. Instead, because each section has a discussion of WHO, the participation in the “text” only is coded.

Page 12 3.3.3. “Fort Simpson community hearing ... Mr. Jim Antoine” attributed to Fort Simpson\_IP.

“Chief Tim Lennie of Wrigley” attributed to PKFN.

Page 13. “This concern appeared to be more prominent in the Deh Cho region” is attributed to Fort\_Simpson\_IP.

Page 14. Sahtu community concerns are attributed to “Sahtu community”.

Norman Wells RCMP concerns attributed to Town of Norman Wells.

Page 15. Social impacts. “Deh Cho elders group” = Dehcho\_com.

Chief Tim Lennie = PKFN.

Ms. Kim Hardisty of Fort Simpson = Fort\_Simpson\_IP.

Ms. Ruth Wright in the Gwich'in = Gwichin\_com.

Ms. Lucy Jackson in the Sahtu = Sahtu\_com.

Page 15. National Chief = Dene Nation

Ms. Alestine André = Tsiigehtchic.

Page 17. Mr. Larry = Norman Wells (IP).

Project 21 (Snowfield Development Corp Drybones Bay mineral exploration)

Page 21. “engagement planned” = Commitments.

Page 22. RB SAI = 0 because “satisfied”.

Page 25. RB SAI = 1 because “in order to address this recurring issue”.

Page 29. RB SAI = 1 because “need for participant funding”.

Page 44. Did not code YKDFN points under 4.4 Cultural landscapes above 4.4.1 because did not go to SAI/SPC decision.

Page 47. “Director of Culture ...” is assumed to be PWNHC.

Page 50. “Aboriginal parties” is attributed to YKDFN, LKDFN, and NSMA each, because I assume from previous paragraphs.

Page 50. RB SAI = 1 because “has decided to prevent [SAI]”.

Page 53. REA has mistake. It says LKDFN in the topic sentence, but says YKDFN after the quote. It’s YKDFN.

Page 55. Measures for 4.4.2 = 5 because “In order to ensure the development is undertaken in a manner to prevent [SAI], the Review Board has addressed these concerns through recommendations addressing archaeological and burial sites in section 4.4.1”. This is when RB made “recommendations” and “suggestions”. There are 5 in 4.4.1.

Page 57. “Drybones and Wool Bay are an important harvesting area for the NSMA membership” ...: Drybones Bay and Wool Bay are counted as 1, rather than all the points multiplied by 2.

Page 61. Elder Michel Paper = YKDFN.

Page 62. Chief Peter Liske = YKDFN.

“want to protect” = YKDFN REJECT.

Page 65. Measures for 4.4.3 Cultural cumulative effects = 5 because “The Review Board recognizes that this impact is potentially significant, but is satisfied that it is adequately addressed through its recommendations made in sections 4.4.1 of this report”. There are 5 because there are 5 in 4.4.1.

Project 22 (New Shoshoni Ventures Drybones Bay mineral exploration)

Page 18. RB SAI = 1 because “did not engage ... as effectively as it could have”.

Page 21. RB SAI = 1 because “in order to address this recurring issue”.

Page 24. RB SAI = 1 because “need for participating funding”.

Page 25. RB SAI = 0 because “does not agree”.

Page 32. RB SPC = . because cannot tell.

Page 41. Did not code under 4.4 and before 4.4.1 because does not go to SAI/SPC decision.

Page 44. “Director of Culture ...” is assumed to be PWNHC.

Page 45. “many deep bays ...” and “particularly noted for Drybones Bay” attributed to LKDFN, because the same paragraph says “show considerable travel between Lutsel K’e”.

Page 45. “Aboriginal parties” is attributed to YKDFN, LKDFN, and NSMA each, because I assume from previous paragraphs.

Page 50. REA has mistake. It says LKDFN in the topic sentence, but says YKDFN after the quote. It’s YKDFN.

Page 57. “current relationship exists between the Dene of Yellowknife and Lutsel K’e ... because our Elders have identified ...” is attributed to LKDFN, for consistency with Project 21.

Page 57. “dishonouring of sacred burial grounds and spiritual sites ...” is attributed to YKDFN for consistency with Project 21.

Page 58. “The parties provided several submissions about past, current and future development that were contributing to ...” is attributed to DKFN, LKDFN, NSMA, and YKDFN for consistency with Project 21, where the REA spells the groups out.

Project 23 (North American General Resources Wool Bay exploration drilling)

Page 15. RB SAI = 0 because “did engage”.

Page 22. RB SAI = 1 because “need for participant funding”.

Page 23. RB SAI = 0 because “does not agree”.

Page 39. Did not code under 4.4 and before 4.4.1 because does not go to SAI/SPC decision.

Page 41. “Director of Culture ...” is assumed to be PWNHC.

Page 43. “Aboriginal parties” is attributed to YKDFN, LKDFN, and NSMA each, because I assume from previous paragraphs.

Page 44. RB SAI = 1 because “to prevent [SAI]”.

Page 46. REA has mistake. It says LKDFN in the topic sentence, but says YKDFN after the quote. It’s YKDFN.

Page 53. Albert Boucher = YKDFN, not LKDFN.

Page 53. “current relationship exists between the Dene of Yellowknife and Lutsel K’e ... because our Elders have identified ...” is attributed to LKDFN, for consistency with Project 21.

Page 54. “dishonouring of sacred burial grounds and spiritual sites ...” is attributed to YKDFN for consistency with Project 21.

Page 54. “The parties provided several submissions about past, current and future development that were contributing to ...” is attributed to DKFN, LKDFN, NSMA, and YKDFN for consistency with Project 21, where the REA spells the groups out.

Page 58. RB SAI = 0 because “will not be significant”.

Project 24 (Encore Renaissance Resources Corp Drybones Bay Preliminary Exploration)

Page 17. RB SAI = 1 because “did not engage all Aboriginal parties ... further community engagement is needed”.

Page 20. RB SAI = 1 because “to address this recurring issue”.

Page 24. RB SAI = 0 because “does not agree”.

Page 40. Did not code under 4.4 and before 4.4.1 because does not go to SAI/SPC decision.

Page 43. “Members of the LKDFN to the YKDFN ...” paragraph all attributed to LKDFN.

Page 43. “Aboriginal parties” is attributed to YKDFN, LKDFN, and NSMA each, because I assume from previous paragraphs.

Page 53. “current relationship exists between the Dene of Yellowknife and Lutsel K’e ... because our Elders have identified ...” is attributed to LKDFN, for consistency with Project 21.

Page 58. RB SAI = 0 because “finds that the individual contribution of ... will be negligible”.

Project 25 (Northrock Resources Summit Creek Exploration Well)

This REA is set up differently. The “Discussion” sections are not coded because they are assumed to be like the “Analysis” sections in other REAs.

Page 12. RWED = GNWT.

Page 15. Under 4.2. Coded Preliminary Screening report, because in 4.3, the RB says they rely on it.

Page 17. “SLWB’s Staff Report ... states that community consultation identified ... as having spiritual value” is attributed to Sahtu\_com\_value or use, because “community consultation” is assumed to be Sahtu communities.

Page 18. “*Rakeké Gok’é Godi*” is called the SHPSJWG, for “report of the Sahtu Heritage Places and Sites Joint Working Group” (page iii).

Project 26 (De Beers Canada Snap Lake Diamond Mine)

Page 18. RB SAI = 1 because “satisfied”.

Page 20. RB SAI = . because “consultation ... Crown’s responsibility”.

Page 22. RB SAI = 1 because “the answer would be to provide participant funding”.

Page 41. 2.3.2. Subsections not counted as subsections, because they are broken down by participant, and that’s not what I want. All subsections counted as 2.3.2.

Pages 42-43. Consultant to INAC counted as INAC.

Page 52. Combined 2.4.1 Summary of Developer’s Submission with 2.4.2 Summary of Responses from the Parties into 1 observation. This observation is counted, but does not go to a SAI/SPC decision.

Page 60. RB SAI = 1 because “still remains the potential for [SAI]”.

Page 61. Proponent’s predicted changes counted as Info statements on page 61 and up to when Proponent starts predicting degree of impact (i.e. third paragraph). They are not counted as concerns or Not concerned, because starting on the third paragraph of page 62, the Proponent says low magnitude, negligible etc. These are counted as not SAI if “negligible” and not concerned otherwise.

Page 62. “Concerns regarding mixing of mine effluent ... discussed in Section 2.6” is counted as 1 Unidentified participants’ concern. I do not go to Section 2.6 to count those concerns here.

Page 64. 2.6 Surface water quality. This section is structured differently. Therefore, the following sections are added together into 1 observation, which is counted to account for full participation, but does not go toward a SAI/SPC decision:

- Front part right under 2.6
- 2.6.1 Summary of Developer’s submissions
- 2.6.2 Summary of Responses from the Parties front part right under 2.6.2 but before “Phosphorus Enrichment – Eutrophication”
- Page 73 “Baseline data collection”

Page 71. 2.6.2 “Phosphorus Enrichment – Eutrophication” put under 2.6.3.2 Phosphorus and Dissolved Oxygen. The sections are added together.

Page 71. 2.6.2 “Dissolved oxygen response in Snap Lake” put under 2.6.3.2 Phosphorus and Dissolved Oxygen. The sections are added together.

Page 72. 2.6.2 “Total dissolved solids and effluent mixing in Snap Lake” put under 2.6.3.4 Certainty of mixing of TDS in Snap Lake. The sections are added together.

Page 73. 2.6.2 “Site Specific water quality benchmarks” put under 2.6.3.5 Site specific water quality benchmarks. The sections are added together.

Page 73. 2.6.3 Key issues. Right under this heading nothing coded because all assumed to be specified in subsequent sections.

Page 74. 2.6.3.1. AEMP. “All Parties to the EA spoke to the need for ” ... is attributed to 1 recommendation each to the following list of Parties, from page 3.

Indian and Northern Affairs Canada (INAC);

- Fisheries and Oceans Canada (DFO);
- Natural Resources Canada (NRCan);
- Environment Canada;
- Government of the Northwest Territories (GNWT);
- Yellowknives Dene First Nation (YKDFN);
- North Slave Metis Alliance (NSMA);
- Dogrib Treaty 11 Council;
- Lutsel K’e Dene First Nation (LKDFN);
- Northwest Territory Metis Nation;
- Metis Nation, Rae-Edzo Local #64;
- Dene Nation;
- Canadian Arctic Resources Committee (CARC);
- NWT and Nunavut Chamber of Mines;
- World Wildlife Fund Canada - Yellowknife; and,
- World Wildlife Fund Canada - Toronto.

Page 74. “There were two over-riding concerns ... The need to ... and the need to ...” is counted as Unidentified participants’ recommendations = 2. They are counted as recommendations, because they are “need”, despite being called concerns.

Page 76. 2.6.3.2 Phosphorus and dissolved oxygen. Proponent predictions of phosphorus increasing and oxygen decreasing are counted as Info statements, because Proponent concludes not concerned and no [SAI] were identified.

Page 77. 2.6.3.3. Proponent predictions coded as Info statements.

Page 82. 2.7. Section right under heading not coded because REA analysis and will be covered more specifically in subsequent subsections.

Page 85. 2.7.2 Summary of responses from the Parties:

“Adequacy of baseline data – aquatic biology” put under 2.7.3.1 Adequacy of baseline data – aquatic environment. The sections are added together.

“Dissolved oxygen and eutrophication” put under 2.7.3.2 Phosphorus and dissolved oxygen. The sections are added together.

“Effects of elevated TDS” put under 2.7.3.3 Effects of TDS on aquatic life. The sections are added together.

“Assessment methods and end points” put under 2.7.3.5 Assessment endpoints and keystone species. The sections are added together.

“Multiple stressors and interactive effects” put under 2.7.3.6 Toxicant interactions. The sections are added together.

Page 87. “Various elders” attributed to DT11C, because follows DT11C and in the same paragraph.

Page 88. 2.7.3 Key issues. Section right under this heading not coded because signpost for subsequent sections.

Page 89. RB SAI = 0 because “conclude that the inadequacies ... are not so serious as to prevent”.

Page 90. The last paragraph is counted as Proponent info statements, instead of concerns, because the Proponent does not predict SAI.

Page 96. RB SAI = 1 because “remains a potential for [SAI]”. Despite page 95: “350 mg/L of TDS ... not likely to generate [SAI]”.

Page 103. Mitigation is counted as Commitments.

Page 114. 2.10.3 Key issues. Section right under this heading not coded, because signpost for more specific sections.

Page 122. LDFN = LKDFN.

Page 129. Use ... by ... Chipewyan is coded as Unidentified participant value or use because they did not participate.

Page 137. RB SAI = 1 because “The Board is concerned over the contribution of this project to GHG emissions”.

Page 140. 2.14 Environmental health. 2.14.1 Summary of Developer’s submissions not coded because it’s repeated in 2.14.3. 2.14.2 (Summary of responses from the parties) and 2.14.3.1 (Effects on wildlife and human health) are added together to go toward the SAI/SPC decision. Usually, 2.14.2 would not be included. However, 2.14.2 contains participation that goes toward the issues discussed under 2.14.3.1 (e.g. dust).

Page 148. “concluded that cumulative impacts are likely to occur for caribou, grizzly bear, wolves and wolverines” ... is coded as Proponent Info statements, because later the Proponent concludes they are “low overall consequence”.

Page 149. EBA Engineering Consultants ... attributed to Unidentified participants’ info statements.

Page 149. Second and third bullets in last paragraph attributed to Unidentified participants’ concerns.

Page 150. 2.15.3 Key issues. Section right under heading not coded because signpost for more specific sections.

Page 156-157. DT11C referring the Board to the NRC report. The NRC excerpts are all attributed to DT11C.

Page 173. “All of the Parties to the EA recognized that positive benefits would accrue to the NWT”.

Page 3.

- Indian and Northern Affairs Canada (INAC);
- Fisheries and Oceans Canada (DFO);
- Natural Resources Canada (NRCan);
- Environment Canada;
- Government of the Northwest Territories (GNWT);
  
- Yellowknives Dene First Nation (YKDFN);
- North Slave Metis Alliance (NSMA);
- Dogrib Treaty 11 Council;
- Lutsel K’e Dene First Nation (LKDFN);
- Northwest Territory Metis Nation;
- Metis Nation, Rae-Edzo Local #64;
- Dene Nation;

- Canadian Arctic Resources Committee (CARC);
- NWT and Nunavut Chamber of Mines;
- World Wildlife Fund Canada - Yellowknife; and,
- World Wildlife Fund Canada - Toronto.

Page 176. RB SAI = 1 because “necessary to prevent significant adverse socio-economic impacts”.

Page 177. RB SAI = . because didn’t say much.

Page 178. RB SAI = . because didn’t say much.

Page 180. RB SAI = 1 because “opinion that additional measures should be considered”.

Page 182. 2.17.1. Nothing coded.

Page 185. 7 measures not repeated, because from before. Only the details that are new are coded. E.g. for each of the 5 bullets, the general measure is not coded; only its details, which are new relative to the above, are coded.

Page 186. IBAs are being negotiated ... is coded as Proponent commitments.

Page 191. For three issues 2.17.4.1; .2; .3, all commitments coded, although they were stated in the header information in 2.17, because that participation is recorded just for a full account of participation, but does not go to a SAI/SPC decision.

Page 196. The negative possible effects acknowledged by DB are coded as concerns because DB does not say later that there is no concern regarding these.

Page 198. “concerns were echoed by the NSMA”: copied concerns by LKDFN in same paragraph and attributed to NSMA.

Pages 199-200. 4 suggestions for whole section.

Attributed S34 and S35 to 2.17.4.1 because they’re related by talking about commitments to support the community.

Attributed S36 and S37 to 2.17.4.3 because they’re related. S36 talks about “annual reports on results achieved under ... Socio-economic Agreements”. This relates to the GNWT report. S37 is related by saying to “study the links between industrial development and socio-cultural conditions”.

Page 204. 2.19. 2.19.1 and 2.19.2 are included with 2.19.3.1 to go toward the SAI/SPC decision, because the SAI/SPC decision on page 207 reads like it’s for the whole section (2.19), instead of just 2.19.3.1.

Page 212. RB SAI = 0 because “satisfied”.

Page 214. RB SAI = 0 because “In the opinion of the Board, sufficient experience exists in the mining industry” and “confident that these features can be optimized”.

Page 220. RB SAI = 0 because “provides a sufficient level of detail”.

Page 224. RB SAI = 0 because “acceptable”.

Project 27 (Western Geco Mackenzie River 2D Seismic)

Page 14. RB SAI = 0 because “provided a good basis for understanding the noise”.

Page 24. McCauley et al. paper attributed to GRRB, because GRRB referred to it.

Page 27. 9.5. All concerns attributed to DFO, GRRB, SRRB, and DFN (12 each).

Page 30. IR by DFN is attributed to DFN, although it says RB issued it, because RB is the only one that can issue IRs. Parties must ask RB to issue them.

Project 28 (CZC Fuel Cache Retrieval and Clean-up development)

Start coding at Page 11. Appendix 2.

Page 16. CPAWS reasons for rejection = concerns. “Government of Canada” = INAC here.

Page 19. Consultation. RB SAI = 0 because “efforts made by CZN were sufficient”.

Page 21. RB SAI = 1 because “alternatives are rejected without adequate justification”.

Page 21. RB SAI = 1 because “has not provided adequate information”.

Project 29 (CZC Underground decline and pilot plant)

Page 24. Headings are by Participant. I change this and record them by sub-issue in excel.

Page 29. Coded all LKFN concerns under “Liidlii Kue First Nation” under “Water Quality”.

Page 33. “Impact of tailings dam geotechnical integrity on water quantity”. There is much repetition in terms of the Proponent’s responses, because the REA is set up by Participant, instead of sub-issue here. Integrated responses from Proponent for all such sub-issues, so only count distinct responses.

Page 36. Coded all DFN concerns and Proponent responses under “Deh Cho First Nations” under “Water Quantity”.

Page 37. Conclusions. Since the headings under Conclusions do not match exactly with the headings describing participation behaviour, all sub-headings under Water quantity and quality are added together and associated with the RB SAI decision = 1.

Page 38. 10 measures counted because by bullets.

Page 41. RB SAI = 1 because “might impact the bull trout”.

Measures = 10 because “The potential impact on the bull trout population as a result of the change in water quality should be mitigated through the application of measures recommended by the Review Board in section 6.4.4.”. (10)

Page 43. Any references to the *National Parks Act* saying protection would be the first priority and the Panel ... saying the core of PC’s mandate ... are coded as Recommendations.

Page 47. “RB is also concerned that unalterable land use decisions may result in [SAI]”.

Page 50. RB SAI = 1 because “concludes that a revised flood estimate ... is warranted” and “to prevent [SAI]”, imposes measures.

#### Project 30 (Paramount Resources Cameron Hills Gathering System)

Page 26. Proponent citing research and its recommendations are attributed to Unidentified participants’ recommendations.

Page 31. RB SAI = 0 because “consultation effort undertaken ... was generally reasonable”.

Page 32. “KTFN identify some concerns ...” is attributed as KTFN recommendations (5) and concerns (1), because they are evaluated individually.

All 5 recommendations became measures because the RB recommends as a measure “Paramount revises its ... process to incorporate the concerns of aboriginal communities”.

Page 33. Elders’ statements about hunting attributed to KTFN value or use .

Page 39. The Benefits Plans require Paramount to ... are coded as Commitments, because Paramount will do them.

Page 54. RB SAI = 0 because “are acceptable”.

#### Project 31 (Canadian Zinc Corp Prairie Creek Phase II Mineral Exploration Drilling Program)

Page 12. RB SAI = 0 because “accepts the communication and consultation efforts”.

Page 12. RB SAI = 0 because “concluded that ... enabled a reasonable and realistic reporting”.

#### Project 32 (Paramount Resources Cameron Hills Exploratory Drilling Project)

Page 17. RB SAI = 0 because “finds that the consultation effort ... is acceptable”.

Page 18. RB concludes “MVLWB should also consider the recommendation made by the GNWT”. These are not counted as became measures. This may be under-estimating degree to which participants influence the RB. This applies moving forward.

Page 19. “Review Board is also of the opinion that minimizing environmental impacts and efficiency of land use should be factors” is counted as RB concerns = 2 instead of RB recommendations, because there is no variable for RB recommendations.

Page 24. Many statements that otherwise sound like RB analysis are coded as Proponent statements, because it is assumed they came from the Proponent.

Page 32. RB SAI = 0 because “has provided adequate information on how”.

Project 33 (Patterson Sawmill Pine Point Area Timber Harvest Proposal)

Page 9. RB SAI = 0 because “accepts the communication and consultation effort”.

Page 11. RB SAI = 0 because “reasonable”.

Page 12. RB SAI = 0 because “accepts ... no viable alternatives”.

Page 16. RB SPC = 1 because “may cause [SPC]”.

Project 34 (Paramount Resources Liard East Exploratory Drilling Program)

Page 18. RB SAI = 0 because “efforts ... were sufficient”.

Page 19. RB SAI = 0 because “has sufficient considered environmental factors”.

Page 20. “Review Board is also of the opinion that minimizing environmental impacts and efficiency of land use should be factors” is counted as RB concerns = 2 instead of RB recommendations, because there is no variable for RB recommendations.

Project 35 (Canadian Zinc Corp Prairie Creek Phase I Mineral Exploration Drilling Program)

Page 11. RB SAI = 1 because “the way CZN predicted ... limited subsequent analysis”.

Page 23. Ignore REA on the CZC Cat Camp Fuel Cache Retrieval and Clean-up Development dated May 2001 because it is replaced by the July 2002 REA (Project number 28).

Project 36 (BHP Diamonds Ekati - Sable, Pigeon and Beartooth Pipes expansion)

Page 15. Spatial boundaries and Temporal boundaries counted as 2 issues, because 2 different SAI/SPC decisions. The statements under 4.2 are distributed between the 2 issues.

Page 16. On spatial: RB SAI = 0 because “were adequate”.

Page 16. On temporal: RB SAI = 1 because “longer temporal boundaries should have been recognized”.

Page 18. RB SAI = . because agrees with GNWT but disagrees with KIA and IEMA.

Page 19. RB consultant – only coded Not concerned (3), because that was conclusion. I.e. did not code earlier concerns.

Page 20. Proponent concerns about alternative (winter road) are coded as Proponent not concerned, because it is against problems with the project.

INAC concerns about the alternative are also coded as Not concerned.

RB SAI = 0 because “concur with DIAND and BHP ... land use impact would appear to be minimized with an all-season road”.

Page 21. RB SAI = 0 because “notes that BHP is engaged ... looks forward to the results of BHP’s study”.

Page 23. “[RB] concurs with the recommendations of the [IEMA] and [EC]” and then lists 9 Measures. This is coded as IEMA giving 9 recommendations and EC giving 9 recommendations, and all of them becoming measures.

Page 27. GLL = RB consultant.

Page 32. Second to last paragraph. BHP statements all coded as concerns, because unlike in other situations, BHP does not conclude Not concerned at end.

Page 36. Effects on bears = Proponent info statements, because unclear if are concerns or not concerned. Effects on foxes have info statements and not concerned, because the latter parts are not concerned. Effects on wolves and wolverines = Proponent concerns, because the REA states “the predicted effects ... were more substantial” and it does not say Proponent is not concerned at the end.

Page 41. RB SAI = . because “cannot make findings of significance”.

Project 37 (ExplorData Liard Seismic Survey)

Page 22. DOE = EC.

Project 38 (Ranger Oil Ltd./Canadian Forest Oil Ltd./Chevron Oil Resources Ltd. Integrated P-66A/N61/K-29 Gas Wells and Pipeline Tie-in)

Page 19. RB SAI = . because cannot tell.

Page 20. “concerns raised by residents in the community of Fort Liard” are coded as Fort Liard community member concerns (on the Indigenous Peoples side).

Page 21. RB SAI = . because “uncertain”.

Page 28. RB SAI = 1 because “[RB] recognizes ... would increase the amount of disturbed land ... concurs with government over concerns ... also recognizes the potential impacts that global warming ... could have on the proposed pipeline”; 4 recommendations.

Page 29. The “conclusion” and “RB analysis” parts are not usually coded. Here, however, the “Recommendation” (or Measures) part is coded. Therefore, the 2 recommendations it refers to from GNWT and INAC are coded.

Page 32. RB SPC = 1 because “recognizes the public concern ... NWT environment is generally pristine, and this suggests a need to institute a program”. 3 recommendations; 1 suggestion because “encouraged”.

Page 33. RB SAI = 1 because “[RB] recognizes the importance of baseline information ... also recognizes the lack of baseline information”; 2 recommendations.

Page 35. RB SAI = 1 because “[RB] expects the developer to implement a program”.

Page 37. RB SAI = 1 because “existing draft benefits plan ... does not deal with these problems ...”.

Page 39. RB SAI = 0 because “recognizes the work to be undertaken by the developer”.

Page 40. RB SAI = . because didn’t say.

Page 40. RB SAI = . because “matter outside of the Terms of Reference”.

Page 41. RB SAI = 1 because RB has concerns. This is an issue for which the RB does not say SAI or not, because it is not usually amenable to a SAI/SPC decision. However, it is coded as 1 because RB has concerns.

The statements that [RB] “would like to see ...” are coded as 5 Measures, which is an imputation.

#### Project 39 (Bruce Domes Timber Harvest Proposal)

Page 1. Development Description. Coded as Proponent not concerned (2); commitments (6). These are included in both issues: Public concern; Environmental concerns. I.e. each issue has 2 Proponent not concerned and 6 Proponent commitments.

## Appendix 4: Clustering standard errors by four other dimensions

Table A4.1: Clustering standard errors by four other dimensions

Clustering by	Oppose					Support				
	No clustering (Robust std. errors)	Project	Issue type	Project-Issue type	Chair	No clustering (Robust std. errors)	Project	Issue type	Project-Issue type	Chair
<b>Proponent total</b>	0.0026	0.0026	0.0026	0.0026	0.0026	-0.0015	-0.0015	-0.0015	-0.0015	-0.0015
<b>Gov</b>	0.0074***	0.0074***	0.0074***	0.0074***	0.0074***	-0.0107	-0.0107*	-0.0107	-0.0107	-0.0107***
<b>Unsettled IP</b>	0.0021	0.0021	0.0021	0.0021	0.0021	-0.027	-0.0270*	-0.027	-0.027	-0.027
<b>Settled IP</b>	0.002	0.0020**	0.002	0.002	0.0020**	-0.0018	-0.0018	-0.0018**	-0.0018	-0.0018
<b>Other IP</b>	-0.004**	-0.0040**	-0.0040*	-0.0040**	-0.0040***	-0.0389	-0.0389	-0.0389	-0.0389	-0.0389
<b>Env</b>	0.0028	0.0028	0.0028	0.0028	0.0028	-0.5322***	-0.5322***	-0.5322***	-0.5322***	-0.5322***
<b>Industry</b>	-0.0210***	-0.0210***	-0.0210***	-0.0210***	-0.0210***	0.0305	0.0305	0.0305**	0.0305	0.0305
<b>RB total</b>	0.0122***	0.0122***	0.0122***	0.0122***	0.0122***	-0.021	-0.0210**	-0.021	-0.0210*	-0.0210*
<b>Muni</b>	-0.0057	-0.0057	-0.0057	-0.0057	-0.0057	0.0585	0.0585	0.0585***	0.0585	0.0585
<b>Poli</b>	0.0369	0.0369	0.0369	0.0369	0.0369	0.2306	0.2306	0.2306	0.2306	0.2306
<b>Public total</b>	-0.0267	-0.0267	-0.0267	-0.0267	-0.0267	-0.0684	-0.0684	-0.0684	-0.0684	-0.0684
<b>Unidentified</b>	0.0045	0.0045	0.0045	0.0045	0.0045	-0.0065	-0.0065	-0.0065	-0.0065	-0.0065
<b>Constant</b>	0.008	0.008	0.008	0.008	0.008	Oppose and Support for each group are included; split for presentation				

## Appendix 5: Alex Debogorski's Diamond exploration: A cautionary tale of potential legislative gaps, barriers, and rigidities

In 14 projects, some Unsettled land claimant wanted to reject the project. The Review Board heeded these calls only twice, by rejecting 2 projects. Five of these projects were all in the Drybones Bay area of the Southeast NWT. One of these projects (Alex Debogorski Diamond exploration) shows the barriers for Unsettled land claimants in the *MVRMA*.

A project that shows what could be viewed as legislative gaps, barriers, and rigidities is Alex Debogorski's Diamond Exploration, a project in the Drybones Bay area for which EA completed in 2012. YKDFN strongly wanted the project rejected, on the basis that four previous EAs had found the area significant to them and made the following Suggestion. In two of three EAs completed together on February 10, 2004 (North American General Wool Bay, and Encore Renaissance Drybones Bay), the MVEIRB (2004c, p. 58; 2004d, p. 58) suggested that "no new land use permits should be issued for proposed developments within the Shoreline Zone, and within Drybones Bay and Wool Bay proper, ... until a plan has been developed to identify the vision, objectives, and management goals based on the resource and cultural values for the area. This plan should be drafted and implemented with substantive input from Aboriginal parties. The plan should specifically address future development and include provisions for protecting sensitive environmentally, cultural, and spiritual sites. This exercise should be completed within 5 years and provide clear management prescriptions for the future development of this region". The MVEIRB (2004e, p. 65) made the same Suggestion for an EA completed on February 25, 2004 (Snowfield Development Drybones Bay). The Review Board rejected the 3<sup>rd</sup> EA completed on February 10, 2004 (New Shoshoni Ventures Drybones Bay).

However, no one had implemented the Suggestion and the application went to Preliminary Screening. Since the YKDFN lacked rejection powers at Preliminary Screening for non-conformity with an approved land use plan under the *MVRMA* and the Review Board process diagram, they could not prevent the MVLWB from referring the project to EA. The MVLWB could only follow the *MVRMA*, which does not allow rejection at Preliminary Screening. When the project was referred to EA, the Review Board had to conduct the EA because s. 126(1) of the *MVRMA* required it to. The Review Board recommended approval of the project. This is despite the YKDFN stating they had made it clear in five EAs that no development is acceptable in Drybones Bay. The Minister adopted the Review Board's core recommendation, as it has for all 39 projects. YKDFN sought judicial review in the Federal Court of Canada (*Yellowknives Dene First Nation v. Canada (Aboriginal Affairs and Northern Development)*, 2013 FC 1118) and again in the Federal Court of Appeal (*Yellowknives Dene First Nation v. Canada (Aboriginal Affairs and Northern Development)*, 2015 FCA 148) and lost in both. I argue below that a higher standard of review applied in both situations contributed to the losses and that participants seeking the court to change the EA decision will always face this higher standard of review given the nature of the EA decision.

Seeking judicial review means asking the court to review an administrative agency's decision. The court does so according to a "standard of review". This standard determines how much deference or respect the court will apply to the tribunal's decision. There are two standards: correctness and reasonableness (*Dunsmuir v. New Brunswick*, 2008 SCC 9, para. 34).

If the court applies the correctness standard, it asks if the tribunal's decision was correct (*Dunsmuir*, para. 50). The court is not deferential to how the tribunal reached the decision. Instead, the court will make its own decision and see if it agrees with the tribunal. If the court determines the tribunal was incorrect, the court will substitute its own answer. In contrast, the reasonableness standard is deferential or respectful of the tribunal's decision. It flows from the idea that there isn't one correct answer to questions before tribunals (*Dunsmuir*, para. 47). Rather, the tribunal can reach a range of reasonable decisions. The court will examine if the decision-making process and decision were reasonable. It wants to know if the decision-making process was justified, transparent, and intelligible. It also examines if the decision is in a range of possible decisions that are acceptable and defensible in fact and law. From the perspective of Parties trying to overturn the Review Board's decision, they would face an easier time if the court applied correctness. In the event the court applied reasonableness, if the court views the Review Board's decision as being in a range of acceptable and possible decisions, the court will uphold that decision.

I argue that Parties will always face the higher standard of review in trying to overturn the Review Board's decision because the nature of the decision always attracts this higher standard. This is because the court must consider several factors to determine which standard of review to apply (*Dunsmuir*, paras. 51-64). The Court held that correctness usually applies to questions of law while reasonableness usually applies to questions of fact (*Dunsmuir*, para. 51). I argue that Review Board SAI/SPC decisions are all factual, instead of only legal. Indeed, the Federal Court and the Federal Court of Appeal both applied the reasonableness standard in the YKDFN's suits, because they involved questions of fact or questions of mixed fact and law instead of only questions of law. Since Review Board SAI/SPC decisions are all factual, they will all attract the higher standard of review.

Thus, the lack of powers at Preliminary Screening to reject projects for non-conformity with an approved land use plan for Unsettled land claimants and its requirements that Preliminary Screeners refer projects to EA and that the Review Board must conduct an EA (without contemplating the possibility that the project should never have been applied for if a previous Review Board suggestion for planning before development had been implemented) caused the project to enter EA, where it was recommended for approval. The empirical reality of the Minister having always adopted the Review Board's core recommendation ensued. Finally, the higher standard of review in judicial review for questions of mixed fact and law contributed to making it harder for YKDFN to convince the court to overturn the EA decision.

This case study shows that there needs to be awareness of possible legislative barriers (no rejection power at Preliminary Screening) and rigidities (requiring referral to EA and requiring EA to be conducted). Unintended consequences of the inertia of the rules (the combination of no rejection power and requiring referral and conducting of EA) need to be contemplated to prevent a similar result. There also needs to be recognition that EA often attracts the higher of two possible standards of review during judicial review because EA is mainly mixed fact and law. Thus, arguably, it is important for the legislation governing EA to remove disadvantages for participants, especially Indigenous Peoples, as much as possible during EA, so they do not have to go to judicial review after EA and face that higher threshold to change EA decisions.