Remediation and Beyond in Canada's North: Sustainable Planning of Contaminated Sites

2023 Northern Development Minsters' Forum
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EXECUTIVE SUMMARY

Canada's North accounts for 40 percent of the nation's land mass is home to some of Canada's most widely recognized national symbols, and boasts a wealth of natural resources and unique environmental conditions, all of which have attracted private and public interests for years. For the past half-century, much of this interest has manifested itself in the form of resource extraction, guided by a desire to capitalize on the many resources and development opportunities that the North offers.

Many remote and rural communities depend solely on single resource industries for their economic sustainability. This dependence makes these communities particularly vulnerable to factors beyond local control, such as resource depletion, industry restructuring, shifts in world markets or government policy changes. While these factors influence all communities in Canada, rural communities – especially remote and northern communities – feel the impacts most severely. Among many impacts, industry closures cause:

- irreversible, direct job loss and the resulting loss of indirect industry and service sector employment;
- rapid population decline that creates further losses in employment and significant cuts in public services;
- decline of residential, industrial and commercial property values, eroding the local tax base and further leading to a reduction in local services; and
- a sense of helplessness and a loss of hope in the community's future.

The remediation economy refers to the economic activity associated with the cleanup and restoration of contaminated sites, including abandoned mines, oil and gas facilities, and other industrial sites. For many communities, remediation and reclamation activities make up the driving force of their economies. These industries provide communities with significant tax incomes, employment and training opportunities, and drive other industries indirectly in the community, including the provision of municipal and social services. The integration of greater community involvement within mine remediation has been highlighted as essential to ensuring that a remediation project is successful. In measuring the success of decommissioning and community engagement and inclusion, the International Council on Mining and Metals 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; and
- consult meaningfully with affected Indigenous communities.[1]

[1] International Council on Mining and Metals [ICMM]. (2019). Integrated mine closure: Good practice guide, 2nd edition.http://www.icmm.com/website/publications/pdfs/environmentalstewardship/ 2019/guidance_integrated-mine-closure.pdf.

Progress in remediation and reclamation today requires policy-makers at all levels of government and industry stakeholders to look to the long-term considerations of how communities will be affected and can adjust as projects come to completion. 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.

This report was developed through collaboration between colleagues from the Governments of Yukon, Northwest Territories, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Newfoundland and Labrador, and Canada (Crown-Indigenous Relations and Northern Affairs). It presents the final summary of research conducted under the auspices of this priority project and takes a broad approach by focusing on the experience and role of all actors in coping with and managing transition to redevelop their communities.

The intention of this research is to facilitate discussion among federal, provincial, and territorial (FPT) officials and industry stakeholders to enable northern development partners—namely those participating in the Northern Development Ministers' Forum (NDMF)—to collaborate to ensure that Northern environments, communities, residents, and economies can sustainably develop in their post-closure futures. This report presents the final summary of research conducted under the auspices of this priority project and takes a broad approach by focusing on the experience and role of all actors in coping with and managing transition to redevelop their communities.

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 Northwest Territories and Northern Canada has in developing greater public participation.

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PURPOSE OF THIS REPORT

Progress in remediation and reclamation today requires policy-makers at all levels of government and industry stakeholders to look to the long-term considerations of how communities will be affected and can adjust as projects come to completion. The intention of this research is to facilitate discussion among federal, provincial, and territorial (FPT) officials and industry stakeholders to enable northern development partners—namely those participating in the Northern Development Ministers' Forum (NDMF)—to collaborate to ensure that Northern environments, communities, residents, and economies can sustainably develop in their post-closure futures.

This report also presents the final summary of research conducted under the auspices of the Project. It takes a broader approach that focuses on the experience and role of all actors in coping with and managing transition to redevelop their communities. This report will:

- review lessons learned from literature studying resource-dependent communities and;
- provide a context of economic and policy trends relating to resource-related industries and remote communities across Canada;
- illustrate through a case study how the various players in the resource economy interact to ensure the community's long-term economic sustainability;
- identify key economic, social and environmental impacts of the remediation economy;
- analyze the roles played by the FPT and local governments, the departing industry and community organizations in transition management;
- identify transition management best practices for each actor participating in transition and recovery;
- identify actions provincial and territorial governments can take to support best practices for transition management; and
- draw conclusions applicable to resource-based communities undergoing transition across Canada.

INTRODUCTION

Canada is a country rich in natural resources, traditionally creating wealth from an economy based on many resource-related activities like mining, forestry, fishing, energy, agriculture and transportation for its economic vitality. As one of the largest countries in the world, Canada's huge geographic expanse means not only that the country has a great abundance of these resources but also that they are dispersed in rural and remote locations across the country. Because resource industries require on-site labour for extracting and processing natural resources, small communities grow up nearby or around an industry and depend almost exclusively on these resource industries for their economic and social survival. This leaves them vulnerable to the fortunes of the industry and to economic factors beyond their control, including:

- resource exhaustion (i.e., mineral or forest depletion)
- economic restructuring within an industry (i.e., railway closures, military base closures)
- shifts in world markets
- government policy decisions; and
- regional conflicts.

While these factors influence all communities in Canada, rural communities – especially remote and northern communities – feel the impacts most severely. Dominated as they are by a single industry, these small communities cannot easily absorb the blows to their economy, tax base and social structure when their main source of jobs and income shuts down. Among many impacts, industry closures cause:

- irreversible, direct job loss and the resulting loss of indirect industry and service sector employment;
- rapid population decline that creates further losses in employment and significant cuts in public services;
- decline of residential, industrial and commercial property values, eroding the local tax base and further leading to a reduction in local services; and
- a sense of helplessness and a loss of hope in the community's future.

These are significant challenges that are difficult to understand. Social, political, and economic restructuring is touching virtually every aspect of remote, northern, rural and small-town life. The two questions most often raised in this regard are: "How can we understand these changes?" and "What positive steps can we take to meet the challenges and opportunities inherent in these changes?"

Furthermore, industry closures are nothing new. In fact, because most natural resources can be exhausted, resource industry closures could be considered an inevitable. However, most modern, remote communities, their citizens, their leaders, and representatives at all levels of government hope these communities will survive and thrive well beyond industry closure, and leading this work is the Government of Canada, provincial and territorial governments, Indigenous Governments and private industry.

METHODOLOGY/APPROACH

This report was developed through analysis of trends, a broad literature review, and analysis of case studies provided by working group members. This report presents the final summary of research that focuses on the experience and role of all actors in coping with and managing the transition to a sustainable post-remediation phase.
The report has been structured around two sections. First, it begins with an examination of what we know, including an examination of the mine remediation economy in Canada, and the various social, cultural and economic challenges the industry presents to affected communities. While the remediation and reclamation economy may apply to

a vast array of contaminated sites, this report will focus specifically on mine closure, remediation and reclamation. Mine projects represent some of the most complex and expensive closure projects in the country, and are a driving force in many Northern Economies. As such, they are comprehensive examples of how various parties interact to ensure a sustainable future beyond closure. Second, the report goes on to discuss opportunities to build and support resilience within these communities. This includes an analysis of the roles of each stakeholder to foster resilience and an examination of case studies from across the country.

The report concludes with a list of suggested best practices that northern development partners can implement to mitigate the risks associated with industry and employment transitions in northern communities.

LITERATURE REVIEW

Industry closure continues to be an inevitable event faced by many single-industry communities – as in the past. But the response to closure has changed significantly. These communities often fell into 'boom and bust' cycles where industries closed down and started up again on a temporary or seasonal basis. This is particularly the case in industries based on non-renewable resources like mining, where expected closure could result in economic downturn for the impacted community. When the mine had given up its last nugget or when it was simply no longer sufficiently profitable, the company would shut down and move on. In turn, the town was vacated and the workers and their families were left to fend for themselves. These cycles were considered normal and closures were believed to be inevitable by workers and political and community leaders.

Under a company town paradigm, no one expects the town to continue after company involvement ceases. A boom town could become a ghost town almost overnight leaving only abandoned buildings as witnesses to a town's existence. Rex Lucas in his work titled "*Minetown, Milltown, Railtown: Life in Canadian Communities of Single Industry* describes company towns as "those closed company communities owned and administered by the industrial employer" [2]. Today, the company town model has been replaced with independent rural municipalities. Many single-industry communities are municipally incorporated with elected councils, sources of revenue and the capacity to deliver local services. Since World War II, they have been comprehensively planned to "incorporate a broader range of social and economic considerations into town development."[3] The net result has been the creation of a greater sense of permanence in these places and the heightened expectation of workers, residents and leaders in finding a new future for their community when industry closes. No longer company towns, remote communities have much higher expectations of survival. Modern industry

[2] Lucas, Rex A. (1971). Minetown, Milltown, Railtown: Life in Canadian Communities of Single Industry. Toronto, ON: University of Toronto Press.

[3] Halseth, Greg & Sullivan, Lana. (2002). Building Community in an Instant Town: a Social Geography of Mackenzie and Tumbler Ridge, British Columbia. Prince George, BC: University of Northern British Columbia Press.

has also changed. The dynamics of the global marketplace mean that most industries close only as a last resort, but these closures are permanent rather than temporary. Not only do these closures have lasting socio-economic impacts in small communities with lone major industries, but they also create a crisis that jeopardizes the viability of these communities.

Many have written about the experiences of resource-based, single-industry communities that have struggled through a transition to recovery when the industry closed down. The literature review primarily focussed on community transitions or adjustments resulting from the permanent closure of the single industry and major employer in northern resource-dependent communities. The literature demonstrated that these closures usually result in significant job losses and a reduction in the tax base when industry ceases to pay property taxes. With no jobs, local residents leave the town in search of jobs elsewhere, leading to further strains on the tax base and greater strains on the municipality's ability to support local infrastructure and services. Newspaper articles and studies on the impacts of economic closure show that transition can be devastating and difficult to manage locally. When these events occur, they often overwhelm the impacted communities.

The literature review also identified a range of challenges that communities often face as they manage their transition to recovery, including:

- coping with the initial shock and going through the grieving process;
- dealing with the impacted workers and companies that are closing operations;
- finding ways to support and counsel other members of the community trying to cope with the job loss;
- managing changes in service delivery that can result from a decreased local tax base and population decline
- bringing the community together to develop a plan and vision for the future that includes the identification of new economic opportunities;
- retraining of the local labour force;
- implementing and revising the community plan as circumstances change; and
- working with other parties – senior governments for example – that also have an interest and ability to aid the community in the recovery process.

The findings from the literature review also identified many factors influencing the success of transition management and the ability of a community to recover to become sustainable once more. Many of these factors are outside the control of resource-dependent communities and local decision makers, including the existence of economic alternatives, remoteness from other communities and markets, population size, and environmental reclamation. Depending on the factor, their presence can enhance or limit the opportunities for a successful recovery.

The literature also indicated that geography often determines a community's future.

Primarily, this dominant influence reveals itself through the natural resources available to support a community's economy. Just as geographic features created the right conditions needed to make the town's departing mine, lumber mill or fish plant viable for a time, so too geography determines whether other natural resources are available to replace the departing industry. If a mining town has no possibility of creating jobs in other resource industries like forestry, fishing or agriculture, it has few options for recovery. Communities located in scenic settings, in an appealing climate, or near recreational facilities like national or provincial parks have some options for promoting tourism or retirement living as a replacement for the departing industry. Those that are located in unappealing surroundings or are remotely located with limited access have few options to develop their economic base.

According to the literature review, many communities cannot control whether or not the departing industry remediates and reclaims its industrial site through an environmental clean-up, although higher levels of government may take a role here. This issue is of concern particularly in mining communities where the industrial activities often leave behind unsightly pits, toxic wastes or other blemishes on the aesthetic appeal of the region. If the departing company does not deal with this, communities left with the problem may find it difficult to encourage land redevelopment. Concerns may arise and persist about public health issues making it difficult for the community to retain and attract new residents: "Actual or suspected contamination can create a formidable barrier to the community revitalization, particularly in small, rural towns with limited resources."[4]

The factors mentioned above do not represent an exhaustive list of conditions influencing a community's recovery. Instead, they underscore the fact that communities facing transition not only have to deal with the closure event itself, but can also be faced with factors beyond their control that could determine whether or not their transition management efforts are successful. In short, much of the literature reviewed emphasizes this point: that managing the transition from crisis to a recovery is a long, slow and complex process.

REMEDIATION AND RECLAMATION

Successful decommissioning (includes remediation) and reclamation activities of mine sites, and other abandoned sites is essential to building and maintaining a resilient and sustainable natural resource sector. In measuring the success of decommissioning and community engagement and inclusion, the International Council on Mining and Metals 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

[4] Wells, Barbara. (2002). Smart Growth at the Frontier: Strategies and Resources for Rural Communities. Washington, D.C.: Northeast-Midwest Institute

- consult meaningfully with affected Indigenous communities.[5]

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. 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.[6]

As the mine reclamation environment grows and focus on the clean-up of abandoned mines in the Northwest Territories 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.[7]

In the Northwest Territories, the clean-up of the Giant Mine (as we will see later in this report) 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.

Mine Closure and Remediation

Mine closure (remediation and reclamation) involve all the planning and operational aspects of shutting down a mine after its operational or development phase and attempting to return the land to its original status or a functional condition.[8] 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.

In Canada's north, remediation and reclamation are two critical processes that are often carried out to address the impacts of mining activities on the environment. While both processes are essential, they have some distinct differences. Remediation involves the

[5] International Council on Mining and Metals [ICMM]. (2019). Integrated mine closure: Good practice guide, 2nd edition. http://www.icmm.com/website/publications/pdfs/environmentalstewardship/ 2019/guidance_integrated-mine-closure.pdf.

6 Hoefer, Hannah L. Community Involvement in Mine Remediation Insights from Northwest Territories, Canada, Master's thesis in Governance and Entrepreneurship in Northern and Indigenous Areas, May 2022

[7] Beckett, C. (2021). Beyond remediation: Containing, confronting and caring for the Giant Mine Monster. EPE: Nature and Space, 4(4), 1389-1412.

[8] Miranda Monosky and Arn Keeling – Research Article "Planning for social and community-engaged closure: A comparison of mine closure plans from Canada's territorial and provincial North

removal or treatment of contaminants in the environment. The primary goal of remediation is to reduce the harmful effects of pollution on human health and the environment. In the north, remediation is typically carried out in areas that have been impacted by mining activities, such as tailings ponds or contaminated soil and water.

Reclamation, on the other hand, focuses on restoring ecosystems that have been disturbed by mining activities. The goal of reclamation is to restore the natural habitat and vegetation, as well as water resources in the impacted areas. This can involve reshaping the land, planting native species, and restoring waterways.

Overall, remediation and reclamation are critical processes in Canada's north that aim to minimize the impacts of mining activities on the environment and restore the natural habitat. While both processes are related, they have distinct differences in terms of their focus and objectives.
For many communities, mining, decommissioning and reclamation activities make up the driving force of their economies. These industries provide communities with significant tax incomes, employment and training opportunities, and drive other industries indirectly in the community, including the provision of municipal and social services. Furthermore, decommissioning and reclamation activities bring economic opportunities for Indigenous development corporations and businesses, particularly related to the legacy remediation projects, such as the Giant Mine Remediation Project. In addition, decommissioning and reclamation projects are one component of the major resource projects' economy. Many of the businesses and workers that are likely to be involved in these projects will most likely be involved in large-scale construction and infrastructure projects.

While mine closures are meant to ensure post-closure human and environmental safety, they tend to favour short-term improvements over longer-term socio-economic, cultural, and ecological considerations. While some longer-term funding does exist for post-closure monitoring, in some cases government funding for contaminated sites is condensed under a shorter timeframe. This lack of sustained funding makes it difficult to develop long-term plans. For example, strategies, such as capacity-building to support the participation of local labour or services, tend to require significant lead time to take effect, and cannot be fully considered without the necessary funding.

In other cases, funding is provided by industry (not government) and there is no predetermined timeframe. For example, Alberta's Mine Financial Security Program (MFSP) collects financial security from oil sands and coal mine operators to protect the public from the financial liabilities associated with mining project closure. This helps ensure that the financial burden of abandonment, remediation and reclamation remains with the companies that own the mine sites. Participation by operators in the MFSP is required under the province's Conservation and Reclamation Regulation. If an operator is unable or unwilling to fulfill their reclamation obligations (which includes abandonment and remediation obligations) and another company cannot be found to take over the site and continue mining, Alberta's energy regulator can use the collected financial security to conduct reclamation activities and close the site.

As mine closure activities conclude, communities face an array of changes that will need to be addressed. This will ensure the community, individuals and families who call it home, can withstand the inevitable adjustments as their main employer and economic driver evolve, or in many cases, shuts down entirely.

The closure of a community's primary economic driver and employer will have a variety of consequences. The application of a holistic lens enables an understanding of the diverse impacts—upon individuals, their families, and their communities, whether they be economic, social, geographic, spiritual, or cultural—that may surface following the announcement and subsequent closure of a contaminated site completion related to a remediation or reclamation project.

Mine closure (remediation and reclamation) planning practices have been advancing tools for greater local community engagement that realize the benefits of ensuring that local involvement is included and meaningful. Understanding the importance of meaningful community engagement is an integral aspect of mine remediation, as well as ensuring that communities understand their role, industry acknowledges their impact, and government values a robust remediation environment.

ROLE OF KEY ACTORS

Across Canada, natural resource extraction, and mining activities specifically, significantly contribute to Canada's economy both through the economic gains produced from these activities, and through the significant number of Canadians employed in these industries. According to the Mining Association of Canada, the mining industry directly employs over 377, 000 workers across the country in mineral extraction, smelting, fabrication and manufacturing, and indirectly employs an additional 315,000 people.[9] Proportionally, the mining industry is also the largest private sector employer of Indigenous peoples, providing over 16,500 jobs. In 2020, the minerals sector directly and indirectly contributed $107 billion, or 5%, to Canada's total nominal Gross Domestic Product (GDP).[10]

With respect to Indigenous peoples specifically, the industry is one of the largest private sector employers of Indigenous peoples, and works closely with Indigenous-owned businesses across the country. The Mining Association of Canada reports that there are more than 500 agreements signed between mining and exploration companies and Indigenous communities or governments. Governments can support enhanced participation of, and partnerships with, Indigenous communities in the sector through foundational social investments in areas such as health, education and housing, and by targeting funding for skills training and entrepreneurship to assist Indigenous peoples in

[9] Mining Association of Canada -2021 Annual Report

[10] Ibid

securing employment and business development opportunities generated by the industry.[11]

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. Furthermore, 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.

Local Government

The literature review emphasized the role of local governments in responding to industry closure and mobilizing the community to manage the recovery process. As one research paper pointed out, while local governments may not have all the tools needed to deal with transition, they are the level of government closest to and most immediately impacted by industry closure[12]. When an industry closes, the local government leaders' core functions include:

- providing the community with direction;
- keeping everyone in the community informed of changes underway;
- assembling a team of leaders; and
- facilitating an open process to develop response plans and strategies to support community adjustment.

Federal, Provincial/Territorial Governments

FPT governments play a critical role in protecting public services like health and education during the transition period. "People's choice of whether or not to live in a smaller community is affected by whether or not they can get reasonable access to health care"[13]. This protection supports the maintenance of the local population base necessary to rebuilding a community. The FPT governments generally depend on the size of the transition challenge and relative capacity of the municipality to respond on its own.

The literature also supported the idea that the FPT levels of government should work alongside communities and local leaders, rather than imposing arbitrary decisions from above without consultation or coordination. The literature revealed many examples of mixed transition management results where FPT governments-imposed solutions without consultation. Communities need to be involved both in decisions made about

[11] Ibid

[12] Portz, John. (1990). The Politics of Plant Closings. Lawrence, KS: University Press of Kansas

[13] Commission on the Future of Health Care in Canada. (2002). Building on Values – the Future of Health Care in Canada. Ottawa, ON: Commission on the Future of Health Care in Canada.

the resources that will be provided to them and in the design and management of these programs.

The literature also highlighted the importance of collaboration between communities, within regions and between the different levels of government. FPT levels of government can support the transition process by better coordinating their own activities.

> Governments should seek to improve inter-departmental and intersectoral coordination and communication to minimize duplication and confusion on roles and to reduce the bureaucracy and perceived government inefficiency.[14]

In the end, the literature concluded long-term government support, especially if uncoordinated, is not the complete answer to any community.

Industry

The literature suggested that departing industry plays an important role in the transition management process, including providing advance notice of closure to allow a community's time to prepare for the immediate and long-term impacts. Companies can also assist by dealing directly with the issues facing displaced workers by providing:

- job retraining and tuition assistance;
- severance payments;
- company benefits for a period of time;
- relocation assistance; and
- early retirement packages.

We recognize that this is not always the case, particularly where industry has abandoned their fiduciary responsibility, or become insolvent. In the private sector, Impact Benefit Agreements have emerged as a binding tool to articulate goals, objectives, and targets related to the socioeconomic benefits a resource development project will deliver to local Indigenous communities. Common elements of these agreements include the following:

- **Economic**: fixed payments; royalties; equity.

- **Employment:** preferential Indigenous hiring; Indigenous recruitment and retention strategies; employment targets.

- **Education and Training**: joint skills training and education programs; professional development and career advancement; apprenticeship programs.

[14] Canadian Rural Partnership. (1998). Rural Canadians Speak Out: Summary of Rural Dialogue Input for the National Rural Workshop. Ottawa, ON: Department of Public Works and Government Services.

- **Business Development**: priority contracting; preferred list of suppliers; specifications in tenders that favour Indigenous business; joint ventures with Indigenous business; financial support (e.g., loans).

- **Social, Cultural and Community**: developing and supporting social programs, such as money management/financial literacy training, counselling, and addiction programs; education supports, such as scholarship funds; cultural heritage programs and celebrations.

Implementation of these agreements has allowed resource companies to test and refine their approaches to local employment, local procurement, training, and capacity building over time. Socioeconomic monitoring has also allowed resource development projects to track social impacts (relative to predictions made in the environmental and social impact assessment) and determine when additional management or mitigation is required.

Additionally, existing research suggests that in planning for site remediation and closure, national and international guidelines have increasingly emphasized the need to plan for and mitigate the negative impacts on impacted communities well in advance of industry closure. These guidelines acknowledge the critical importance of engaging early with affected communities in order to develop closure strategies that are effective and appropriate to particular social, cultural, and economic circumstances.

In reality, closure planning and community engagement often fall short of these best practices. Socio-economic impacts are poorly addressed and, in many cases, go unacknowledged altogether. In particular, concrete plans for mitigating negative socio-economic impacts are rare. In addition, consultation and negotiation processes between industry and communities are fraught with challenges, including a lack of trust, inequalities within communities and between parties, and an overreliance on front-end communication during the early stages of the mine's development.[15]

Indigenous Communities

Indigenous communities have an important role to play in mine closure, remediation and reclamation, as their traditional territories often overlap with mining areas. The mining industry is the largest private sector employer of Indigenous peoples in Canada. According to MiHR research, Indigenous people represented more than 7% of the mining workforce in Canada in 2016, up from 5% in 2011.[16]
The involvement of Indigenous communities is critical to ensure that the closure, remediation and reclamation process is done in a manner that is respectful of their culture, values, and traditions. Indigenous communities can bring unique knowledge

[15] Lapalme, L.-A., 2003. The Social Dimension of Sustainable Development and the Mining Industry: A Background Paper. Natural Resources Canada, Ottawa, CA

[16] Mining Association of Canada -2021 Annual Report

and perspectives to the mine closure, remediation and reclamation process, including knowledge of the local ecosystem, traditional land use practices, and cultural values. Their involvement can help to ensure that the closure, remediation and reclamation plan considers the impacts of the mining activities in their communities and the environment, and that their concerns and interests are addressed.
In many cases, Indigenous communities have asserted their rights to be involved in decision-making processes related to mine closure, remediation and reclamation. This can include participation in environmental impact assessments, consultation with mining companies and government regulators, and the development of their own closure, remediation and reclamation plans. The involvement of Indigenous communities in mine closure, remediation and reclamation can help to build trust between mining companies, governments, and Indigenous peoples. It can also help to promote sustainable development and the preservation of Indigenous cultures and traditions.

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.[17]

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.[18]

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, while also providing an environment for a socially sustainable closure with prolonged community support.

Indigenous Community Engagement

An essential part of participation in mine remediation planning, especially when

[17] Bennett, K. (2016). Abandoned mines − environmental, social and economic challenges. In A.B. Fourie and M. Tibbett (Eds), *Mine Closure 2016* (pp. 241-252). Australian Centre for Geomatics.

[18] Ibid.

abandoned and contemporary mine sites are situated near Indigenous communities, is the inclusion of Indigenous Peoples and affected communities in closure planning engagement activities.[19] 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.[20]

Furthermore, 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. 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 economic development opportunities, and decision making positions on regulatory boards.[21] 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.[22]

REMEDIAITON ECONOMY

The remediation economy refers to the economic activity associated with the cleanup and restoration of contaminated sites, including abandoned mines, oil and gas facilities, and other industrial sites. Canada's territories have a rich natural resource base, but many of these resources have been developed without adequate environmental protection, leading to numerous contaminated sites. The importance of the remediation economy in Canada's territories is significant, and there are several reasons why this is the case:

[19] Natural Resources Canada. (2013). *Exploration and mining guide for Aboriginal communities.* Her Majesty the Queen in Right of Canada.

[20] Jepsen, D., Joseph, B., McIntosh, B., & McKnight, B. (2005). Guidebook: Mineral exploration, mining and Aboriginal community engagement. Association for Mineral Exploration British Columbia.

[21] Energy and Mines Ministers' Conference. (2016, November). Good practices in community engagement and readiness: Compendium of case studies from Canada's minerals and metals sector, second edition. https://www.nrcan.gc.ca/sites/www.nrcan.gc.ca/files/mineralsmetals/files/pdf/rmdrrm/ GoodPractices2ed_En.pdf

[22] Association for Mineral Exploration British Columbia. (2020, September). Indigenous engagement guidebook. https://amebc.ca/wp-content/uploads/2020/09/AME Indigenous- Engagement-Guidebook-Sept-2020.pdf

1. **Environmental Protection**: Contaminated sites can have serious environmental impacts, including soil and water pollution, and negative impacts on wildlife and human health. The remediation economy is crucial in cleaning up these sites and protecting the environment.

2. **Economic Benefits**: The remediation of contaminated sites can create new jobs and business opportunities, particularly in the areas of environmental consulting, engineering, and construction. This can provide a boost to the local economy and help diversify the region's economic base.

3. **Indigenous Participation**: Many contaminated sites are located on Indigenous lands, and the remediation economy can provide an opportunity for Indigenous participation and ownership in the cleanup and restoration process. This can lead to greater economic self-sufficiency and empowerment for Indigenous communities.

4. **Regulatory Compliance**: Many contaminated sites are subject to government regulations, and failure to comply can result in fines and legal action. The remediation economy can help companies and organizations comply with regulations and avoid costly penalties.

Overall, the remediation economy is important for Canada's territories because it can help protect the environment, create economic opportunities, promote Indigenous participation, and ensure regulatory compliance. One of the best examples that brings together they key actors involved in remediation include what is transpiring in the Northwest Territories and the work it is undertaking in relation to the remediation economy.

Northwest Territories Remediation Economy

It is estimated that remediation activities in the Northwest Territories will be worth $4.8B over the next 30 years with just under 90% of spending likely to occur in the next 15 years. The annual spend is estimated to be $291M per year for the next 15 years, generating approximately $151M per year in GDP to the Northwest Territories in that timeframe.

In comparison, mining and oil and gas extraction in the Northwest Territories generated $1.5B in GDP for 2019 and $1B in GDP for 2020. Remediation activities will support approximately 700 FTEs (full-time equivalent positions) per year for 15 years. For context, there were 3,300 people employed across 'trades, transport and equipment operators and related occupations' positions in the NWT and 1,900 in the natural and applied sciences and related occupations.

The North Slave region will have the greatest activity over the short- and medium timeframe by a significant margin, due to the location of the diamond mines and the Giant Mine Remediation Project (GMRP). However, cost estimates should not discount

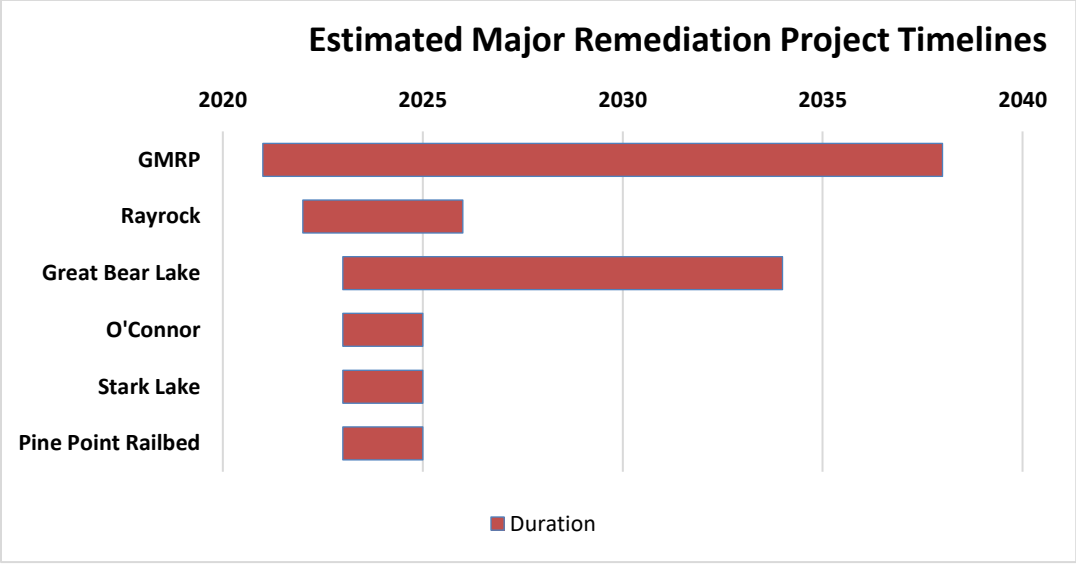
the opportunities for small enterprises in the Beaufort Delta, Dehcho, and South Slave regions to support remediation activities.

Case for the Remediation Economy in the Northwest Territories

The Northwest Territories has approximately 500 sites that are anticipated requiring assessment, remediation and/or long-term monitoring activities. These sites include sites belonging to the Government of Canada, the Government of the Northwest Territories, as well as large mining companies. The next 10 years will bring additional mine closures, which can be considered in parallel with current needs for remediation (for example, the Giant Mine Remediation Project - GMRP). Successful closure of mine sites and remediation of contaminated and abandoned sites is essential to building and maintaining a resilient, environmentally sustainable natural resource sector in the Northwest Territories.

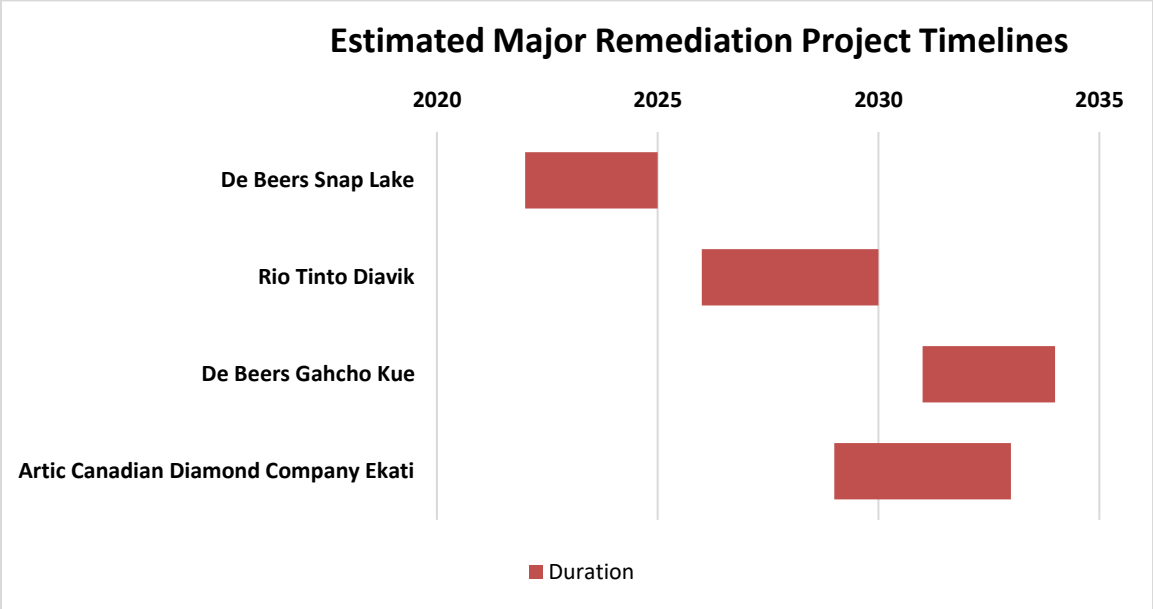
The Government of the Northwest Territories is working in partnership with Crown Indigenous Relations and Northern Affairs Canada (CIRNAC) to develop an Action Plan that will support participation of Indigenous businesses in future remediation opportunities. Based on information collected during the development of the Action Plan, a Next Steps Report will be developed that will help guide the GNWT's efforts ensuring all Northwest Territories residents and businesses are prepared and able to participate in opportunities stemming from remediation work.

Figure 1: Estimated Major Remediation Project Timelines



Source: NWT Remediation Economy Discussion Paper, February 2022

Figure 2: Estimated NWT Diamond Mine Remediation Timeline

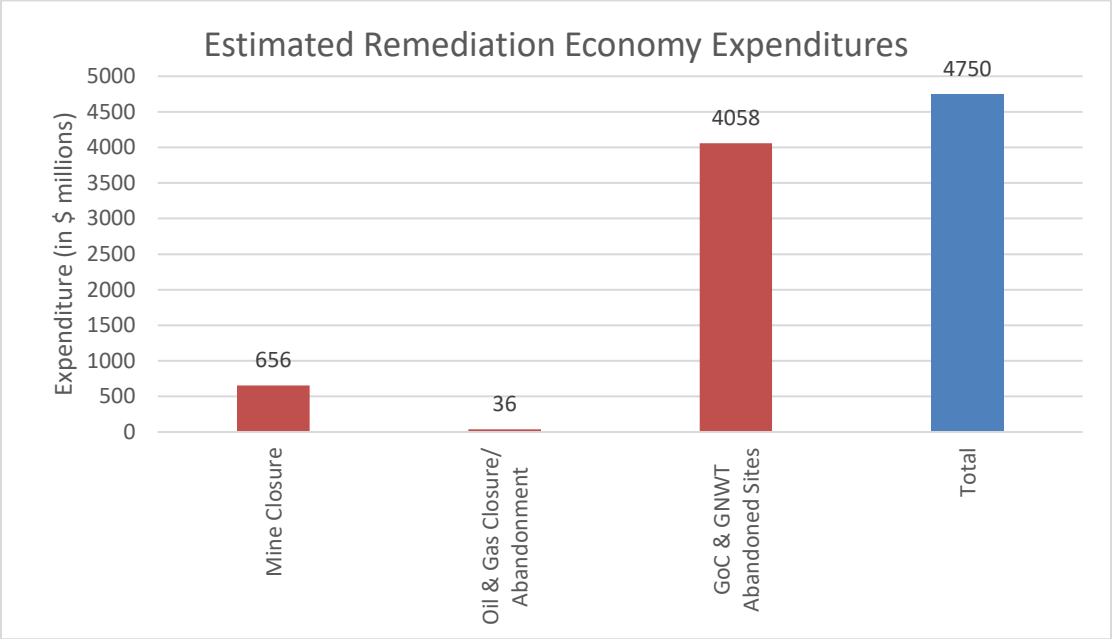


Source: NWT Remediation Economy Discussion Paper, February 2022

Economic Findings

The Government of the Northwest Territories shows an estimated economic potential of remediation activity at $4.8 billion in spending over the next 30 years. The results of the economic modelling indicate that over 90% of spending will occur in the short-term ($1.4 billion) and medium-term ($2.9 billion). This assumes many of the known sites – for example GMRP, forecasted diamond mine closures, and several large Contaminants and Remediation Divisions (CARD) sites (like the Great Bear Lake Remediation Project), will be remediated within 15 years (by 2036/37). Most remediation activities will occur in the North Slave region due to the location of the diamond mines and the GMRP.

Figure 3: Anticipated Remediation Economy Expenditures in Next 10-20 years

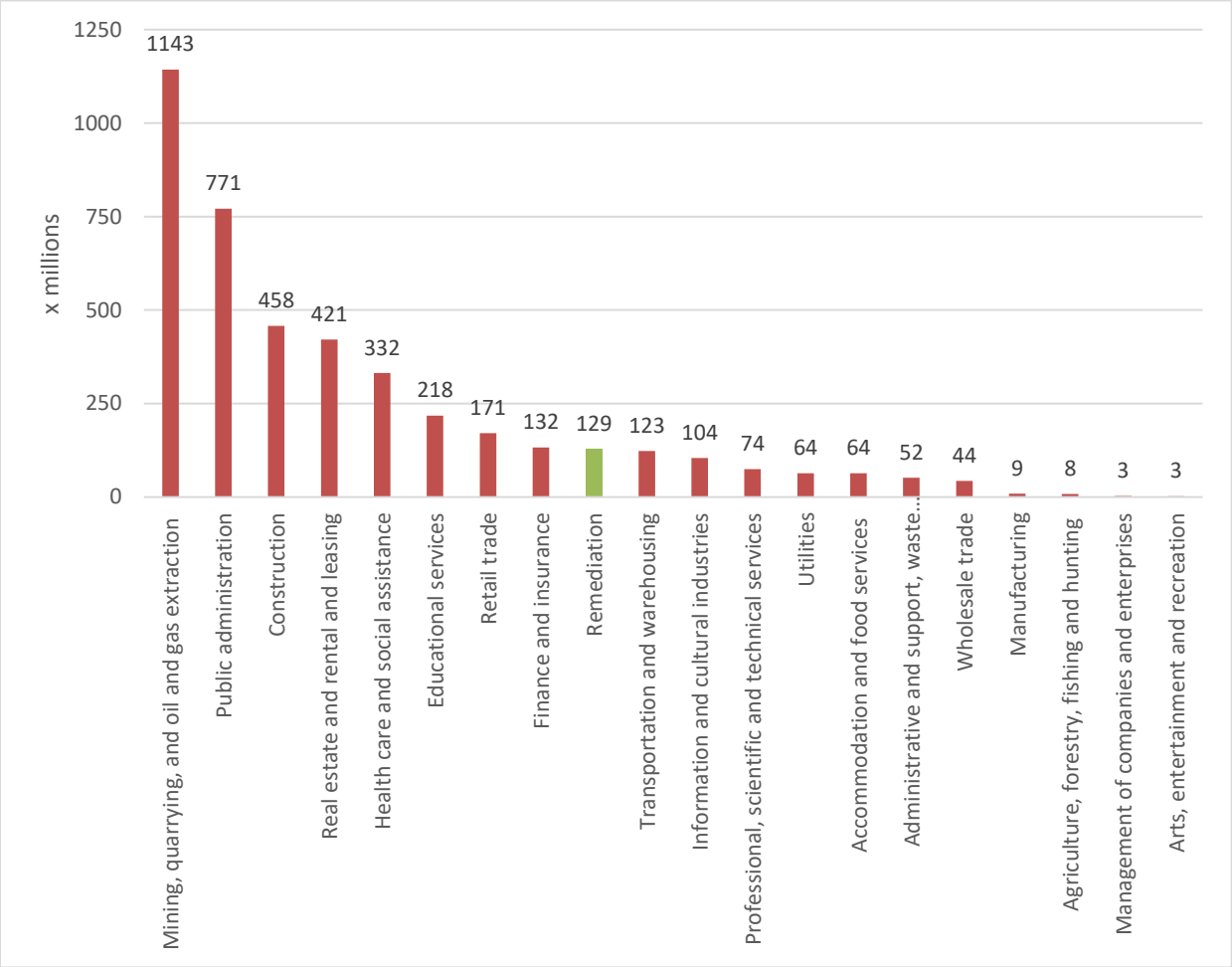


Source: NWT Remediation Economy Discussion Paper, February 2022

These estimates do not account for new contaminated sites (e.g., a new mine that may open and close within 30 years). Remediation activities are reliant on additional development and/or resource extraction, and there will be a sharp decrease in remediation activity if there is limited future development.

The annual spend will be around $291M per year over the next 15 years, generating approximately $151M in GDP for the Northwest Territories per year in that timeframe. For comparison figure 4 highlights the forecasted GDP contribution of $151M to the annual contribution of other Northwest Territories economic sectors.

Figure 4: Comparing Average Annual GDP for Upcoming Remediation to GDP by Industry



Source: Statistics Canada. Table 36-10-0402-01. 2021 Gross domestic product (GDP) at basic prices, by industry, provinces and territories (x 1,000,000). DOI: https://doi.org/10.25318/3610040201-eng

These estimates of economic activity translate into:

- Next Five Years (2022/23-2026/27):
  - Approximately $283 million spent annually in the NWT economy
- Years 6 to 15 (2027/28-2036/37))
  - Approximately $295 million spent annually in the NWT economy
- Years 16 to 30 (2037/38-2052/53)
  - Approximately $31 million spent annually in the NWT economy

Figure 5: Total estimated economic impact (Costs and GDP) over time

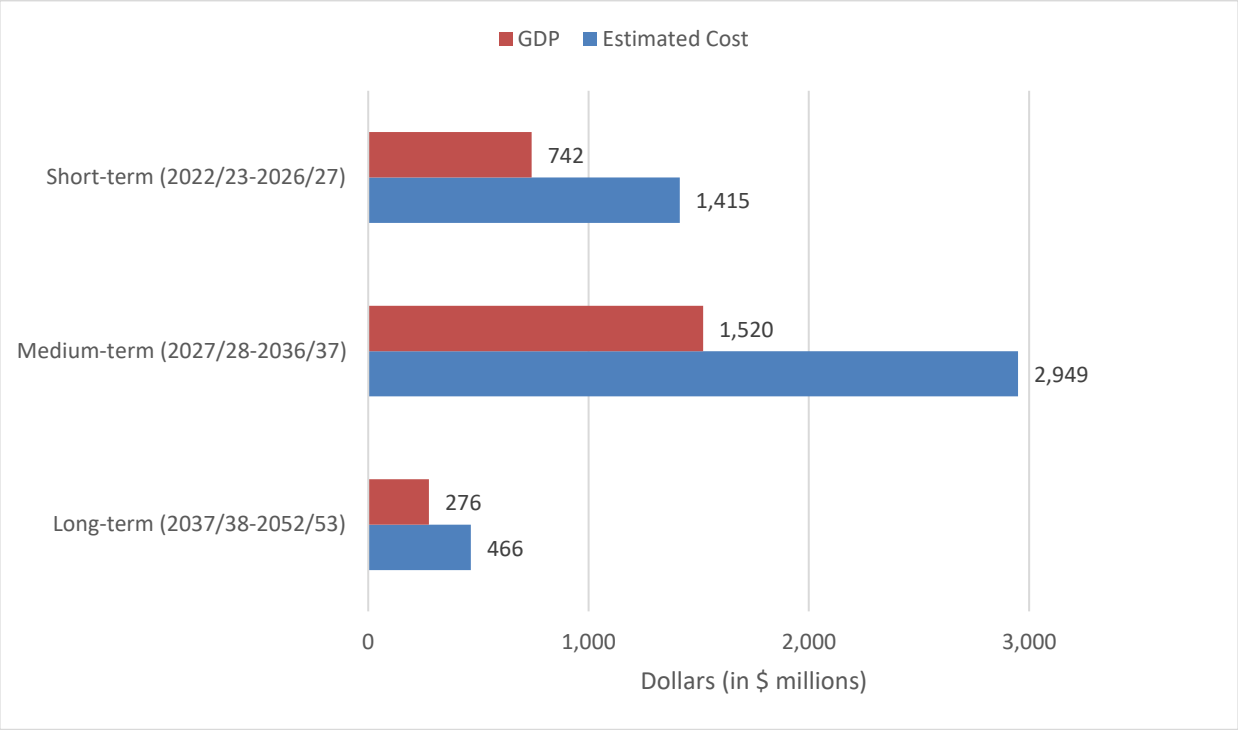
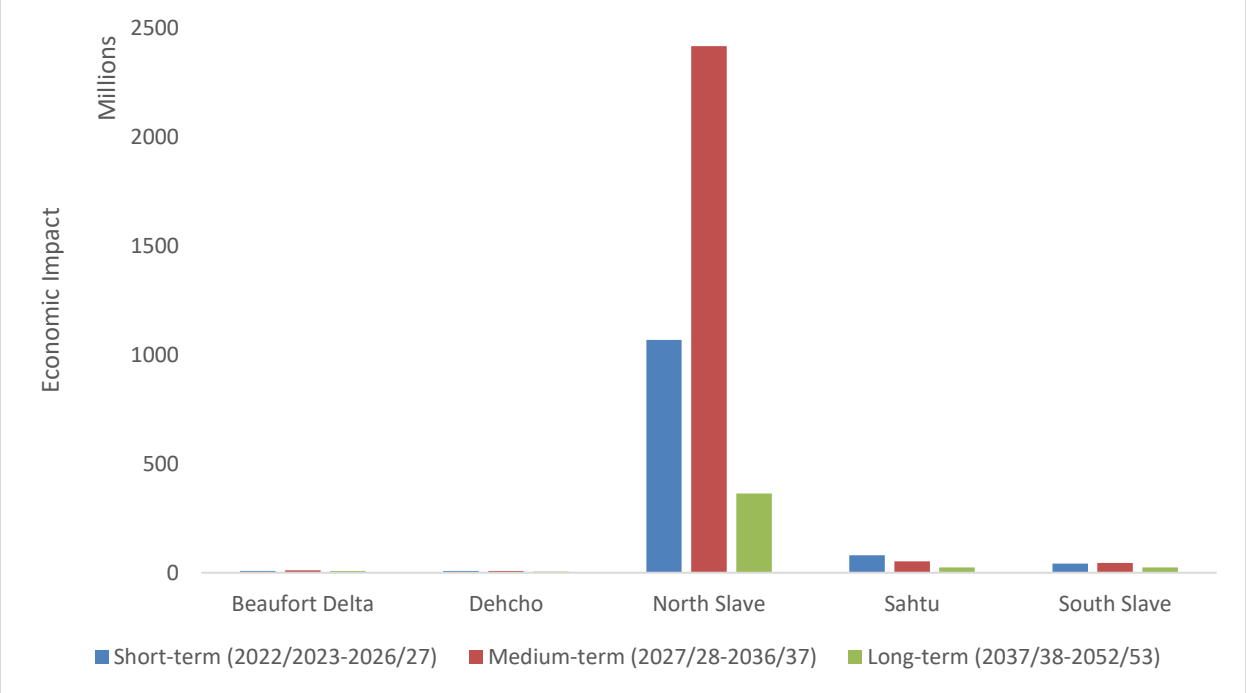


Figure 6: Economic Impact by Region and Timeframe, all Regions



Labour Market Findings

The labour estimates show approximately 700 full-time equivalent (FTEs) positions will be required per year for the next 15 years. The number of FTEs in the 15–30-year time horizon decreases to just under 100 per year.

Economic modelling forecasts that most jobs will be in the 'construction', 'professional, scientific, and technical services', and 'public administration' industries. In context, in 2019, there were 3,300 people employed in the 'trades, transport and equipment operators and related occupations' and 1,900 in the 'natural and applied sciences and related occupations' in the Northwest Territories.

Though the use of FTEs provides a way to conceptualize labour needs, since many remediation projects are seasonal (e.g., May – October) there will be a greater number of people working on remediation projects during the summer season and fewer during the winter season.

- **Short-term 2022/23-2026/27 (Next 5 Years):**

  Approximately 695 FTEs[23] annually

- **Medium-term 2027/28-2036/37 (Years 6 – 15):**

  Approximately 710 FTEs annually

- **Long-term 2037/38-2052/53 (Years 16 – 30):**

  Approximately 100 FTEs annually

Figure 7 highlights the estimated total FTE jobs over the short-, medium-, and long-term. One (1) FTE means one (1) individual working full time over a year.

[23] Full-Time Equivalent (FTE) jobs over the short-, medium-, and long-term. One (1) FTE means one (1) individual working full time over a year.

Figure 7: Total Sum of Total FTE Jobs

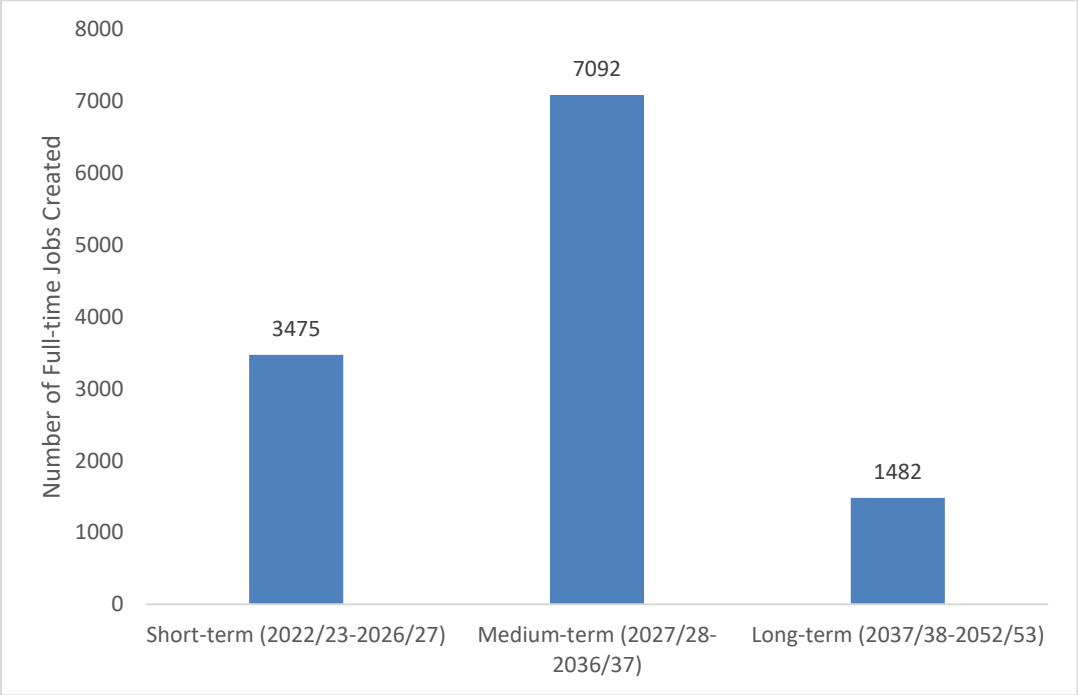
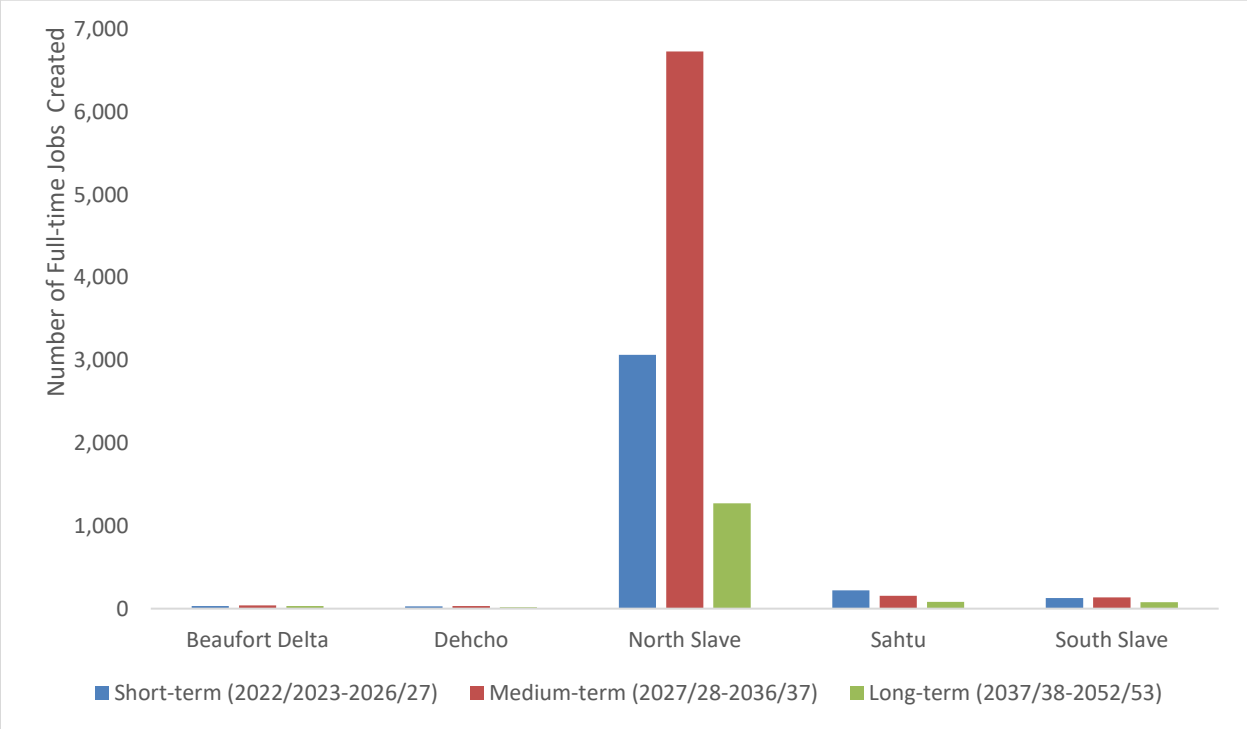


Figure 8 demonstrates that most positions will be filled in the North Slave, given the large projects that require closure/remediation over the next 10-15 years.

Figure 8: FTEs by Region and Timeframe



Many of the services and labour associated with the activities for remediation work are like those required of other heavy construction, infrastructure, and mining development projects, and there is some existing business and labour capacity to provide services.

Table 1 summarizes the typical labour in support of remediation projects drawing on the 2017 GMRP Labour Resource Study (Stratos Inc, 2018) as well as GMRP early works planning (Parsons Inc, 2021), and mine closure information. The table also indicates the services that can be provided by companies in the Northwest Territories; however, it does not present the capacity of northern and Indigenous businesses to fulfill those needs.

Table 1: Labour in support of remediation projects

Category	Employment Positions	Typical Position Required	Services provided in NWT
Unskilled	**Labourer**	General Labourer, Equipment Trainee, Flag Person	General labour
Semi-Skilled	**Truck Driver**	Articulated dump truck, 5 Ton, Skid Steer / Telehandler / Mini Excavator/Manlifts	Transportation – trucking; Equipment operation
	Equipment Operator	Excavator, 966 Loader, Grader operator, Dozer operator, Jumbo operator, Load Haul Dump operator, Underground people carriers	Construction / equipment operation; Concrete pumping and craning; Demolition; Civil contracting
	Administration	Clerk, Office Administrator	Administration
	Hospitality	Caterer, Camp service worker	Catering; Camp services
	Landscaping	Brush cutter/clearer; Tree planting, Landscaper	Brush cutting and clearing
	Security	Security Personnel	Security
	Wildlife monitor	Wildlife monitor	Wildlife monitoring
	Decontamination	Asbestos technician; Decontamination attendant	Building decontamination; Asbestos / hazardous material abatement; Waste management
Skilled	**Technician**	Instrument Technician, Lab Technician, Technician – Environmental & Civil, Crusher/ screener operator, Water Treatment Plant Operator	Blasting; Lab analysis; Mapping
	Trades	Carpenter, Ironworker (Rebar or Structural), Trades Supervisor, Crane Operator, Mechanic, HVAC, Electrician, Pipe fitter / welder, Geotextile liner installer	Construction; Trades – carpentry, HVAC, metal fabrication and installation, electrician, geosynthetic lining installation, hazmat removal
	Surveyor	Surveyor	Surveying
	Underground Miner	Underground shift boss, Underground miners	Mining; Blasting
	Supervisor	Project Manager, Supervisor, Shift foreman	Mining
	Pilot	Helicopter pilot; Airplane pilot	Transportation – Charter flights
	Surface Driller	Surface Driller	
Professional	**Management**	Planner, Accountant, Project Manager, Engagement Leads	Planning; Engagement; Accounting; Project management

Drawn from GMRP research for its Labour Resource Study and early works planning, as well as the NWT Chamber of Commerce Business Directory and interviews conducted for this project (NWT Chamber of Commerce, 2021)

CASE STUDIES

Industry closures in resource-dependent communities might come as a shock to the community and its residents. In some cases, the closure is known in advance. However, leaders at all levels of government, workers and community citizens are taken by surprise and are unprepared for the closure's impacts on the community and on the lives of the individuals affected.

Today, FPT governments and industry stakeholders are taking steps to ensure that remediation activities are completed in a manner that allows for the least negative environmental impact and all partners are actively taking steps to ensure that existing sites which require remediation or reclamation provide benefit to the impacted individuals and communities built around them. Working Group participants submitted case studies which can be found in Appendix A of this report. When examining the case

studies, the Working Group determined that each of the case studies highlighted the various components outlined in this report. However, there is one case study that best brings together the various components associated with remediation, and the remediation economy, and that is the Giant Mine initiatives being undertaken in Yellowknife, Northwest Territories.

The Giant Mine Remediation Project

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, Northwest Territories is used to provide a snapshot of current practices. The remediation efforts occurring at Giant Mine were selected as a case study because 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.

Project Overview:

The Giant Mine is an abandoned gold mine located in the City of Yellowknife, Northwest Territories, approximately 5 km from the city centre. The site is 1,600 hectares in size and during its operation (1948-2004), the mine produced 7 million ounces of gold, as well as 237,000 tonnes of toxic arsenic trioxide dust which is stored underground. Given the potential health hazards associated with the toxic arsenic trioxide dust, the Giant Mine requires ongoing management to protect human health and safety, and the environment.

From 1999 until 2002, expert technical advisors identified and evaluated over 50 technical and management options for dealing with the underground arsenic trioxide waste. The technical advisors' report was reviewed by an independent Review Panel of nine nationally and internationally recognized experts. The resulting recommended method to manage the arsenic trioxide stored underground was to freeze the arsenic trioxide storage chambers and the surrounding ground to prevent water from entering and passing through the storage areas.

In October 2022 the project received approval from the Treasury Board to move into full remediation, which is expected to be concluded in 2038. When remediation is complete, the project will move into long-term monitoring and maintenance.

Giant Mine in the Context of the NWT Economic and Employment Landscape:

Currently, the Northwest Territories relies heavily on diamond mining, representing nearly 25% of GDP [24]; however, the diamond mine industry is in decline, and it is possible that all existing diamond mines in the Northwest Territories could be closed by the early 2030s[25]. There will continue to be competition for trades, skilled, and professional workers in the area as major projects compete for the same labour supply. Nevertheless, as diamond mines end operations, there could be professional, technical, trades, and other skilled personnel looking for other employment opportunities. The GMRP's collaboration with diamond mines can support a transition of available labour force. In addition, the Project's decision to expand its timeline may help alleviate pressure on capacity as the Project progresses.

Key Rights-Holders and Stakeholders:

In May 2005, CIRNAC entered into a Cooperation Agreement with the Government of the Northwest Territories, whereby the two governments agreed to cooperate and coordinate the care and maintenance of the site and the implementation of the project. Under this agreement, the Government of the Northwest Territories and CIRNAC are project co-proponents in the regulatory approval process. The following key stakeholders provide advice and participate in project activities:

- Yellowknives Dene First Nation
- North Slave Métis Alliance
- Tłı̨chǫ Government
- Non-Governmental Organizations
- City of Yellowknife; and
- The Giant Mine Oversight Board.

Giant Mine is a Government of Canada leader in engagement, capacity building, socio-economic benefits and collaboration in the North.

Engagement

As we have noted throughout this paper, engagement with all parties is critical, and it is a cornerstone of the Giant Mine remediation process. The Project team recognizes the importance of understanding and considering Indigenous and local concerns, for the remediation of the site to be successful. The Project team works diligently to inform the people of Ndilo, Dettah, and Yellowknife and listens to their concerns and seeks their advice. This includes regular meetings with the Giant Mine Advisory Committee, which represents the interests of the Yellowknives Dene First Nation in the remediation

[24] New Metals, New Opportunities: Northwest Territories' Outlook to 2045—March 2022. Conference Board of Canada.

[25] Government of Northwest Territories. (2022, February 22). *Northwest Territories Economic Review 2022-2023.*

process, as well as monthly meetings with the Giant Mine Working Group, which makes recommendations to the Project team of technical and operational aspects of the remediation plan. Over the last 20 years, there has been a significant amount of engagement which has led to improved relationships, refinement of the Closure and Reclamation Plan, and trust with key stakeholders.

Benefit and Procurement Agreements

The Giant Mine Remediation Project has become a leader in the co-development of benefit and procurement agreements, training programs and internships, as follows:

- Yellowknives Dene First Nation signed Community Benefit Agreement (CBA) committing to annual funding of $2M; Procurement Framework Agreement (PFA);
- North Slave Métis Alliance: signed CBA in March 2023, committing to annual funding of $380K; and
- Tłı̨chǫ Government (TG): currently negotiating Economic Benefits Agreement and a separate PFA.

Tłı̨chǫ Government Training Programs and Internships

- Partnership between TG and Mine Training Society (local training provider);
- Training programs are for Industrial Safety Training and Driving, and Internships are with MTS and WSP;
- 8 candidates participated in the program in 2022 (50% completed all training courses); and
- 12 candidates began the next round of training in April 2023.

Socio-Economic Benefits for Indigenous and Northerners.

From 2017, the main construction manager Parsons Inc., issued 67 subcontracts with a value of over $219M. Of that contract value, 87% went to Northern companies with:

  - Indigenous **employment** averaging 21%; and
  - Northern **employment** averaging at 45%.

BEST PRACTICES AND LESSONS LEARNED

It is clear that no single entity is exclusively responsible for managing the transition and recovery of a resource-dependent community that has lost its primary resource industry through closure. Many factors out of the control of the key parties are involved – community remoteness and geography, economic opportunities, proximity to transportation, etc. – and the dynamics between the key parties also play a part. Because of the unique circumstances of each community and the complex interplay between factors influencing transition, it is impossible to isolate one entity and give it credit for the community's transition and sustainable recovery.

Lessons learned from the research and case studies include the following:

1. Engage local communities and stakeholders throughout the remediation process to ensure their needs and priorities are considered. This can help to build trust and support for the post-remediation economy.

2. Identify potential economic opportunities that are appropriate for the site, such as eco-tourism, renewable energy development, or sustainable agriculture.

3. Build partnerships with industry, government, and community stakeholders to leverage resources and expertise, and to create a shared vision for the post-remediation economy.

4. Leverage existing assets, such as natural resources, infrastructure, or local businesses, to support the development of the post-remediation economy.

5. Invest in training and education programs to provide residents with the skills and knowledge needed to participate in the post-remediation economy.

6. Ensure that the post-remediation economy is environmentally sustainable, by using renewable energy, reducing waste, and minimizing environmental impacts.

7. Monitor and evaluate the success of the post-remediation economy, using indicators such as job creation, economic growth, and environmental sustainability, to ensure that it is meeting its goals and objectives.

Ongoing collaboration between all entities at all stages of transition, coupled with a multifaceted response, ensures the effective coordination of resources and programs to maximize the opportunities for successful transition management. As part of this collaboration, it is important that each entity recognizes that all have a leadership role to play. For example, the key parties can each lead in the following ways:

- FPT governments: set policy direction and prepare regions/ communities for impacts;
- provincial and territorial governments: coordinate collaboration and funding from all actors;
- local governments: manage local issues arising from closure;
- industries: communicate intentions clearly and in a timely way and early on, and be responsible community citizens by being accessible and supportive and by participating in community priorities; and
- community organizations: provide practical support.

Furthermore, the research continues to demonstrate the need for and benefit of community participation in planning processes of mine remediation[26]. According to the International Council on Mining and Metals, 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.

The following list highlights the best practices of each of the identified parties:

Federal Government

- analyze impacts of national policy on a regional and/or community level and consult with provinces, territories, regions and communities, before making policy decisions;
- provide a formal, advance notice of closure of its facilities as much before the closure date as possible to provide time for adjustment;
- maintain federal services in regions and communities impacted by industry closure;
- model good corporate behaviour by ensuring its agencies fulfill all environmental and aesthetic clean-up responsibilities when withdrawing operations from communities; and
- modernize procurement mechanisms and training approaches to anticipate economic opportunities for communities beyond the lifespan of the project.

Provincial and Territorial Governments

- provide municipalities with greater flexibility in the way they operate so that they can be more responsive to economic crises;
- empower local governments through additional funding to lead the development and implementation of transition plans;
- encourage municipalities to work together on a regional basis, wherever possible, to find joint solutions and capitalize on regional strengths and opportunities; and
- continue to provide core services or additional services to provide appropriate levels of transition support for a period of time.

Local Government

- Develop plans to develop and mobilize the local economy, while local industry is still strong;
- provide front-line leadership to determine the community's most sustainable future direction and to coordinate planning and collaboration to achieve community goals; and

[26] Holcombe, S., Keenan, J., & Mackenzie, S. (2021, April). *Community participation in closure planning processes.* Centre for Social Responsibility in Mining, University of Queensland.

- communicate positive messages during transition about the community.

Departing Industry

- work with community leaders to plan in advance for resource depletion and industry closure because most resource industries have a naturally limited life cycle;
- establish clear mechanisms for industry supports, such as retirement packages, home buyouts, severance, and relocation, well before closure to ease transition and manage worker expectations;
- invest in training opportunities and capacity building for employees and community members of all types and skill levels early in the project, to ensure their continued employment in the broader resource economy, beyond the lifespan of the remediation project; and
- address the environmental hazards and aesthetic impact of industry activities on communities, particularly for industries involving radioactivity, chemical wastes, open pit mining and clear-cutting.

Community Organizations

- work to ease the closure crisis and plan for immediate financial and social assistance to the community;
- work with industry and governments to build community capacity and morale, through training and procurement opportunities; and
- participate in the development of business plans, new market opportunities and economic development strategies.

CONCLUSION

It is clear that no single entity is exclusively responsible for managing the transition and recovery of a resource-dependent community that has lost its primary resource. Many factors are out of the control of the lead parties such as – community remoteness and geography, economic opportunities, proximity to transportation, etc. – and the dynamics between the key parties also plays a part. Because of the unique circumstances of each community and the complex interplay between factors influencing transition, it is impossible to isolate one actor and give it credit for the community's transition and sustainable recovery. In every case study, ongoing collaboration between all parties at all stages of transition, coupled with a multifaceted response, ensures the effective coordination of resources and programs to maximize the opportunities for successful transition management. As part of this collaboration, it is important that each party recognizes that all have a leadership role to play. For example, the key parties can each lead in the following ways:

- FPT governments: set policy direction and prepare regions/ communities for impacts;
- provincial and territorial governments: coordinate collaboration and funding from

all actors;
- local governments: manage local issues arising from closure;
- industries: communicate intentions clearly and early on, and be responsible community citizens by being accessible and supportive and by participating in community priorities; and
- community organizations: provide practical support.

It is impossible to identify single actions that are essential to successful transition management because transition management depends on many complex and interrelated factors and on the combination of strengths brought to the task by all actors. Despite this, it is possible to identify a range of actions that are helpful, including planning and implementing economic strategies, providing incentives for industry and new resident relocation to communities, maintaining service levels, stabilizing municipal debts and revenues, providing worker support, and maintaining high community morale. Working with their partners, communities need to develop a plan to map out all of the range of actions and strategies they will need to succeed in transition recovery.

Research findings suggest that collaboration among all stakeholders—from the community level to the federal government—are necessary to support a sustainable and successful transition. Research underscores the critical nature of community-based leadership and planning for the inevitability of transition.

Building on this research, Canada will continue to investigate the specific ways that FPT governments are positioned to support communities moving through an industry transition or remediation. Given that the 2023 NDMF will allow FPT ministers to collaborate and discuss these issues, it will facilitate a better understanding of how governments can work together to ensure that transitions in resource sector dependent communities are just and result in the least negative impact upon individuals and communities as possible.

APPENDIX A: CASE STUDIES

Alberta

Syncrude Canada Ltd.

Demonstrating that environmental conservation is a key priority of oil sands development, Syncrude Canada Ltd. (Syncrude), one of Canada's largest companies in the oil sands industry in Fort McMurray, is a major driver of economic growth of Alberta. Syncrude has also completed several land reclamation projects in the province.

The *Alberta Environmental Protection and Enhancement Act*, enforced by the provincial government, requires Syncrude to return land used for resource development to the equivalent of that of pre-disturbance landscape. Syncrude is the first oil sands operator to receive government certification for reclaimed land. To date, Syncrude has permanently reclaimed over 3800 hectares of land with an additional 1000 hectares capped with soil and ready for revegetation. Over 8.5 million tree and shrub seedlings have been planted as a part of the reclamation process. Syncrude's vision is to create a landscape that supports biologically self-sustaining communities of plants and animals.[27]

Syncrude has completed several reclamation projects including Gateway Hill, Bill's Lake, and Mildred Lake. In Mildred Lake, Syncrude introduced 30 bison in 1993, and that herd has now grown to over 300. Working with the Fort McKay First Nation, management of the herd's growth represents success in land reclamation as well as a partnership between industry and local Indigenous communities.[28]

The potential environmental consequences of abandoned or contaminated sites can be extensive, and increasingly slow with the effects of climate change. Importantly, for northern communities as climate change progresses and permafrost continues to melt, permafrost which formerly acted as an insulator, slowing the progressing of ground seepage, is becoming an expedited challenge and making remediation and clean-up activities a more urgent enterprise needed to prevent further and more significant environmental challenges.

Alberta Environmental Monitoring, Evaluation and Reporting Agency

Alberta Environmental Monitoring, Evaluation and Reporting Agency (AEMERA) with Alberta Innovates created a pilot program to train indigenous community members as environmental monitors. The pilot program provided access to Indigenous communities for training and employment opportunities while ensuring environmental protection of

[27] Syncrude. 2019. "Land Reclamation" https://www.syncrude.ca/environment/land-reclamation/

[28] Thurton, David. 2018. "25 years later, Syncrude's bison herd thriving on reclaimed oilsands lands." CBC. February 16, 2018. https://www.cbc.ca/news/canada/edmonton/25-years-bison-reclaimed-syncrude-oilsands-lease-1.4538030

the land. Alberta Innovates collaborated with AEMERA to conceptualize and deliver the Environmental Monitoring Technician Training Program for First Nations and Métis Communities in Northeastern Alberta in 2015. The 5-week training program focused on safety, water quality monitoring, and wildlife monitoring to enable individuals to work in environmental monitoring service crews. The pilot program demonstrated an approach to training in Indigenous communities, while increasing community participation in environmental monitoring. Outcomes of the training program included expansion in sites monitored in Indigenous communities, submission of a multi-year proposal to initiate a community based wildlife monitoring program, and employment of some trainees by Indigenous communities.[29]

Québec

Under Québec's provincial regulations, every mining company must have a closure plan in place before the initial mining stages begin[30]. This plan describes the intended measures to ensure public safety, environmental protection, and rehabilitation. It must be updated every five years until the mine ceases operations and be approved by the government.

The Raglan Agreement[31] was signed in 1995 between Raglan Mine and five (5) Inuit partners: the Makivik Corporation and the two Inuit communities of Salluit and Kangiqsujuaq, supported by their respective landholding corporation. The Raglan Agreement was drafted consistently with the James Bay and Northern Québec Agreement (JBNQA). Raglan Mine was in fact the first mining operation in Canada to sign an impact and benefit agreement (IBA) with an Indigenous group. Since then, the Raglan Agreement has been used as a reference point for other Indigenous agreements in the mining industry as well as in other industrial sectors. The Agreement allows:

- protection of the environment and mitigation of the impacts of mining activities on the land;
- financial provisions (profit sharing and others);
- contracts awarding with a favourable bias to Inuit enterprises;
- training and employment for local communities; and
- follow-up on the Raglan Agreement via the Raglan Committee.

The Sivumut Project ("Moving Forward" in Inuktitut)[32] aims to continue Raglan Mine's day-to-day operations until 2040 and beyond. This Project was designed in a way to continue using existing infrastructure, including the housing complexes in Katinniq and Deception Bay, the ore processing plant, power plants, workshops, water treatment

[29] Aboriginal Environmental Services Network. 2015. "Environmental Monitoring Technician Training Program – Pilot 2015" https://www.aesninfo.ca/training/#_Environmental-Monitoring-Technician-Training-pilot
[30] https://mern.gouv.qc.ca/en/mines/mining-reclamation/guidelines-for-preparing-mine-closure-plans-in-quebec/
[31] https://www.mineraglan.ca/en/raglan-agreement/Pages/home.aspx
[32] https://www.mineraglan.ca/en/what-we-do/Documents/Sivumut_EN_FINAL_2017_(court).pdf

plants, tailings storage facility (TSF), waste rock piles, road network, port, airport and warehouses.

The Sivumut project is broken down into two phases, which will add to Raglan Mine's current activities and should enable us to continue mining for another 20 years. Sivumut provides an opportunity to strengthen the partnerships with Nunavimmiut, in particular the communities of Salluit and Kangiqsujuaq. The project is contributing to the economic development of Nunavik through job opportunities, contracts awarded to Inuit businesses and profit-sharing mechanisms. The experience gained and the various studies and improvements achieved during Phase I have allowed Raglan Mine to minimize the environmental impacts of its operations while maximizing benefits for the local communities.

Through discussions with its Inuit partners from Salluit and Kangiqsujuaq, Raglan Mine came to realize that some of their main concerns were in regards to mine closure practices, including tailings management. Raglan Mine decided to address these concerns by including its host communities in the reviewing process. This will give Raglan Mine the opportunity to improve the concept alongside its Inuit partners and work towards an integrated closure plan that is both environmentally and socially acceptable.

Although the mine is expected to remain operational for at least another 20 years, the Closure Plan Subcommittee was launched in March 2018 to establish and maintain a dialogue with the mine's Inuit partners about mine closure and integrate the traditional knowledge of the communities of Salluit and Kangiqsujuaq into the closure plan for Raglan Mine. The members of the Closure Plan Subcommittee include:

- Raglan Mines representatives;
- Inuit partners from both Salluit and Kangiqsujuaq;
- Representatives of Makivik Corporation[33] and Raglan Mine;
- Researchers from UQAT (Université du Québec en Abitibi-Témiscamingue); and
- Researchers from TERRE-Net (Network Towards Environmentally Responsible Resource Extraction).

The subcommittee members will work together in the coming years to prepare and submit the next closure plan, with the goal of developing a closure plan that integrates Inuit knowledge and is better understood and accepted by both Inuit communities.

[33] Makivik's distinct mandate ranges from owning large profitable business enterprises and generating jobs; to social economic development, improved housing conditions, to the protection of the Inuit language and culture and the natural environment. Throughout its history Makivik has spoken on behalf of the Inuit of Nunavik in order to uphold the constitutionally protected rights of all Nunavimmiut. In carrying out its mandate, which stems from the signing of the James Bay and Northern Quebec Agreement, Makivik works within the Nunavik region with the main organizations created as a result of the JBNQA, with the government of Quebec, and the government of Canada. Makivik also works with fellow Inuit from across Inuit Nunangat – the Inuit homeland – as part of the national Inuit political process, formally represented by Inuit Tapiriit Kanatami (ITK). At the circumpolar level Makivik is a member of the Inuit Circumpolar Council (ICC).

Raglan is already working on his closure plan – as it is requested by the provincial regulations – although the mine is planned to remain operational for numerous years. By taking such an approach, Raglan Mine is leading the way in terms of community engagement, going beyond obligations, just as they did 20 years ago when they were the first mining project in Canada to sign an Impact Benefit Agreement (IBA) with an Aboriginal group.

Newfoundland and Labrador

The remediation sites in Labrador, which total 12, are all linked to Defence operations; either as a military base or early detection radar installations. The majority of these early warning sites are in remote locations. All have had some level of assessment completed, and the Provincial Government is currently working with the federal Department of National Defense to secure Federal Contaminated Sites Action Plan (FCSAP) funding to either further assess and/or remediate the sites as required.

Newfoundland and Labrador's Department of Environment and Climate Change has the responsibility for remediation projects in the province. They manage the environmental assessment and remediation of certain provincially impacted sites. The military sites in Labrador, excluding Canadian Forces Base (CFB) 5 Wing Goose Bay, are their responsibility. Except for 5 Wing Goose Bay, all ceased operation over 50 years ago. After decommissioning, many of the sites were turned back to the provincial government. CFB 5 Wing Goose Bay falls under the jurisdiction of the Department of National Defence (DND).

Only two sites in Labrador have undergone remediation work in the last ten years; Hopedale (former US military site) and Happy Valley-Goose Bay (5 Wing Goose Bay). Both sites are located within municipal boundaries. Since these sites are associated with populace areas, we will use them for analysis of the economic and social impacts of their remediation.

Hopedale

The Inuit community of Hopedale is located on the Labrador coast, 148 air miles north of Happy Valley-Goose Bay and has no road access. Airline service is available year-round, coastal boat service is available from mid-summer to late fall and snowmobile travel is available during the winter months.

The former United States military site is located just north and west of the main area of Hopedale. The site consists of three main hilltop areas as well as other associated spots. Local access to all parts of the site is via a gravel road that varies in condition or repair.

Construction of the military base and radar site commenced in 1952 and was completed in 1957. The site was a station on the United States Air Force Pine Tree Line and was also the most easterly site on the Mid-Canada line of antenna stations that extended

across the country. The military base and radar site was one of a series of sites that functioned as a Ballistic Missile Early Warning System (BMEWS) where enemy aircraft penetrating the northeastern area of the continent were identified and information then communicated to the United States. It has been reported that during peak operations, the site housed 300 personnel.

An extensive environmental site assessment was conducted at the former US military facility in Hopedale, Labrador. Work to date has included extensive environmental testing, the completion of human health and ecological risk assessments, and some remediation of PCB-impacted soil and tar. The remediation work began at this site in April 2012. From this date until 2017, approximately $13 million was spent. An additional $5.5 million is needed for further remediation of PCB, petroleum hydrocarbons, and metals impacted soil, and a further assessment of potential remedial options for PCB impacts identified in Hopedale Harbour and Old Dump Pond.

Economic Impacts

The economic impacts post operation has been minimal. Some locals were hired in the environmental assessment stages of this site but the economic benefits from most sites have ceased to exist since the 1970s. For example, in Hopedale, two local people were hired for the initial assessment and then others for various work on the project for boat rental, guiding, etc. Also, the remediation contractors hired several local people throughout the 6 years of remedial work.

It should be noted that the social impacts felt by most Labradorians from these 12 sites is far more substantive than the economic impact. Most sites were closed over 50 years ago and their economic impacts are distant. It is important to note that many residents of Labrador live off the land.

Social Impacts

In 2014, Aivek Stantec Limited Partnership (Stantec) was retained by the Government of Newfoundland and Labrador to conduct a Human Health Risk Assessment (HHRA) for the Consumption of Country Foods in the Town of Hopedale, NL. From this report, it was concluded that:

- If residents of Hopedale wish to control their exposure to PCBs, they should be advised to limit their consumption of bottom-dwelling fish, particularly rock cod and sculpin, from Hopedale Harbour;
- An outright ban on fishing from Hopedale Harbour is not recommended, as this may adversely affect food security and nutrition for the community;
- Areas such as Tooktoosner Bay and Black Head Tickle as well as other areas identified are suitable alternate locations for obtaining fish for human consumption;

- All final fish consumption recommendations and advice proposed for the Hopedale community should be formulated in close consultation with the Nunatsiavut Government;
- To ensure an ongoing cooperative association between Nunatsiavut Government, the Government of Newfoundland and Labrador and Stantec, every effort should be made to engage and incorporate Nunatsiavut Government participation in the delivery of recommendations to the Hopedale community; and
- Fish and meats should not be smoked with wood, bushes, or other vegetation collected in areas known to be contaminated with PCBs.

5 Wing Goose Bay

Canadian Forces Base (CFB) 5 Wing Goose Bay was built by the United States Air Force and Canadian government in the early 1940s and has been an active military base for over 75 years. It served a key role as a refuelling station for aircraft en route to Europe and in 1945 it was the largest airfield in the world. After the US ceased operations, the Base was managed by various federal departments and in 1987 it officially became CFB 5 Wing Goose Bay. Since then, 5 Wing has supported various military training initiatives. At its peak, 5 Wing Goose Bay had a fuel storage capacity of 300 M litres of fuel in various bulk fuel storage facilities (tank farms) connected by 160 km of the pipeline. The majority of the contamination at 5 Wing Goose Bay can be attributed to past storage and handling of various substances, such as hydrocarbons, heavy metals, chlorinated compounds (PCBs), and pesticides.

To address contamination at the base, the Goose Bay Remediation Project (GBRP) was initiated. The goal of the project is to reduce potential risks to human health and the environment caused by contamination present at 5 Wing Goose Bay. The project was initiated in 2004 and once investigation activities were complete, in 2009, DND announced that up to $300 million would be available for the clean-up of the wing. The project is on track to be completed by March 2020. It is likely that the follow-on long-term monitoring may be required at certain sites after 2020, to ensure that the remediation/risk management controls remain to protect human health and the environment. As well, there are several work elements not completed within the GBRP that will be addressed post March 2020.

DND has considered all areas collectively to understand the overall environmental condition of the site. The objective has been to assess and prioritize the contaminated sites at 5 Wing Goose Bay, and then pursue remediation work, which includes risk management strategies for the contaminated areas.

The remediation project is funded by the (FCSAP), an initiative coordinated by Environment and Climate Change Canada and the Treasury Board Secretariat, to provide funding to assess and remediate federal contaminated sites. The project has expended a total of $149 million so far (up to the end of 2018/19) and is projected to expend an overall cost of $159 million (end of 2019/20).

Economic Impacts

Given the substantial financial commitment to this project ($300 million), the economic effects on the community are considerable. Remediation contracts (Note that the contractor is not local to Labrador but utilized local resources where possible), estimates include:

- Labrador Employee hours – 118,342 hours
- Indigenous Employee hours – 35,358 hours
- Spent with Labrador Businesses – $6,790,000
- Spent with Indigenous Businesses – $205,000

Consulting contracts

- Prime Consultant – a consulting contract that provided general environmental services as well as quality assurance for remediation contracts for the duration of the GBRP;
- Based out of Nova Scotia, but opened an office in Happy Valley Goose Bay in 2005;
- Have employed 4 full-time local residents for 10 years;
- Utilized various local subcontractors for heavy equipment, surveying, drafting, etc.;
- Over $1 Million spent with local businesses (accommodations, vehicle rentals, etc.); and
- Project Management and Engineering for the South Escarpment Dumps and Stillwaters Project was contracted through Stassinu Stantec Limited Partnership which is a registered local Indigenous business. Total contract value of approximately 3.7 million.

Social Impacts

Engagement/Consultation – since the initiation of the GBRP there have been ongoing consultations with various interest groups in the Happy Valley Goose Bay area. These include:

- o Information sessions for the general public;
- o Local municipal government;
- o Provincial Government;
- o Federal Expert Support Departments (Department of Fisheries and Oceans, Environment and Climate Change Canada and Health Canada);
- o Nunatsiavut Government;
- o Innu Nation;
- o Labrador Metis/ NunatuKavut Community Council;
- o Contractor Workshops;
- o Local environmental groups; and
- o Site tours with representatives from above noted organizations

Agricultural Properties

Several agricultural properties were formerly located in some of the remediation sites. Due to concerns regarding perceived contamination on their properties, DND relocated and/or compensated farmers. To date, most of the affected properties have been relocated/compensated. Since the relocation, DND has completed the remediation/risk management strategy for this area, contained remaining contamination on DND property and initiated a long-term monitoring program to ensure these sites continue to meet remedial targets.