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Community Involvement in Mine Remediation

Insights from Northwest Territories, Canada

Hannah L. Hoefer

Master's thesis in Governance and Entrepreneurship in Northern and Indigenous Areas
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Abstract

Across Canada and the Northwest Territories (NWT), abandoned mines have held their place as literal and figurative memories of historical mining malpractices, with mine closure and remediation in Northern areas gaining traction in Canada to bring environmental, economic, and social restitution from years of neglect and land misuse. However, the focus on technical aspects of mine closure have historically limited the extent to which local engagement is considered in the planning phases of mine closure and remediation. This thesis examines the characteristics of good practices for Northern community engagement in mine remediation, and, specifically, how the Giant Mine Remediation Project (GMRP) in Yellowknife, NWT has employed community engagement throughout the planning stages. Methods included a review of project remediation documents, informed by good-practice principles for public and Indigenous engagement. Results of this study indicate that the GMRP largely considers public engagement within its planning stages. However, fair and open dialogue, along with adequate and accessible information between Developer and the public were least evident. Further, capacity building for Indigenous Peoples and communities lacked fulsome consideration specifically in planning documents. The conclusions support similar findings that Indigenous communities require greater financial resources to build capacity and meaningful incorporation of traditional knowledge. Indicators of success and public oversight committees may provide greater opportunity to strengthen local knowledge and participation in the remediation phase of the mine cycle. While this project is limited in scope, it is hoped these findings will aid in enhancing the effectiveness of community engagement in Northern mine remediation and Indigenous participation, while demonstrating the success that the regulatory regime in the NWT and Northern Canada has in developing greater public participation.

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Glossary

Abbreviation	Definition
CRP	Closure and Reclamation Plan
DtC	Duty to Consult
EA	Environmental Assessment
GMRP	Giant Mine Remediation Project
IBA	Impact Benefit Agreement
MVEIRB	Mackenzie Valley Environmental Impact Review Board
MVLWB	Mackenzie Valley Land and Water Board
MVRMA	Mackenzie Valley Resource Management Act
NAMRP	National Abandoned Mine Remediation Project
NAOMI	National Abandoned/Orphaned Mine Initiative
TK	Traditional Knowledge
YKDFN	Yellowknives Dene First Nation

Introduction

In 2021, the Giant Mine Remediation Project (GMRP) began its remediation work after over a decade of planning and preparation. The $1-billion (CAD) project will see the clean-up of the mine site, including freezing approximately 237,000 tonnes of arsenic trioxide dust, a highly poisonous compound used in the extraction of gold over the mine's lifespan (CIRNAC, 2019). The clean-up of the Giant Mine is part of a larger shift by the Federal government to remediate major contaminated sites across the Canadian North, specifically focusing on the highest risk abandoned mine sites in the Northwest Territories (NWT) and Yukon Territory under the Northern Abandoned Mine Reclamation Program (NAMRP). While only addressing a limited number of contaminated sites, this increased funding and focus on contaminated sites in the North is needed to bring environmental, economic, and social restitution from years of neglect and land misuse. Since the 1990s, focus on mine closure best practices has grown to recognize the ecological and economic security and sustainability of mine closure (International Council on Mining and Metals, 2019; Laurence, 2006; Monosky & Keeling, 2021). Today, greater attention is being delegated towards incorporating social and cultural issues into closure planning to ensure that communities benefit from this stage of the mine cycle, specifically with a focus on Northern abandoned mine site remediation (Beckett & Keeling, 2019; Sandlos & Keeling, 2016; Wnig & O'Reilly, 2005).

The volatile economic nature of the mineral industry paired with a historically limited regulatory environment favouring mine development and lack of consideration for mine closure often meant that mines shut down production abruptly as changes in commodity prices fluctuated, leaving behind more than 10,000 abandoned mines across Canada (Beckett et al., 2020). In Northern Canada, the impact of abandoned mines can be seen across the landscape,

costing taxpayers billions of dollars, with over $4-billion already earmarked for Federal securities on only a handful of contaminated abandoned mine sites (Government of Canada, 2021). Over 70 contaminated sites have been identified by the Northern Contaminated Sites Program across the Canadian North since 2010 (Sandlos et al., 2019), with an additional 37 abandoned mines as of 2000 in the NWT (MacKasey, 2000). However, Keeling and Sandlos (2017) point out that the number of 'zombie mines' (i.e., abandoned mines) across the Canadian North may perhaps be difficult to number due to limited publicly available information and disaggregated nature of the information presented to the public. Despite this, the closure phase of mines has historically been neglected, often causing mines to be abandoned and ownership (and, thus, responsibility) devolved to the Federal and territorial governments with enormous costs associated (Dance, 2015; Keeling & Sandlos, 2017). Furthermore, recent scholarship suggests that mine closure – whether for legacy or contemporary mines – remains heavily focused on technical, engineering, and environmental closure requirements, while frequently neglecting the socioeconomic and cultural impacts of closure on communities and populations (Beckett & Keeling, 2019; Monosky & Keeling, 2021a).

The integration of greater community involvement within mine remediation, specifically for abandoned sites, has been highlighted as essential to ensuring that a remediation project is successful (Monosky & Keeling, 2021a). In measuring the success of a mine closure project and community engagement and inclusion, the International Council on Mining and Metals (ICMM, 2019) outline that mine closure projects should:

- Engage consistently and transparently with stakeholders
- Incorporate communities in closure plan development and vision
- Include a variety of different stakeholders in planning through public engagement

- Consult meaningfully with affected Indigenous communities.

These specific considerations for mine closure will help to gauge the level of social success a project has had in engaging and incorporating communities and local stakeholders, which should be used in tandem with technical and economic indicators of success. Regardless, the lack of community inclusion in remediation has often been criticized across the Canadian North as lacking substance or failing to meet standards needed for community buy-in to project development, particularly as it relates to affected Indigenous communities. Incorporating greater stakeholder engagement and community involvement is vital to ensuring that the remediation of abandoned mines in the Canadian North is effective and meaningful.

As the mine reclamation environment grows and focus on the clean-up of abandoned mines in the NWT gains traction through public funding and local support, a greater opportunity to engage local stakeholders and Indigenous Peoples exists. Despite the general focus of closure planning on technical, mechanical, and engineering aspects, there is a growing emphasis on how community inclusion and engagement in mine closure planning and implementation processes (Beckett & Keeling, 2019). In the NWT, the clean-up of the Giant Mine demonstrates some of the social changes to mine closure and remediation practices and may be used as an example to inform practices of good community engagement in abandoned mine remediation across the North.

Background

Across the world and Canada, mining has become a powerhouse economic driver and wealth generator. The NWT has relied heavily on the mining industry for decades, with the extractive industry being one of the major private economic drivers of the territory (Impact Economics, 2019). Despite this, years of extraction across the territory have left its mark on the

land, with many abandoned mine sites literally and figuratively representing the historical lack of proper care and closure that is more represented in contemporary mining projects.

Abandoned mine sites in the NWT exist across the territory, some of which are located near large settlements (such as Giant Mine, located 5 kilometres outside of the NWT capital, Yellowknife), presenting both environmental and social challenges for Northern residents. As a growing political, environmental, cultural, and social concern, abandoned mine clean-up is generating discussions as to the extent of community engagement and incorporation into the planning process, especially in projects that are situated close to communities. Today, communities are often forced to deal with the various repercussions of abandoned mine sites, including environmental dangers and loss of culture (Edwards & Maritz, 2019). These repercussions can have devastating effects, often manifested negatively to Indigenous Peoples and communities (Monosky & Keeling, 2021b). For example, Keeling & Sandlos (2017) describe Indigenous perspectives on two major NWT mines (i.e., Giant Mine and Pine Point Mine) and their subsequent remediation as historical displays of 'colonial land appropriation and environmental degradation' (p. 381) that counters non-Indigenous perspectives that view these sites with pride. Further, Slater et al. (2011, p. 181) describe how the effects of abandoned mines on traditional territories has affected valuable food sources and teaching youth Indigenous land use and culture.

Despite these repercussions, abandoned mine closure planning practices have been advancing tools for greater local community engagement that realize the benefits of ensuring that local involvement is included and meaningful. Engaging communities in the non-renewable resource economy has been relatively well studied over the last 20 years, with increased awareness of how communities are not only affected by the various stages of development

(including Indigenous Peoples involvement) but are also developing ways to incorporate local knowledge and involved throughout the planning and operational stages of mining. For example, Jeffrey et al. (2015) demonstrated that Indigenous involvement in the remediation of the Sä Dena Hes mine in the Yukon from the onset of clean-up maximized Indigenous employment numbers (upwards of 60% of man-hours on site were from Indigenous workers) and involvement throughout the project. In contrast, Monosky and Keeling (2021) demonstrate that including social considerations in mine closure policies (such as community engagement) can help to ensure more positive environmental, economic, and social outcomes, while Prno et al. (2021) concluded that adapting and tailoring community engagement processes can lead to enduring community support for mining projects. Understanding the importance of meaningful community engagement is an integral aspect to mine remediation, ensuring that communities understand their role, Industry acknowledges their impact, and government values a robust remediation environment.

Research continues to demonstrate the need for and benefit of community participation in planning processes of mine remediation (e.g., Holcombe et al., 2021; Monosky & Keeling, 2021a). According to the ICMM (2019), engaging stakeholders throughout the entirety of closure planning will aid in shaping key aspects of the mine remediation design, ensuring that communities are set up for greater success and involvement throughout active remediation and long-term monitoring. Today, the focus of mine closure activities for both contemporary and legacy mines has moved from a strictly technical approach towards a greater emphasis on cultural and socioeconomic planning that enhances affected communities and peoples.

Mine Remediation Regime

Mine closure and remediation (also known as reclamation) involve all the planning and operational aspects of shutting down a mine after its operational or development phase (Monosky & Keeling, 2021a). In most cases, this involves the decommissioning of open pits, buildings, and infrastructure, as well as stabilizing hazardous waste materials and returning the environment as close to its initial state as possible. Historically, the nature of the mining industry and the 'boom-and-bust' cycle led to many mines shutting down prematurely and leaving behind mine sites in various levels of repair. The legacy of mining in the NWT is mixed; while it has provided for greater employment, economic development, and meeting global mineral resources, the development of mines has historically left negative impacts on the environment, Indigenous and Northern communities, and contributed to the 'boom-and-bust' cycle of the NWT economy (Wenig & O'Reilly, 2005).

Prior to a more rigid and complex environmental assessment (EA) regime, mines across Canada and in the NWT had less stringent requirements for clean-up and closure. An early era of a tolerant regulatory environment afforded lax rules to how companies were held responsible for their clean-up initiatives, particularly when companies fell bankrupt and could no longer be financially burdened by reclamation and closure (Dance, 2015). While such laxness has been addressed in more recent Northern EA standards, the burden of abandoned mine sites has marked many Northern areas to various degrees. Consequently, the Crown and territorial governments have been forced to take up the reins of these abandoned mines and their environmental, economic, cultural, and social impacts (Dance, 2015).

The NWT is governed by various systems and multiple levels of governance regimes. While there are influences from the Federal government on matters related to national guidelines

on pollution release and health standards, territorial regulatory regimes arguably have most of the power to deciding reclamation of mines on their lands (Dance, 2015). Unlike many other sectors, there appears to be very little in terms of the creation of an overarching, single vision of the reclamation regime in the NWT (Dance, 2015). Rather, the process is a mixed bag of various legislations, regulations, policies, and processes that dictate the ways in which remediation should be completed by each individual project (Figure 1), whether it be an operational mine moving towards clean-up or an abandoned mine site that has extensive remediation required.

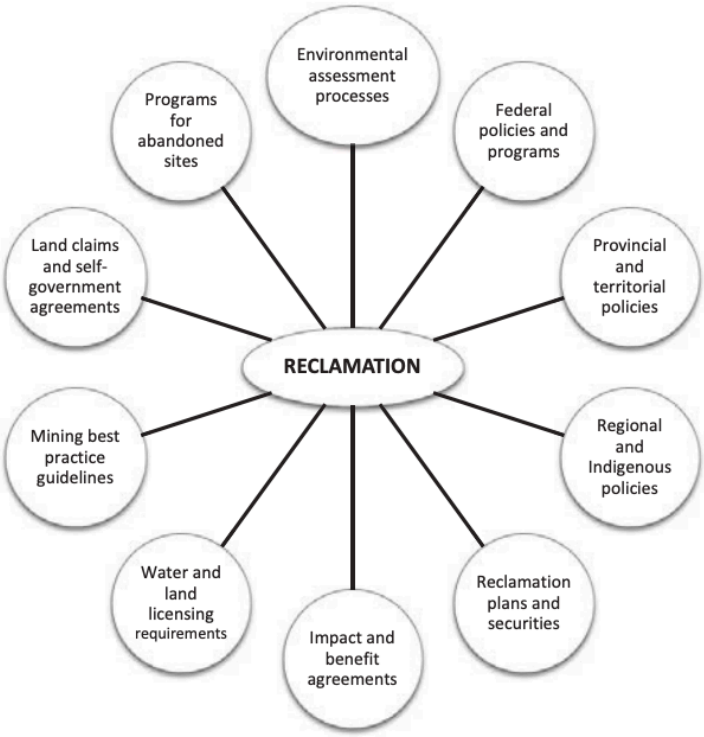

Figure 1. The numerous influences on the Canadian Northern reclamation regime (Dance, 2015).

The NWT is faced with several abandoned mines and remediation (i.e., mine closure and clean-up) projects. Growing environmental concerns have helped mine reclamation projects gain greater momentum in the North, with a focus on technical and environmental aspects of clean-up processes (Beckett & Keeling, 2019). However, there remain gaps in understanding and

incorporating the importance of social and cultural aspects to mine remediation, including the incorporation of community engagement into the regulatory system and planning process. In the Canadian North, this includes ensuring the regime addresses local stakeholder engagement, with a focus on impacts on and inclusion of Indigenous communities.

Research Objectives

The purpose of this thesis is to respond to the following two questions:

1. What characterizes good practice for Northern community engagement in mine remediation?
2. How has the Giant Mine Remediation Project in Yellowknife, Northwest Territories employed community engagement in the planning stages of remediation?

The study will incorporate good practices in social engagement in mining projects (at all points of the mine cycle) and attempt to contrast these good practices against a case study of the GMRP in the NWT. The results will aim to inform improved consideration of community in Northern mine remediation, critique the current remediation social landscape through the GMRP, and provide recommendations for industry and government moving forward with abandoned mine remediation and community engagement.

Literature Review

Federal Programming

Various policies and programs are attempting to bridge the gap between community involvement and abandoned mine remediation. For example, in Canada, the Federal government has launched and budgeted for several contaminated and mine site clean-up programs. These programs have highlighted the importance of stakeholder engagement, and the role that

communities (especially Indigenous communities and nations) in being part of the closure plan development.

A key influence on the remediation system in the NWT are Federal government remediation programs across the three Northern territories (i.e., Yukon, Nunavut, and NWT), that have had various iterations since the 1980s and lent greater vision than the hodgepodge compilation of the Canadian Northern reclamation regime (as earlier described). Two major and consistently documented contemporary programs include the National Abandoned/Orphaned Mines Initiative (NAOMI) in the early 2000s, alongside the NARMP in 2019. While NAOMI focused on sites across Canada, NARMP's focus remained on the most complicated and largest contaminated abandoned mine sites in the Yukon and NWT (CIRNAC, 2019a). Such programming as NAOMI and NARMP are important in demonstrating the Federal government's understanding of the impact of abandoned mines on Northern landscapes, while providing outlets for greater community involvement. Both NAOMI and NAMRP aim to involve local communities within the planning and operations of mine remediation across Northern areas, including guiding principles and best practices surveyed from case studies in Northern regions in community involvement in mine remediation. These programs have helped to speed along some closure planning on major abandoned mine sites, providing some guidance as to how to incorporate community engagement into the closure planning phase. While the regulatory regimes provide some guidance to mine clean-up, effective closure planning requires extensive engagement with stakeholders and technical experts before, during, and after active remediation occurs.

Mine Closure and Remediation

Mine closure involves intensive planning, often requiring an extensive amount of pre-planning prior to its commencement. In contemporary mining projects across Canada and the North, companies are required to submit and receive approval of closure plans, as well as provide a closure security in advance as part of the initial development and operation of the mine site (Dance, 2015). However, legacy abandoned mines' closure planning is often not as straightforward as contemporary mining practices and operations, largely due to the responsibility being devolved from the owner to the State. Abandoned mines represent regulatory failure of the past, whereby financial assurance for clean-up was not required and incentive for mining companies to develop mineral extraction in the North leaned in their favour (Bennett, 2016; Dance, 2015). This has had an impact on the number of abandoned mine sites across Northern territories, as private companies faced less pressure to protect the liability of clean-up, despite the volatile nature of the boom-and-bust resource industry. As such, closure planning for abandoned mines today is generally liable to Federal and/or territorial governments in the North and can require greater planning depending on the state in which the mine was left.

Closure planning has generally followed more methodological approaches, involving engineering, environmental, and technical aspects that must be considered. In the past, mine closure planning involved primarily physical aspects (such as decommissioning buildings, filling pits, and hazardous waste removal) and often neglected the social, cultural, and economic impacts of mine closure on communities, especially pertinent in resource-dependent Northern regions (Monosky & Keeling, 2021a). Ensuring that these goals are taken into consideration within the overall vision for site closures will be key to heightening the impact of the GMRP Team's engagement processes on communities.

According to the ICMM (2019), mine closure planning in general aims to address various underlying visions, principles, and objectives. These objectives include technical aspects such as safety, physical and chemical stability, environmental sustainability, and risk limitations; however, they also can include socioeconomic transition, cost-effectiveness, and long-term care. Developers of mine remediation projects should have a clear vision and guiding principles in the planning process as it provides an effective mechanism in closure planning, especially in ensuring that affected communities are included in the process and understand what risks there may be in the process of closing legacy mine sites (Initiative for Responsible Mining Assurance, 2018).

Community Engagement and Involvement in Mine Remediation

Mine remediation planning includes many technical and environmental aspects, which often take up a significant portion of remediation planning and attention from those involved. However, greater emphasis is being made and linked to the impact that remediation has on social aspects of human wellbeing, including economic impacts, health concerns, and community involvement (Bennett, 2016). The assortment of legislation, regulation, policies, and practices contributing to the mine closure regime in the NWT do not specifically trigger any consultation with communities for mine closure (Holcombe et al., 2021). Despite this, Federal legislations do provide some guidance to the extent in which companies and governments must engage with local populations affected by mines in their areas. Two central legislations lead the way for consultation in the NWT: the Mackenzie Valley Resource Management Act (MVRMA) and the Constitution Act, 1982. The MVRMA provides guidance and regulations related to when stakeholders must be engaged and for what land use reasons; in comparison, the Constitution Act, 1982, section 35 highlights the requirement for Indigenous consultation, or the Duty to

Consult (DtC), protected under treaty and Indigenous rights (Banfield & Jardine, 2013). Understanding the DtC requirements, alongside stakeholder engagement under territorial legislation, is an important step to ensuring that communities are not only meaningfully engaged, but also legally consulted. While legal obligations to engage with stakeholders and affected Indigenous communities is required, maintaining effective and meaningful community inclusion and engagement throughout the remediation process must go beyond the confines of legal requirements towards intentional involvement and continuous dialogue (Burns, 2021).

As Dance (2015) explains, the impacts of abandoned mines across the Northern landscape, paired with a complex and challenging governance regime and regulatory system may have added layers of difficulty in addressing the issues surrounding abandoned mines. However, effective reclamation and clean-up efforts may be managed, and negative outcomes limited by involving local communities and traditional knowledge in the process (Dance, 2015). Communities hold a wealth of knowledge that may be applicable and relevant to mine remediation. Therefore, local and Indigenous knowledges are growing in their application to remediation efforts, and the application of these knowledges are increasingly important to ensuring that Northern remediation projects are successful (Monosky & Keeling, 2021a).

The mine closure process – whether it be for contemporary or legacy mines – should intend to leave a positive impact on the affected communities and peoples. For contemporary mines, the closure planning phase occurs prior to the mine's development; however, for legacy mines, often remediation planning is developed after the mine has been operational, which may lead to complex stakeholder engagement and subsequent distrust in governance and industry (Bennett, 2016). Consistent and effective communication throughout the closure planning and operation processes, alongside mechanisms that ensure intentional involvement of communities

in appropriate roles are ways in which mine closure can leave positive impacts with and for affected communities (Burns, 2021; ICMM, 2019), while also providing an environment for a socially sustainable closure with prolonged community support (Edwards & Maritz, 2019).

Strategies for Community Involvement in Mine Remediation

The closure phase of the mine lifecycle is often characterized by many changes, both indirect and direct, including fewer jobs and decreased economic output for communities. However, involvement of communities and inclusion in the mine closure phase remains a vital aspect to closure planning and remediation efforts, both for contemporary and legacy mine sites (Dance, 2015). While mine closure and remediation often focus on the technical and engineering requirements, the socioeconomic factors included in mine closure or remediation are often overlooked. However, community engagement and participation continue to be endorsed as a requirement for effective closure practices, highlighting its importance to ensuring meaningful relationships are built and maintained (Holcombe et al., 2021). How companies and governments engage with local communities in mine closure and remediation is often discussed on a spectrum with varying levels of involvement.

Bowen et al. (2010) discuss a ‘continuum of community engagement’ that involves three strategies that provide greater community involvement with each strategy: transactional engagement, transitional engagement, and transformational engagement. With each strategy, corporate stance, communication, frequency of interaction, and nature of trust are prescribed (see Table 1). These various characteristics related to community engagement strategies provide guidance in seeking to understand the levels of involvement companies pursue with communities in various mining projects. At the most basic level, companies or governments may seek to only involve communities through a transactional level, entailing a greater one-way relationship,

limiting the level of trust that communities may have towards projects. This type of relationship may be seen in the past when mine sites are discarded and abandoned through a lack of financial security, whereby companies withdraw their engagement. However, transitional engagement grows greater community-to-company relationship building. This strategy moves towards opening dialogue rather than limiting communication; despite this, the control of resources and decision-making remains with the company. Arguably, most companies and governments work through a transitional engagement strategy, but greater emphasis is being made on encouraging a transformational engagement strategy that allows communities to take a greater leadership role within projects (Bowen et al., 2010).

	Community Engagement Strategy		
	Transactional Engagement	**Transitional Engagement**	**Transformational Engagement**
Corporate stance	Community investment/information i.e., "Giving Back"	Community involvement i.e., "Building Bridges"	Community integration i.e., "Changing Society"
Communication	One-way	Two-way	Two-way
Frequency of interaction	Occasionally	Repeatedly	Frequently
Nature of trust	Limited	Evolutionary	Relational

Table 1. Three Community Engagement Strategies (adapted from Bowen et al., 2010)

Ensuring that communities are effectively engaged within a mine remediation project is an important aspect to providing space for external input and developing community trust in a project. Every mine closure or remediation project, whether for contemporary or legacy mines, requires some engagement or collaboration plan with stakeholders and communities to provide effective participation and intentional relationship building (Burns, 2021). Public participation and scrutiny of closure planning additionally provides critical perspectives to closure, while solidifying equitable and effective closure practices (Beckett et al., 2020).

In the NWT, the Mackenzie Valley Land and Water Board (MVLWB) (2013a) – in partnership with AANDC – released one of the sole guiding documents for mine closure and remediation, titled *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories* ("the Guidelines"). The Guidelines are used by regulatory authorities and companies in developing closure and remediation plans, and covers topics related to expectations, required regulatory submissions, communication and engagement, templates for closure, and technical considerations. As part of the Guidelines, effective communication and engagement are discussed as important to any closure and reclamation planning process. Under these Guidelines, input from communities should be sought early on, and evolve as the project is underway, and closure plans should be understood and supported by stakeholders (MVLWB, 2013a). It is highlighted in these Guidelines that recommendations from stakeholders and Indigenous governments may not align with the Western notions of mine closure, but that such recommendations must still be accounted for, examined, and acknowledged by project teams (MVLWB, 2013a). Lastly, the Mackenzie Valley Environmental Impact Review Board (MVEIRB) requires that engagement and communication be done alongside incorporation of Indigenous traditional knowledge.

The focus of community engagement and participation in this study comes from Stewart and Sinclair (2007), who analysed how participants, proponents and governments assess meaningful public participation in EA. Stewart and Sinclair (2007) articulate that there are minimum public participation requirements that are foundational to ensuring that EA processes achieve the necessary engagement targets to meaningfully incorporate the public into projects. Learning from these minimum public participation elements in EA may be an important mechanism in Northern remediation projects who must meet EA regulatory requirements as part

of the planning process, like the GMRP's EA requirement that was approved in 2014 (CIRNAC, 2021a). The elements of meaningful public participation in mine remediation can be extrapolated from those identified as foundational to EA, simply due to similarities in process and regulatory regimes and the projects to which each applies. As such, public participation in mine remediation must reflect the following elements: integrity and accountability; influence; fair notice and time; inclusive and adequate representation; fair and open dialogue; multiple and appropriate methods; informed participation; and adequate and accessible information (Stewart & Sinclair, 2007). These established elements of public participation can be further teased for features specific to each element.

Each essential element of public participation identified by Stewart and Sinclair (2007) provides an indicator of the level of engagement a project employs. Integrity and accountability deal with the ways in which participation is facilitated and the incorporation of knowledge obtained from participation (Stewart & Sinclair, 2007, p. 165). This element is multi-faceted, including subcomponents of transparency, sincerity, feedback to participants, and a clear process and intention, with the aim of demonstrating a meaningful process and inclusion of participation. Influence bridges integrity and accountability by providing a genuine opportunity for participants' voices to be heard and have some authority over decisions (Stewart & Sinclair, 2007, p. 168). Participants must also be given fair notice and time in the process, including a genuine attempt to engage with affected stakeholders, making appropriate time to handle concerns raised, while also being inclusive and have adequate representation by identifying impacted stakeholders (Stewart & Sinclair, 2007). Processes should also be fair and have an open dialogue, allowing for two-way discussion and debate, which may also be facilitated by having respectful and non-judgemental communication environments (Stewart & Sinclair, 2007).

Engagement should use multiple and appropriate methods, providing a variety of tools to ensuring that the public is engaged and included within planning; having appropriate communication methods is also imperative to increasing meaningful engagement (Stewart & Sinclair, 2007). Finally, meaningful engagement includes having informed participation that provides the public with enough information to make educated decisions, also providing that the information is adequate and accessible that offers quality of and access to information (Stewart & Sinclair, 2007).

Indigenous Community Engagement in Mine Remediation Planning

An essential part of participation in mine remediation planning, especially when abandoned and contemporary mine sites are situated near Indigenous communities, is the inclusion of Indigenous Peoples and affected communities in closure planning engagement activities (Natural Resources Canada, 2013). Ensuring that Indigenous communities are included is not only a legal obligation, but vital to ensuring that positive impacts from remediation work accrue to Indigenous communities. Greater emphasis on the business case for engagement is growing, highlighting the economic and social benefits of meaningful and effective Indigenous participation and involvement in mining processes (Jepsen et al., 2005, p. 66). Further, mine closure engagement is particularly important when situated on Indigenous Traditional Territories, as Indigenous Peoples have historically been excluded from mining processes and subsequent economic and employment benefits, least of which have often had detrimental effects on their Traditional Territories (Monosky & Keeling, 2021, p. 2).

Indigenous involvement in mine remediation may be particularly important with the complex Northern regulatory regime (Dance, 2015), alongside an everchanging institutional environment with regards to Indigenous-Proponent negotiations of Impact Benefit Agreements

(IBAs) and other wealth-sharing practices (Monosky & Keeling, 2021, p. 3). Understanding the effects of mining on Indigenous Traditional Territories, ongoing injustice, and inequalities associated with resource benefits, and repairing relationships between Indigenous Peoples, government and Industry should be well understood and established within mine remediation planning (Beckett & Keeling, 2019, p. 222). Mine remediation and the involvement of Indigenous Peoples can thus be used partially as a mechanism of reconciliation, alongside repairing strained relationships between communities and government, and provide positive socioeconomic and cultural benefits.

Indigenous engagement aside from legal consultation requirements may include elements of traditional knowledge (TK), economic development opportunities, and decision-making positions on regulatory boards (Energy and Mines Ministers' Conference, 2016, p. 5; Monosky & Keeling, 2021, p. 2). However, it is important to note that effective and meaningful engagement with Indigenous Peoples may have a variety of approaches, as the goal of engaging with Indigenous communities will vary with the needs and requests of each nation; as such, flexibility is required of governments and proponents to respond effectively with Indigenous communities and take into consideration the preferences of each nation or community (Association for Mineral Exploration British Columbia, 2020, p. 13). The inclusion of TK into mine remediation planning has become a greater mechanism for Indigenous involvement and is required by the MVLWB in the EA process. Thus, analysing how remediation projects incorporate TK is an important indicator to understanding how Indigenous communities are engaged and involved in remediation planning. How TK is incorporated into remediation planning may be measured by actions such as funding TK studies of the area, identifying traditional use areas on the mine site, and forming TK working groups, among other mechanisms

(Jeffery et al., 2015, p. 5). Alongside the inclusion of TK into the planning process, engagement with Indigenous communities requires capacity building, specifically through financial means. Meaningful engagement with Indigenous nations is often time and resource dependent and extensive, so having sufficiently financed programming to ensure that Indigenous nations can meaningfully engage may be vital (Noble, 2016, p. 25).

Methods

Giant Mine Case Study

To understand the extent to which engagement is employed in the remediation of Northern abandoned mines, a case study of the Giant Mine in Yellowknife, NWT is used to provide a snapshot of current practices, while providing critical analysis of ongoing engagement activities of the GMRP and subsequent remediation practices in a Northern context.

The Giant Mine case study focuses on current and publicly available documents from regulatory boards and government. These sources provide documents that are used for the actual planning and implementation of remediation practices, including detailed accounts of how communities may be engaged, and the types of activities involved in community participation. Additionally, they also include some documentation related to public complaints or concerns related to their involvement in mine remediation activities on their lands and territories.

The remediation efforts occurring at Giant Mine was selected as a case study as it is not only one of the largest remediation projects and contaminated sites in Canada, but also involves several stakeholders (i.e., federal, territorial, and municipal governments, Indigenous communities and nations, recreational land users, and the public), lending itself to be an important learning context for other reclamation initiatives.

History of Giant Mine

Giant Mine is a former gold mine located on the Traditional Territory of the YKDFN within the city limits of Yellowknife, NWT. It is also situated near two Indigenous communities, Ndilǫ (1.5km) and Dettah (9km) (Figure 2). Between 1948 and 2004, Giant Mine produced over 220,000 kilograms (over 7,000,000 ounces) of gold, becoming one of the longest producing mine sites in the NWT (Sandlos & Keeling, 2012). Throughout its lifespan, the Giant Mine's ownership was transferred by various companies, generally due to the changes in commodity prices and company bankruptcies (Silke, 2009). Despite its economic success, over 237,000 tonnes of arsenic trioxide dust were produced during the processing of gold, a highly poisonous substance, lethal to humans. The arsenic trioxide waste created by ore processing practices of Giant Mine is one of the largest issues surrounding the remediation project, as the reserves of trioxide arsenic dust underground at Giant Mine are thought to be one of the largest in the world and situated near a highly populated area (CIRNAC, 2018). Arsenic trioxide in such large quantities is highly lethal for humans, is colourless, tasteless, and is easily dissolvable in water sources (Banfield & Jardine, 2013). The first years of production saw little to no pollution protections, allowing the mine site to disperse the arsenic trioxide dust into the atmosphere (Beckett, 2021). In 1951, the death of a Dene child resulting from acute arsenic poisoning led to controlling and capturing the arsenic trioxide dusts and storing it underground where it remains today, but such a large amount of waste requires more comprehensive containment planning (CIRNAC, 2018; Keeling and Sandlos, 2012).

Today, Giant Mine is under active remediation, including the clean-up of three arsenic contaminated tailings ponds, several open pits, a waste dump, as well as various metal and hydrocarbon polluted soils (Beckett, 2021). Since 1999, the Giant Mine has been under

ownership of the Federal and territorial governments after the mine went into receivership and subsequently abandoned. As such, the Federal and territorial government and YKDFN have been working together in attempts to determine next steps for containing the arsenic trioxide to ensure minimal-to-no impact on the local population and environment, while also organizing of remediation work on the entire mine site.

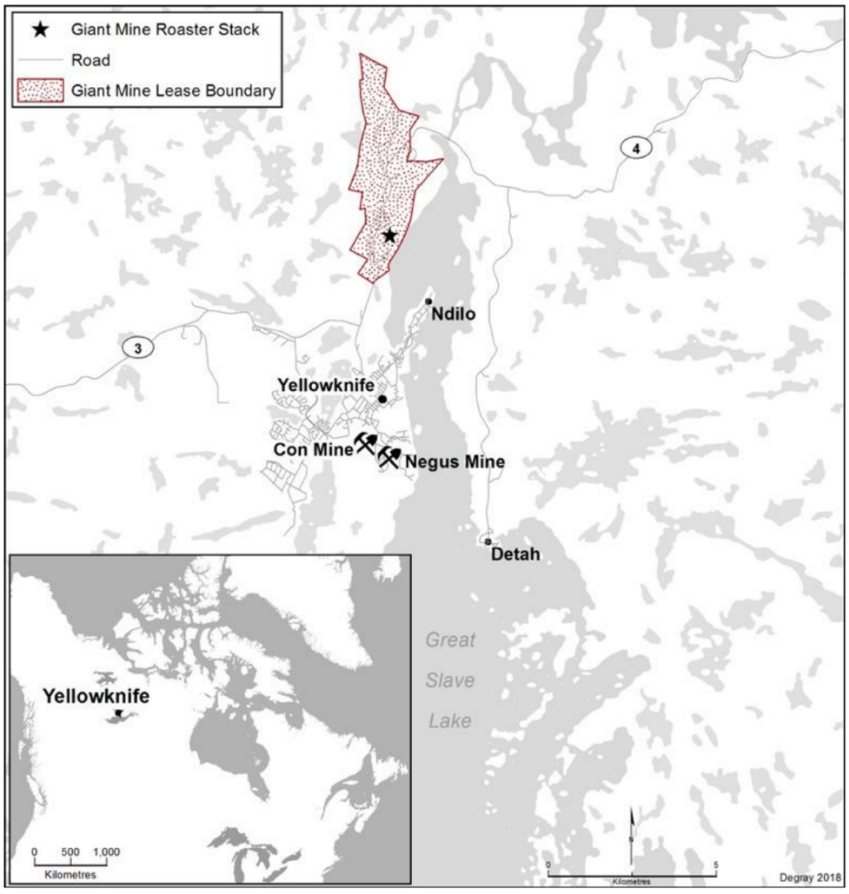

Figure 2. Location of Giant Mine in relation to the City of Yellowknife, NWT (Degray, 2020)

Current Giant Mine Remediation Operations

The remediation of Giant Mine met extensive delays from issues arising between stakeholders and government, and also faced a long EA process prior to active remediation work being permitted. Due to its location, the Giant Mine's regulatory regime falls under the Federal MVRMA, but also must follow other federal, territorial, and municipal laws and regulations

(CIRNAC, 2021a). Alongside acts and regulations, the GMRP must apply for various permits and authorizations, including a land use permit and water license through the MVLWB, plus quarry permits, development and building permits, a *Fisheries Act* authorization, and possible wildlife, archaeological and scientific permits (CIRNAC, 2021a). From 2007 to 2014, the GMRP's water license was subject to an EA review, which resulted in 26 legally binding measures that would address concerns related to the project and would allow the project to return to the regulatory process to resubmit the initial water license. In September 2019, the GMRP was approved for a Type A Water License by the MVLWB, providing the project the regulatory authority to begin active remediation efforts (CIRNAC, 2021a).

Active remediation commenced on the Giant Mine in 2021 with the approval of the *Giant Mine Closure and Reclamation Plan*. The remediation work has an expected 10-year timeline for physical remediation efforts, such as waste management, physical demolition, and sewage and grey water management (CIRNAC, 2021a). An additional 50-to-100-year timeline has been set for perpetual care (i.e., long-term stewardship of the land), including water monitoring with some suggesting that perpetual care planning for Giant Mine should reach for greater timelines in order to ensure fulsome monitoring of the land for contamination, as well as how to inform future generations of the care required for the mine site (Kuyek, 2011; Environment and Natural Resources, n.d.).

Research Methods

The methodological approach taken for this thesis is focused on qualitative research methods, analysing literature for good practices for community engagement in mine closure and clean-up activities. Through an analysis of good practices and a case study of the GMPR, this research will offer recommendations for abandoned mine remediation in Northern settings. A

case study approach involves an in-depth and multi-faceted review of complex issues as they are found in real-life settings (Crowe et al., 2011). Case studies are valuable in providing a snapshot in time and place that allows readers and researchers to understand real-life situations and practices and produces context-dependent and concrete knowledge (Miles, 2015, p. 315). Employing a case study with regards to the mine remediation economy in the NWT will provide for an exploration of how and to what extent public engagement is used and highlight gaps and opportunities in their implementation (Crowe et al., 2011).

Qualitative research methods provide space to flexibly analyse documents from various sources and types (i.e., academic, grey literature, government documentation), while being open to what gaps may exist in such literature. Document analysis is a form of qualitative research methodology that allows for intensive studying of a single phenomenon, program, or organization (Bowen, 2009). Document analysis is functional in the analysis of the GMRP's community engagement, as this case study examines various source material to understand how communities are involved in mine closure, and, subsequently, to what extent the GMRP has engaged with and planned to invite communities into the planning process.

It should be noted that the GMRP analysis is limited to what is currently planned and intended in presently available documents. As such, it may not present all engagement activities planned or rolled out by the GMRP and may not fully reflect the future outcomes of the project, nor what shortcomings or developments that may arise from the implementation.

The GMRP case study document analysis considered selected documents from the Project's planning, including remediation plans, socioeconomic plans, and terms of references. This approach lends the opportunity to review various documents from the GMRP, while noticing any gaps in approaches or information from such sources. To review the GMRP's

application of community engagement and involvement, key documents were analysed, responsive information extracted, and information categorized and interpreted for dissemination against key indicators of public participation (Coffey, 2014; Stewart & Sinclair, 2007).

Selection of Case Study Documents

The documents selected for analysis in this case study were the *Giant Mine Remediation Plan 2.0* (CIRNAC, 2021), *GMRP Engagement Plan* (CIRNAC, 2021), *GMRP Socio-Economic Strategy 2016/17 to 2020/21* (CIRNAC, 2019), *Report of Environmental Assessment and Reasons for Decision: Giant Mine Remediation Project* (MVEIRB, 2013), and *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories* (MVLWB, 2013). (Table 2). These documents were selected based off their importance within the planning of the GMRP, their centrality in the planning process, and the mix of Developer (i.e., Federal government) and regulatory bodies' perspectives.

Document Title	Governing Body
Giant Mine Remediation Plan 2.1 (2021)	Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)
Giant Mine Remediation Project Engagement Plan (2021)	Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)
Giant Mine Remediation Project Socio-Economic Strategy 2016/17 to 2020/21 (2019)	Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)
Report of Environmental Assessment and Reasons for Decision: Giant Mine Remediation Project (2013)	Mackenzie Valley Environmental Impact Review Board (MVEIRB)
Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (2013)	Mackenzie Valley Land and Water Board (MVLWB) and Aboriginal Affairs and Northern Development Canada (Government of Canada)

Table 2. Document title and governing bodies used for the Giant Mine Case Study

The scholarly literature provides guidance for understanding the importance of community engagement in mine remediation. Much of this guidance has been captured in a

seminal article by Stewart and Sinclair (2007), identifying the major elements of public participation. The review of GMRP documentation was informed by these essential elements of public participation introduced by Stewart and Sinclair (2007) to assess and analyse the level of engagement planned and presently achieved within the GMRP. Additionally, as Stewart and Sinclair (2007) do not consider Indigenous-centred elements, the analysis incorporated further elements to capture: inclusion of TK (Jeffery et al., 2015), acknowledgement of the effects of the mine site on Indigenous Peoples (Beckett & Keeling, 2019), and capacity building for Indigenous Peoples and communities (Noble, 2016). These three additional elements were identified in the scholarly literature as important to Indigenous communities and ensuring that stronger relationships are built and maintained in EA and mine remediation. A complete list of the elements guiding the analysis of GMRP documents is found in Table 3.

Source	Element
Stewart & Sinclair (2007)	Integrity and accountability
	Influence
	Fair notice and time
	Inclusiveness and adequate representation
	Fair and open dialogue
	Multiple and appropriate methods
	Adequate and accessible information
	Informed participation
Jeffery et al. (2015)	Incorporation of traditional knowledge
Beckett & Keeling (2019)	Acknowledgement of historical and contemporary effects of mine site on Indigenous Peoples
Noble (2016)	Capacity building for Indigenous Peoples and communities

Table 3. Elements of public participation used to review GMRP documents

Results

The results of the GMRP case study are reported below, arranged based on each document examined. This approach allows for a detailed account of the contents of each document and source. Additionally, by presenting the results by document, it is possible to

understand how different various governing bodies (i.e., Federal government, territorial government, or regulatory Boards) approach public and Indigenous engagement in the Giant Mine remediation planning processes.

Giant Mine Closure and Reclamation Plan 2.1

The largest and, arguably, most central document reviewed in this analysis was the Giant Mine Remediation Plan ("the Plan"). The Plan has undergone several iterations and versions since 2007; however, for the purpose of this analysis, the most recent and publicly available version (i.e., version 2.1) was used which was released in April 2021. As released on the MVLWB's website, the Plan was divided into nine (9) separate documents, primarily divided by 'parts' and 'chapters' (MVLWB, n.d.). For this analysis, all nine (9) separate documents were reviewed equally as they were perceived to be part of a collective and whole remediation plan, rather than selecting separate chapters for review. The purpose of the Plan is to provide for far-reaching and detailed information regarding the GMRP's work towards closing the mine site and future management; it is a requirement of and guided by the MVLWB's EA process (CIRNAC, 2021b, p. ii).

The Plan contains over 500 pages of material, largely focusing on technical and engineering requirements for closure and its subsequent processes. However, it is notable how the Plan begins, focused primarily on providing a plain language summary of the Plan. The inclusion of a plain language aims to communicate details of a project applicable to a range of readers, making it more accessible to readers outside a purely technical or academic background, while also providing a high-level summary of the goals and purpose of the Plan to any reader (CIRNAC, 2021b, p. ii). Providing a plain language summary can be an important tool to engage various populations, while also facilitating knowledge transfer and knowledge translation to

allow the public to participate in understanding the purpose and goals of the Plan (Gudi et al., 2021, p. 1).

The Plan provides some information regarding public participation and community engagement. The Plan provides a general overview of the community engagement processes and mechanisms employed, including an entire section (section 1.4) dedicated to engagement (CIRNAC, 2021b, p. 9-20). Section 1.4 of the Plan is the most major segment of engagement details, outlining engagement methods and bodies, communications, key engagements to date, and the ongoing engagement planned. A major element of the GMRP's engagement activities (as outlined) are 'engagement bodies' which are created by the Giant Mine remediation team aimed to respond to varying participants, including the YKDFN (Chief and Council, elders, membership), North Slave Métis Alliance (NSMA) members, City of Yellowknife, Great Slave Sailing Club, Back Bay Community Association (residents of Back Bay), and various Federal and GNWT bodies (CIRNAC, 2021b, p. 11). It is noteworthy that no engagement body's primary participants are identified as city of Yellowknife residents, specifically, despite the mine site being located within the City of Yellowknife's boundaries. Lastly, the engagement bodies' provide primary methods for engagement with their respective groups, mainly ranging from on-request, monthly, quarterly, and annual meetings, as well as specified as "face-to-face" for certain groups (CIRNAC, 2021b, p. 11).

Following the engagement bodies' descriptions, the Plan outlines the communication methods for various types of communication methods (e.g., written notification, broadcast, public community meetings, workshops, etc.) and the activities associated with each type of communication method and the timing of release (CIRNAC, 2021b, p. 13). This section provides a clearer understanding of how the GMRP and the Plan use various communication methods and

their purpose. This section is followed by a list of key engagement events taken by the GMRP between 2001 and 2021, most of which are identified as part of the implementation and development of EA measures associated with the completion of EA in 2014 (CIRNAC, 2021b, p.14). It is stated that "these engagement activities and regular communication tools provide direct opportunities for affected parties to voice concerns, identify their priorities, and provide overall input to the planning of GMRP" (CIRNC, 2021b, p. 14). They include activities ranging from 40 public consultations to select preferred long-term solution for the arsenic trioxide dust management, to 11 focused sessions for surface design engagement, to health effects monitoring consultations with the community to inform and provide feedback, to recent public hearings regarding the water licence application review (CIRNAC, 2021b).

The Plan has implemented several site-wide (SW) closure objectives and criteria, including SW objective 6, which states:

> *Incorporate traditional and local knowledge and affected party input into closure design and implementation, where appropriate and available.*

The inclusion of this SW objective demonstrates that the GMRP has interest in ensuring that affected parties and Indigenous communities' input is considered and implemented as often as possible. Under this SW objective, several closure criteria are identified, including the approach that may be taken to accomplish these criteria. Criteria listed under the SW objective 6 include: collect and use TK and local knowledge of the site for EA processes and inform decision making; collect updated TK and local knowledge with relevant affected parties when they are available and interested; document where TK was reviewed and incorporated for relevant design elements and monitoring programs (CIRNAC, 2021b, appendix 5.0A).

Chapter 5.7 outlines other engagement activities specific to water treatment, including affected party consultation. Under this, four (4) separate consultation meetings were identified, specifying presentations, teleconferences, and public forums regarding options assessment for water treatment (CIRNAC, 2021b, p. 231). Further, CIRNAC (2021b, p. 231) specifically identified that the consultation sessions plans were as followed: (1) introduce the purpose and review preliminary designs, (2) obtain feedback from the affected parties, (3) provide transparent and ongoing feedback regarding evaluation criteria and the scoring, and (4) present the recommendation to project-affected parties.

Finally, the introductory section of the Plan under section 3.4.1 provides an overview of the historical effects of mining on Indigenous Peoples (CIRNAC, 2021b, p.25). It outlines the use of the area and lands by the Akaitcho, Tłı̨chǫ, and Métis, which has been significantly restricted due to the development and remediation of the mine site. Furthermore, it is highlighted that several studies have been conducted by the YKDFN regarding the effects of arsenic as 'central to their experience of colonialism and alienation from lands that had once supported them through subsistence" (CIRNAC, 2021b, p. 17). Further, the effects of mining activities in the area and the concerns held by local Indigenous Peoples helped to design the approach for the project, including reducing contaminants to the environment and "improved integration of the local Indigenous and [TK] into closure planning and assessment" (CIRNAC, 2021b, p. 25).

Giant Mine Remediation Project Engagement Plan – Version 2.1

The current iteration of the GMRP Engagement Plan ("the Engagement Plan") outlines the members of the Project team, who they engage with, and when, why, and how engagement is planned (CIRNAC, 2021c, p. i). The Engagement Plan includes sections regarding engagement objectives and goals, rights holders and stakeholders, engagement and communication, TK and

way of life, and engagement activities during the life of the GMRP. The development of the Engagement Plan was in part to satisfy the conditions of such under the GMRP's water license from the MVLWB (2013b) *Engagement Guidelines for Applicants and Holder of Water Licences and Land Use Permits* that provides affected parties – including Indigenous organizations and governments – the ability to "develop an understanding of the proposed project", to "provide feedback during the engagement process on issues of concern" and to "work towards building relationships with proponents that are operating in an area" (p. 8).

The Engagement Plan provides details on how engagement was held for the development of EA measures, which are required under several regulatory frameworks. Ten (10) separate EA measures are described, and the subsequent engagement activities related to each of them provided, which includes activities such as meetings with YKDFN, NSMA, City of Yellowknife and other affected parties; working group meetings on different issue such as human health risk assessments; focused sessions with the public and stakeholders; and, communication tools developed, such as plain language summaries, to engage with the public at large (CIRNAC, 2021c).

Under Section 2.2, the Engagement Plan outlines six (6) engagement guiding principles for the GMRP (CIRNAC, 2021c, p. 2-1). The guiding principles for engagement are shared responsibility, appropriate disclosure, inclusiveness, reasonableness, acknowledgement and respect, and openness. Alongside the guiding principles, the GMRP outlines two key principles for the closure of the site that are related to engagement, which includes: incorporating the input from rights and stakeholders from engagement activities to reflect local communities' values and direction; and risk communication for future generations, considering the long-term management of the underground arsenic trioxide and other long-term activities such as water treatment

(CIRNAC, 2021c, p. 2-2). These principles for engagement and closure of the site are important in considering the values and principles held by the GMRP. Lastly, seven (7) objectives for engagement are outlined by CIRNAC (2021c, p. 2-2), which includes:

1. The GMRP contributes to reconciliation through engagement activities that lead to long-term socioeconomic benefits to Indigenous communities through the remediation of Giant Mine.
2. Rights and stakeholders feel well-informed regarding the GMRP, with awareness for the opportunities to participate with the necessary tools to capture the opportunities in the GMRP.
3. Internal actors to the GMRP are well-informed of the project and confident in their roles in communication and engagement.
4. Greater alignment between stakeholder and rightsholders expectations and the GMRP team.
5. Risks are communicated to stakeholders and community members regarding the GMRP through communications and engagement.
6. Rights holders' participation in community-based monitoring processes is increased and maintained.
7. Traditional Knowledge and the link to technical information exchange is facilitated.

The Engagement Plan outlines the rights holders and stakeholders, oversight and regulatory bodies associated with engagement for the GMRP in section 3, listed in Table 4 (CIRNAC, 2021c, p. 3-1). The GMRP team cites the use of these various groups for both input and output of information on different aspects of remediation planning.

Rights Holders and Stakeholders	
Rights Holders	Yellowknives Dene First Nation
	Giant Mine Advisory Committee
	North Slave Métis Alliance
	Tłı̨chǫ Government
Communities	Residents of Yellowknife
	Residents of Ndilǫ
	Residents of Dettah
	Residents of Tłı̨chǫ communities
Community Interest Groups	Alternatives North
	Ecology North
	Back Bay Community Association
	The Great Slave Sailing Club
	Fly Kids Foundation
	Yellowknife Historical Society
Oversight and Regulatory Bodies	
	Giant Mine Oversight Board
	Mackenzie Valley Land and Water Board
	City of Yellowknife: Administration and City Council
	Government of the Northwest Territories (Department of Lands; Department of Environment and Natural Resources)
	Crown-Indigenous Relations Northern Affairs Canada
	Department of Fisheries and Oceans
	Environment and Climate Change Canada
	Health Canada
	Workers Safety and Compensation Commission

Table 4. Rights holders, stakeholders, and oversight/regulatory bodies included in engagement activities for the GMRP

The Engagement Plan outlines the communication and engagement methods that will be employed by the GMRP Team, such as written notification, broadcast, face-to-face meetings, community public meetings, workshops and more, as well as the timing and specific activity under the specified communication method, such as videos, website, community forums, and focused workshops (CIRNAC, 2021c, p. 4-1).

Engagement with the public and Indigenous communities is clearly highlighted throughout the Engagement Plan by outlining and describing the engagement committees within the GMRP and their purpose, educational initiatives (including specifically for YKDFN youth and in-classroom education), community events (e.g., annual community forum, Industry Day), and socioeconomics. A final aspect of the Engagement Plan describes TK and way of life under section 5 (CIRNAC, 2021c, p. 5-1). Limited to one page, section 5 outlines past work with YKDFN and NSMA, and ongoing work by the GMRP Team's to capture TK and its incorporation into various aspects of TK into the Plan.

Giant Mine Remediation Project Socio-Economic Strategy

The GMRP Socio-Economic Strategy ("the Strategy") (CIRNAC, 2019b) is an approximately 50-page document that guides the GMRP Team to ensure that Northern and Indigenous communities benefit from the various processes and projects within the entire remediation project by building capacity and employment opportunities and reduce negative impacts related to the remediation project (CIRNAC, 2019c). The Strategy outlines socioeconomic benefits and opportunities from various federal policies, commitments, and agreements (CIRNAC, 2019b, p. 6), and acknowledges numerous economic and demographic challenges that are present in the NWT, such as economic outlooks, employment, and Indigenous youth employment opportunities.

Core components of the Strategy are to maximize and support employment, business growth, and capacity-development and training for Indigenous Peoples and Northerners (CIRNAC, 2019b, p. 12), which will be supported by "providing access to both employment and procurement opportunities, supporting capacity and skills development, and anticipating,

monitoring and mitigating negative impacts" (p. 12). These core components are broadly explored in separate sections within the Strategy.

The Strategy identifies key barriers to achieving the Strategy's core components, and tactics to address these various barriers (CIRNAC, 2019b, p. 16). The key barriers identified by CIRNAC (2019b) include insufficient Northern and Indigenous workforce capacity (p.16), fluctuating Northern and Indigenous business/contracting capacity (p. 18), and socioeconomic impacts risk offsetting GMRP benefits (p. 19).

Finally, the Strategy provides some options to monitoring and reporting the progress made on socioeconomic goals made by the GMRP Team. Key performance indicators are clarified for employment, training, procurement, and 'other' areas. These indicators include total employment accounted by Northerners, Indigenous and women; total training accounted by Northerners, Indigenous and women; total Indigenous suppliers and amount spent; changes in process to support Indigenous traditions; and modifications to procurement procedures to increase Indigenous participation (CIRNAC, 2019b, p. 25).

Report of Environmental Assessment and Reasons for Decision: Giant Mine Remediation Project

As part of the regulatory approval process, the GMRP underwent an EA in March 2008 due to considerable public concern (CIRNAC, 2021a). Upon its review, the Mackenzie Valley Environmental Impact Review Board (MVEIRB) indicated that the project was assessed and approved, though due to considerable public concern and potential effects the GMRP would have to address prescribed measures to mitigate negative impacts (MVEIRB, 2013. p. i). These were discussed in the *Report of Environmental Assessment and Reasons for Decision* ("the Report") (MVEIRB, 2013).

Two major concerns presented by the MVEIRB's review of the GMRP's proposal included traditional use concerns and engagement efforts (MVEIRB, 2013, p. vi). The YKDFN brought forward concerns that remediation efforts may further affect their traditional uses, and the MVEIRB prescribed measures to help address these concerns and suggested that further consultation occur (MVEIRB, 2013, p. v). Indigenous groups likewise brought forward concerns that little community engagement occurred prior to the EA process, as well as mixed views by various communities regarding the acceptability of separate sections of the proposed GMRP. Due to this, the MVEIRB suggested that greater consultation also occur with surrounding communities prior to a finalized project design (MVEIRB, 2013, p. vi).

The MVEIRB (2013, p. 28) highlighted findings on engagement in section 4 of the Report, which included several Parties – including Indigenous groups – that inadequate engagement had occurred by the GMRP during project design. The Parties highlighted that public consent or support had not been garnered for arsenic management, and that failure to acknowledge the significant concerns that remained from the YKDFN and NSMA (MVEIRB, 2013, p. 28). Upon further analysis of various responses from the YKDFN, NSMA, City of Yellowknife, and public hearings, the MVEIRB (2013) concluded that there is a "gap between the Developer's [CIRNAC] view of community concerns and of the actual concerns expressed by community residents" (p. 30). Furthermore, the MVEIRB's opinion suggested that meaningful engagement with the surrounding communities is a fundamental component to ensuring the success of the GMRP, and that if the Developer had conducted greater engagement with Indigenous communities, then emphasis on cultural protection would've been captured (MVEIRB, 2013, p. 31). As such, the MVEIRB (2013, p. 31) suggested that the Developer consult with surrounding communities prior to finalizing the GMPR designs.

Further emphasized in the EA decision was the relatively high public concern for the GMRP in section 3 (MVEIRB, 2013, p. 26). The MVEIRB (2013, p. 26) suggested that numerous members of the public expressed grave concern for the GMRP, including by Indigenous Elders, residents of Ndilǫ and Dettah, residents of Yellowknife, among others. The MVEIRB additionally expressed that the public concerns were related to cumulative impacts of the GMRP, including both ongoing and historical activities, with the public expressing distress for the potential for arsenic poisoning. Alongside these concerns, the MVEIRB (2013, p. 82) highlighted the need for oversight on the project, to respond to the growing distrust from the public largely due to the lack of engagement. This was responded to through the development of the Environmental Monitoring Advisory Committee ("the Committee"), with the aim of increasing "public confidence through regular engagement with both the proponent and the community" (MVEIRB, 2013, p. 88). The MVEIRB (2013, p. 91) noted that public confidence was an important and ongoing theme raised by participants, including the YKDFN's lack of trust in the government from historical events that affected their lands and traditional practices. Due to this, it would be required for the Developer to ensure that public trust and confidence is built for the GMPR, and, as such, an independent oversight committee would be a leading solution.

Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories

The MVLWB (2013, p.10) developed the *Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories* ("the Closure Guidelines") with partnership with Aboriginal and Northern Affairs Canada (now CIRNAC) and other land and water boards ("the Boards") across the NWT as a mechanism to support greater consistency between closure and reclamation plans (CRPs) that were being submitted. It

additionally supports greater expectations for Proponents and streamlines the regulatory process for the Boards. The Closure Guidelines begin by providing overall closure and reclamation principles and objectives for all CRPs, including planning for the future use of these sites by incorporating "local community values and culturally significant or unique attributes of the land" and "stakeholder input" (MVLWB, 2013, p.14).

The Closure Guidelines suggest that "effective communication, along with thorough and frequent engagement, needs to occur on various levels when developing CRPs" (p. 28) communication and engagement under section 1.4 (MVLWB, 2013, p. 28). Community stakeholder engagement comments must be considered and accurately documented within the CRP development and approval process. The MVLWB (2013, p. 28) noted the importance of understanding the differences in perspectives between the Developer and the stakeholders' (specifically Indigenous governments) comments; Western knowledge and Indigenous knowledge systems can differ, so all comments brought forward by communities and Indigenous stakeholders should be carefully examined and communication efforts should be respectful to these differences (MVLWB, 2013, p. 28).

An example CRP template is provided in the Closure Guidelines that outlines the minimum requirements for Developers to include in their CRP (MVLWB, 2013, p. 30). An entire section is devoted to 'engagement' (MVLWB, 2013, p. 32), requiring proponents to outline their engagement approaches and integration of local community values; this should also include an engagement log and record in the appendices. The 'permanent closure and reclamation requirements' (MVLWB, 2013, p. 37) includes identifying uncertainties that may arise in the planning process. Preparing for uncertainties is noted to included how TK will be used to inform CRPs and how it will be addressed (e.g., TK research).

Criteria Macroanalysis

Table 5 provides a high-level macroanalysis of each analysed GMRP document and the extent to which the selected elements of public participation (identified in Table 3) have been included. Overall, and based on a qualitative analysis, results indicate evidence of "integrity and accountability" and "informed participation" in all project documents. However, evidence of "fair and open dialogue," "adequate and accessible information," and "capacity building for Indigenous peoples and communities" were least evident.

Element of Public Participation	The Plan	The Engagement Plan	The Strategy	The Report	The Closure Guidelines
Integrity and accountability	Yes	Yes	Yes	Yes	Yes
Influence	Yes	Yes	Partially	Yes	Partially
Fair notice and time	Yes	Yes	No	Yes	Yes
Inclusiveness and adequate representation	Yes	Yes	Yes	Yes	Partially
Fair and open dialogue	Partially	Partially	Partially	Yes	Partially
Multiple and appropriate methods	Yes	Yes	Yes	Partially	Yes
Adequate and accessible information	Partially	Partially	Partially	Yes	Yes
Informed participation	Yes	Yes	Yes	Yes	Yes
Incorporation of TK	Yes	Yes	No	Yes	Yes
Acknowledgement of historical and contemporary effects of mine site on Indigenous Peoples	Yes	Yes	No	Yes	Partially

Capacity building for Indigenous Peoples and communities	Partially	Partially	Yes	Partially	Partially

Table 5. Macroanalysis of elements of public participation and GMRP document analysis

Discussion

The abandoned mine environment in the NWT is gaining greater traction in understanding the needs of community and Indigenous engagement in the planning processes. The documents reviewed provided an overview of the current remediation planning processes associated with the Giant Mine site, which divulges information to how the remediation system in the Canadian North is incorporating not only regulatory engagement requirements, but also providing glimpses to the level of community engagement that is incorporated from the Developer's assessment. The GMRP documents generally demonstrated a desire to engage with local communities and Indigenous Peoples, with discussion of engagement found in each document. Despite this, in reviewing the macroanalysis of the indicators of public and Indigenous participation for this study, the GMRP has lacked in a few areas related to Stewart and Sinclair's (2007) public participation elements, alongside the identified Indigenous-centred indicators.

Public Participation Elements

Stewart and Sinclair's (2007) public participation elements have demonstrated that there remain some gaps and limitations presented in the GMRP and public participation, while also many successful mechanisms and approaches by the Project Team. Integrity and accountability were relatively well established throughout the analysis, with respectful transparency and clear intentions. Informed participation was equally well included in the analysed documents and GMRP, whereby many documents have not only been made available electronically, but plain

language summaries have been included in most of the documents alongside many engagement methods. For most of the GMRP analysis, multiple engagement methods have been selected (e.g., media, face-to-face meetings, community public meetings, workshops, etc.); however, some limits were found in collaborating with communities to develop strategies, rather favouring focusing on public documents that have been captured elsewhere (CIRNAC, 2019b). Ensuring the public's comments are captured accurately may be limited through these engagement methods.

Most of the GMRP documents seemed to insufficiently capture fair and open dialogue between the Developer and stakeholders. While there were mentions of workshops and other dialogue-based engagement methods between the Developer, having a two-way conversation and debate that allows all voices to be heard and respected, while ensuring that varying communication styles from the public can be endorsed (i.e., including written and verbal collection of information from participants) appears to be lacking within planning for the GMRP. The Plan (CIRNAC, 2021b), for example, lists many outgoing engagement activities, with limited discussion of how it would provide the opportunity for the public to provide input on a general basis. Having mechanisms that allow for ongoing and continual engagement solicitation could provide greater open dialogue between the Project Team and the public. Additionally, the Strategy (CIRNAC, 2019b, p. 9) was developed in collaboration with Indigenous governments and communities but has no mention of the public's involvement. Involving the community is an important social aspect of mine closure and remediation that can additionally increase innovation and project design effectiveness (Edwards & Maritz, 2019). However, the results presented in the case study are perhaps unsurprising, as the planning of remediation projects has often been one-way and inconsistent (Monosky & Keeling, 2021).

Public distrust, specifically highlighted in the Report (MVLWB, 2013), demonstrated a public perception of lack of accountability and integrity in the GMRP's engagement. This was not surprising, as developing trust and accountability has continued to pose issues in community engagement, specifically with Indigenous communities (Slater et al., 2011). The creation of an oversight committee would likely provide greater accountability by the GMRP Team, however, there remains to be some gaps in understanding how much influence residents of Yellowknife, Dettah and Ndilǫ have on the processes. While various oversight committees and working groups have been developed for the GMRP (e.g., Giant Mine Working Group, GMRP Socio-Economic Working Group, Hoèła Weteèts'eèdeè Advisory Committee), there appears to no longer be any type of community advisory working group that may be able to relay public concerns to the GMRP Team. As such, the creation of further committees and working groups does not clarify the level of public participation in this project.

Further highlighted through the analysis was the relative lack of adequate and accessible information towards how the GMRP Project team was measuring the success of their public and Indigenous engagement. The Engagement Plan, for example, provides numerous objectives and goals of engagement (CIRNAC, 2021c, p. 2-2); however, it does not delve deep into how the GMRP Project Team would be able to track the extent to which these goals and objectives had been achieved. Limiting the ease of information acquisition for the public regarding the success or failure of community engagement could be dangerous for providing greater transparency, accountability, adequate and accessible information, as presented by Sinclair and Stewart (2007).

Incorporation of Indigenous-Centred Indicators

Indigenous engagement and inclusion within the GMRP planning process demonstrated consideration for local Indigenous input and integration into various aspects of the planning

progression. Of note was the inclusion of TK, which has been required through NWT regulatory regimes associated with EA. The Closure Guidelines (MVLWB, 2013) suggested that TK be included and given special care as to ensure its integration despite the potential to differ from traditional Western knowledge systems. This inclusion of TK is vital to ensuring that Indigenous worldviews and perspectives are captured and integrated appropriately and meaningfully. However, analysis of the reviewed documents revealed little transparency within these documents towards the funding allocation for capacity development for TK inclusion. Ensuring that Indigenous communities have capacity to participate in remediation planning and incorporate TK meaningfully is an important aspect of alleviating constraints on human and financial resources required by Indigenous communities (Noble, 2016). This includes providing greater capacity development to ensure that TK can be integrated into mine remediation projects, through various means such as reports, interviews, and meetings with local Indigenous Peoples and organizations.

Capacity building for Indigenous Peoples and communities was present in most of the documents analysed, though provided limited information as to how it would unfold. For example, the Strategy (CIRNAC, 2019b, p.16) identifies Northern and Indigenous workforce capacity building as an overarching socioeconomic challenge associated with the GMRP. However, the Strategy fails to provide identifiable opportunities to amplify training options to ensure that Indigenous (specifically) Peoples are included. The lack of identifiable goals for each socioeconomic indicator has been criticized by the public (Williams, 2021). As such, closure planning should ensure that communities participate in the development of a future vision and performance indicators can enable and strengthen communities for a stronger outcome on socioeconomic indicators (Everingham et al, 2020).

The analysis of key GMRP documents did provide for positive outcomes regarding the efforts put forth by the GMRP Project Team towards public and Indigenous engagement. Considerable effort has been made towards ensuring that public engagement and socioeconomic benefits are considered in the planning process, including the entire Strategy (CIRNAC, 2019b) and Engagement Plan (CIRNAC, 2021c). This suggests the general desire by the GMRP Project Team to ensure that both the public and Indigenous communities are included in the planning processes, including how to best incorporate local and Indigenous/traditional knowledge, identify historical and contemporary effects of mines on Indigenous communities, understand the social and economic impacts on surrounding areas, and provide information to stakeholders about the GMRP. Having a multitude of strategies dedicated to engagement and socioeconomic benefit for Northerners may not only aid the local populations but add to informed participation (Sinclair & Stewart, 2007). This integration of socioeconomic considerations through early planning processes is arguably beneficial, promoting an environment of mutual understanding of the effects and processes associated with remediation, as well as integrating the social dimensions to be considered in remediation work (Holcombe et al., 2021, p.35).

Conclusion

So much as mining continues in the NWT, the need for community engagement and participation will continue to be required in closure phases of the mine cycle. As reviewed and discussed, a newer shift towards including socioeconomic and engagement factors with remediation planning is gaining traction (Beckett & Keeling, 2019), and the NWT's mine remediation economy has the chance to incorporate these aspects to ensure that local communities are not only included in discussions and planning processes, but meaningfully integrated and considered for both positive and negative impacts of these mine sites. The GMRP

lent itself as a case study of how well public engagement and socioeconomic benefits occurs in Northern remediation projects, and to what extent the local communities are included and where gaps remain. While planning in the NWT has a relatively robust system in ensuring that communities and Indigenous Peoples are engaged and consulted on decisions affecting their wellbeing (Monosky & Keeling, 2021), there continues to remain gaps in ensuring that participation is meaningful and fully encapsulates Indigenous benefit from these projects.

The analysis of GMRP documents demonstrated a general desire to engage with local communities and Indigenous Peoples, as well as incorporate TK into the processes. However, some ambiguity remains on the impact that engagement has on communities, and the ability for local populations (both Indigenous and non-Indigenous) to engage specifically as public participants. To this regard, encouraging the use of indicators to measure the success of various engagement objectives and goals may present greater clarity to the public as to the progression of the GMRP Team and other remediation projects on how well objects are being met and what actions are employed to reach project objectives. This would aid in the development of greater Indigenous capacity building in various areas, with greater transparency on how the GMRP Team is advancing these objectives. Further contribution to closure processes may include the development of community oversight committees that would provide a further avenue for the public to engage directly with the project teams and develop trust. This may help respond to the engagement elements proposed by Sinclair & Stewart (2007) such as influence, inclusiveness and adequate representation, fair and open dialogue, and informed participation.

Though the impact of the GMRP may be unique to the NWT and Canadian North with regards to regulatory regimes and processes, the findings here support other similar findings that Indigenous Peoples and communities require greater capacity building through funding and

training (Noble, 2016), meaningful incorporation of local knowledge into the remediation planning process (Prno et al., 2021), and measurable outcomes for engagement success (Monosky & Keeling, 2021). As it stands, the GMRP has demonstrated a relatively robust system of public and Indigenous engagement, providing further evidence of the ability for Northern regions to consider and incorporate local knowledge and peoples in remediation planning.

While this research provided a limited view on remediation practices in the NWT and Canada's North, it is hoped that these findings will aid in enhanced effectiveness of community engagement in Northern mine remediation. Future research that explores public records at the GMRP, and cross-territorial comparison of remediation projects could provide greater and more fulsome analysis to community engagement in Canadian Northern remediation and the impact of community engagement on project outcomes.

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