OECD Rural Studies

Mining Regions and Cities in Northern Ontario, Canada



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Foreword

This study explores the opportunities and challenges that the rising mineral demand brings to First Nations and local communities in Northern Ontario. It identifies good practices and policy actions to enhance First Nations' engagement in mining and capitalise on resource wealth for greater regional well-being.

Amid increasing global demand for minerals and trade disruptions, OECD countries are advancing strategies to secure reliable domestic mineral supply. In this context, balancing mining competitiveness with host communities' well-being is critical to the resilience of mining projects and regional development.

Canada and Ontario are also looking to accelerate mining project approvals and attract investment, much of it aimed at unlocking Northern Ontario's mineral capacity. As a strategic, mineral-rich region, Northern Ontario is thus vital to national and provincial economic goals. It leads nationally in gold and nickel production, hosts most of Ontario's mines, and accounts for one-fifth of national exploration spending.

Many of these mineral-related projects in the region will require consultation with First Nations, who have lived in the territory since time immemorial and established treaties with the Crown (Government of Canada) that define the current legal and political framework for Indigenous rights, land use, and mining activity. Northern Ontario lies on the traditional territory of the Anishinaabe peoples, including the Ojibwe, Odawa, Potawatomi, Saulteaux, Algonquin, as well as the Cree and Oji-Cree Nations.

The study highlights that Northern Ontario has various assets that can help leverage mining to generate greater regional well-being. The region features important advancements of First Nations' participation in mining, with leading examples recognised across the OECD in areas such as equity sharing and economic participation. It also benefits from a network of educational and research institutions with strong expertise in mining and Indigenous topics, alongside a wide supply of federal and provincial programmes that support capacity building and funding accessibility for all players in the mining ecosystem.

However, the region needs to better co-ordinate mining activities to address persistent disparities in living standards, particularly for First Nations, and to enhance local economic opportunities. A top priority is strengthening opportunities for First Nations' engagement in mining activity, as they continue to lag in many socioeconomic indicators, such as income, which remains 14% below the regional average. At the same time, improving the innovation ecosystem, local labour markets, and community infrastructure is crucial for both mining competitiveness and prosperity for the region. Effective implementation of a place-based mining policy requires enhanced municipal and First Nations planning and funding capacity, with improved multi-level government co-ordination, to maximise long-term local benefits from mining.

This study identifies 11 recommendations across three thematic areas to help policy and governance frameworks adopt a more coordinated, place-based approach for mining development in Northern Ontario. It draws on insights from the 2024 OECD Conference of Mining Regions and Cities in Sudbury and two field visits across Northern Ontario. This work is part of the OECD Mining Regions and Cities Initiative, supporting policies to enhance competitiveness and well-being of mining areas, within the OECD's broader regional development agenda. The report was submitted for comments to the OECD Regional Development Policy Committee [CFE/RDPC/RUR(2025)5] via written procedure on 1 September 2025.

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The OECD team responsible for the report includes Andres Sanabria, project co-ordinator, working under the guidance of Jose Enrique Garcilazo, Head of the Regional and Rural Policy Unit in the Regional Development and Multilevel Governance Division, led by Dorothée Allain-Dupré. The report was drafted by Bridget Donovan (Chapter 2 and 3), Tamara Krawchenko (University of Victoria) (Chapter 3), and Andres Sanabria (Chapter 3 and 4). The report benefitted from inputs from Sinead Teevan (OECD) and Jeff Geipel (Engineers Without Borders Canada). Darren Godwell (Indigenous Business Australia) acted as a peer-reviewer sharing his Indigenous perspective from Australia. It also received comments from other OECD colleagues including Varinia Michalun and Stephan Visser (CFE). Evangelina Thanasi co-ordinated the organisation of missions, and Jack Waters led the publication process.

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The findings and recommendations of the report regarding First Nations reflect the scope and research capacities of the process, drawing mainly on insights from members of the First Nations interviewed and those who provided feedback, along with relevant research literature. The report does not capture the experiences of all the Nations in the region (over 106) and does not intend to represent a unified voice for all First Nations in Northern Ontario.

The findings and recommendations of the report do not imply any endorsement or engagement by the individuals and institutions that were involved or provided feedback during its development.

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Executive summary

Northern Ontario, Canada is at the centre of rising global and national demand for minerals and metals. As global trade disruptions intensify, the federal and the Ontario governments are increasing support for domestic mineral supply and competitiveness through regulatory reforms that seek to accelerate the implementation of mining projects. Much of the momentum for mining concentrates in Northern Ontario, which is Canada's top gold producing region, the leading supplier of nickel and platinum elements and comprising 23% of the spending on exploration across the country. Covering 90% of Ontario's land mass, Northern Ontario is central to Ontario's ambitions in mineral processing and battery material value chains.

The region has long relied on natural resource-based activities and, over time, built a robust ecosystem around extractive activities that plays a central role in regional development. Mining has delivered economic benefits; with census subdivisions (hereafter *subregions*) specialised in mining, reporting median incomes 6% higher than non-specialised mining areas (2020). A network of universities, colleges, and internationally recognised training and research centres like NORCAT support the sector and have contributed to tertiary education levels, almost 50% higher than OECD mining regional average. The region also benefits from export-oriented infrastructure and a low-carbon energy grid, emitting 57% less CO_2 per gigawatt hour than the average of OECD mining regions. Sudbury exemplifies this integrated ecosystem as one of the largest municipal mining clusters in the OECD, concentrating several operating mines, academic institutions, processing plants, and service providers. Its large-scale land rehabilitation efforts, with over fourteen million trees planted, underscore the relevance of local initiatives in advancing environmental sustainability.

Northern Ontario also boasts multiple examples regarding First Nations participation in mining. With over 140 agreements signed with mining companies, First Nations communities have secured service delivery and employment opportunities, as well as equity participation in projects. The median income of Indigenous Peoples living in Northern Ontario's mining subregions is 16% higher than those in non-mining subregions (2020), and, between 2006-20, their income gap with the regional average has narrowed nearly twice as fast as those in the non-mining subregions. As of 2021, Indigenous workers made up almost 15% of the mining workforce in Northern Ontario, much higher than in the province (3%) and the country average (9%). Notable examples of initiatives that advance Indigenous participation in the sector include:

- **Indigenous-led capacity building practices**, such as the Indigenous Centre for Excellence in Mineral Development and the Indigenous Guardians environmental monitoring programme.
- **Partnerships for Indigenous business and equity**, such as Aki-eh Dibinwewziwin's mine services venture or Biigtigong Nishnaabeg's co-led port project with the municipality of Marathon.
- **Targeted policy and regulatory advancements, s**uch as Ontario's 2009 Mining Act amendments for consultation and cultural protections; the Ontario's Junior Exploration Program to fund Indigenous-led exploration; the Indigenous Loan Guarantee Program, to support First Nations equity investments or Ontario's Indigenous Opportunities Financing Program.

Despite these advances, mining wealth has not been fully capitalised to address structural challenges in Indigenous communities. While the income gap has closed over the years, Indigenous Peoples still experience a 14% lower income against the Northern Ontario average (as of 2020) and continue to face critical barriers to quality housing, healthcare, and basic services. Indigenous Peoples are twice as likely to live in poor housing conditions than the rest of the population. Those in remote communities face higher rates of suicide and opioid abuse and have Canada's highest proportion of long-term drinking water

warnings. At least 24 remote First Nations communities rely on diesel for power generation. Although not exclusive to mining, these issues further exacerbate divisions in how First Nations perceive the sector.

Northern Ontario's communities also face persistent challenges in converting resource wealth into lasting well-being. Municipalities struggle to access land for housing and industrial sites, further constrained by high construction costs in the region. Financial challenges, such as outdated property tax assessments, also hinder their ability to address mining impacts and community needs, affecting quality of life, especially in smaller communities. These barriers, combined with ageing population, skills mismatches, and misconceptions about mining careers, contribute to labour shortages that weaken project competitiveness and local gains from mining. Moreover, despite innovation support mechanisms, the regional innovation output (35 patents per million residents) remains below the rural Canadian average (55 patents).

As pressures to boost economic competitiveness grow, policy reforms to speed up mining projects must be carefully implemented to avoid eroding progress in First Nations engagement and the region's global leadership in responsible mining. Speed alone is not enough to secure project success. First Nations engagement, social acceptance, and a supportive local ecosystem (e.g. local workforce and know-how) are also crucial for project competitiveness over time. To this end, the region would benefit from a stronger place-based mining policy focused on improving business and community conditions locally, implemented through enhanced federal, provincial, and local co-ordination, with greater planning and financial capacity in First Nations and municipal governments to foster partnerships and maximise long-term benefits.

This report identifies 11 recommendations across three thematic areas to help governments improve mining's contributions to well-being for all people in Northern Ontario.

Key recommendations

	Summary of recommendations
I.	**Deepening First Nations engagement in policymaking for the minerals and metal sector**
1	**Enhancing rights to land,** by providing a formal mechanism for guiding companies, especially at the exploration phase, towards securing Free, Prior, and Informed Consent (FPIC) and considering opportunities for Indigenous co-management of abandoned mines.
2	**Improving environmental information and safety for Indigenous Peoples in mining communities** by updating Ontario's Abandoned Mines Information System (AMIS) and adopting governance frameworks for monitoring safety in communities.
3	**Strengthening First Nations expertise and equity access in mining, where desired** by further financing mining training workshops in communities, and supporting financing and relevant mechanisms for interested First Nations to access equity stakes in mining projects.
4	**Enhancing First Nations inclusion in mining decision-making and economic opportunities** by supporting access to mining procurement and expanding Indigenous-led land-based learning programmes.
5	**Supporting stronger partnerships and collaboration** among First Nation, governments at all levels, and businesses.
II.	**Improving enabling factors for both mining competitiveness and community quality of life**
6	**Enhancing the mining innovation ecosystem** through more formalised collaboration among regional innovation players and rightsholders, clearer innovation goals for the regional economy, and streamlined access to innovation funding with follow-up support.
7	**Strengthening local labour markets** with practical outreach to youth and women, improved workforce information and training paths with mining companies and investments in community services for workers and families.
8	**Improving industrial and community infrastructure** by expanding access to affordable housing through partnerships to access land and economies of scale to reduce construction costs, and by leveraging mining for transport and energy investments.
III	**Reinforcing the governance framework to leverage mining for long-term regional well-being**
9	**Enhancing local planning capacity to secure lasting benefits from mining** through a dedicated multi-actor/rightsholder body for community readiness, greater support for long-term municipal plans and for transient workers' integration in the local economy.
10	**Improving municipal access to funding for mining community development** by enhancing access and predictability to provincial grants, updating property tax assessment, and promoting benefit-sharing partnerships with mining companies.
11	**Strengthening horizontal co-ordination to improve mining governance** with better alignment among growth plans of mining operations with First Nations and local economic development plans.

1 Assessment and recommendations

This chapter summarises the study's main findings and policy recommendations. The next chapter outlines the key opportunities and priorities for Northern Ontario's mining ecosystem, drawing on quantitative evidence and benchmarking with other OECD and Canadian mining regions. The following chapter examines mining's impacts and opportunities for First Nations, proposing strategies to strengthen their engagement as rightsholders in mining developments and ensure long-term benefits. The final chapter highlights priorities to enhance the regional mining ecosystem and proposes policy actions to reinforce governance frameworks that support both project competitiveness and community well-being.

Assessment

Northern Ontario: a vast region with relevant First Nations heritage and key population hubs

Northern Ontario, with a population of 943 899 people (Statistics Canada, 2021[1]) is a vast and diverse region located within the province of Ontario. It makes up over 90% of the province's land mass but only 6% of its population (Landsby, 2023[2]). About 17% of the population identify as Indigenous with the region home to 106 First Nations communities,[1] making up 78% of the First Nations communities in Ontario (Ontario Government, 2018[3]). Indigenous Peoples contribute significantly to the region's mining sector, representing 15% of the total mining workforce in Northern Ontario.

First Nations have inhabited what is now Northern Ontario since time immemorial. The region is situated on the traditional territories of the Anishinabek (Ojibwe, Odawa, Potawatomi, Saulteaux), Algonquin, Cree, and Oji-Cree Nations. Section 35 of the Constitution Act 1982 recognises and affirms the existing Aboriginal and treaty rights of Indigenous Peoples in Canada including the inherent right of self-government.

Six primary treaties between First Nations and the Crown cover Northern Ontario and have shaped the legal and political landscape of Indigenous rights, land use and resource developments in the region. The Robinson Treaties, signed in 1850, include the Robinson-Superior Treaty and the Robinson-Huron Treaty, which cover areas around Lake Superior and Lake Huron respectively. Treaty 3, also known as the North-West Angle Treaty, was signed in 1873 and covers north-western Ontario, including areas like Kenora and Sioux Lookout. Treaty 5, signed in 1875, extends into a small portion of Ontario, although it primarily covers Manitoba. The largest treaty in the province is Treaty 9, also known as the James Bay Treaty, which was signed in 1905-06 and covers much of Northern Ontario, including the land directly south of James Bay. Treaty 9 involves Cree and Anishinaabe peoples and was created to open up Northern Ontario for settlement and resource development.

programmesIn Canada, mining policy is a shared responsibility between federal and provincial governments, with specific tasks across level of governments:

- The federal government is mainly in charge of national-scale thematic geoscience, nuclear energy, explosives regulations, international trade and investments, and navigable waters management.

- The provinces are mainly in charge of resource ownership and management, jurisdiction scale framework geoscience, resource exploration and development regulations, operational licensing, permitting, and monitoring, land-use decision making.
- Shared responsibilities include environmental protection and conservation, Indigenous affairs, Innovation, science, technology, R&D, infrastructure, uranium mining, health and safety, and land access.

Municipal governments are also central to achieving mining policy goals and securing broader development outcomes, by establishing local development plans, delivering and managing services for local communities, tailoring federal and provincial programmes to address community needs and managing land use for community development.

The administrative region of Northern Ontario is made up of 12 census divisions (hereafter *subregions*) Algoma, Cochrane, Greater Sudbury (city), Kenora, Manitoulin, Muskoka, Nipissing, Parry Sound, Rainy River, Sudbury (region), Thunder Bay, and Timiskaming. Many local districts are natural resource-based, relying significantly on mining, forestry, and energy (Northern Policy Institute, 2016[4]). Following the OECD definition of mining specialisation,[2] 5 out of the 12 are classified as mining subregions (Cochrane, Greater Sudbury, Sudbury, Timiskaming, and Rainy River).

The governance of mineral development also involves the interplay of Indigenous rights, policies and protocols. Under *Section 35* of Canada's *Constitution Act*, the Government of Canada has a duty to consult and, where appropriate, accommodate Indigenous groups when it considers conduct that might adversely impact potential or established Aboriginal or treaty rights. (Government of Canada, 2025[5]).

Northern Ontario is at the centre of rising global and national demand for minerals

Global mineral demand is set to surge in the coming years, driven by the twin forces of decarbonisation and digital transformation. Even under a conservative scenario of phasing out fossil fuels with today's policy settings, demand for minerals used in clean energy technologies is expected to double by 2030 (IEA, 2024[6]). This surge comes amid growing supply risks. Production is increasingly concentrated in a few countries, while export restrictions are expanding and- currently affecting about half of the minerals critical for energy technologies (IEA, 2025[7]). In response, most OECD countries have adopted actions to secure reliable mineral supplies and increase the competitiveness of the mining sector, viewed as a core priority for energy, economic development, and national security.

Mining activities are a crucial economic driver for both Ontario and Canada. It contributed directly about 4% of national GDP in 2022 (Mining Association of Canada, 2024[8]) and 3% of the provincial GDP in 2023 (Ontario Mining Association, 2025[9]). Indirectly, when including associated services, the sector contributed an addition 1.3% of the provincial GDP (Ontario Mining Association, 2025[10]). In 2023, the sector directly employed about 22,000 people in the province, earning an average of CAD 150 000 annually, nearly double the provincial all-industry average (Ontario Mining Association, 2025[10]).

Northern Ontario's mining sector is vital to Canada's objective of securing mineral supply and driving resilient, self-reliant economic growth, making up 26% of Canda's total mineral production value in 2023 (NRCAN and Ontairo Ministry of Mines, 2023[11]). The region is a major source of critical minerals, other metals and related knowhow for the province and indeed the country (Ontario Mining Association, 2025[10]):

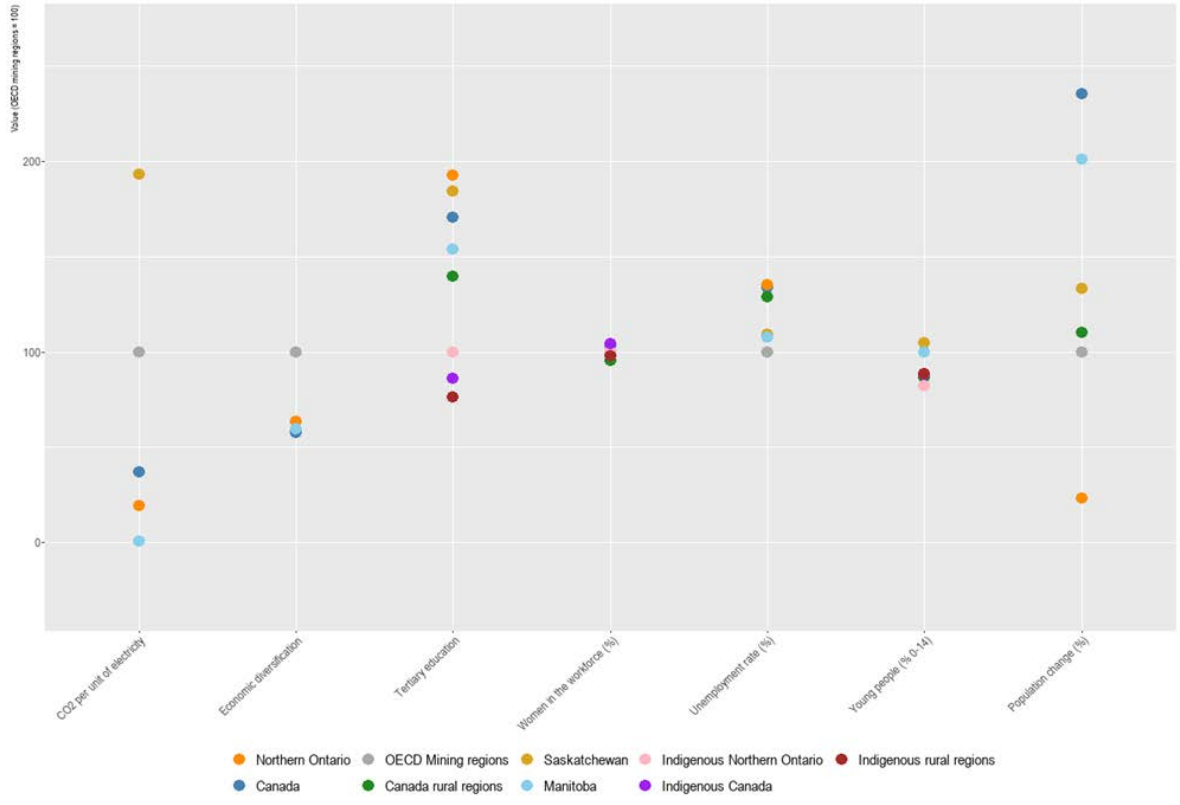
- Producing over half Canada's cobalt (56%) (NRCAN and Ontairo Ministry of Mines, 2023[11]), 39% of Canada's nickel (Government of Canada, 2023[12]), 81% of Canada's platinum group elements (Ontario Government, 2023[13]), and 44% of Canada's copper (Ontario Government, 2023[15]). T is Canada's top gold producing region (43% of Canada's gold) (NRCAN and Ontairo Ministry of Mines, 2023[11]).

- Hosting 27 of the 28 producing metals mines in Ontario in 2024, including nine active mines on critical minerals (OMA, 2025[14]).
- Hosting ten processing facilities and over 25 advanced critical minerals projects that include processing, recycling and exploration.
- Concentrating most of the 350 000 active mining claims in Ontario as per 2024, with the value of exploration activities representing 23% of the total exploration spend across Canada in 2023 (Ontario Mining Association, 2025[10])
- Large planned critical minerals projects such as those proposed in the Ring of Fire area highlight its mineral-producing potential

The province is also recognised globally for its attractive environment in which to operate. It ranked 15th out of 82 jurisdictions worldwide in the 2024 Fraser Institute's Investment Attractiveness Index, which evaluates both mineral potential and policy factors such as environmental regulations and community engagement (Fraser Institute, 2024[15]).

When compared with other mining regions, Northern Ontario outperforms OECD mining regions and national averages in income, tertiary education, women's workforce participation, and lower GHG emissions intensity. However, it lags in unemployment, population growth, and economic diversification. Unemployment is higher than in Canada and OECD mining regions, while population growth remains limited (Figure 1.1). As this report will outline, Indigenous Peoples in Northern Ontario register better economic outcomes than Indigenous populations nationally and across rural regions in Canada, but continue to face significant gaps in income and quality of life compared to Northern Ontario's average.

Figure 1.1. Northern Ontario performance on economic, social, and environmental indicators



Note: in the Y axis, 100= OECD mining regions average
Source: OECD elaboration.

Northern Ontario has many assets to capitalise on the rising mineral demand.

Northern Ontario has historically relied on natural resource industries, with different focuses across communities. During the 1970s, forestry was a main economic activity in the west of the region (Thunder-Bay and Marathon area), while mining excelled in the east (Sudbury and Timmins). In the early 2000s, mining played a key role in fostering economic resilience across Northern Ontario, helping communities absorb the economic shocks caused by the decline of the forestry sector. Between 2000 and 2018, Ontario's forestry sector shed over 35 000 jobs and saw a 60% drop in harvest volumes (Ontario Government, 2018[16]). In response to forestry decline, communities increasingly looked to mining as a driver of economic revitalisation and long-term development. While mining has offered new opportunities for employment and investment, lessons from past industrial dependence underscore the need for economic diversification.

Subregions with mining have relatively higher incomes in Northern Ontario

The five mining subregions that make up Northern Ontario's mining sector are all characterised by over 6% of their labour force working in the sector and an employment rate over 45% as of 2021. Most areas, except Greater Sudbury have a very low population density, highlighting the geographical expansiveness of these regions.

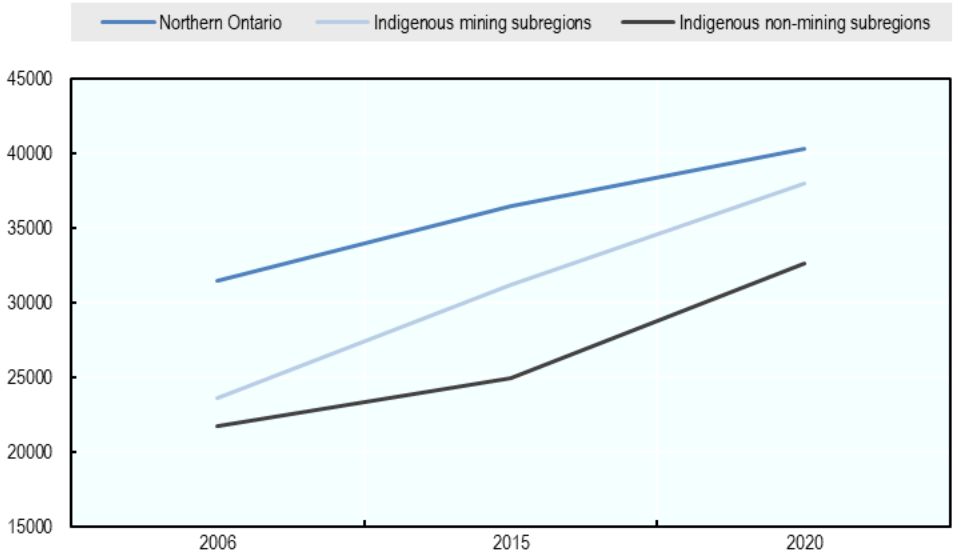
Northern Ontario on average reports a higher median income (after tax) compared with other Canadian benchmarks, with relatively higher figures in mining subregions. In 2020, Northern Ontario's median income (after tax) (CAD 37 663) was approximately 3.8% higher than Canadian rural regions and 2.3% above the national average (Statistics Canada, 2021[1]).

In the mining subregions of Northern Ontario, the median income (about CAD 39 000 in 2020) is approximately 5.8% higher than in non-mining subregions (CAD 36 900). For Indigenous Peoples, this is also the case, with those living in mining subregions recording a 16.4% higher median income than those living in non-mining subregions. This is likely, in part, due to relatively higher wages associated with employment in the sector. For instance, mining across Ontario offers considerably higher wages than provincial averages at nearly CAD 150 000 per year, which is nearly double the provincial average (Ontario Mining Association, 2025[10]) (OECD, 2023[17]).

The income gap between Indigenous Peoples and the regional average has narrowed faster in mining subregions than in non-mining subregions

The presence of mining in certain areas of Northern Ontario has also provided an avenue to address the income gap between Indigenous Peoples and regional median incomes. As of 2020, the income gap between Indigenous Peoples and the regional average was almost three times smaller in mining subregions (5.8%) than in non-mining subregions (19%). This has however, improved over time, particularly in mining subregions. Between 2006 and 2020, the income gap between Indigenous populations in mining regions and the regional average narrowed by 19.2 percentage points, falling from 25% to just 5.8%. This is almost twice as fast as the 11.1 percentage points reduction in the income gap between Indigenous Peoples and the regional average in non-mining regions (from 30.1% to 19%) (Figure 1.2).

Figure 1.2. Total median income 2006-21 (adjusted to 2021 CAD)



Note: 2011 data is not included due to methodological differences in the National Household Survey, which was voluntary and not comparable to the mandatory censuses in 2001, 2006, 2016, and 2021.
Source: (Statistics Canada, 2021[1])

Snapshot of assets in Northern Ontario's mining ecosystem

Northern Ontario has assets across the mining value chain, exceling in upstream support activities. The region stands out for its mineral endowment, research and education institutions, green energy supply to produce raw materials and its leading practices in Indigenous engagement in the sector Table 1.1.

Table 1.1. Main assets of Northern Ontario mineral ecosystem

Asset	Description	Key Figures
Mineral endowment.	The mineral endowment ranges from lode gold deposits to magmatic copper-nickel-palladium-platinum deposits, as well as critical elements such as lithium.	-Northern Ontario hosts 28 of the 36 active mines in Ontario and is the largest producer of gold in Canada. -Deposits of eight of the 34 critical minerals identified for Canada
Research and education institutions for mining	The region has an array of dedicated research and testing centres, universities and colleges for professional and technical education as well as research particularly on environmental practices and community engagement	-Two universities with research on mining: Laurentian University (34th out of 50 in Canada in 2023) and Lakehead University (35th) -Three colleges with a focus on mining: Collège Boréal (Boreal College in english), Northern College and Cambrian. -Renowned research and training centres: NORCAT, MIRARCO, CEMI, Cambrian Centre for Smart Mining, CanmetMINING research lab --Indigenous-led institutions for training/education (Kenjgewin Teg First Nations-led post-secondary institute) and for innovation and capacity building (The Indigenous Centre for Excellence in Mineral Development)
Business support ecosystem	Supply of providers and service companies with knowledge and standards to meet mining specifications	Sudbury, Timmins and Thunder Bay host companies with knowledge on mining. Sudbury is home to about 350 mining service and supply business

Strong practices in First Nations participation in mining	Northern Ontario has various positive practices of Indigenous empowerment and participation in mining. Supported by government policies to enhance capacity and workforce development for collaborations in the region.	-Over 140 active agreements exist between mining companies and Indigenous communities in Ontario. -Indigenous communities represent almost 18% of the region's population and 15% of the total mining workforce. -Equity partnerships, and Indigenous-own mining providers
Export and refining infrastructure	-Two metal smelters, a steel producer and one uranium refinery -Municipalities with mining have access to quality roads, railways and airports.	- 2 smelters, 2 mills and 1 refinery in Sudbury, the Agloma steel producer in Sault Ste. Marie, and one uranium refinery in the Blind River. -Connection to internal and external markets through Lake Superior or the south of Ontario
Green energy supply	Ontario's clean and reliable electricity grid based on renewable source is a major asset for reliable and affordable energy supply for the production of low-carbon raw materials.	Northern Ontario's electricity sector emits 56.5% less GHG per GWh than the Canadian average and 82% less than OECD mining region average

Note: These examples and key figures are further elaborated across the report with the specific sources.

Unlike other rich-resource municipalities in the OECD (OECD, 2025[18]), non-Indigenous communities and some First Nations communities in Northern Ontario have a rather constructive approach towards mining projects. In Northern Ontario's main population centres (i.e. Sudbury, Timmins, and Thunder Bay) municipal governments, First Nations, and communities generally view mining projects as opportunities for development and are open to negotiation. This is a strength in the business environment compared to other OECD countries, where local opposition has led to delays in project developments or even project vetoes- even during the exploration phase (e.g. in some EU countries).

Sudbury: an internationally recognised cluster for mining

Three main mining municipalities in the region provide services, know-how and labour markets that support the mining value chain and have the capacity to increase local value added from mining: Sudbury, Thunder Bay and Timmins. They are also service centres for advancing education and health outcomes for other municipalities in the region and First Nation communities.

Among these hubs, the City of Greater Sudbury stands out as an internationally renowned integrated cluster for mining, with all the characteristics of a world class innovation ecosystem for mineral raw materials. It combines knowledge institutions, more than nine mines within its city limits, research centres, large mining companies with processing facilities as well as more than 350 providers. This geographical concentration of assets in the mining value chain is a market-driven force that attracts additional businesses that aim to locate close to major clients and obtain spillovers from competitors.

The city is also exemplary in terms of grassroots and local government action to help address legacy mining effects. Decades of nickel and copper mining, along with smelting operations, had left a devastated, barren landscape—often described as a "moonscape" —due to widespread sulphur dioxide emissions and metal contamination. In the 1970s, a coalition among community members, local government, mining companies, scientists, and volunteers launched a campaign to rehabilitate the barren, acidified landscape, a re-greening process with about 14 million trees, which is recognised the world over.

However, structural bottlenecks should be addressed to transform mining wealth into greater well-being across the region.

Northern Ontario, like other OECD mining regions, is facing common challenges related to increasingly difficult conditions for mining projects, including declining ore quality, long lead times, and permitting hurdles compared with large producing countries in Africa or Asia. Additional pressures include a current

downward pressure in prices and volatility due to short-term supply growth from established producers such as the Democratic Republic of the Congo (cobalt), Indonesia (nickel), and China (natural graphite and lithium) (IEA, 2025[7]), as well as broader geopolitical uncertainty.

Beyond market-related bottlenecks, the region faces structural challenges to simultaneously enable competitive mining projects while leveraging these projects to deliver greater community well-being. Some of these challenges are linked to the region's rural characteristics and remoteness, including workforce shortages, the high cost of providing public services and housing, as well as barriers to attain economies of scale in the local economy given the small domestic market.

Other challenges have emerged from planning and governance gaps. Securing First Nations' meaningful engagement and consent is a top priority to advance regional well-being and provide certainty for mining project implementation. Additional challenges include persistent skill shortages, compounded by limited community attractiveness for retaining families and workers; insufficient municipal financial and planning capacity to translate mining activity into long-term development; and weaknesses in the mining innovation ecosystem, notably limited collaboration and access to funding.

The regional challenges identified in Table 1.2 directly impact mining projects by, for example, limiting access to local skills, suppliers, and services, while also undermining First Nations' and communities' acceptance, which can slow permitting and affect operational sustainability. At the same time, some of these challenges constrain communities from fully realising the economic and business opportunities offered by mining.

Table 1.2. Main challenges to leverage mining for long-term well-being in Northern Ontario

Challenge	Description
Remaining gaps in First Nations' engagement in mining and persistent inequalities, with the degree varying depending on the community.	- Many communities still experience asymmetrical power dynamics in negotiations, limited access to technical and legal expertise, and ambiguity in consultation processes. -Worse-off socio-economic indicators (e.g. 14% lower income than regional average), access to support services and clean water in some Nations. Indigenous Peoples in the region are twice as likely to live in poor housing conditions than the regional average and in fly-in nations there are high rates of suicide and opioid abuse. These issues affect First Nations' engagement in and perception of mining, as well as opportunities to seek win-win outcomes through equitable negotiations.
Skills shortages in mining	- A vacancy rate of 4.9%, above the 3.8% in Ontario, and ranking as some of the highest across Canada. - The mining sector anticipates a shortage of over 3 500 workers across the province by 2040. - Impacted by outmigration, brain drain, misconceptions of mining jobs, skill mismatches and gaps in quality of life of some communities (e.g. supply of housing and family services).
Affordable housing and accessibility to community services, particularly in remote mining municipalities	**Housing:** - Homelessness across the region has surged by 204% between 2016-2024 - Over 10% of houses fall below at least one of the adequacy, affordability, or suitability standards for Canada, and construction cost can be higher than in main cities of Ontario (Toronto or Ottawa). -Cost and access to land in mining communities further affect housing. **Community services:** -Under-staffed or outdated installation of key services in small municipalities: childcare, social services for mental health or addiction, and recreational services.
Gaps in the Innovation ecosystem, and disconnection among regional innovation players	Innovation remains (34.9 patents per 1 million inhabitants) below Canada's rural regions (54.9) and the OECD mining regions average. Despite all the elements of an innovation ecosystem, there is a lack of formal interaction among innovation players and government.

Municipal planning and financial capacity to leverage mining projects for development	- Municipal governments (particularly small ones) face a fiscal mismatch between incomes and costs from mining externalities.. -Lack of long-term municipal economic plans, including diversification options.
Abandoned mines	Over 5 000 abandoned mine site mine hazard features in Ontario that require remediation, with a significant concentration of these sites located in Northern Ontario.

Note: These examples and key figures are further elaborated across the report with the specific sources.

Balancing competitiveness with First Nations engagement and regional well-being adds complexity to Northern Ontario's mining ecosystem.

Amid rising global trade disruptions, advancing critical mineral projects has become strategically important to advance industrial capacity and the green transition in the country. Many OECD countries have implemented measures to increase industrial and mining competitiveness to secure critical minerals (OECD, 2025[19]). This is also the case of both the Canadian and Ontario governments, which are increasing support for domestic mining through regulatory reforms to accelerate project implementation.

In 2025, the federal level approved the Bill C-5, the *One Canadian Economy: An Act to enact the Free Trade and Labour Mobility in Canada Act,* and the *Building Canada Act* and created the new Major Projects Office (MPO), both with the aim to speed up approvals and financially support strategic projects. Similarly, Ontario approved the 2025 Bill 5. *Protect Ontario by Unleashing our Economy Act* aiming at minimising regulatory delays and reducing bureaucratic "red tape". It includes the creation of "special economic zones" as a central feature, allowing the provincial cabinet to designate any area (such as the mineral-rich Ring of Fire in Northern Ontario) as exempt from many provincial and municipal laws and regulations, including those related to environmental protection, endangered species, and land use.

While speed and predictability are important to keep pace with international competition over minerals, project success and sustainability also depend on meaningful First Nations engagement and enabling local communities to translate mining into long-term development. Rights-holders acceptance and supportive local conditions are instrumental for competitive operations, facilitating access to deposits, streamlining approvals, mitigating environmental impacts, and providing the workforce, services, and infrastructure that are essential to efficient operations. For Canada and Ontario, balancing competitiveness goals with community well-being outcomes is crucial to avoid eroding trust gains with First Nations and to strengthen its position as a global leader in responsible mining practices and First Nations engagement.

Towards a stronger place-based policy to capitalise on mining and drive development in Northern Ontario: three areas of action.

This report underscores the value of adopting stronger place-based mining policies for Northern Ontario, to address structural challenges while leveraging the region's unique assets to build a competitive minerals and metals sector that enhances long-term regional well-being. As mentioned above, key assets include world class mineral deposits, state of the art research and education institutions for mining, a mature business ecosystem, export-oriented infrastructure, green energy supply and established practices in engaging with Indigenous Peoples. Despite these strengths, Northern Ontario must continue to address persistent gaps, particularly in advancing partnerships with First Nations, tacking skills shortages, expanding affordable housing, strengthening its innovation eco-system and enhancing municipal planning and financial capacity. To this end, the report identifies recommendations across three priority areas:

1. Deepening First Nations engagement in and benefits from mining,
2. Boosting the competitiveness of Northern Ontario's mining ecosystem through key enabling factors, and
3. Reinforcing the governance framework to leverage mining for long-term regional well-being

The following sections examine each of these areas in greater detail.

First area of action: Deepening First Nations engagement and benefits in mining

The region provides leading practices across OECD countries for Indigenous engagement in mining regions

In Canada, the governance of mineral development involves the interplay of Indigenous rights, policies and protocols, and federal and provincial governance. Treaty rights, such as the right to hunt or fish, are protected under the Constitution and based on treaties signed between Indigenous Peoples and the Crown. Treaties and their affirmation in the Constitution Act 1982 and subsequent jurisprudence provide the legal foundation for the multiple processes of self-determination.

In addition to constitutional rights, mining laws in Canada have evolved to incorporate various mechanisms to respect Indigenous rights, with practices varying between provinces and territories. In 2021, the federal government adopted the *United Nations Declaration of the Rights of Indigenous Peoples Act* (UNDA), requiring the Canadian government to take steps to implement the *United Nations Declaration on the Rights of Indigenous Peoples Act* (UNDRIP), aligning federal laws with the Declaration, developing an action plan, and reporting annually to Parliament. This Act aims to advance reconciliation and address injustices against Indigenous Peoples. Provinces and territories have their own approaches in this regard, with British Columbia (2019) and the Northwest Territories (2023) being the provinces adopting similar legislation.

Additionally, the federal Impact Assessment Act (IAA) requires consultation mechanisms aligned with the UNDRIP's free prior and informed consent when a mining project is a federally "designated project," meaning those that meet particular size or capacity thresholds and/or are considered to potentially have adverse environmental effects in areas of federal jurisdiction (Government of Canada, 2025[20]).

In Ontario, the provincial government has advanced actions for reconciliation and creating strengthened partnerships with Indigenous Peoples. In 2009, the government of Ontario revised the *Mining Act* to better address First Nations rights by requiring mandatory consultation at key stages of mining exploration and development, introducing provisions to protect culturally significant sites from mining activity, and establishing mandatory training for prospectors on Indigenous rights. The amendments also established a dispute resolution process and encouraged partnerships between mining companies and First Nations. While Ontario has not adopted UNDRIP into provincial legislation, industry practice follows the federal requirement of the duty to consult with Indigenous communities on mineral exploration and mine production in Ontario (Government of Ontario, 2025[21]).

Indigenous engagement in mining in Northern Ontario has been further supported by various funding and support programmes from different levels of government. Federal support programmes generally emphasise large-scale priorities such as capacity building of Indigenous organisations and communities, infrastructure development, geoscience research, and regulatory participation. Ontario's government support mainly focuses on Indigenous participation in regulatory processes, business and economic development, early-stage mineral exploration, and relationship building with mining companies (Table 1.3). Some municipal governments have also implemented memorandum of understanding with First Nations' communities (see Marathon's example further below).

Overall, these governmental actions have supported greater capacity and involvement of First Nations in mining projects in the Northern Ontario. As discussed in the report, many of these programmes have been used to support creation of Indigenous-led businesses in mining, environmental monitoring capacity, and greater participation in mining projects and forums.

Table 1.3. Examples of government mechanisms to support Indigenous engagement in mining

Level of government	Examples	Description
Federal	The Indigenous Natural Resource Partnerships Program	Supports Indigenous participation in resource development, including mining and critical minerals. Recent funding: CAD 10.4 million for 7 projects.
	The Critical Minerals Infrastructure Fund	Provides funding to build the roads, clean energy, and other infrastructure needed for projects to access and develop critical mineral deposits (e.g. up to CAD 50 million per project for private companies and Indigenous groups)
	Indigenous Loan Guarantee Program	Provides up to CAD 10 billion in loan guarantees, helping First Nations secure financing for equity stakes and major investments at lower interest rates
	Indigenous Guardians Program	Empower First Nations to conduct environmental monitoring using both traditional knowledge and scientific methods
Provincial	The Indigenous Participation Fund (IPF)	Support for specific activities such as hiring mineral development advisors or covering Indigenous participation expenses in exploration projects
	The Indigenous Opportunities Financing Program (IOFP),	Provides loan guarantees to First Nations. Formerly known as the Aboriginal Loan Guarantee Programand, it expands eligibility beyond electricity to include mining, critical minerals, energy, pipelines, and broader resource development
	The Ontario Junior Exploration Program	Support early-stage mineral exploration by providing, among others, up to CAD 200 000 per project, covering 50% of eligible exploration costs
	Mineral Development Advisor Stream in the IPF.	Enable First Nations to build consultation and engagement capacity and access technical expertise
	Aboriginal Procurement Program	Increasing contracting opportunities for Indigenous-owned businesses, particularly in Northern Ontario, and supporting local employment and capacity building

Note: This is only a selection of programmes and not an exhaustive list. There are other programmes highlighted throughout the report that benefit Indigenous Peoples indirectly through training, employment, or capacity-building opportunities.

Furthermore, industry protocols and partnerships with First Nations in Ontario have also evolved to provide some communities with improved revenue streams, job opportunities, and business activities. Canada is home to an internationally recognised and adopted framework for responsible mining, *Toward Sustainable Mining (TSM)* from the Mining Association of Canada. This framework includes an Indigenous and Community Relationships Protocol to provide guidance and requirements for companies to work towards improved Indigenous engagement and free, prior, and informed consent.

Within this engagement process, Impact and Benefit Agreements (IBAs) are the most common type of partnership in Canada. Over time these agreements have progressed from a focus on employment and environmental protections to encompass a wide range of activities such as education and training, business and contracting provisions, socio-cultural support and environmental monitoring frameworks. While IBAs have been an important tool for reaching meaningful engagement between companies and First Nations, some characteristics create challenges to ensure equitable outcomes for First Nations in Northern Ontario, including confidentiality clauses and transparency in terms of community knowledge on the final signature. In addition to IBAs, other mechanisms for community engagement have more recently emerged such as partnerships, ownership models, or Indigenous benefit funds.

Northern Ontario is home of notable examples of partnerships to enhance First Nations engagement and benefits from mining-related activities, some include:

Industry-First Nations partnerships, for example:

- The Greenstone Gold Mines Partnership: a tripartite partnership between Greenstone Gold Mines Ltd., Kenogamisis Investment Corp. and Minodahmun Development LP (First Nations business

entities) to leverage mining wealth for developing critical infrastructure and improving economic conditions of the communities (e.g. upgrade roads, funding Indigenous workforce development support). The Government of Ontario bolstered the deal with commitments of public funding.

- Aki-eh Dibinwewziwin, an Indigenous-led mining partnership that provides mine contracting services. It was established by the First Nations of Atikameksheng Anishnawbek and Wahnapitae, together with Technica Mining, a leading Canadian mining contractor.
- Canada Nickel Company's agreement with the Mattagami, Matachewan, and Flying Post First Nations to prioritises First Nation-owned businesses for major project contracts, ensures regular engagement sessions, and includes mechanisms for land and environmental monitoring. It also established a First Nations Business Representative and specialised training programmes, emphasising transparency and local skills development.

Indigenous-led protocols to govern mining activities on their territories, for example:

- Atikameksheng Anishnawbek have established clear consent protocols and require that mining proponents engage directly with the Nation before any development, emphasising equity ownership, participation, and protection of land for future generations.
- Others, like the Wabun Tribal Council, have developed collective negotiation models and governance structures within Impact Benefit Agreements (IBAs) to ensure compliance and maximise benefits. Protocols often include requirements for cultural respect, traditional knowledge integration, and transparent procurement processes to prevent exploitation by non-Indigenous entities.

First Nations- Municipality partnerships:

- The municipality of Marathon's new port project, developed in partnership with Biigtigong Nishnaabeg First Nation a formal memorandum of understanding, where Biigtigong Nishnaabeg is a co-owner and co-decision-maker in the port authority. This ensures the Nation has a direct voice in the governance, management, and long-term planning of the port.

Despite this, First Nations face structural challenges that impact well-being, and bottlenecks for successful engagement in mining projects

Mining wealth produced from projects in Northern Ontario has not fully translated into greater quality of life for all First Nations across the region. Many First Nations communities, particularly those that are remote, still face socioeconomic and environmental challenges, including:

- **Economic:** While economic performance of Indigenous Peoples across Northern Ontario has improved over time and tends to be better in mining subregions, Indigenous Peoples experience worse outcomes than average economic performance across the region. For instance, Indigenous Peoples have a median income that is 14% lower than the average in Northern Ontario (2020) and an unemployment rate that is 27% higher (2021).
- **Social and cultural challenges:** Despite more recent socioeconomic contributions of mining to First Nations communities, some mining activities have disrupted traditional ways of life and cultural practices that are intimately connected to the land. For example, the influx of temporary workers has been associated with social issues in some communities, including increased availability of drugs, crime, and violence. These pressures compound unresolved challenges in quality of life for first Nation communities. For example, First Nations are, on average, twice as likely to live in poor housing conditions compared to the rest of the population, and the share of Indigenous communities in Ontario that rely on diesel for power generation (17.8%) is among the highest in the country.

- **Environmental and mining legacy challenges:** Some mining activities have been linked to damages to the lands and waters that First Nations have relied on for millennia, particularly in cases were government control and monitoring has failed. Environmental impacts have included contamination of water sources from mine tailings and waste rock, affecting drinking water and aquatic ecosystems. Historic operations have also left negative perceptions on the industry, as the case of uranium mining dating back to the 1950s near Serpent River First Nation, which is linked to radioactive tailings in the watershed (Leddy, 2013[22]). Although mining practices, regulations, and monitoring have improved in recent years, continuous oversight and remediation of abandoned sites remain essential.

These challenges stem from a combination of factors, including gaps in proactive government and policy support, harmful historic industrial practices, and a lack of early and meaningful opportunities for First Nations to engage in mining-related decision-making. Based on the insights from interviews with First Nations leaders in Northern Ontario, as well as from the *Indigenous Call to Action for Indigenous-led Pathways for Sustainable Futures in Mining Regions*, developed during the 2024 OECD Conference of Mining Regions and Cities, this report outlines nine key considerations that are relevant to improve First Nations engagement and outcomes (Table 1.4).

Many of these key considerations imply greater involvement of First Nations. However, capacity and willingness to be involved in such engagement need to be carefully evaluated with each Nation, to ensure the appropriate support to carry out more engagement and to avoid consultation fatigue.

Table 1.4. Key considerations to advance First Nations engagement in mining

Main Consideration	Description
Resolving contestations over the duty to consult and accommodate	- In Ontario, determining which Indigenous community to consult, and accommodate for mining claims is complicated due to a mix of issues including overlapping or disputed traditional territories, incomplete or outdated government records, and a lack of publicly accessible maps delineating Indigenous land rights.
Embedding the principle of Free, Prior and Informed Consent (FPIC) and Indigenous partnership as core criteria in mining projects' approvals	- While many mining companies are already adhering to FPIC (to varying degrees) and are legally required to consult impacted First Nations, there is currently no formal implementation of FPIC into provincial law. This can create uncertainties regarding how to successfully implement FPIC (including across different phases of the mine cycle like exploration), particularly for smaller companies, junior firms, foreign companies operating in the region for the first time. - Beyond aligning provincial legislation with UNDRIP, clear formal guidelines for all companies operating in the region are still needed to provide direction on achieving FPIC. Existing engagement frameworks such as TSM's Indigenous Community and Relationships Protocol could be a good basis to build on.
Ensuring Indigenous-led, strategic economic planning and business development	- There are differences in the capacity of First Nations to engage in the mining sector. Some need greater support to lead their own economic plan and to identify clear priorities/actions that can be supported by governments and eventually by mining companies. Others require major investments in water and housing infrastructure and social supports before being able to more adequately participate in mining sector opportunities.
Improving legacy brownfield agreements	- Under the Mining Act, patented lands and some "brownfield" sites (existing mines) are generally exempt from exploration plans or permits. While both instances still have a constitutional duty to consult impacted First Nations, this is determined based on the nature of the activity or site amendment. While major changes to a mine site that could negatively affect Indigenous rights will trigger the duty to consult, smaller changes may not and this is decided on a case-by-case basis. - Therefore, the duty to consult is not triggered by all amendments to existing mining operations. This can create grey areas and a lack of

	legal levers for communities to renegotiate in the situation where amendments are made to mining projects, impacting trust, creating uncertainty in partnerships, and missing opportunities to modernise agreements.
Increasing capacity and opportunities for First Nations to conduct informed decisions related to their economic self-determination, including equity ownership in mining projects.	- Indigenous equity ownership in mining projects can potentially help transform the role of First Nations from recipients of compensation to active partners of projects. Allowing interested Nations to participate requires offering programmes to strengthen capacity and knowledge in First Nations regarding equity involvement as well as providing the appropriate frameworks for participation. - This should take into account that not all First Nations communities may be interested in equity ownership.
Strengthening capacity to close expertise and information gaps	- Many First Nations rely heavily on external experts for mining-related negotiations, which can limit the development of internal expertise, weaken institutional memory, and sideline community voices. - Complex application and reporting requirements create administrative barriers to accessing public funds for capacity building.
Enhancing opportunities for First Nations involvement in long-term mining monitoring and accountability.	- There is scope to strengthen mechanisms for First Nations to monitor and ensure accountability of mining impacts in their territories, including compliance with company agreements, over the long term (intergenerational). - For example, frameworks that integrate traditional and scientific knowledge in environmental monitoring (e.g. the Guardians programmes) are not consistently included in mining regulatory processes. Furthermore, there are no clear mechanisms for monitoring the cumulative health and environmental impacts of mining and resource industries.
Establishing robust Indigenous procurement verification systems	- Across the province, there exist concerns with the Indigenous legitimacy of some companies that secure procurement contracts based on their identity as an 'Indigenous business'. This is due to limited formalisation of the criteria of an Indigenous business and who has the authority to verify their Indigeneity. - Lack of awareness about support programmes to create or scale-up Indigenous companies can also hamper mining-related procurement opportunities. - Government procurement support also has scope to further strengthen Indigenous businesses. In 2020 only around 36% of Indigenous businesses in Ontario were aware of Ontario's Aboriginal Procurement Program, and just 20% have ever bid on a provincial government contract
Leveraging sustainability standards for improved transparency	- The adoption of national and international sustainability reporting standards is increasing among mining companies, yet these standards and their accountability mechanisms are not formalised, leading to potential different treatment between private companies and First Nations across Northern Ontario. Communication of outcomes from these standards should also be improved, along with opportunities for communities to understand and follow up on the results.

Priority actions to address key considerations for First Nations' engagement and benefits from mining

Addressing the key considerations outlined above to improve First Nations engagement in, and benefits from, mining requires a set of both medium and long-term actions from the public and private sectors, in collaboration with First Nations. Northern Ontario is well placed to build further on advancements in First Nations engagement and to become an international benchmark for equitable and sustainable mining, with First Nations' rights, knowledge, and leadership at the core of mineral resource development policies. Table 1.5 and chapter 3 in this report aim to provide a framework of action to advance these considerations. This framework is divided in five high level priorities, each with concrete recommendations:

1. Protect Indigenous land rights in mining-related laws and impact-benefit agreements.

2. Improve environmental information and safety for First Nations in mining communities.
3. Strengthen First Nations capacity to benefit from mining, including options for equity access- if desired,
4. Promote opportunities for access and inclusion of First Nations in mining project decision-making and mining-related businesses, if desired.
5. Provide support to First Nations to undertake -when desired- partnerships with levels of governments and different regional players.

Second area of action: Boosting the competitiveness of Northern Ontario's mining ecosystem through key enabling factors

Although mining has long underpinned the region's economy, today's surging global demand for critical minerals presents an unparalleled opportunity to facilitate competitiveness of existing and new operations, while capitalising in this industry to boost economic resilience and growth with a responsible approach.

To this end, a strong regional mining ecosystem is instrumental to enable the local conditions for competitive and responsible mining projects, including supply of skills and support for innovation and business growth in mining as well as supportive infrastructure for projects and mining communities. Adopting an 'ecosystem approach' can help recognising the critical interplay between the mining sector and subnational development (OECD, 2025[19]).

Main regional enabling factors for Northern Ontario to achieve the dual goal of facilitating mining projects and ensuring long-term sustainable development locally include:

- Enhancing the mining innovation ecosystem in the region.
- Strengthening local labour markets for mining with a focus on the liveability of mining communities.
- Leveraging mining for industrial and community infrastructure development.

Enhancing the mining innovation ecosystem in Northern Ontario

Innovation in the mining sector is a critical lever for aligning mineral development with regional growth. It can enhance supply efficiency, strengthen environmental sustainability, and unlock local business opportunities.

Northern Ontario is home to a diverse group of organisations with the capacity to drive innovation in the mining sector, supported by a long-standing tradition of mining research. These organisations collectively form a robust innovation ecosystem, drawing on years of expertise. It includes universities (Laurentian, Lakehead) hosting research centres dedicated to mining like MIRARCO, MERC, CESME, and industry-linked programmes. Colleges (Boreal, Cambrian, Confederation, Northern) provide applied research, training, and technology adoption hubs- such as Cambrian's Centre for Smart Mining. Research bodies such as NORCAT drive tech development, commercialisation, and sustainability. Cluster organisations for the ecosystem (MineConnect) or focused on Indigenous-only (Indigenous Centre for Excellence in Mineral Development) foster networking, Indigenous-led innovation, and supply chain growth.

To support innovation projects in this ecosystem, more than six federal and provincial funding programmes exist. Some include:

- Ontario's Critical Minerals Innovation Fund (CMIF), which provides funding to innovative projects related to battery supply chain, innovative techniques for deep exploration and mining, recovery of minerals, and other innovative projects.
- Ontario is also investing CAD500 million to create a new Critical Minerals Processing Fund to provide financial support for projects that accelerate the province's critical mineral processing capacity and made-in-Ontario critical minerals supply chain (Government of Ontario, 2025[23]).

- Ontario's Northern Ontario Heritage Fund Corporation provides direct grants to innovation infrastructure and pilots.
- Federal support from FedNor's suite of business supports with at least five programmes for businesses to grow and innovation with potential links to mining, such as: Regional Economic Growth through Innovation (REGI), and Community Futures Program (CFP).

On top of this, there are relevant example if industry-led innovation support, in sharing know-how and providing funding. Examples of partnership with mining companies include:

- A renewal of IAMGOLD's partnership with Laurentian University in 2025, with a CAD 2.5 million investment into the IAMGOLD President's Innovation Fund for Strategic Investment at Laurentian University supporting academic and research projects aligned with the university's strategic priorities, especially in mineral resources and mining education.
- Cambrian College's collaboration with Vale to develop a Battery Electric Vehicle Industrial Program, as well as its Centre for Smart Mining's partnerships with mining technology firms to facilitate industry entry.
- Vale's partnership with Laurentian University to explore value creation from mining waste.

Despite this innovation support, innovation outcomes in Northern Ontario remain below national and international benchmarks, with less than half the patents per inhabitant than the average of Canada's rural regions (34.9 patents per 1 million inhabitants vs 54.9) and 80% of the OECD mining regions average (44.3). While patents are an imperfect proxy for innovation, since not all innovations are patented or registered where they are developed, the gap can be an indication of areas for improvement, especially given that many OECD mining regions face similar structural challenges.

Given the significant presence of R&D infrastructure and innovation players in the region, innovation issues may be due to a combination of other factors. These include the type and quality of collaboration among players, the lack of knowledge transfer and exchange among innovation players (given the vastness of the region), and the capacity to leverage R&D infrastructure and/or fund ideas for market-oriented innovation. The implementation of some flagship innovation projects has been slower than expected despite the funding support from federal and provincial programmes. Notable challenges include:

- **Lack of formal channels of interaction and common goals for innovation**. Collaboration in Northern Ontario's mining ecosystem largely depends on informal, ad-hoc networks built on personal relationships. While trust and frequent interaction in a small ecosystem at events like PDAC or the EV Batteries Conference in Sudbury are strengths, this model can entail bottlenecks, including vulnerability if people leave or relationships break down, newcomers integration, unclear common goals and tracking progress. No single body unites stakeholders around long-term regional innovation goals; with key actors like MICA, MineConnect, and MIRARCO having siloed agendas.
- **Unclear regional brand.** Northern Ontario lacks a clear national or international brand as an integrated mining innovation hub. Each centre—Greater Sudbury, Timmins, Thunder Bay—promotes its own assets and strategies, with the Thunder Bay area further split into smaller clusters (Marathon, Terrace Bay, Greenstone). This localised approach strengthens local markets but presents the region as disconnected parts, missing opportunities to market its full potential and attract investment.
- **Indigenous innovation remains underutilised.** Indigenous communities hold place-based knowledge that is critical for land stewardship, climate resilience, and biodiversity protection, offering solutions for mine reclamation, water monitoring, and climate adaptation. Yet systemic barriers in business language, shared work visions, funding access, digital infrastructure, and skills are all factors that limit Indigenous entrepreneurs' participation in formal innovation platforms. Greater integration of Indigenous knowledge into mining processes and support for

applied research collaborations could unlock fresh ideas for both the sector and First Nations. Examples include the Elders' Advisory Council in Timmins for environmental restoration, social enterprises funded by resource revenues, and new frameworks for monitoring mining's environmental impacts.

- **Fragmented, inconsistent public funding programmes with scope to improve feedback.** Innovation funding in Northern Ontario lacks continuity, co-ordination, and feedback. Frequent programme changes with government turnover prevent existing initiatives from maturing. For large projects, public funding remains below needs, which can contrast to the stronger public support driving mining innovation in other producing countries. For instance, MIRARCO's proposed CAD 38 million Centre for Mine Waste Biotechnology received multi-level government support from at least four sources, with public contributions covered about 20% of costs. For small firms or projects, navigating fragmented programmes (e.g., OCI, eCampus Ontario, NOHFC, Ontario Research Fund) is complex, with rejection feedback often absent, thus reducing their ability to improve applications.

Addressing these issues requires more tailored provincial and federal programmes adapted to the innovation ecosystems in Northern Ontario, which faces headwinds such as the substantial geographic distances between actors and a lack of scale in funding. To this end, some actions include:

- Improving its provincial funding support to innovation by ensuring programmes are built for the long run, with medium- and long-term outcome indicators, and tailored to specific characteristics of innovation ecosystems in Northern Ontario. To do so, the region would benefit from conducting structural assessments of different municipal hubs to identify specific needs and tailor funding programmes accordingly. For example, multi-year grants for circular economy projects, such as repurposing waste rock for construction materials, can stimulate new businesses in the region.
- Consolidating provincial and federal innovation funding. Streamline existing provincial and federal mineral innovation programmes into unified funds capable of delivering substantial investments for flagship projects. This would reduce fragmentation, maximise impact, and accelerate commercialisation.
- Strengthening communication on funding programmes and feedback on the innovation application process. Greater outreach about programmes and application conditions might be needed for innovation players and First Nation who might need additional time to access information and sort out application processes. In turn, constructive feedback, as mentioned before, is also needed to help applicants refine their proposals and increase their chances of future success.
- Expanding collaborations with mining companies to stimulate entrepreneurship through business support platforms, innovation challenges, pilot-testing opportunities, and transparent sharing of industry needs. For example, IAMGOLD's innovation challenge, in partnership with Laurentian University and Google Developer Group (GDG) Sudbury, engaged students, AI specialists, and developers in designing AI solutions to evaluate open-pit blasts using drone footage.

Mining labour shortages in Northern Ontario: overcoming regional attractiveness, perception of mining jobs, and skills mismatches

Many institutions such as colleges, universities, research centres and companies within Northern Ontario's innovation ecosystem also play a key role in education and training, forming a strong regional network for skills development. For example, most colleges offer mining-related courses and corporate upskilling programmes aligned with industry needs, helping maintain the pipeline of technical talent. Partnerships between colleges and companies demonstrate close collaboration in program design. Among universities, Laurentian University has established a strong balance between academic instruction and applied research in mining, aligning closely with the sector's evolving needs.

One of Northern Ontario's most renowned assets in education and training is NORCAT. Established in 1995 in Sudbury, NORCAT (Northern Centre for Advanced Technology) is a not-for-profit innovation and training hub that delivers world-class mine safety training, operates Canada's only underground training mine, and supports advanced mining technology development and commercialisation.

Despite being a mature mining jurisdiction with a historic mining presence, the region's industry continues to face challenges in filling technical and professional positions. Several factors contribute to labour shortages in the mining industry:

- **Low awareness and misconceptions about work in mining, particularly among youth.** Mining is often seen as physically demanding with poor work–life balance. In polls of 3 000 Canadian youth (2020 and 2023), it ranked last among nine career sectors; in 2023, 40% said they would "definitely not" consider it (The Mining Industry Human Resources Council (MiHR), 2023[24]). Despite high pay and available jobs, concerns about safety, skills requirements, and lifestyle persist. However, campaigns such as "This is Mine Life" are working to encourage young people and newcomers to consider a career in Canada's mining sector.
- **Barriers to attracting people to live in remote mining communities.** Many new Northern Ontario operations are in rural, remote areas with scarce affordable housing, childcare, cultural amenities, and quality services. Marathon, for example, attracts and trains young people but struggles to retain professionals due to outdated recreational facilities (e.g. swimming pool) and high housing costs. Shortages in healthcare staff in small municipalities can also limit local addiction and support services.
- **Barriers to re-skilling and certification.** Some certification and training programmes are seen as complex, bureaucratic, and concentrated in larger hubs. For example, in Marathon municipality, a lack of licensed transportation drivers, combined with no public transport, limits access to mining jobs, especially for youth facing social, health, or other barriers to obtaining a driver's licenses. Vocational certifications, such as truck driver licensing, lack national standardisation. Furthermore, small municipal and First Nations governments often lack the capacity to manage provincial skills fund applications and reporting.

To address these issues, collaborative policy approaches with industry and local governments can help elevate mining's workforce attractiveness, enhance community appeal for workers and their families, and strengthen local workforce capability:

- Policies to attract youth and women to mining should benefit from hands-on/experiential outreach to students and parents with plain language, along with clear training pathways for career exploration in high school.
- Culturally relevant, community-partnered outreach within First Nations can demystify mining careers.
- Improved liveability in mining communities, including affordable housing, quality healthcare, childcare, recreation, and cultural amenities, is essential to attract and keep workers and their families. While different levels of governments have responsibility in community well-being and dedicate specific support programmes to this end (e.g., NOHFC, FedNor), partnerships with mining companies can help gain scale in community investments and address mining impacts on communities. For example, agreements with mining companies could seek to:
  - Support community infrastructure, recreational and cultural activities and local initiatives to safeguard environmental amenities. Some success stories exist in the region, for example Newmont Goldcorp's support of community well-being in Red Lake through a range of social and infrastructure initiatives. Other example was the involvement of mining companies in land rehabilitation efforts in Sudbury.

  - Align strategies to better integrate transient workers in local economies and community lifestyle. For example, in Coolgardie, Australia, the local government partnered with companies to renovate old buildings in town and turn them into worker accommodations, avoiding the construction of camps and encouraging those workers to further interact with the local economy.
- Stronger workforce data and forecast capacity by further developing a pre-employment screening systems, leveraging new technologies (such as AI) to identify regional occupation and skills demand and map workforce characteristics
- Partnerships with mining companies for career exploration opportunities in high school (e.g. forward contracts in mining), and expansion of on-the-job training and mentoring.

Infrastructure gaps: housing shortages and scope for energy and transport developments

Despite its resource wealth, parts of Northern Ontario still suffer pronounced infrastructure deficits due to its vast size and low population. Many First Nation communities remain disconnected to road infrastructure and the energy grid and lack secure access to clean water. Mining projects can be leveraged to support these investments. Moreover, housing shortages and a lack of available land can hamper capacity to attract families and new business to the region.

Shortages of affordable housing and land to attract new families and businesses

Housing accessibility has been a long-lasting issue for liveability in the region. Between 2016-24, homelessness in Northern Ontario grew four times faster than in non-northern communities (Donaldson et al., 2025[25]). Lack of affordable housing in Northern Ontario is a multifaceted issue influenced by remoteness and low population that limits economies of scale for housing investments. Key issues include:

- High construction cost given short building season, distance to building providers, and vast distances between houses that increase the cost of water and electricity connections. High costs discourage developers from initiating affordable housing projects and also landlords and homeowners from investing in maintenance and repairs.
- Labour shortages for construction since mining activity draws workers away from residential construction by offering higher wages
- Lack of available land. Large swathes of land inside the municipal boundaries may be dedicated to mining activities, with companies reserving areas beyond the mine operation itself in case new extensions and discoveries are feasible. Municipalities are also limited by federal land and large portions of land dedicated to natural protected areas
- Investment uncertainties and price impact due to cyclical nature of mining. This was the case of Greenstone municipality with the arrival of the Equinox mine in 2020, where more than 300 people were needed for the construction phase, and residents eagerly anticipated renting or selling housing to some of the workers.

The provincial government can leverage mining momentum by complementing targeted public investments with partnerships with mining companies that help to:

- Release unused lands under mining tenure for community use.
- Reduce construction costs through economies of scale (e.g. in material transport) and shared service providers.
- Refurbish existing housing stock.
- Repurpose post-mining camps for housing or planning since the outset for such intention, if feasible.

Additional policy measures include targeted public funding and homeowner repair incentives in small municipalities where financial access and incentives for housing investments are low. Collaboration with Indigenous communities on culturally relevant solutions for housing is also an important action to make housing more affordable and enhance quality.

Other OECD mining regions offer instructive examples of housing partnerships. In Western Australia's Pilbara, BHP committed AUS 158 million over 15 years to improve and expand housing stock and refurbish approximately 700 homes with modern amenities for workers and families. The company also sold some houses dedicated to transient workers to the Shire of East Pilbara and leased others to Indigenous organisations.

Transport and energy infrastructure gaps

Northern Ontario's mining sector and communities face some critical gaps in transport, energy, and digital infrastructure. In the north of the region, many First Nations and remote settlements lack all-season roads, relying on costly, short-season winter roads (3 160 km) and air transport via 29 provincial remote airports. Limited rail access constrains mining competitiveness.

While Northern Ontario's hydroelectric energy supply is an asset for producing minerals with low CO2 emissions, some mining sites and over a dozen fly-in First Nations remain off-grid, relying on expensive, polluting diesel generators. Large-scale renewable energy projects lag behind southern Ontario. Digital connectivity is also limited, with many communities lacking high-speed Internet; recent fibre and satellite initiatives remain incomplete.

Federal and provincial governments can prioritise partnerships with First Nations to leverage mining projects in addressing infrastructure gaps. This includes ensuring that infrastructure support for mining (e.g. provided through the Critical Minerals Infrastructure Fund) can be aligned with public initiatives to meet community needs and contribute to shared access roads, railways, and power lines. For example, workers and materials for an industrial road construction in remote communities can be co-ordinated to also deliver other essential local infrastructure.

There are also grassroots and Indigenous-led models that can be boosted to support such community needs. For example, the Wataynikaneyap Power project, delivering grid power to 24 remote communities, is just one such example of an effective approach.

Third area of action: Reinforcing the governance framework to leverage mining for long-term regional well-being

Northern Ontario benefits from a strong set of provincial and federal policies aimed at supporting mining competitiveness and increasing Indigenous and local communities' capacity and opportunities to benefit from mining.

However, the region's ability to fully realise these benefits is constrained by limited access and implementation capacity for existing programmes, and insufficient co-ordination across governments, industries, and communities. This report identifies that three priorities that can help local governments harness benefits from mining:

- Enhancing planning capacity at the local level to secure lasting benefits from mining.
- Improving municipal access to funding for mining community development.
- Strengthen horizontal co-ordination at local level to improve mining governance.

Enhancing local planning capacity to secure lasting benefits from mining

Maximising local benefits from mining in Northern Ontario requires municipal capacity to help align federal and provincial policies with local needs and prepare community readiness to benefit from mining. Some municipalities in the region have mining strategies to ensure projects are aligned with their development community goals. For example, Thunder Bay's first Mining Readiness Strategy was issued in 2020 with the aim to maximise and expand benefits from the sector.

However, long-term municipal planning to connect mining with development needs and prepare communities for project changes has scope for improvement or is non-existent in some small municipalities. Municipal governments in the region face significant challenges in accessing mining project's information, planning strategically, and anticipating operational timelines. Specific challenges identified in this report include:

- Late or limited involvement in project planning, which is typically handled at the provincial level. Without early information, they cannot plan infrastructure, housing, or services in time for operational changes.
- Projects outside municipal boundaries can still place demands on municipal services-such as road maintenance, security, and amenities-without generating tax revenue.
- Capacity to leverage fly-in/fly-out (FIFO) or drive-in/drive-out (DIDO) workforces for community development. FIFO models can be efficient for companies and serve as a resilience strategy to reduce the need for long-term infrastructure investment for temporary operations. However, permanent FIFO/DIDO arrangements, such as mine camps located outside municipal towns, can increase some costs for local communities, exacerbate inequality, and generate social tensions. Many small municipalities require further support to increase readiness in using existing infrastructure and community services to accommodate transient workers or implement models that integrate them culturally and economically. The Greenstone Municipality case highlights a recent missed opportunity to maximise the benefits of transient worker integration due to inadequate housing options.
- Long-term planning at the municipal level. Some Northern Ontario municipalities lack long-term development plans, limiting their ability to attract investment, diversify economies, and align funding with local priorities. Capacity constraints, small labour markets, and vast territories hinder planning. Without consistent timelines, monitoring, or forward-looking strategies, support remains top-down.

Based on experiences from other OECD mining regions and existing multilevel co-ordination forums in Canada – e.g. the Intergovernmental Working Group on the Mineral Industry- Ontario could adopt a more systematic approach to strengthen collaboration across levels of government and among provincial departments to support municipalities facing new or expanding mining projects. Some action could include:

- Establishing a multi-stakeholder committee to prepare communities before new mining projects come online or existing mines undergo significant changes. Such a committee could bring together rights holders and local actors from a specific project or municipality to identify community and First Nations priorities ahead of projects. The Saskatchewan's *Sylvite Four-Six Regional Development Partnership* for BHP's Jansen project offers a model for this, building capacity in local governments and First Nations to jointly plan to make the most of mining projects.
- Developing a communities' group at the provincial or municipal level to support development of mineral related-strategies, align local and industrial plan for the future and help with policy implementation. Other OECD regions have established this type of governance groups. For example, Antofagasta in Chile established a multi-stakeholder group to help define the priority actions of the regional mining strategy and monitor their implementation.

Improving municipal access to funding for mining community development

While the provincial government holds primary responsibility for development and service delivery in Northern Ontario (e.g. health, education, welfare or highways), municipalities play a critical role in maintaining community liveability and attractiveness. They manage local transport, emergency services, utilities, recreation, land-use planning, social housing, and share responsibility for social protection. In this context, mining municipalities also bear costs linked to the presence of resource industry in the area, notably:

- **Environmental:** Funding land rehabilitation, pollution monitoring, and ecosystem restoration.
- **Social:** Supporting services to address potential violence, mental health issues, and substance misuse, particularly in towns with high fly-in/fly-out (FIFO) populations.
- **Infrastructure:** Maintaining municipal roads affected by heavy industrial traffic and ensuring adequate housing options for workers.
- **Economic:** Offering competitive salaries for municipal staff and fostering growth in small- and medium-sized enterprises (SMEs).

Ontario derives mining revenue from taxes on corporate profits (10% on taxable profits over CAD 500 000; 5% for remote operations) and fees for Crown land use. These revenues, however, do not automatically benefit municipalities that host the mines. To redistribute the income from resource industries and partly mitigate the local externalities form mining, the Ontario government relies on the Northern Ontario Heritage Fund Corporation (NOHFC), which provides financial support focused on economic development, investments and business expansion across a range of industries. The NOHFC has delivered substantial benefits to Northern Ontario, particularly in supporting economic growth, innovation, and job creation.

In 2021, the Ontario government launched the Northern Ontario Resource Development Support (NORDS) as a five-year pilot program to help municipalities fund infrastructure linked to resource activity. NORDS has been positively received for its straightforward application process and its flexibility, allowing use for any capital project, multi-year stacking, and combination with other grants.

However, mining municipalities face challenges and uncertainties in ensuring that funds and fiscal revenues cover mining externalities over time. According to OGRA, municipalities are disproportionately responsible for the upkeep of local infrastructure, yet face significant structural funding shortfalls. This contributes to Ontario's infrastructure deficit related to roads and bridges (Miller Thomson, 2023[26]). Some challenges include:

- Baseline calculation of property taxes in some municipalities is outdated, still based on 2016 assessments (Miller Thomson, 2023[26]). This calculation mainly relies on provincial decision. Property taxes represent the highest share of fiscal income for municipalities (≈40% of total revenue). Therefore, outdated property values imply that some industrial and mining properties might be taxed at much lower rates than their market value.
- Uncertainty regarding access to provincial and federal grants create fiscal imbalances. The transfers from NOHFC are project-based grants or loans, allocated based on a competitive application process for the municipalities. While it is good to ensure relevant and efficient economic projects, the process requires municipalities to navigate a bureaucratic application for project-based support, but with no guarantee of funding. Similarly, NORDS' permanence is uncertain beyond 2026 or with future government changes.
- Few municipalities have established formal partnerships or memorandums of understanding with mining companies to evaluate ways to translate mining wealth into local revenues**.** This is particularly important for operations located just outside municipal boundaries but dependent on community services, local roads, and infrastructure. These arrangements should also be developed in consultation with First Nations to increase legitimacy and alignment on shared

benefits. Marathon's legislative agreement with Barrick Gold mine to tax mine buildings that are outside the municipal boundaries provides a model for other municipalities in the region. This agreement has generated fiscal revenue to strengthen planning, infrastructure, and services, while also preparing communities for future developments.

Policy options for Ontario to strengthen municipal capacity and local benefits include modernising industrial and mining property assessments, expanding municipal authority to set property tax rates for mining operations, making NORDS infrastructure funding permanent, and streamlining grant processes while increasing multi-year provincial and federal support. In other countries (e.g., Finland), the renewed demand for minerals has also led to revisions of the royalty system to allocate a fixed portion to municipalities that host mines, as well as to some neighbouring municipalities that bear indirect impacts.

Strengthen horizontal co-ordination at local level to improve mining governance

The municipal governments in the region have scope to improve their collaboration in terms of joint projects as well as sharing practices in their interaction with mining companies. Currently, municipal plans are mostly done separately, with little mention of joint opportunities with neighbouring municipalities. In some cases, this results in missed opportunities for common policies that could better connect regional actors and Indigenous Peoples within the innovation ecosystem.

The region already has mechanisms that promote inter-municipal co-ordination on specific aspects that could be expanded to other areas. For example, the Ontario's Local Employment Planning Councils (LEPCs) co-ordinates labour-market analysis across regions.

Beyond ad hoc councils, Northern Ontario can strengthen their regional governance by leveraging intermunicipal forums for capacity-building and knowledge sharing on mining. This could include creating municipal partnerships to collectively handle planning and foresight tasks. For example, Alberta's Municipal Government Act requires neighbouring municipalities to establish Intermunicipal Collaboration Frameworks (ICFs), facilitating joint service delivery, co-ordinated funding, and strategic planning. Other OECD mining regions, such as North Karelia (Finland) have established an inter-municipal development agency from which municipalities acquire planning and foresight capacity or other market or analytical services.

Recommendations

Table 1.5. Recommendations and specific actions

	Recommendations	Actions	Main responsible
I	**Deepening First Nations engagement and benefits in mining**		
1.	**Enhance rights to land.**	• Build on existing Indigenous engagement protocols from the public and private sector in collaboration with First Nations across Ontario to provide a formal mechanism for guiding companies towards securing Free, Prior, and Informed Consent (FPIC). While many companies already carry out activities to achieve FPIC (to varying degrees), a formalised mechanism could cover all companies, especially those in exploration phases and those who are not currently Towards Sustainable Mining members. This can take the form of a guideline and set of monitoring principles to strengthen FPIC across the region and better aligning provincial activities with UNDRIP.	Ontario government in co-operation with First Nations. And the Federal government

		• Consider opportunities for Indigenous co-management of abandoned mine site reclamation (accessible for communities that wish to be involved), including participation in decision-making, oversight, and integration of traditional knowledge in risk assessments and monitoring. • Evaluate amendments to Ontario's Mining Act to encourage consultation and benefit-sharing for expansions of existing (brownfield) mines and patented lands, which are in some cases exempt. To reduce consultation fatigue for First Nations, each Impact-Benefit Agreement can specify the preferred thresholds of that particular First Nation for amendments to brownfield sites that will trigger consultation, ranging from all amendments to only major changes.	
2	**Improve environmental information and safety for First Nations in mining communities**	• Improve transparency and access to environmental information related to mining by updating Ontario's Abandoned Mines Information System (AMIS) to include regular, up-to-date field assessments and First Nations knowledge, and continue encouraging mining companies to adopt and report on responsible mining standards that include community governance. • Enhance safety for First Nations in mining communities and operations. This can include encouraging greater Indigenous gender analysis in mining approvals, for example implementing an already existing framework such as the Indigenous Gender-Based Analysis Plus (IGBA+) at the provincial level for assessing the risk and monitoring safety issues, particularly for Indigenous women in a mining context, regardless of the project size. .	Ontario government in co-operation with First Nations and the Federal government.
3	**Strengthen First Nations capacity to benefit from mining**	• Support capacity development of First Nations in the sector by financing mining training workshops in communities (e.g. support a train-the-trainer model). • Expand programmes to facilitate access to expertise and capital by making funding programmes, such as Ontario's Mineral Development Advisor Fund and the federal Indigenous Natural Resource Partnerships Program, more accessible, including for communities with moderate or emerging mineral activity. • Increase capacity and knowledge within First Nations to access equity stakes of mining projects, if desired. This can be through tailored training programmes in First Nations communities of the benefits and risks associated with equity ownership and how to best pursue this option. This could also include further research into innovative equity and ownership models between First Nations and mining companies to effectively de-risk projects for communities. • Strengthen mechanisms to enable options for First Nations to access equity stakes of mining projects. This can included public grants to back-up equity participation, encouraging companies to offer equity stakes at both pre-Final Investment Decision (pre-FID) and post-FID stages, or exploring the viability of a First Nations	Federal and Ontario governments in co-operation with First Nations and mining companies

		Resource Charge to allow communities to assess a pre-specified charge on resource development projects within their traditional territories. • Evaluate with First Nations their desire to expand Indigenous Guardians programmes into mining regulatory frameworks to include First Nations knowledge in safeguarding the environment. Federal and provincial governments, in collaboration with the mining industry and First Nations should include Guardians' participation in environmental assessments, permitting, and compliance monitoring, ensuring that both traditional knowledge and scientific data are used in decision-making.	
4.	**Enhance access and inclusion of First Nations in decision-making and business opportunities**	• Promote opportunities for the optional inclusion of First Nations in mining project decision-making. While some agreements between First Nations and mining companies already include project decision-making roles and regular feedback mechanisms, sector-wide consistency and accountability could increase the credibility of sustainability efforts that are part of mining projects. • Evaluate with First Nations and companies the development of strategies to enhance Indigenous procurement, including consistent use of an agreed upon definition of Indigenous Businesses, potentially utilising the existing Indigenous Business Definition developed by National Indigenous organisations. • Expand and fund Indigenous-led land-based learning programmes, by supporting region-specific curricula, Indigenous-led training hubs, and partnerships with educational institutions and mining companies. • Support engagement of Northern Ontario First Nation communities in international Indigenous networks and international platforms on mining policy	Ontario government in co-operation with First Nations, the Federal government and mining companies.
5	**Provide support for partnerships and collaboration**	• Provide support to partnership initiatives among First Nations governments by expanding the Comprehensive Community Planning initiative (funded by Indigenous Services Canada) to support regional planning and enhancing the role of Indigenous financial institutions to include support for strategic planning activities. • Invest in mechanisms to increase collaboration among First Nations and municipalities to strengthen communities and facilitate joint projects. It can be done through joint training, and collaborative economic development initiatives, such as the Community Economic Development Initiative (jointly run by the Council for the Advancement of Native Development Officers and the Federation of Canadian Municipalities). • Conduct annual regional mining roundtables involving First Nation and Industry leaders to build relationships and encourage dialogue amongst these parties.	Ontario government in co-operation with First Nations and Federal government.

II.	Improving enabling factors for both project competitiveness and liveability		
6.	**Enhance the mining innovation ecosystem for local-value added.**	• Promote a more formalised collaboration and shared innovation goals among regional players and rightsholders, supported by clear spaces for interaction, a dedicated co-ordinating body to advance innovation, and a unified Northern Ontario brand. • Support Indigenous-led innovation based on co-governance of innovation programmes, Indigenous-led innovation hubs or networks. • Strengthen innovation funding by consolidating resources to provide larger support for flagship mineral projects and targeted funds for small businesses; streamlining program information (e.g., through a one-stop shop); and ensuring greater continuity of funding along with clearer application feedback. • Strengthen connections among local businesses, and junior and major mining companies through mining-led innovation challenges, testing platforms, and improved government and industry data on procurement and information for providers.	Ontario government with support from education institutions, companies, First Nations. and the federal and municipal governments, First Nations, education institutions, and mining companies.
7	**Strengthen local labour markets**	• Improve outreach to youth their parents and women with hands-on/experiential activities, plain language communications, and culturally relevant outreach for Indigenous youth and women. This involves moving beyond traditional information sessions towards experiential activities, where parents and youth can interact directly with mining equipment, technology, and machinery, to spark interest and showcase real opportunities in the sector. Cultural outreach should be done in partnership with Indigenous communities and schools. • Enhance skills matching to industry needs and entry-level opportunities by improving workforce data and forecasting, expanding career exploration programmes in high schools, and building partnerships with mining companies to scale up on-the-job training and mentoring. Skills forecasting can be strengthened through pre-employment screening technologies to better identify regional occupational and skills demand. • Improve quality of life for workers and families by complementing targeted public policies on service provision with public–private partnerships to expand childcare, recreation, and cultural investments. Amid population decline and shifting immigration policies, provincial and municipal governments also need foresight strategies to adapt service delivery, including greater use of digital solutions	Ontario government in co-ordination with federal and municipal governments, First Nations, education institutions, and companies.
8	**Improve industrial and community infrastructure in the region through mining**	• Leveraging mining projects for transport and energy infrastructure investments in less connected communities, ensuring consultation from First Nations. This should be accompanied by a stronger emphasis on direct public investment in road and energy infrastructure for First Nations. • Partner with mining projects to modernise community infrastructure of local communities, especially roads, digital and recreational infrastructure.	Ontario government in co-ordination with federal and municipal governments, First Nations, education institutions, and companies

		• Enhance access to affordable housing for First Nations and local communities by complementing targeted public funding and homeowner repair incentives with industry partnerships to ease municipal access to land, reduce construction costs through shared economies of scale and repurpose or plan mining camps for housing.	
III	**Reinforcing the governance framework to leverage mining for long-term development**		
9	**Enhancing local planning capacity to secure lasting benefits from mining**	• Promote a project-specific multi-stakeholder and rightsholders structure/committee to prepare communities and build readiness for new or expanding mining operations. Such a committee could bring together rights holders, if desired, and local actors around a specific project to identify local development priorities in advance. The Saskatchewan's Sylvite Four-Six Regional Development Partnership for BHP's Jansen project offers a model for this. • Evaluate developing a communities' group at the provincial or municipal level to support development of mineral related-strategies, align local and industrial plan for the future and help with policy implementation. For example, Antofagasta in Chile established a multi-stakeholder group to help define the priority actions of the regional mining strategy and monitor its implementation. • Support municipal governments, particularly small ones, with capacity and knowledge sharing to conduct long-term (+10 years) local development plans to capitalise growth opportunities from mining and diverse sectors. These plans would benefit of having concrete short-term and long-term strategic projects and monitoring mechanisms to track outcomes. Currently few municipalities in the region have long-term plans on this matter. • Incentivise transient workers' participation in the local economy in consultation with communities, while ensuring communities and First Nations involvement in establishing standards or a code of conduct for transient workers' behaviour. When operations are within a safely commutable distance to a settlement, this will allow transient workers and their host communities to benefit from a cohesive community lifestyle.	Ontario government and Federal governments in co-ordination with municipal governments, First Nations, and companies
10	**Improve municipal access to funding for mining community development**	• Improve access and predictability of provincial grants for mining municipalities, with opportunities for multi-year and infrastructure funding. This includes evaluating mechanisms for better revenue sharing from the province, making the Northern Ontario Resource Development Support (NORDS) a permanent fund, while maintaining its flexibility, and simplifying access to the Northern Ontario Heritage Fund Corporation (NOHFC). • Facilitate partnerships between municipalities and industry to enhance local fiscal benefits from mining. This is particularly relevant for operations located just outside municipal boundaries but dependent on community services. These arrangements should also be developed in consultation with First Nations to increase legitimacy and alignment on shared benefits. Marathon's	Ontario government in co-ordination with municipal governments and First Nations.

		legislative agreement to tax mine buildings outside its boundaries provides a model for other municipalities in the region. • Evaluate updating property tax assessments in municipalities where current property values are not reflected. In some areas, values are still based on 2016 assessments. • Streamline visualisation and communication of all the funds that are related to mining opportunities for Local communities and First Nations.	
11.	**Strengthen horizontal co-ordination at local level to improve mining governance**	• Support better alignment among growth plans of mining companies with First Nations and local economic development plans. • Strengthen inter-municipal co-operation with formal agreements to share good practices, promote joint labour market analysis and synergies in in investments.	Ontario and federal governments in co-ordination with municipal governments and First Nations.

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Notes

[1] Canada's Constitution recognises three distinct Indigenous groups: First Nations (formerly referred to in law as "Indians"), Inuit, and Métis. In Northern Ontario, land and resource rights are primarily held by First Nations through historic treaties, while Métis communities also hold recognised rights related to harvesting. Accordingly, the term "First Nations" will be used when referring to assessments, policies or activities relating specifically to land rights holders in Northern Ontario, including engagement with mining projects. The broader term "Indigenous Peoples" will be reserved for general usage, such as statistics (which include all Indigenous Peoples residing in Northern Ontario), official federal and provincial programmes, or references to international best practices Different government roles on mineral-related policies for the region.

[2] Regional mining specialisation at the OECD is based on employment location quotients (LQ): comparing the share of mining employment in the region, with the share of mining employment in the country. A value of LQ above one implies that the region is more specialised than its respective country (OECD, 2022[27]). In this case, applying a threshold of LQ above 1.5 (meaning there are 1.5 times more people employed in the sector relative to the national average) to the Northern Ontario census divisions delivers 5 mining subregions (Cochrane, Greater Sudbury, Sudbury, Timiskaming, and Rainy River) and 7 non-mining subregions (Muskoka, Nipissing, Parry Sound, Manitoulin, Algoma, Thunder Bay, and Kenora.

2 Opportunities and challenges for regional development and mining in Northern Ontario

This chapter analyses Northern Ontario's well-being across economic, social, and environmental indicators relative to Canadian and international benchmarks to identify key regional strengths and challenges linked to the mining industry.

Box 2.1. Assessment and key findings

Northern Ontario has a significant legacy in the natural resources sector and plays an important role in Canada's critical minerals supply chain. The region is Canada's top gold producer, a leading supplier of nickel and platinum group elements and home to one-fifth of the country's identified critical minerals, with 23% of the total exploration spend in Canada. The minerals and metals sector has brought important economic benefits to communities in Northern Ontario located near operations notably through jobs, relatively high wages, and lower unemployment rates, including for Indigenous Peoples whose income is 16% higher in mining subregions of Northern Ontario than in non-mining subregions, as of 2020. Between 2006-20, Indigenous peoples in mining areas of Northern Ontario narrowed the income gap with the regional average (–19.2 percentage points), which was nearly twice as fast as non-mining areas (–11.1 percentage points.).

However, gains from mining have been unevenly felt across Northern Ontario. Subregions in Northern Ontario that do not specialise in mining record a 6% lower median income than those specialised in mining. Despite progress, there is still economic disparities between Indigenous Peoples and non-Indigenous Peoples with an almost 30% higher unemployment rate and 13.5% lower income for Indigenous Peoples in Northern Ontario compared with the regional average. The region has also experienced demographic challenges with weak population growth (2.3% between 2001-21) that is worse in less diversified and small economies that are dependent on natural resources. This suggests that while mining provides positive economic opportunities to those inside the sector, some areas have struggled to maintain population, especially young people, which has been driven in part by cyclicality in the sector and reduced job opportunities in other sectors.

While Northern Ontario has 50% higher tertiary education levels than OECD mining regions and outperforms in other social outcomes, challenges in accessibility of housing and healthcare persist, particularly for Indigenous Peoples. The region reports lower life expectancy and 25% more adults with at least one underlying health condition than the national average. Health indicators are notably worse for Indigenous Peoples, particularly in fly-in-communities with high suicide rates, prevalence of opioid abuse, and the country's highest concentration of water contamination warnings (referred to as drinking-water advisories). Housing is equally strained, with Indigenous Peoples twice as likely to live in poor housing conditions than the rest of the population, which reflects overall difficulties for land availability across the region for housing and industrial developments. These social challenges not only harm well-being of those living in the region but also regional attractiveness, driving youth-outmigration, and exacerbating skills shortages in the mining sector.

Northern Ontario has significant environmental assets, stewarded by First Nations for millennia. The region is currently experiencing strong performance on GHG emissions (almost 60% lower emissions intensity than the rest of Canada) and leading environmental restoration practices. However, industrial legacies and unequal access to clean energy have created environmental challenges such as abandoned mines, contaminated water, and diesel-reliance, particularly in remote First Nations communities.

This chapter analyses Northern Ontario against Canadian and international benchmarks to measure the region's performance across economic, social, and environmental indicators, identifying key strengths and challenges. The below section provides a high-level overview that is expanded upon within the chapter.

Economic strengths and challenges:

- **Northern Ontario experiences relatively high incomes, led by mining areas:** Median income (after tax) in Northern Ontario overall is 4% higher than the Canadian average. Mining is seen to

have a positive impact on income with 6% higher median incomes in mining vs non-mining subregions and 16% higher total median income for Indigenous peoples in mining vs non-mining subregions. While there is still a 14% disparity between Indigenous and regional median incomes (2020), the income gap decreased by 19.2 percentage points in mining subregions between 2006-20 compared with 11.1 percentage points in non-mining subregions, suggesting a positive impact of mining on income growth.

- **On average, unemployment persists across Northern Ontario despite high vacancy rates, especially in the mining sector:** In 2025 the unemployment rate in Northern Ontario was 7.5% despite 5% vacancy rates across the region and an anticipated shortage of 3 500 workers for the mining sector in 2040, particularly in green collar roles. Moreover, Indigenous Peoples' unemployment rate is 27% higher than the regional average, as per 2021 data, indicating untapped opportunities to mobilise the labour force for future industry demands.
- **Northern Ontario performs worse than Canadian and international benchmarks on employment indicators, although Indigenous Peoples sustained the growth of the regional workforce:** The average employment rate in Northern Ontario is 5% lower than Canada's rural regions and 25% below OECD mining regions, decreasing 3% between 2016 and 2021. However, the employment rate of Indigenous Peoples remained stable over this period, highlighting Indigenous Peoples' responsiveness to local labour demand.
- **The mining sector is a major source of employment in the region:** The share of employment in Northern Ontario in the mining sector (6%) is considerably higher than the national average (1.2%) and other mining jurisdictions in the country such as Saskatchewan (3.2%) and Manitoba (0.7%). Indigenous Peoples represent an important asset to the sector making up almost 15% of the mining workforce in 2021, compared with 3% of Ontario's mining workforce and 9% of Canada's mining workforce.
- **The region has a relatively high concentration of small and medium sized enterprises (SMEs), with many supported by the mining industry, especially those in Indigenous communities:** The region has almost three times more businesses per 1 000 people than the national average with 900 mining supply and service companies and many Indigenous businesses in the sector supported by over 140 impact-benefit agreements. However, these are concentrated in mining hubs, thus limiting their employment impact across the entire region.
- **Innovation in the region remains below national and international benchmarks:** Northern Ontario has less than half the patents per inhabitant than the average of Canada's rural regions (34.9 patents per 1 million inhabitants vs 54.9) and 80% of the OECD mining regions average (44.3), suggesting a potentially limited adaptability and a lack of diversification amongst Northern Ontario's business ecosystem. However, in the mining sector, patenting is not the only way companies protect their inventions and processes: an alternative frequently used in the industry is undisclosed or confidential information (trade secrets) (Doagoo et al., 2022[1]).

Social strengths and challenges:

- **The region faces limited population growth, and its population is ageing:** Between 2001 and 2021, Northern Ontario's population growth was only one-fifth of the population growth across Canada's rural regions (2% vs 10%). This is due to a rapidly ageing population, at almost 30% of people over the age of 65 compared with 19% nationally. More economically diversified areas performed better on population growth during this period (e.g. Muskoka +25%) compared with resource-dependent areas (e.g., Rainy River -12%), suggesting that while mining provides positive economic opportunities to those inside the sector, they lack diversified economic opportunities to attract a range of residents. Recent strategic emphasis on increased critical minerals extraction in the region could, however, lead to improved demographic outcomes in these areas.

- **Northern Ontario has a relatively large Indigenous population, offering opportunities to help address the region's slow population growth.** Ontario is home to one-fifth of the nation's total Indigenous Peoples, as the leading province in Canada, with almost 80% living in the north of the province. The Indigenous population in this region may therefore offer opportunities to address current or anticipated skills gaps and labour shortages.
- **Northern Ontario lacks affordable housing, and conditions are worse for Indigenous peoples despite relatively good housing quality in population centres.** While Northern Ontario has a smaller proportion of housing in 'core need' (does not meet adequacy, suitability, or affordability standards) than the provincial average (10% vs 14%), the share of Indigenous Peoples experiencing low quality housing conditions (14%) is double the rate reported by the overall population (7%).
- **The region experiences strong education outcomes with high tertiary education:** Over 64% of people in Northern Ontario aged 25-65 have a tertiary education, compared with under 47% across Canada's rural regions. Despite challenges (e.g. difficulty attracting young talent in the workforce) the region has a strong educational ecosystem to support the mining sector. Mining subregions record a slightly higher education outcomes with 65% of those in mining subregions being tertiary educated compared with 63.7% in non-mining subregions.
- **Health gaps persist in the region with lower life expectancy than nationally and across OECD mining regions:** Northern Ontario has a higher proportion of the population suffering from underlying health conditions than the national average (by 7.3 percentage points). Health outcomes are also worse for Indigenous Peoples, particularly in remote fly-in communities, which face additional challenges such as suicide rates and prevalences of prescription opioid abuse, reaching between 35%-50% in some communities.

Environmental assets and challenges:

- **Rich ecological assets with invaluable First Nations stewardship:** Northern Ontario comprises 90% of Ontario's land mass, 25% of Canada's wetlands, and expansive boreal forests that make up 74% of forest cover in the province, which is critical for carbon sequestration, biodiversity protection, and liveability of the region (Government of Ontario, 2021[2]). The local ecosystems have been stewarded by First Nations Peoples since time immemorial.
- **Emissions intensity is low across the region compared to Canadian and international benchmarks, yet many remote First Nations communities rely on diesel power generation**: Thanks to the region's clean energy grid, Northern Ontario emits 56.5% lower GHG emissions per unit of electricity than the national average. Despite the prevalence of clean energy in the region, about 24 remote First Nations communities rely on diesel for power generation, creating environmental and social challenges.
- **The region has a higher share of green land cover than the average across Canada's rural regions, yet some unresolved mining legacies persist:** Northern Ontario has an 87% share of green area compared with 75% across Canada's rural regions. While mining's direct disturbance on land is across a minimal part of the region, the sector has still contributed to ecological disturbance above and below ground with over 5 000 abandoned mine features.
- **Persistent challenges with water and soil contamination impact remote First Nation communities:** Historical industrial activity that occurred when there were no, or inadequate environmental safeguards have contributed to soil and water contamination issues in the region. Over 7 000 lakes in a 17 000 km² area of Northern Ontario (around Sudbury) have acidified due to industrial activity (Keller, 2009[3]), which has disproportionately impacted First Nations communities that relied on the lands and waters for sustenance, cultural practices, and livelihoods. Furthermore, many remote First Nations communities in Northern Ontario live under drinking water advisories as

a result of a variety of factors not limited to industry activity and exacerbated by limited funding and source water issues. Across Northern Ontario, 23 First Nations communities are under long-term drinking water advisories, the highest proportion in Canada.

Chapter methodology

While mines are typically located in specific areas above ore deposits, their economic, social, and environmental impacts often extend across local communities and Indigenous populations, involving broader functional labour markets and regional economies. Assessing the region's capacity to harness benefits of mining for development requires national and international comparisons to understand its main challenges and assets. This chapter benchmarks Northern Ontario's performance against other Canadian areas and OECD mining regions.

The OECD collects comparable data at two regional levels, with Territorial Level 2 (TL2) representing the first administrative tier of subnational government (e.g. provinces in Canada) and Territorial Level 3 (TL3) representing smaller regions that make up each TL2 region (e.g. census divisions in Canada). These classifications enable statistical comparisons to be drawn at an international level.

While Northern Ontario is often recognised as a geographic or policy region, it is not an official administrative region. Northern Ontario is an area inside the TL2 region of Ontario, making up a considerable part of its land mass (over 90%), yet a small proportion of its population (approx. 6%). It is comprised of twelve TL3 regions (census divisions) that will be used for analysis across this chapter (hereafter referred to as subregions). These include Algoma, Cochrane, Greater Sudbury, Kenora, Manitoulin, Muskoka, Nipissing, Parry Sound, Rainy River, Sudbury, Thunder Bay, and Timiskaming. With First Nations as the traditional owners of what is today known as Northern Ontario, analysis is needed to understand their main priorities and impacts from mining, when data is available. While they are included in the different well-being data for the 12 districts, additional analysis across the chapter is done to compare Indigenous outcomes specifically with other Indigenous Peoples in Canada and with Indigenous Peoples living in rural and non-mining regions in Canada.

Given this, the analysis undertaken in this study to benchmark trends and the performance of the region domestically and internationally proceeds as follows:

- **Canadian national average**: Individual responses from national census
- **Saskatchewan:** Saskatchewan has a similar population as Northern Ontario (approximately 1.1 million compared with approximately 940 000 respectively) as well as a similar mining production value (CAD 15.7 billion in Ontario compared with CAD 19.4 billion in Saskatchewan).
- **Manitoba**: Manitoba's mining contributions to the provincial economy are similar to Northern Ontario with Ontario's mining sector contributing approximately 3% to GDP and in Manitoba this contribution is around 2%.
- **Canada rural regions:** All census divisions in Northern Ontario are classified as rural regions under the OECD typology, which distinguishes rural from urban regions. This typology also provides classification for non-metropolitan regions into three categories, those with access to a metropolitan region (NMR-M), those with access to a small/medium city (NMR-S), and those that are remote (NMR-R). All census divisions in Northern Ontario are classified as rural, thus comparing them with other rural regions across Canada (using census data) can control for rural characteristics in order to assess whether issues are specific to Northern Ontario or common across rural Canada. This OECD rural definition does not use other rural definitions in Canada such as the StatsCan Rural Small Town definition.

- **OECD mining regions benchmark:** The OECD Mining Regions Toolkit identifies indicators across economic, social, and environmental dimensions to better understand the effects of mining on regional development. It covers 50 mining regions in the OECD (methodology for identification of 'mining regions' in Annex A). Where possible, this toolkit was used to compare the performance of Northern Ontario against other TL3 mining regions across OECD countries.
- **Indigenous Canada:** This is data from the national census of all persons across Canada who identify as First Nations, Métis and/or Inuk (Inuit) and/or those who report being Registered or Treaty Indians (that is, registered under the *Indian Act of Canada*), and/or those who report having membership in a First Nation or Indian band.
- **Defining 'mining subregions' based on employment location quotients (LQ):** The degree of regional specialisation in mining is obtained by comparing the share of mining employment in the region, with the share of mining employment in the country. An LQ value greater than 1 implies that the region is more specialised than its respective country. The employment specialisation on mining, based on LQ values, is ranked from highest to lowest. For example, a region with an LQ above 1.5 means that the region has 1.5 times more workers in mining activities than their own country (OECD, 2022[4]). In this case, applying a threshold of LQ above 1.5 to the Northern Ontario census divisions results in five mining subregions (Cochrane, Greater Sudbury, Sudbury, Timiskaming, and Rainy River) and seven non-mining subregions (Muskoka, Nipissing, Parry Sound, Manitoulin, Algoma, Thunder Bay, and Kenora).

Snapshot of Northern Ontario: Who lives in the region and how is it divided?

Northern Ontario, with a population of 943 899 people and 17.76% identifying as Indigenous (Statistics Canada, 2021[5]), is a vast and diverse region located within the province of Ontario. It makes up over 90% of the province's land mass but is home to only 6% of its population (Landsby, 2023[6]), including 106 First Nations communities, which is 78% of the First Nations communities in Ontario (Ontario Government, 2018[7]).

The administrative region of Northern Ontario is made up of smaller census divisions , referred to hereafter as 'subregions;' Algoma, Cochrane, Greater Sudbury (city), Kenora, Manitoulin, Muskoka, Nipissing, Parry Sound, Rainy River, Sudbury (region), Thunder Bay, Timiskaming (Figure 2.1). Many local districts are natural resource-based, relying significantly on mining, forestry, and energy and there is a large francophone population (approximately 17% of the population) (Northern Policy Institute, 2016[8]).

Local governance is managed directly by single-tier municipalities (cities, towns, townships). In unorganised territories, governance and basic services (e.g. fire, water, garbage) are often provided by Local Services Boards or District Social Services Administration Boards (DSSABs) under provincial oversight. Most First Nations communities are self-governing or governed under the Indian Act. Federal economic support is provided by the Federal Economic Development Agency for Northern Ontario (FedNor), which works across the same census divisions to invest in community-driven development, infrastructure, business growth, and Indigenous and rural partnerships across the region (Government of Ontario, 2023[9]). The region also has access to other federal programs and services such as employment insurance from Employment and Social Development Canada.

Of the census divisions that make up Northern Ontario, this report classifies five out of the twelve as 'mining subregions' (Cochrane, Greater Sudbury, Sudbury, Timiskaming, and Rainy River), following the OECD definition of mining specialisation (location quotient), given that their proportion of workers in mining is 1.5 times above the average of the country (see methodology section for further explanation).

Northern Ontario is situated on the traditional territory of the Anishinaabe peoples, including the Ojibwe, Odawa, Potawatomi, Saulteaux, Algonquin, as well as the Cree and Oji-Cree Nations. Northern Ontario

encompasses six primary treaties between Indigenous Peoples and the Crown, which continue to shape the region's legal and political framework pertaining to land use and Indigenous rights. In analysing outcomes of Indigenous Peoples in Northern Ontario, this chapter will measure a range of economic, social, and environmental outcomes of these communities, against broader regional averages of the entire population. The data on Indigenous Peoples in this chapter includes persons who identify as First Nations, Métis and/or Inuk (Inuit) and/or those who report being Registered or Treaty Indians (that is, registered under the Indian Act of Canada), and/or those who report having membership in a First Nation or Indian band (refer to Annex A for terminology).

Figure 2.1. Map of Northern Ontario districts



Source: (Government of Canada, 2024[10])

Overview of the Northern Ontario mining sector

The global demand for critical minerals is expanding, largely powered by increasing use of digital systems, telecommunications, green energy technology, and defence applications. For instance, global demand for lithium rose 30% between 2022 and 2023; demand for nickel, cobalt, and graphite expanded by 8-10% (IEA, 2024[11]); and demand for nickel is projected to be 14 times higher in 2040 than in 2021 (Ontario Mining Association, 2025[12]). This, coupled with an increasing desire to onshore critical mineral extraction and production, has attracted more investment in critical minerals across the region. Subsequent policy shifts have supported Canada in accelerating critical minerals extraction, including The Canadian Critical Minerals Strategy (2022). Northern Ontario's mining sector is strategically placed as a leader in responsible mining and a major source of critical minerals and other metals, producing:

- 26% of Canada's total mineral production value (NRCAN and Ontairo Ministry of Mines, 2023[13])
- 81% of Canada's platinum group elements (NRCAN, 2023[14])
- 56% of Canada's cobalt (NRCAN and Ontairo Ministry of Mines, 2023[13])

- 43% of Canada's gold (NRCAN and Ontairo Ministry of Mines, 2023[13])
- 44% of Canada's copper (NRCAN, 2023[14])
- 39% of Canada's nickel (Government of Canada, 2023[15])

From forestry to mining: a recent economic shift for Northern Ontario

Mining has played a key role in fostering resilience across Northern Ontario, helping communities absorb the economic shocks caused by the decline of the forestry sector. While forestry was a major economic pillar throughout the 20th century, global competition, falling demand, and outdated infrastructure led to major mill closures and job losses from the early 2000s onward. Between 2000 and 2018, Ontario's forestry sector shed over 35 000 jobs and saw a 60% drop in harvest volumes. Towns like Smooth Rock Falls, Kenora, and Fort Frances were among the hardest hit Box 2.2 (Government of Ontario, 2020[16]).

The former forestry towns faced significant population decline in the early 2000s, struggling to retain and attract residents. Declining populations weigh on the economic development of a place. In Canada, federal and provincial funding for services and economic development is often allocated on a per capita basis, placing sparsely populated regions such as Northern Ontario at a disadvantage. They receive less total funding for services, such as healthcare and education, despite delivery costs being higher due to geography and remoteness (Penno, Gauld and Audas, 2013[17]).

Box 2.2. Mining mitigated economic downturn from forestry in Northern Ontario

Throughout the 20th century and into the early 2000s, forestry was a key pillar of Canada's and Northern Ontario's economy with the establishment of pulp and paper mills, sawmills, and logging operations. The forestry sector provided significant employment nationally, with over 74 000 employees in 2001, many of which were based in Northern Ontario. It also provided significant economic opportunities for the region, especially through local SMEs supporting the industry.

Following the early 2000s, the sector declined significantly due to global competition and falling demand, high energy costs, and outdated infrastructure. This resulted in the closure of dozens of mills and significant job losses across the country. In Ontario alone, the province saw a loss of 8.9% of forestry jobs between 2001 and 2006. Between 2000 and 2018, Ontario's forest sector shed over 35 000 jobs, and harvested volumes were down 60% compared with 2000. Key towns in the region that suffered from mill closures in the early 2000s include Smooth Rock Falls, Kenora, Kirkland Lake, Red Rock, Fort Frances, and Wawa Table 2.1.

Table 2.1. Population change, Northern Ontario areas with declining forestry sector

Location	Population 1996	Population 2021	Population change (%)
Smooth Rock Falls	1 981	1 200	-39.45%
Kirkland Lake	9 905	6 180	-37.61%
Wawa	4 145	2 705	-34.73%
Red Rock	1 258	895	-28.86%
Fort Frances	8 790	7 159	-18.57%
Kenora	16 365	14 967	-8.53%

Despite its challenges, Ontario's forestry sector remains a significant contributor to the economy. In 2023, it generated over 137 000 direct and indirect jobs and federal and provincial funding programmes and initiatives (e.g., the Forest Biomass Action Plan) continue to encourage economic development in

the sector. Support for forestry is crucial to ensure economic diversification of the region, and the legacy of the sector provides many important lessons for the mining industry. Furthermore, both sectors can work together in fostering environmentally responsible economic development. For instance, infrastructure developed for mining operations, such as roads and power lines, can also benefit forestry activities if shared adequately. Moreover, wood products can complement mining activities by providing materials for workforce housing.

Source: (Robinson, 2007[18])., (Puddister et al., 2011[19]), (Robinson, 2007[18]), (Ontario Government, 2018[20]), (Statistics Canada, 1996[21]), (Statistics Canada, 2021[5]), (Ontario Government, 2024[22])

Northern Ontario's mining subregions

Five of the census divisions within Northern Ontario can be considered mining subregions as per the OECD classification for mining specialisation. These include Cochrane, Greater Sudbury, Sudbury, Timiskaming, and Rainy River. These subregions also contain Census Metropolitan Areas that can be understood as areas where decision-making and activity related to mining takes place (as noted in 'Included Metropolitan Areas' column of Table 2.2).

The five mining subregions that make up Northern Ontario's mining sector are all characterised by over 6% of their population working in the sector and an employment rate of over 45%. Most areas except Greater Sudbury have a very low population density, highlighting the geographical expansiveness of these regions. Despite its significant presence, mining is not the leading employer in any of the regions, with healthcare being the primary employer across all districts.

Table 2.2. Key characteristics of Northern Ontario mining hubs 2021.

Mining hub	Mining as share of total employment (%)	Population	Population density (people per square kilometre)	Median total income (after tax) in CAD (2020)	Employment rate (%)	Largest sector of employment (share of total employment)	Included Metropolitan Areas	Corresponding First Nations Treaty
Cochrane	11.52%	77 963	0.56	38 400	53.5	Healthcare (16.4%)	Timmins	Treaty 7
Greater Sudbury	13.30%	166 004	51.98	40 400	54.8	Healthcare (15.5%)	Greater Sudbury	Robinson Huron Treaty
Sudbury	6.44%	22 368	0.56	36 400	46.8	Healthcare (12.8%)	Greater Sudbury	Robinson Huron Treaty
Timiskaming	13.30%	31 424	2.37	35 200	51.1	Healthcare (15.4%)	Timiskaming Shores	Robinson Huron Treaty
Rainy River	6.64%	19 437	1.26	38 800	52.8	Healthcare (18.2%)	Fort Frances	Treaty 3

Source: OECD author's elaboration

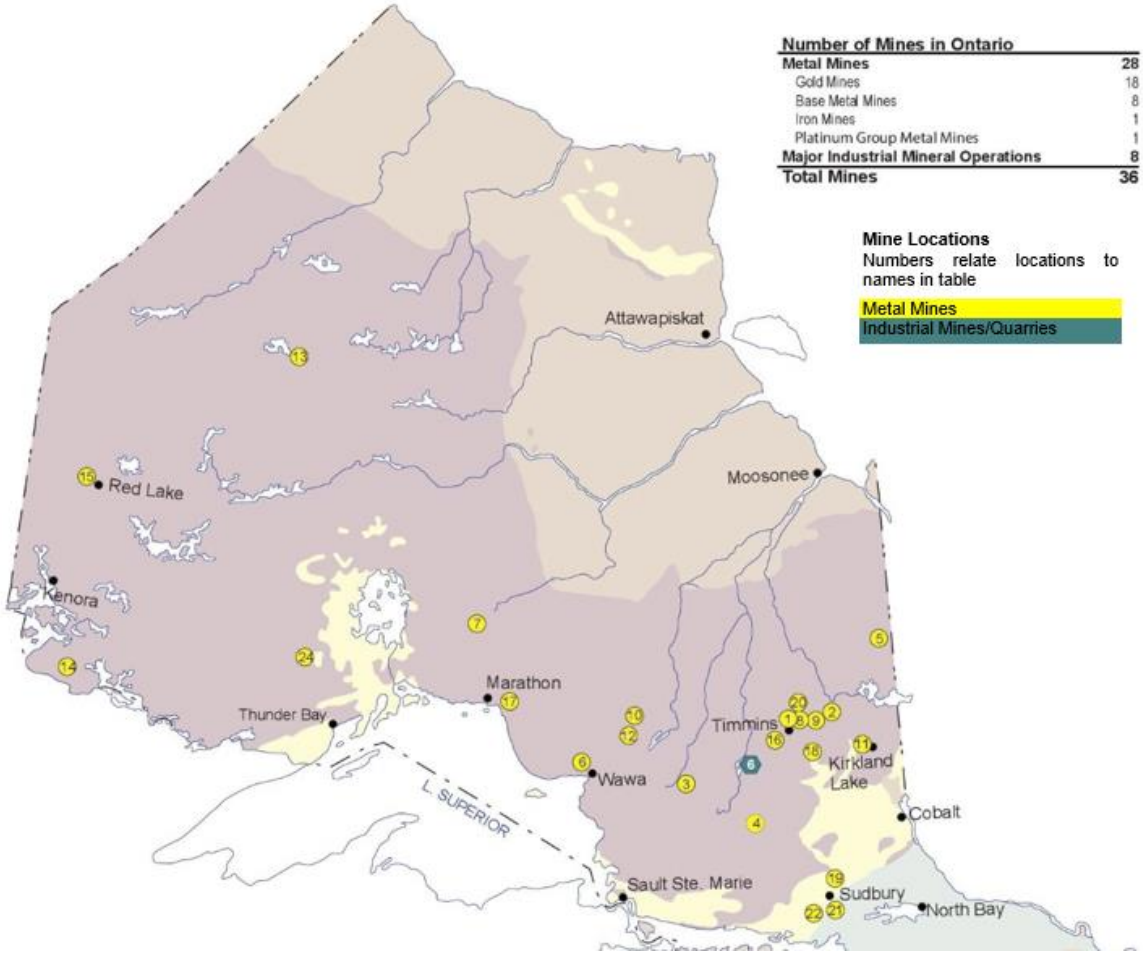
Key existing and future mines

Northern Ontario hosts 27 producing metals mines, including nine active critical minerals mines (Figure 2.2) and ten processing facilities with over 25 advanced critical minerals projects that include processing, recycling and exploration. (Ontario Mining Association, 2025[12]). This includes increasing capacity for processing facilities, with companies looking to expand these capabilities in the near future.

For instance, as of 2024, Canada Nickel is looking at building two processing facilities in Timmins (Northern Ontario Business, 2024[23]). However, the region faces numerous challenges in opening more essential critical minerals processing facilities such as high infrastructure costs, limited existing capacity, and permitting delays.

Across the region there is a strong appetite for mineral exploration. By the end of 2024, there were over 350 000 active mining claims in Ontario, many of which were located in the north. Exploration reached CAD 976 million in 2023, accounting for 23% of the total exploration spend across Canada (Ontario Mining Association, 2025[24]). Large critical minerals projects such as in the Ring of Fire region are in the pipeline and highlight the significant mineral potential in the region and companies' willingness to undertake exploration and extraction in this area.

Figure 2.2. Northern Ontario Mining Operations, 2025



Source: (Ontario Mining Association, 2025[25])

Table 2.3. Selected mines/processing facilities in Northern Ontario

The following mines/processing plants were chosen based on production size. They include key gold mines and key critical minerals mines. For the complete table of mines in operations in Northern Ontario please see Annex C.

Producing

In exploration/development phase

Processing facilities

Name	Company	Mineral	Location	Additional information/ importance
Côté Gold Mine (4)	IAMGOLD and Sumitomo Metal Mining Co joint venture	Gold	Sudbury	• Measured and indicated resources now exceed 13.56 million ounces • Potential to upscale the reserve base for future operations • Employs around 500 permanent workers
Detour Lake Mine (5)	Agnico Eagle	Gold	Northeast of Cochrane	• Canada's largest producing gold mine • Approx 682 000 ounces of gold in 2023 • Expected production until 2052
Macassa Mine (11)	Agnico Eagle	Gold	Kirkland Lake	• Globally one of the highest-grade gold mines • Approx 279 384 ounces of gold in 2024
Greenstone Gold Mine (7)	Equinox Gold	Gold	Geraldton	• At full production, expected to be one of Canada's largest and highest-grade open pit gold mines • Expected production of more than 400,000 ounces of gold annually for the first five years
Sudbury Basin Operations (22)	Vale & Glencore	Nickel, copper, cobalt, PGEs	Sudbury	• Includes Coleman Mine, Copper Cliff Complex, Creighton Mine, Garson Mine, Totten Mine • Produced 59% of Canada's nickel in 2023 • Approx 62 501 tonnes of nickel in 2023
Kidd Creek Mine (20)	Glencore	Zinc, Copper, Silver	Timmins	• Second largest zinc producing mine in Canada • Fifth-largest copper producing mine in Canada • Approx 39 200 tonnes of zinc produced in 2023 • Approx 27 200 tonnes of copper produced in 2023
McCreedy West Mine	Magna Mining Inc	Nickel-copper	Sudbury	• Produced 31 000 tons of ore in 2023 • Vital contributor to local mining output as only active mine in its cluster (Lavack, Morrison, Podolsky)
Eagle's Nest	Ring of Fire Metals	Nickel, copper, PGEs	Ring of Fire	• Aims to produce high-grade nickel • Advanced exploration phase, currently undergoing environmental assessments • Development contingent on completion of all-season roads and agreements with Indigenous communities
Crawford Nickel-Cobalt Project	Canada Nickel Company	Nickel	Timmins Nickel District	• Advanced development stage • Expected to be third-largest nickel sulphide operation globally • First production anticipated by end of 2027
PAK Lithium Project	Frontier Lithium	Lithium	Northwestern Ontario	• Advanced development stage • Expected annual production of 23 174 tonnes of lithium
Copper Cliff Complex	Vale	Nickel, copper, cobalt, PGMs	Sudbury	• One of Canada's largest integrated mining and processing operations, producing finished nickel, cobalt, and precious metal products
Sudbury Integrated Nickel Operations	Glencore	Nickel, copper, cobalt, PGMs	Sudbury	• On-site recovery of copper and precious metals
Kidd Metallurgical Site	Glencore	Copper, zinc	Timmins	• Plays a key role in copper and zinc processing in Northern Ontario

Source: (Ontario Mining Association, 2025[25])

Strategic importance of Northern Ontario's mining sector for global mineral supply chains and the green transition

The mining industry is a crucial economic driver in both Ontario and for Canada. The sector contributed over CAD 117 billion or approx. 4% of national GDP in 2023 (Mining Association of Canada, 2025[26]). Its contribution is greater for Ontario, nearly 3% (CAD 23.8 billion) of the total GDP of the province in 2023 (Ontario Mining Association, 2025[27]), and adding indirectly 1.3% of the provincial GDP from contributions linked to associated activities (CAD 8 billion). (Ontario Mining Association, 2025[12]). Resulting from decades of mining activity, Northern Ontario also holds significant mining know-how, a strategic asset in the current context of increasing critical mineral production to meet the green transition (explored further in Ch.4). The region is also recognised globally for its responsible mining practices. In the Fraser Institute's 2023 Annual Survey of Mining Companies, Ontario ranked 15th out of 82 jurisdictions worldwide in the Investment Attractiveness Index, which evaluates both mineral potential and policy factors such as environmental regulations and community engagement (Fraser Institute, 2024[28]).

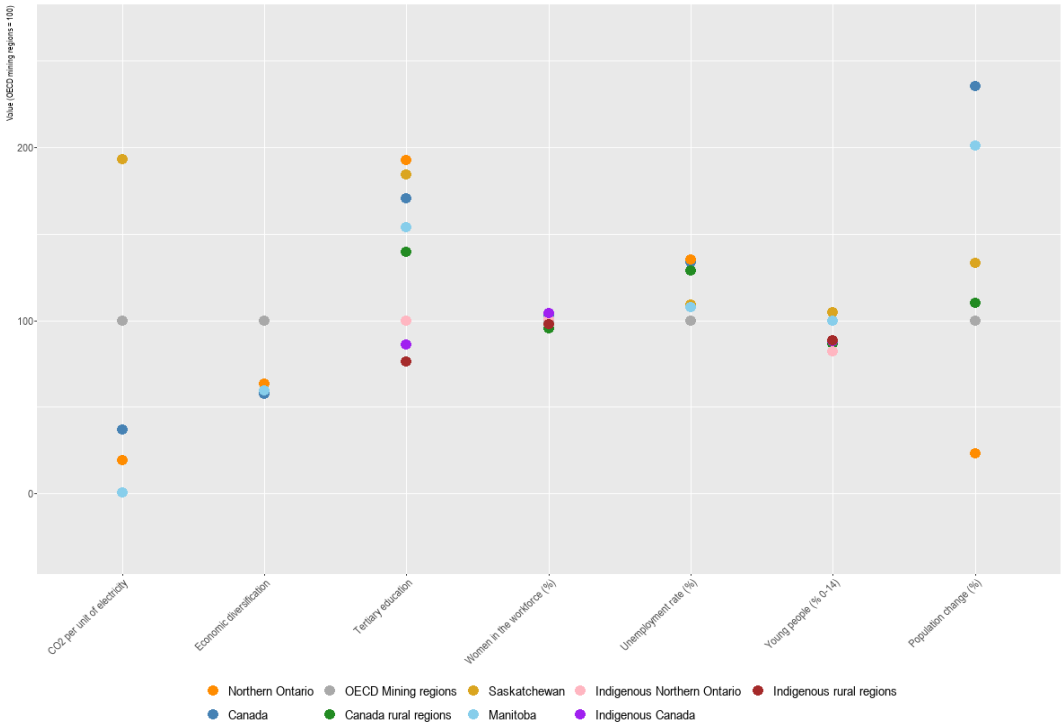
Mining is a significant employer in Ontario, supporting high-paying jobs for local, including remote and Indigenous, communities. As of 2022, the sector employed 22 000 people directly and 126 000 indirectly. Direct employees earn an average of CAD 150 000 per year, which is nearly double the provincial average, and 12% of the mining workforce identifies as Indigenous, compared to 3% across Ontario's overall workforce (Ontario Mining Association, 2025[12]).

Northern Ontario's economic, social, and environmental performance

Northern Ontario outperforms the OECD mining regions and national averages across some economic, social and environmental indicators such as income, tertiary education level, and GHG emissions, yet lags in unemployment, population growth, and economic diversification. The region has a higher rate of tertiary education attainment than OECD mining regions and the whole of Canada, strong participation of women in the workforce, and an emissions intensity well below domestic and international benchmarks. Northern Ontario has a higher rate of unemployment than the Canadian average or OECD mining regions. Most notably, however, the region's population growth has been comparatively limited.

While Indigenous peoples in Northern Ontario outperform Indigenous Peoples in other parts of Canada and Canadian rural regions in indicators such as tertiary education and unemployment, they perform worse than the broader population in Northern Ontario on most socioeconomic indicators. This highlights the fact that Northern Ontario faces persistent structural barriers, impacting overall well-being for Indigenous peoples (Figure 2.3). The following section conducts an analysis of the social, economic, and environmental performance of Northern Ontario, with a focus on the role of the mining sector in influencing these outcomes.

Figure 2.3. Northern Ontario's performance on economic, social, and environmental indicators



Source: OECD author's elaboration
Note: Value OECD mining regions=100

Economic performance

Northern Ontario's GDP per capita outperforms OECD mining regions yet lags domestic performance

In 2025, mining, quarrying, and oil & gas extraction in Ontario (with most activity happening in the North) was one of the largest contributors to growth in the province. Real GDP by industry in Ontario rose 0.4% in the first quarter of 2025, following a 0.4% increase in the previous quarter, with the mining, quarrying, and oil and gas extraction sector growing by 1.4% (Statistics Canada, 2025[29]). As GDP specifically for the region of Northern Ontario is unavailable, analysis of some subregions can provide a snapshot of GDP per capita in the region. In 2021, the GDP per capita in the towns of Greater Sudbury (CAD 60 227) and Thunder Bay (CAD 65 298) was on average 13.6% lower than the Canadian national average (CAD 71 303) and slightly below Saskatchewan (CAD 66 470). In contrast, GDP per capita in these hubs outperformed Manitoba (CAD 57 400) and was 12.7% higher than the average of OECD mining regions (approximately CAD 55 681) (OECD, 2022[4]).[1]

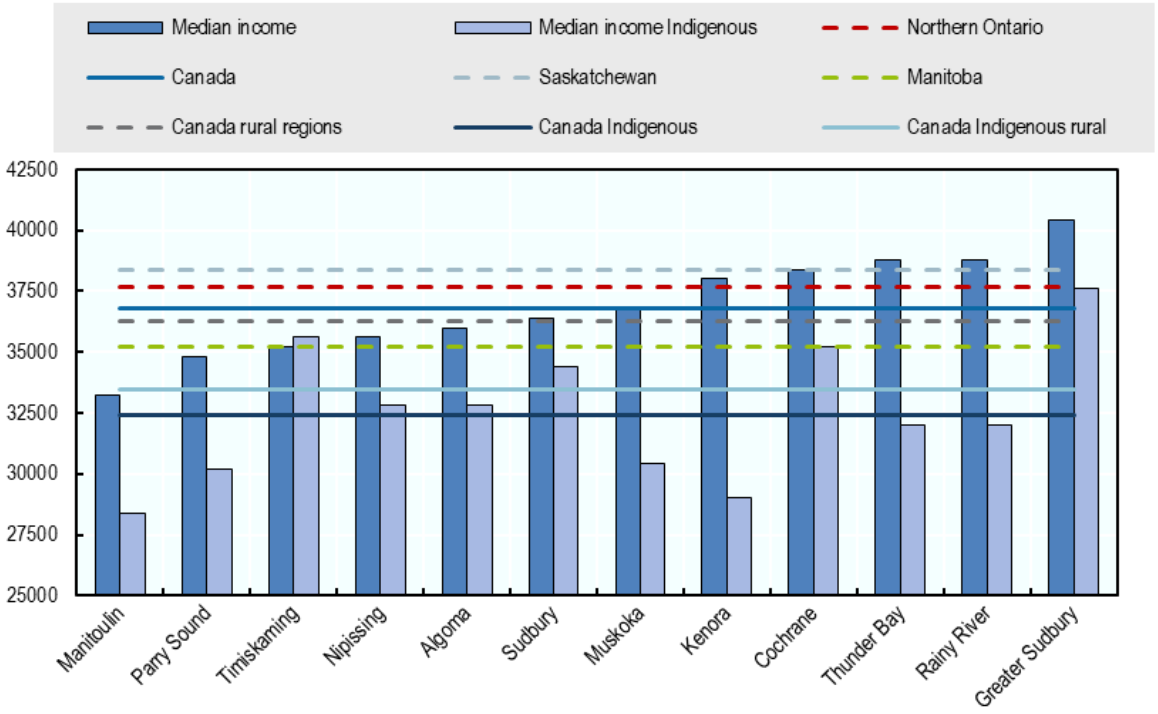
While specific data on Indigenous economic contribution in Northern Ontario is difficult to obtain, studies of specific areas of the region indicate that, overall, Indigenous contributions to the local economy are significant. For instance, in Thunder Bay, a recent study reveals that Indigenous economic contributions to the mining sector (2.7%) are similar to the contribution of mining to Ontario's overall GDP (approx. 3%) (Indigenous & Community Engagement, 2025[30]).

Northern Ontario outperforms benchmarks on income, showing higher median incomes in areas with mining

Northern Ontario on average has a higher median income (after tax) compared with other Canadian benchmarks, with mining activity having a positive impact on incomes. In 2020, Northern Ontario's median income (after tax) (CAD 37 663) was approximately 3.8% higher than Canadian rural regions (CAD 36 280) and outperformed both the national average (CAD 36 800) and Manitoba (CAD 35 200), yet lagged behind Saskatchewan (CAD 38 400) (Figure 2.4) (Statistics Canada, 2021[5]). However, Indigenous income is lower than the average of Indigenous Peoples in Canadian rural regions.

Mining has contributed to higher incomes in Northern Ontario where active projects exist, yet high concentrated in some subregions. The median income (after-tax) in mining subregions is approximately 5.8% higher than in non-mining subregions (approx. CAD 39 000 vs CAD 36 900 respectively) (2020). For Indigenous Peoples this is also the case, with those living in mining subregions recording a 16.4% higher median income than those living in non-mining subregions. Mining is therefore seen to contribute to elevated median incomes in the region for both Indigenous and non-Indigenous Peoples. This is likely, in part, due to relatively higher wages associated with employment in the sector. For instance, mining across Ontario offers considerably higher wages than provincial averages at approx. CAD 150 000 per year (Ontario Mining Association, 2025[12]) compared with Ontario's approximate average annual income of CAD 66 000 (OECD, 2023[31]).

Figure 2.4. Northern Ontario median income (after tax) by census division (CAD), 2020

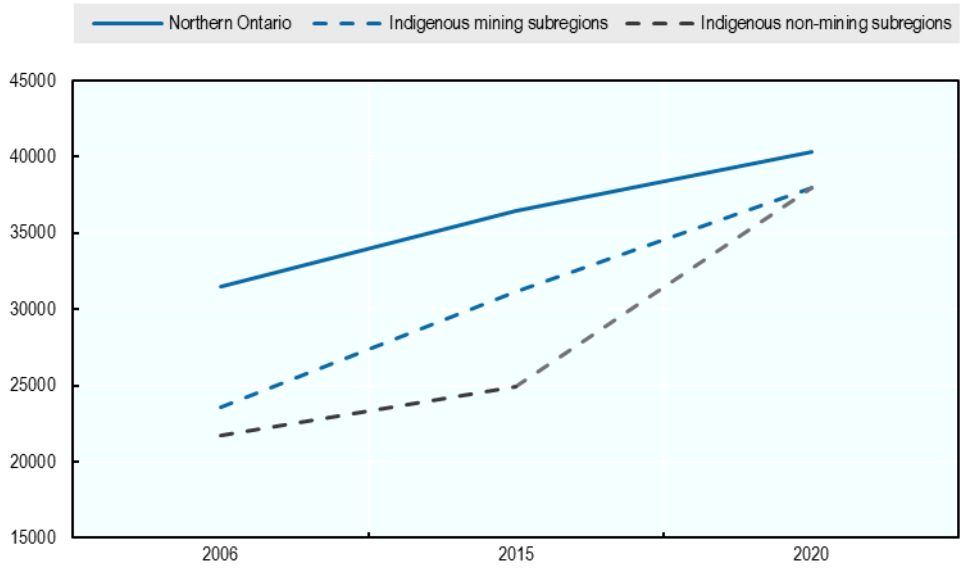


Source: (Statistics Canada, 2021[5])

While Indigenous peoples still have a median income that is 13.5% lower than Northern Ontario's average, this gap is almost three times smaller in mining subregions (5.8%) than in non-mining subregions (19%). This suggests a positive influence of mining on Indigenous living standards in these areas. The presence of mining also suggests a capacity for Indigenous Peoples to close faster their structural income gap with

the region over time. Between 2006 and 2020, the income gap between Indigenous populations in mining regions and the regional average was narrowed by 19.2 percentage points, falling from 25% to just 5.8%. This is almost twice as fast as the reduction of the income gap in Indigenous non-mining regions by 11.1 percentage points (from 30.1% to 19%) (Figure 2.5).

Figure 2.5. Total median income 2006-21 (adjusted to 2021 CAD)



Note: 2011 data is not included due to methodological differences in the National Household Survey, which was voluntary and not comparable to the mandatory censuses in 2001, 2006, 2016, and 2021.
Source: (Statistics Canada, 2001[32]); (Statistics Canada, 2006[33]) (Statistics Canada, 2016[34]) (Statistics Canada, 2021[5])

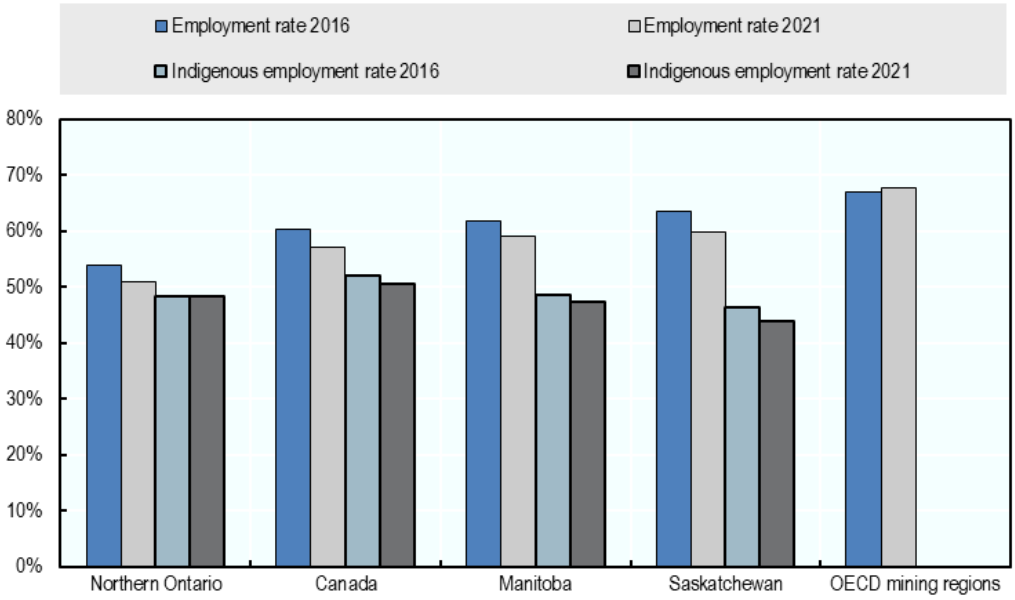
Northern Ontario trails Canadian and international benchmarks on employment, despite high vacancies. Mining does, however, offer opportunities for improved outcomes

Employment across Northern Ontario lags behind benchmarks, although Indigenous Peoples sustain the regional workforce

Northern Ontario's employment rate (50.8%) in 2021, was lower than Canada's rural regions (53.31%), the national average (57.1%), Manitoba (59.1%), Saskatchewan (59.9%), and 25.1% below the OECD mining regions average of 67.8% (Figure 2.6). For Indigenous Peoples, the average employment rate in Northern Ontario in 2021 was 48.4%, which was 4.8% lower than the overall employment rate for the region, and 4.2% lower than the employment rate for Indigenous Peoples across Canada.

The region experienced a decrease in its employment rate between 2016 and 2021 of 3.1%, the highest decrease of the benchmarked regions (Figure 2.6). However, this trend contrasts with Indigenous Peoples' employment trend that stayed stable over time. Additionally, Indigenous Peoples in mining areas in Northern Ontario overall had a 9.6% higher employment rate than Indigenous Peoples across rural non-mining regions in Canada. The comparatively stable employment rate of Indigenous Peoples suggests a responsiveness to local labour demand. In addition, higher employment in mining subregions highlights the potential for stronger Indigenous labour force participation across the entire region.

Figure 2.6. Employment rate 2016 and 2021



Note: Indigenous employment data not available across OECD mining regions. 'Employment rate' refers to overall employment rate including Indigenous and non-Indigenous Peoples.
Source: (Statistics Canada, 2016[34]) (Statistics Canada, 2021[5])

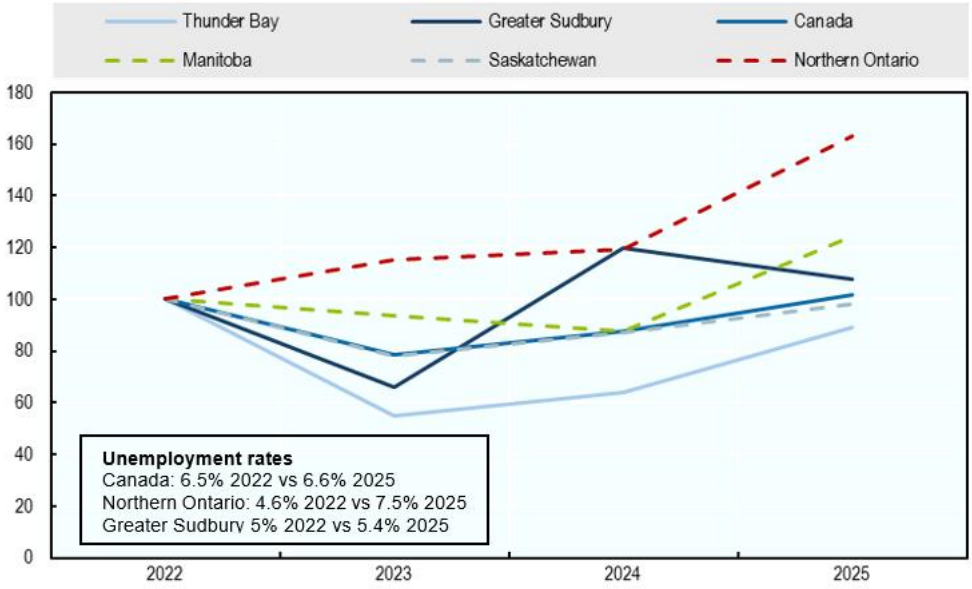
Unemployment persists across the region despite high vacancy rates, yet Indigenous outcomes are improving overtime

Recent figures on unemployment fail to paint a more positive picture of the economic outlook in Northern Ontario. In 2025, Northern Ontario reported a higher unemployment rate (7.5%) than domestic benchmarks of Canada (6.9%), Manitoba (5.3%), and Saskatchewan (4.3%) and increasing approximately 63% from 2022 unemployment levels (Figure 2.7) (Statistics Canada, 2025[35]).[2]

Even with high unemployment rates, Northern Ontario had some of the highest vacancy rates across Canada at 4.9% compared with 3.8% for all of Ontario (2023) (Future Skills Centre, 2025[36]). This highlights the unique labour market challenges in Northern Ontario, where job vacancy rates exceed both provincial and national averages largely explained by skills mismatches and demographic challenges (ageing population and youth-outmigration) (Law, 2023[37]); (FedNor, 2024[38]). For the mining sector specifically, this is prevalent with the industry anticipating a shortage of 3 500 workers throughout the province by 2040, especially in green-collar positions (National Observer, 2024[39]).

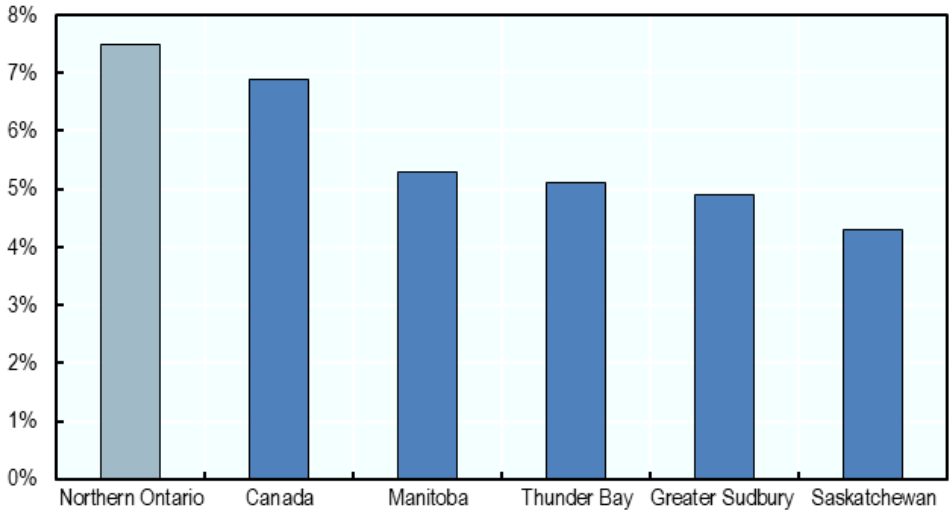
Some towns in the region, however, performed better on unemployment than the regional and national averages, including Greater Sudbury (4.9%) and Thunder Bay (5.1%), highlighting the capacity of population centres within Northern Ontario to match labour supply and demand relative to limited job opportunities in more remote areas (Figure 2.8) (Statistics Canada, 2021[40]).

Figure 2.7. Trends in unemployment rate 2022-25 (Indexed to 2022)



Note: Indexed to 2022=100. Unemployment rates for 2025 are as of January 2025. Calculated using statistics for Northeast and Northwest Ontario. These Economic Regions do not include Muskoka District that is included in other analyses of this paper.
Source: (Statistics Canada, 2025[41])

Figure 2.8. Northern Ontario unemployment rate against domestic benchmarks, January 2025



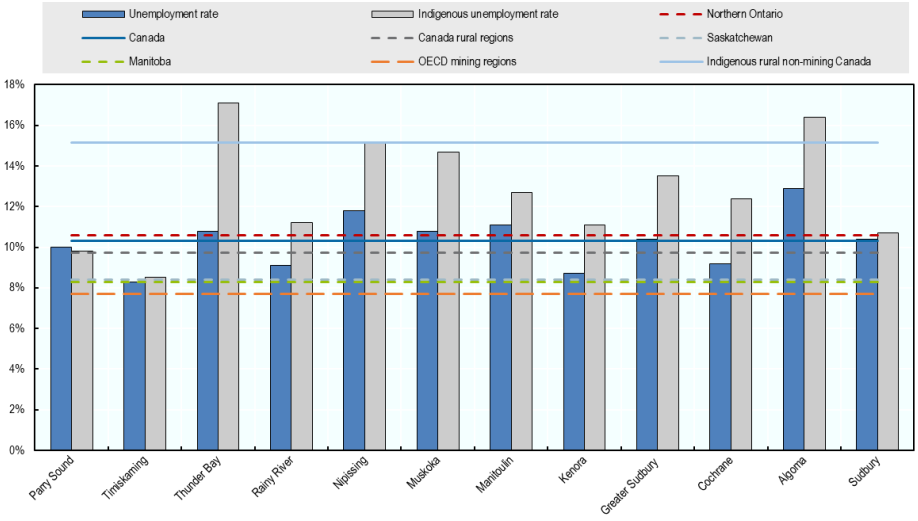
Note: Calculated using statistics for Northeast and Northwest Ontario. These Economic Regions do not include Muskoka District that is included in other analyses of this paper.
Source: (Statistics Canada, 2025[42]); (Statistics Canada, 2025[35]).

Indigenous Peoples in Northern Ontario experience higher unemployment rates compared with the regional average, yet this is improving over time and those in mining subregions tend to experience better outcomes. In 2021, the Indigenous unemployment rate in Northern Ontario was 13.5%. This was 27.4% higher than the average for Northern Ontario (10.6%) and higher than Canada (10.3%), Canada's rural

regions (9.7%), Saskatchewan (8.4%), Manitoba (8.3%), and OECD mining subregions (7.7%) as seen in Figure 2.9. It was, however, lower than the average unemployment rate for Indigenous Peoples across Canada (15.1%) and 11.2% lower than the Indigenous unemployment rate of non-mining rural regions in Canada (15.2%). This highlights that Indigenous unemployment is lower in Northern Ontario than elsewhere, yet disparities still exist between Indigenous and non-Indigenous populations.

High relative unemployment rates for Indigenous Peoples in the region are a result of structural barriers that impact labour market participation (discussed further in Ch.3). Economically speaking, barriers can include geographic isolation coupled with limited transportation and infrastructure to access training (creating skills mismatches) and employment opportunities (discussed further in the skills section) (Ministry of Training, Colleges, and Universities, 2015[43]). A lack of inclusive hiring practices and culturally appropriate work conditions can also inhibit Indigenous involvement in the labour market, with discrimination in the workplace contributing to higher unemployment rates amongst Indigenous Peoples across the region (Ontario Human Rights Commission, 2024[44]). Disparities in social outcomes that influence Indigenous unemployment in the region (e.g., education and housing) will be further analysed in the social section of this chapter.

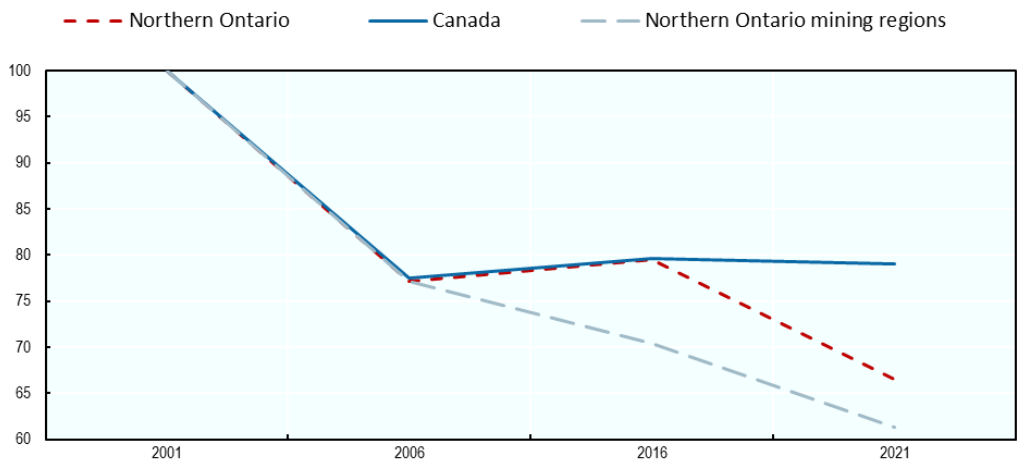
Figure 2.9. Northern Ontario unemployment rates by census division 2021



Note: 'Unemployment rate' contains both Indigenous and non-Indigenous residents.
Source: (Statistics Canada, 2021[5])

While mining has historically posed negative economic, social, and environmental impacts on Indigenous Peoples and issues still persist (discussed further in Ch.3), certain economic opportunities have emerged from the sector for Indigenous communities, particularly through employment. The Indigenous unemployment rate in mining subregions in Northern Ontario is 12.3%. This is approximately 1.6 percentage points lower than the unemployment rate for Indigenous Peoples in non-mining subregions in Northern Ontario (13.9%) (Figure 2.9). It is also lower than the average unemployment rate for Indigenous Peoples across Canada (15.1%), and almost 20% below the unemployment rate for Indigenous Peoples in non-mining rural regions in Canada (15.2%). Unemployment for Indigenous Peoples has also improved over time in Northern Ontario, with even greater improvement in mining subregions. From the period 2001-21, Indigenous unemployment in the region decreased 33.5%, with mining subregions of Northern Ontario seeing a higher decrease in Indigenous unemployment rates at 38.7% between 2001 and 2021 (Figure 2.10). This highlights that while disparities exist, Indigenous economic outcomes, further assisted by mining sector opportunities, are improving.

Figure 2.10. Indigenous unemployment rate 2001-21 (Indexed to 2001)



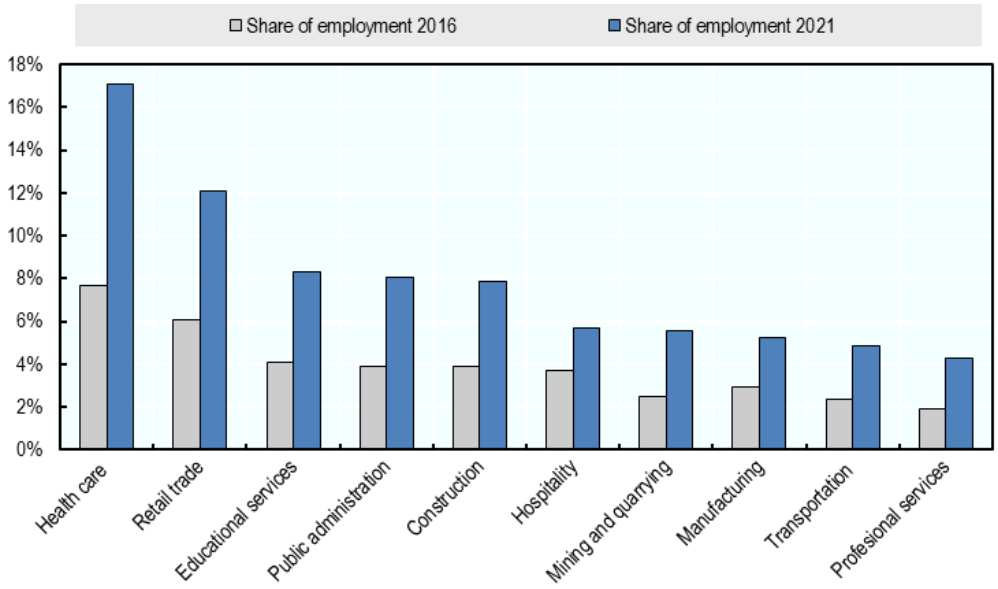
Note: Index 2001=100. 2011 data is not included due to methodological differences in the National Household Survey, which was voluntary and not comparable to the mandatory censuses in 2001, 2006, 2016, and 2021.
Source: (Statistics Canada, 2001[45]); (Statistics Canada, 2006[46]); (Statistics Canada, 2016[47]); (Statistics Canada, 2021[48])

Mining is a significant contributor to employment in the region, with strong Indigenous representation

In 2021, the mining, quarrying, and oil and gas extraction sectors made up 5.6% of employment in Northern Ontario, which increased 2.48% from 2016, ranking as the 7th largest employer in the region (Figure 2.11) (Statistics Canada, 2021[49]); (Statistics Canada, 2021[50]). Mining employment is also considerably concentrated in the province of Ontario, with over 25% of all direct mining jobs in the country located in Ontario (Ontario Mining Association, 2025[12]). The share of employment in the region in the mining sector is considerably higher than the national average (1.24%) and other provinces with mining in the country such as Saskatchewan (3.21%) and Manitoba (0.74%), signalling that mining is a major source of employment in the region (Figure 2.12).

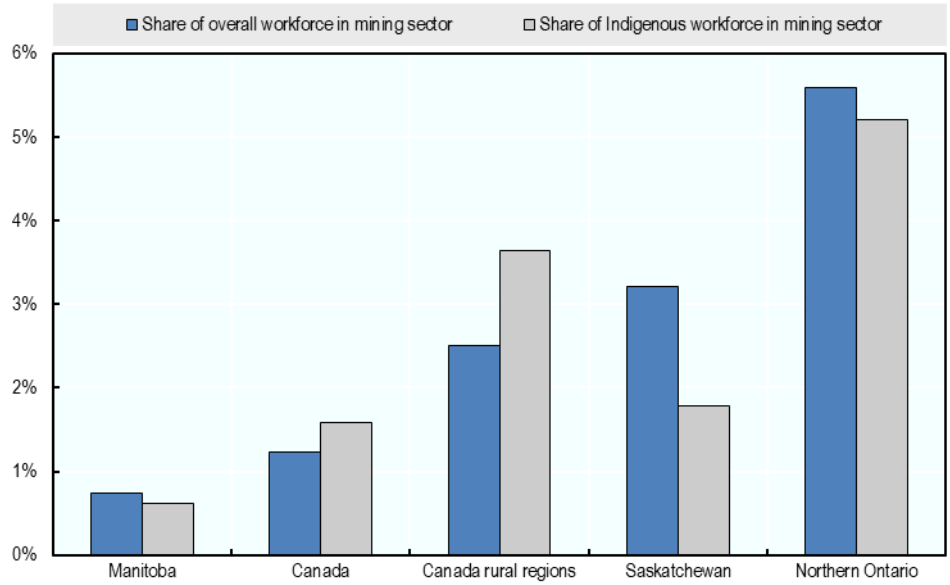
In Northern Ontario, 5.2% of the Indigenous workforce is employed in the mining sector, which is considerably higher than the national average (1.6%) and Canadian rural regions (3.6%) as seen in Figure 2.12. Indigenous Peoples also represent an important asset to the mining sector, making up 14.6% of the total mining workforce in the region, which is on par with Indigenous representation across the total workforce in Northern Ontario (14.55%), and which is 64% higher than the national average (Figure 2.13).

Figure 2.11. Northern Ontario overall share of employment by sector, 2016 and 2021



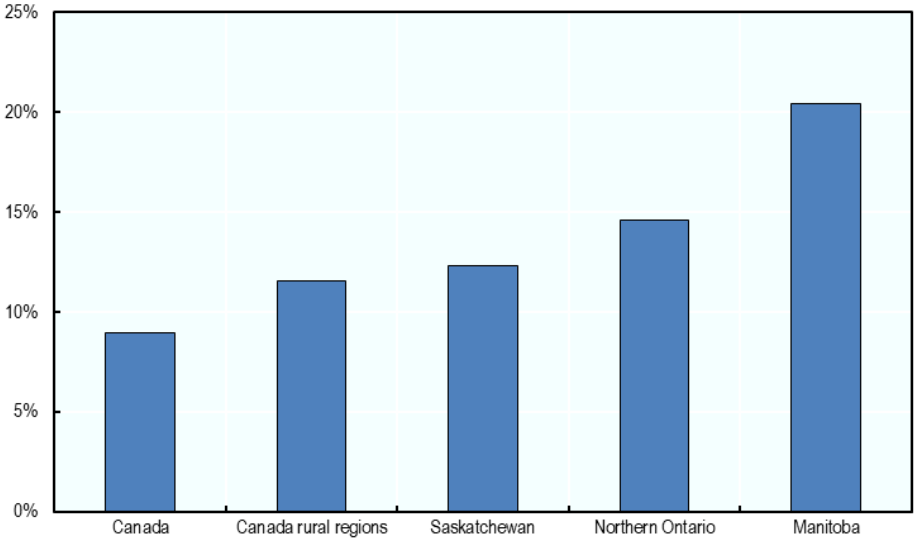
Note: Calculated using statistics for Northeast and Northwest Ontario. These Economic Regions do not include Muskoka District that is included in other analyses of this paper.
Source: (Statistics Canada, 2021[50]); (Statistics Canada, 2021[49]); (Statistics Canada, 2021[51])

Figure 2.12. Share of workforce directly employed in the mining, quarrying, and oil & gas sector, 2021



Note: Calculated using statistics for Northeast and Northwest Ontario. These Economic Regions do not include Muskoka District that is included in other analyses of this paper.
Source: (Statistics Canada, 2021[5])

Figure 2.13. Share of Indigenous employment in the mining sector, 2021

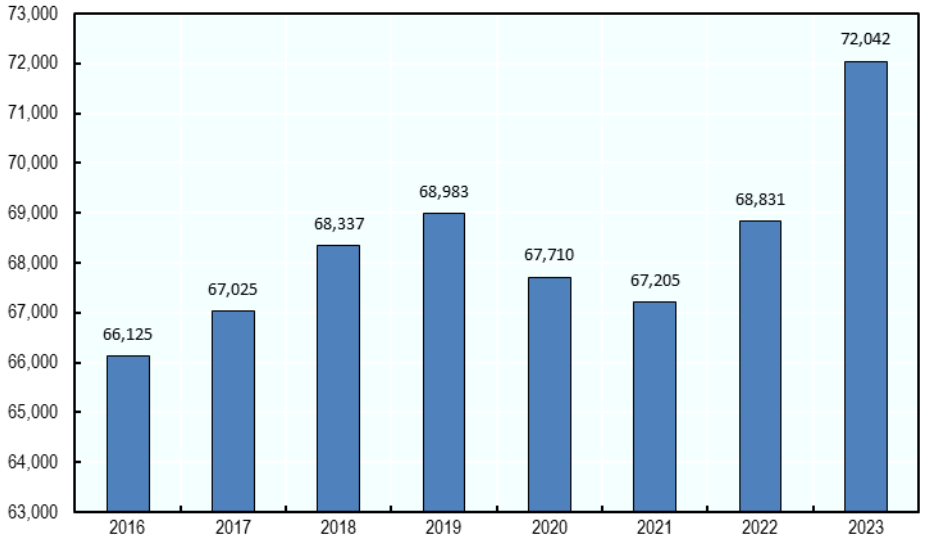


Source: (Statistics Canada, 2021[48])

Northern Ontario has a relatively strong SME ecosystem, with many supported by the mining sector, especially those in Indigenous communities

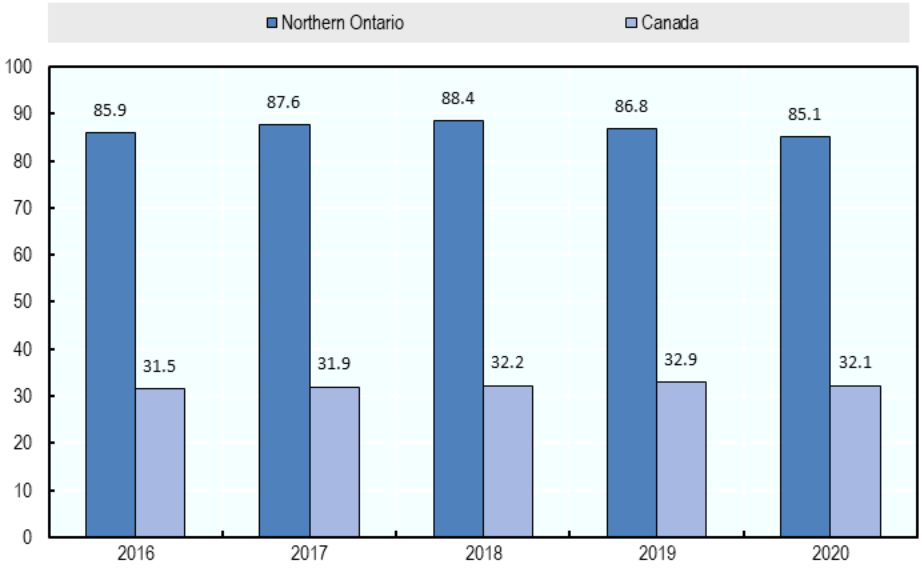
Northern Ontario's small and medium-sized enterprises (SME) ecosystem perform remarkably well against the national average, displaying consistency over time and a strong appetite for entrepreneurship. In 2023, the region was home to over 72 000 businesses, nearly all of which are small or medium-sized enterprises (Government of Canada, 2024[10]). This number increased by approximately 9% between the period 2016-23 from 66 125 businesses to 72 042 (Figure 2.14), suggesting a strong regional appetite for entrepreneurship. In 2020, Northern Ontario had almost three times the number of businesses per 1 000 than Canada (87 businesses per 1 000 people compared with 32 businesses per 1 000 people respectively) (Figure 2.15). This density also remained consistent over the period 2016-21, suggesting a stable SME ecosystem across the region. Despite this, innovation remains below benchmarks with 34.9 patents per 1 million inhabitants compared with Canada's rural regions (54.9) and the OECD mining subregions average (44.3), pointing to a measure of stagnation amongst Northern Ontario's business ecosystem (OECD, 2020[52]).

Figure 2.14. Northern Ontario number of businesses, 2016-23



Source: (Government of Canada, 2024[10])

Figure 2.15. Business density (number of businesses per 1 000 people), 2016-20



Source: (Government of Canada, 2024[10]), (Government of Canada, 2023[53]).

Furthermore, despite persistent challenges in the region, namely geographic remoteness creating reduced access to markets, SMEs in Northern Ontario are performing positively across a number of indicators as displayed in Box 2.3.

Box 2.3. Progress of Northern Ontario businesses

Nearly all of Northern Ontario's businesses are SMEs, meaning the below information largely applies to small and medium-sized businesses in the region.

- Value of Northern Ontario exports increased by 45% from 2021-22 to USD 11 billion. In 2020, twice as many businesses said they were looking to expand sales into new markets over the next three years (vs 2017)
- More high growth firms in the region; twice as many since 2016. However, more businesses reported no growth (6.3% increase)
- Businesses are adopting new technologies. More businesses have gone digital (a 25.9% increase in websites from 2017 to 2020)
- More businesses are owned by visible minorities, youth and those with a disability. However, there's a decline in the proportion of Indigenous-owned SMEs (by 3%), as well as SMEs owned by women (by 2%) and francophone individuals (by 2%)
- More skilled and trades workers in the region to help close the labour gap among skilled workers; 13.5% increase in the number of people employed within the trades sector from 2017 to 2020

Source: (Government of Canada, 2024[10]).

Northern Ontario's mining sector plays a significant role in supporting SMEs directly and indirectly in the region. Northern Ontario is home to over 900 mining supply and service companies (Northern Ontario Exports, 2024[54]), employing over 40 000 people (Ontario Mining Association, 2025[24]), suggesting significant contributions from the sector to this ecosystem. The province as a whole also produces more than CAD 10 billion worth of mining supplies and services each year, with much of this activity occurring in Northern Ontario (Ontario Mining Association, 2025[24]). Despite this, many of the SMEs supporting the mining sector are concentrated in mining hubs such as Greater Sudbury, which hosts almost 40% (over 345) of these businesses. This points to a concentration of this activity that is not evenly distributed across the region.

Indigenous entrepreneurship is significantly prevalent across the mining sector of Northern Ontario. Many Nations support mining operations through contracting services, that also support the employment of First Nations Peoples. As of 2023, there were over 142 active agreements between mining companies and Indigenous communities, with the many containing contracting provisions that support Indigenous supply and service companies. While data is unavailable for the entire region of Northern Ontario, specific examples provide an insight into the growing commitment of mining companies to Indigenous procurement across the sector. For instance, over the operational period of the De Beers Victor Diamond Mine, 38% of total mine expenditures were directed to Indigenous companies (De Beers, 2016[55]) and for the proposed Ring of Fire development. In another example, Wyloo Metals has committed to awarding CAD 100 million in contracts to Indigenous-led businesses (Wyloo, 2022[56]). These partnerships not only promote shared economic value but also facilitate community development and the establishment of Indigenous-owned enterprises within the mining supply chain (Ontario Mining Association, 2025[24]).

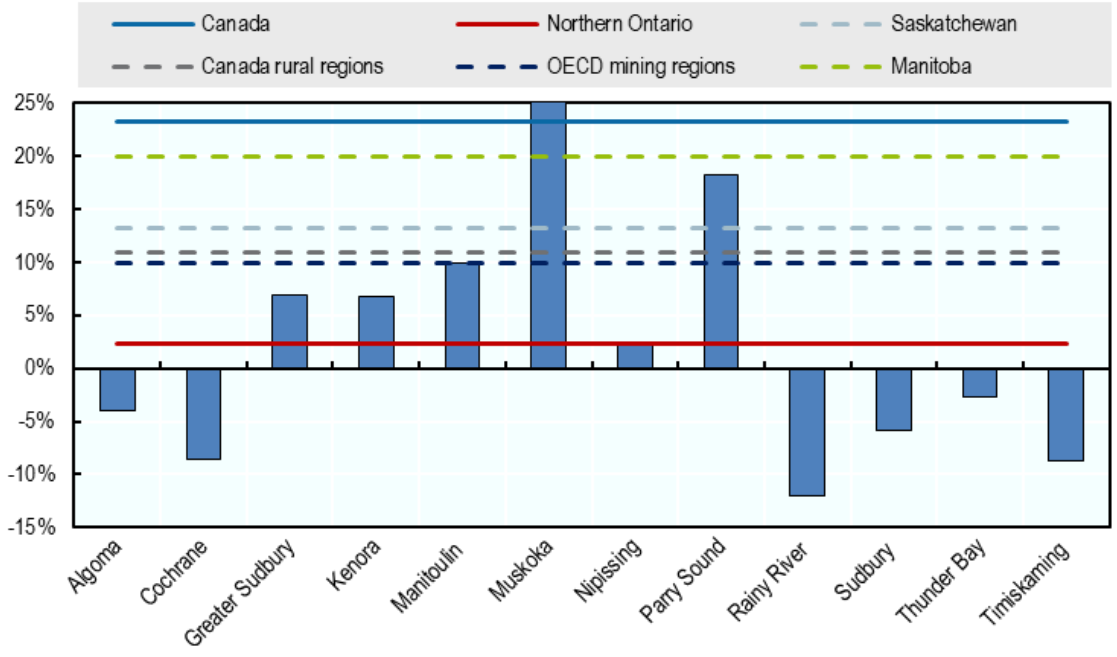
Social performance

Northern Ontario experiences weak population growth, with stronger performance by Indigenous populations

In 2024, the population of Northern Ontario was 943 899 people, representing around 5.9% of the province of Ontario (Statistics Canada, 2024[57]). In 2021, there was an Indigenous population of 140 320 people in the region, representing over 17.76% of the population, a significantly higher proportion than across the province (2.86%) and across Canada (4.89%) (Statistics Canada, 2021[49]). It is also higher than similar international mining jurisdictions such as the Pilbara, Australia (8.41%) (Australian Bureau of Statistics, 2021[58]); (Australian Bureau of Statistics, 2021[59]) and Antofagasta, Chile (9.5%) (OECD, 2023[60]). Furthermore, Ontario has one-fifth of the nation's total Indigenous Peoples, as the leading province in Canada, with almost 78% of Ontario's First Nation communities located in Northern Ontario (Ontario, 2022[61]). Some 12.3% of Ontario's Indigenous population lives on reserve, which affects socioeconomic outcomes and service provision compared to those who live off reserve (discussed further in Ch.3).

While the population of the region is expected to grow by 12% by 2046 compared with 2023 (Ontario Government, 2024[62]), the region has seen only a marginal increase in population of 2.3% between 2001 and 2021. This population stagnation is significant when compared with population increases over the same period across Ontario (24.7%), Canada (23.3%), Manitoba (19.9%), Saskatchewan (13.2%), Canada rural regions (10.9%), and OECD mining regions (9.9%) (Statistics Canada, 2001[32]); (Statistics Canada, 2021[5]). There are also significant disparities across Northern Ontario in population growth with a population decline of 5.7% in mining subregions between 2001 and 2021 and a population growth of 6.8% in non-mining subregions across the same period (Figure 2.16). This suggests that while mining subregions provide positive economic opportunities to those inside the sector, they lack diversified economic opportunities to attract a range of residents including women and young people.

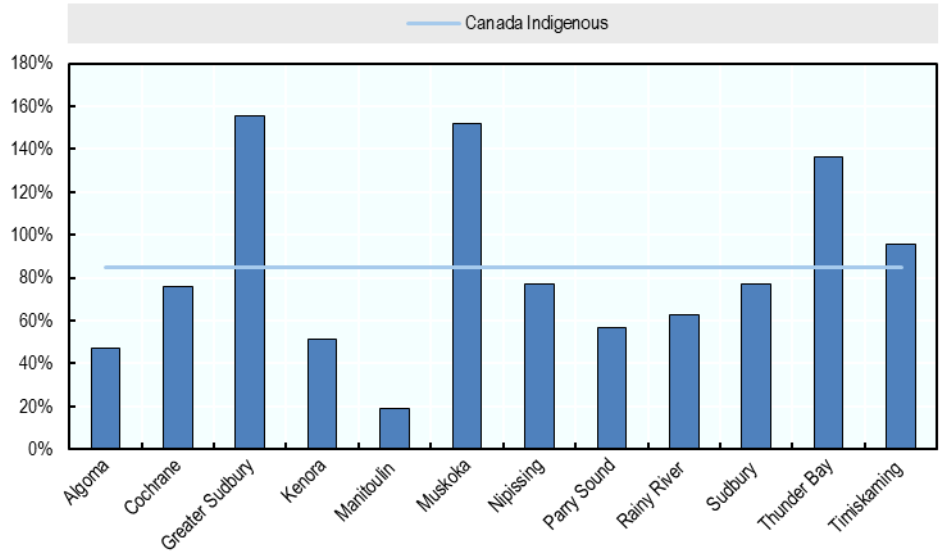
Figure 2.16. Northern Ontario population change, 2001-21



Source: (Statistics Canada, 2021[5]); (Statistics Canada, 2001[32])

Between 2001 and 2021 the Indigenous population grew on average by 71.6% in Northern Ontario, which is lower than the Indigenous Canadian population average for the same period (85.1%). While such significant population growth of Indigenous Peoples in Northern Ontario can be partially attributed to natural growth (increasing birth rates and increasing lifespans), it is likely mostly due to more people identifying as Indigenous across years and status changes. For instance, people answering the census who once did not disclose their Indigenous identity may have become more likely to do so. Moreover, amendments to legislation such as the Indian Act has restored Indigenous status to many individuals and their descendants (Statistics Canada, 2022[63]). This suggests positive changes in social attitudes towards Indigeneity and potentially improved trust in government processes, despite Indigenous data sovereignty remaining a priority for many communities.

Figure 2.17. Indigenous population change Northern Ontario census divisions, 2001-21



Source: (Statistics Canada, 2001[45]); (Statistics Canada, 2006[46])I (Statistics Canada, 2016[47]); (Statistics Canada, 2021[48])

Youth outmigration and an ageing population contributes to relatively low population growth in Northern Ontario

Youth outmigration in Northern Ontario is a persistent and concerning demographic challenge across the region, with most young people leaving the region to pursue economic and educational opportunities. This phenomenon refers to a pattern of young people (typically aged between 15-34) leaving the region for larger urban centres, such as Toronto. Young adults aged between 15-34 constitute the largest demographic leaving the region, surpassing all other age groups (Future Skills Centre, 2025[64]). Between 2001 and 2021, there were 18 500 people aged between 15-24 that left the region, making up 17% of 2021's population of 15–24-year-olds.

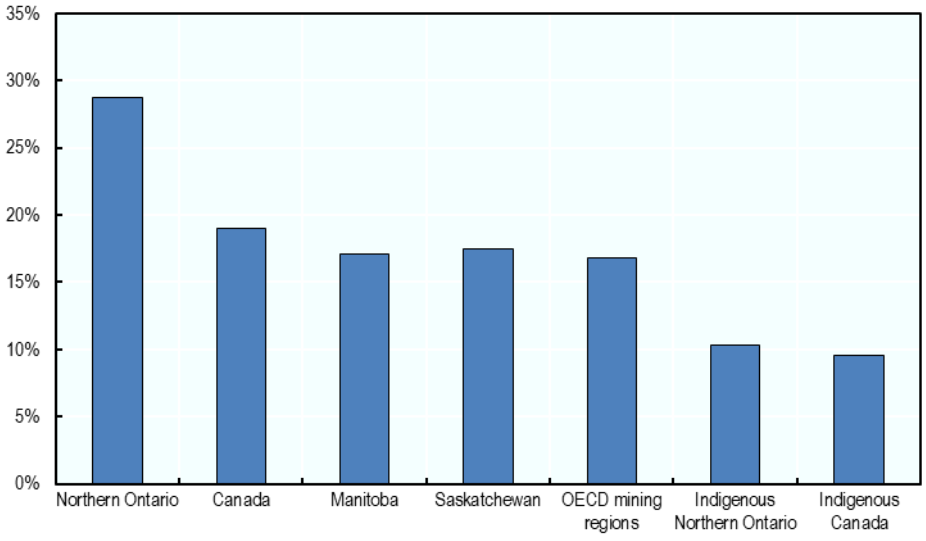
On the broader population, youth outmigration such as this creates drains to economic potential and the weakening of rural communities. Many businesses in the region therefore struggle to attract new talent and rely heavily on immigration to fill workforce gaps (Canadian Manufacturing & Exporters, 2025[65]). This includes the mining sector having to hire foreign rather than local talent (Canadian Mining Journal, 2025[66]). In large part, this phenomenon can be explained by young people exiting the region to pursue education and job opportunities unavailable in Northern Ontario and also a lack of activities to entertain young people.

For Indigenous communities, youth outmigration can pose other problems such as eroding cultural continuity and deepening socio-economic challenges, especially if systemic barriers prevent return.

Based on a survey of people who left the region, better economic and educational opportunities were the top reasons why young people left, alongside limited ways to enjoy free time. On average 57% of respondents stated that there were "some but not a lot" of job opportunities in their field within their community, with 43% stating job opportunities were something that "would make them stay in their community" (Northern Policy Institute, 2022[67]). In the same survey, nature scored highly in the question of what young people like about the region. On the opposite metric, many young people indicated having nothing to do (Northern Policy Institute, 2022[67]). This presents a clear opportunity to link the region's natural assets with the appropriate programmes and infrastructure enabling year-round activities for young people.

The region's ageing population is also creating challenges for Northern Ontario in retaining and increasing their population, meeting labour demands, and providing adequate healthcare, an issue exacerbated by youth out-migration. Currently, 28.8% of Northern Ontario's population is over 65 years old (Figure 2.18), this is a significantly higher proportion than the national average (18.9%), Manitoba (17.1%), Saskatchewan (17.5%), and OECD mining regions (16.1%). However, the Indigenous population in Northern Ontario has a relatively smaller ageing population with 10.2% of the population over 65, compared with 9.5% across Canada. While this can represent positive dynamics such as higher fertility rates and a younger population structure, it also highlights health inequalities in the region that lead to premature mortality rates and thus fewer elderly members of the Indigenous Peoples population.

Figure 2.18. Share of population 65 years and over, 2021



Source: (Statistics Canada, 2021[5]); (OECD, 2022[4])

To maintain an adequate worker-to-dependent ratio, Northern Ontario needs to retain its current population and attract 8 100 new residents annually over the next 20 years (Future Skills Centre, 2025[64]), a challenge becoming increasingly more difficult due to the combined effects of an ageing population and youth outmigration. Increasingly, mining companies and providers in the region have to hire employees from outside the region or country. For instance, the Bucket Shop, an equipment provider in the region, hire around 10% of their workforce from outside Canada. Furthermore, ageing populations typically require more frequent and costly healthcare as well as the supporting infrastructure such as transport links to

ensure accessibility to health centres. This places considerable strain on Northern communities with declining populations, as they struggle to receive the required funding to support their ageing populations (Barber, 2023[68]).

The region shows strong gender parity overall, yet weak representation of women in the mining sector

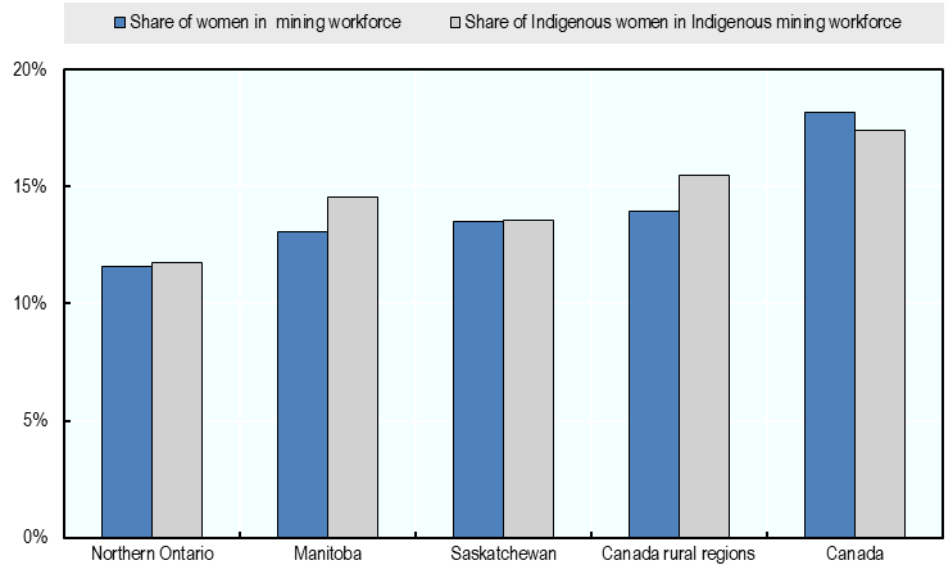
In 2021, the share of men to women in Northern Ontario was 99 men per 100 women (Statistics Canada, 2021[49]); (Statistics Canada, 2021[50]). This is relatively equal and performing better than Ontario where there are 96 men per 100 women (49% compared with 51% respectively) (Statistics Canada, 2021[5]). This was also the same for Indigenous populations with women making up 51.1% of the population.

The region also performs better on gender parity than many international mining jurisdictions such as the Pilbara in Western Australia, where the male to female ratio is 135 men per 100 women (57.4% compared with 42.6% respectively) (Australian Bureau of Statistics, 2016[69]). It also more balanced compared to OECD Mining Regions (approximately 101 men per 100 women). In the workforce, women are well represented at 50.61% outperforming Saskatchewan (50.56%), OECD mining regions (49.97%) and Canada rural regions (47.6%) and falling just shy of Manitoba with 50.63% of the workforce female and 51.02% across Canada. Indigenous women are equally well represented, making up 50.34% of the workforce, compared with 49.84% in Canadian rural regions.

Despite the region performing well overall in gender parity, Northern Ontario's mining sector experiences a significant gender imbalance in terms of participation in the workforce. In 2021, there were 18 355 men working in the mining and quarrying sector and 2 420 women. This is a gender ratio of 7.6 men per 1 woman, with women making up only 11.6% of the mining and quarrying workforce in the region (Figure 2.19) (Statistics Canada, 2021[49]); (Statistics Canada, 2021[50]). The region therefore performs worse on share of women employed in the mining sector than Manitoba (13.1%), rural regions across Canada (14%), Saskatchewan (18.1%) and the national average (14%), although all benchmarked areas evidently do not have gender parity across the sector.

Indigenous women make up 11.8% of the Indigenous workforce in the sector, representing slightly higher gender parity amongst Indigenous employees than the regional average (Figure 2.19). However, it lags behind Manitoba (14.6%), Saskatchewan (13.6%), Canadian rural regions (15.5%), and the national average (17.4%). Of the total mining workforce, Indigenous women make up 1.7%, yet if representation were equal across genders, Indigenous women should make up approximately 2.5% of the total mining workforce, highlighting an underrepresentation.

Figure 2.19. Share of women in the mining sector, 2021



Source: (Statistics Canada, 2021[5])

Until 1978, the Ontario Mining Act excluded women from mining workplaces as it prohibited women from working underground (Mining Industry Human Resources Council, 2016[70]). This denied entry of women has had lasting impacts on the sector, leading to entrenched norms (such as some women being dissuaded from entering mining-related study options like engineering), recruitment practices, and workplace cultures that in some cases fail to be gender inclusive. It impacted the long-term development of frameworks necessary today to support female involvement in the sector such as childcare facilities and denied generational knowledge and networking/mentorship pathways that have been available to men for the past century.

Mining in Northern Ontario, as in many mining regions across the OECD, has long been perceived and experienced as a male dominated sector with masculine norms shaping the daily working environment, leadership styles and social dynamics (King, 2019[71]). Even with formalised diversity policies, informal culture on the ground can undermine these efforts and dissuade women from entering the sector. Research on women's experiences in the mining sector in Greater Sudbury shows that many women working in the sector feel isolated or subject to gender-based discrimination and harassment (Blois, 2022[72]). This includes women struggling to gain acceptance and respect from male colleagues and feeling like they must be "one of the guys" to fit in. This study and others find:

- 47% of women working in equipment operation, trades, transportation, and other related occupations have experienced behaviours at work that sexually objectify and discriminate against them (Burczycka, 2020[73]).
- 70% of women interviewees were hesitant to report instances of harassment against them, many because it was their superior who harassed them (Blois, 2022[72]).

Despite this, many women interviewed for the study in Greater Sudbury (Blois, 2022[72]) expressed satisfaction with their roles, appreciating the work itself and the sense of accomplishment it brought and that they valued the "sisterhood" connections where they could find solidarity with other women in the industry. This presents important opportunities for the region where mining can be a fulfilling career choice for women, if on the ground workplace culture is addressed, ties between female employees are strengthened, and historically absent frameworks are created to support work-life balance. For instance,

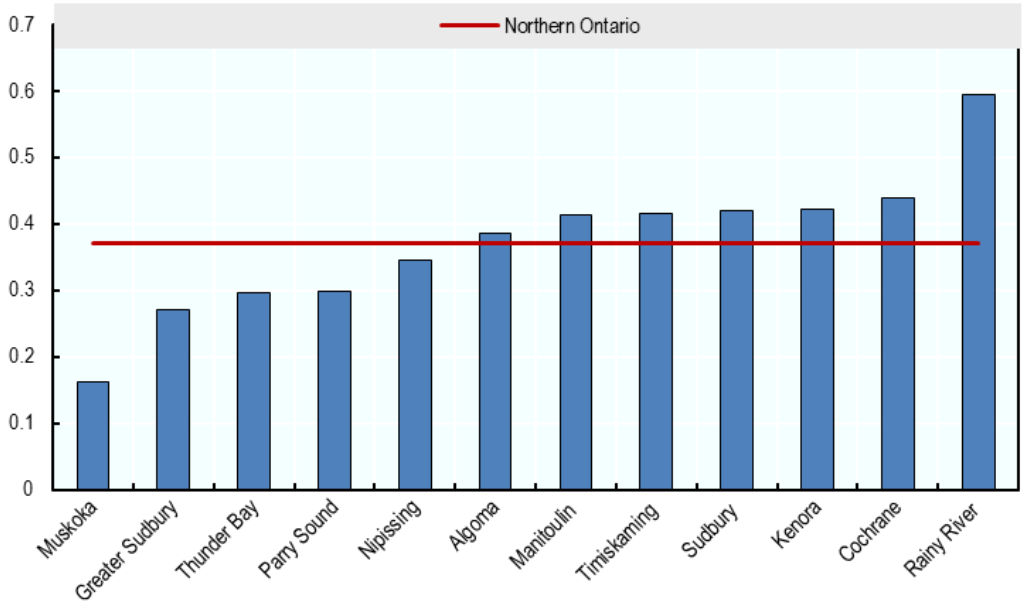
the median wage for women working in the mining sector in Ontario is CAD 1 600 per week, considerably higher than the national average at CAD 1 100 per week (Ontario Mining Association, 2025[12]); (LMiC, 2024[74]).

There are also specific intersecting barriers for Indigenous women in accessing quality employment in the mining sector. Indigenous women face unique systemic barriers such as limited access to education and training, racial and gender-based discrimination, and cultural and community obligations. Indigenous women across the mining sector in Canada are under-represented, with higher under-representation more marked in higher-paying and leadership roles (Mazer, Mills and Bouard, 2022[75]); (Nightingale et al., 2017[76]); (Cox and Mills, 2015[77]).

Northern Ontario performs well on education, but falls short on housing and healthcare outcomes

The index of remoteness in Canada measures the distance to all the population centres from a given populated community, providing a score between 0 and 1, with 0 being not remote and 1 being extremely remote. Northern Ontario on average scores approximately 0.4 on this index, with Muskoka being the least remote (a score of 0.2) and Rainy River census division being the most remote (0.6) (Figure 2.20). This suggests that on average Northern Ontario experiences higher levels of remoteness compared with the national average, creating challenges including costs for traditional service delivery methods.

Figure 2.20. Northern Ontario index of remoteness, 2021



Source: (Statistics Canada, 2021[78])

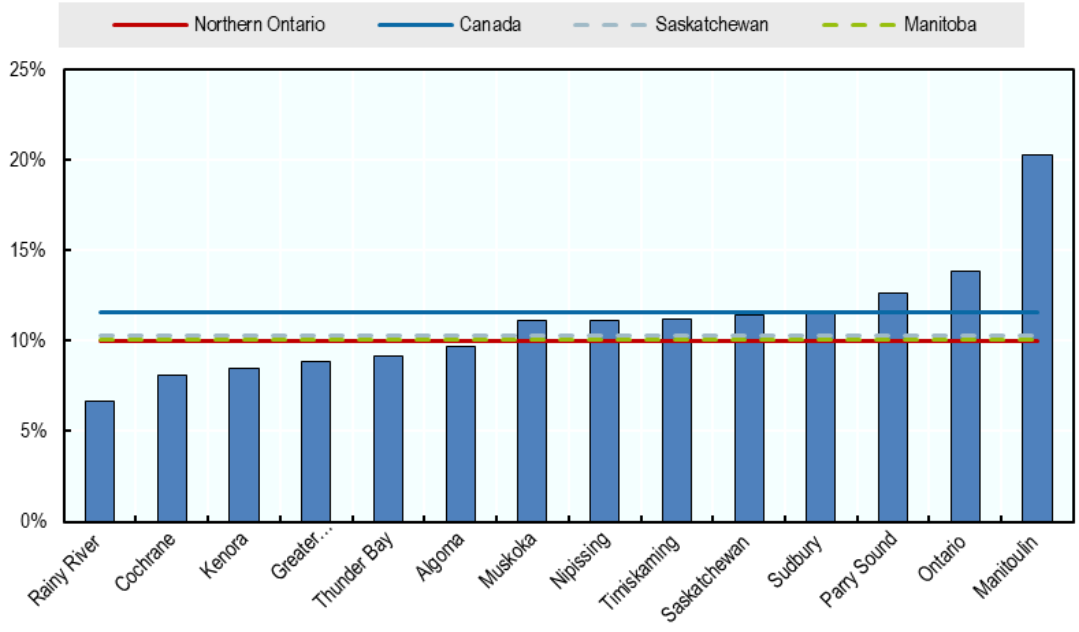
Housing quality In Northern Ontario is overall above national benchmarks, yet Indigenous Peoples face poor housing outcomes compared with the regional average

Northern Ontario faces a complex housing landscape, with both challenges and opportunities. The region faces housing shortages and a lack of housing quality, an issue particularly prominent in Indigenous communities. This influences the ability for the region to attract newcomers and known homelessness across the region surged by 204% between 2016 and 2024. Indigenous Peoples represent 45% of

homeless people, despite making up only 17% of the population (Association of Municipalities of Ontario, 2025[79]). Housing challenges significantly impact well-being across the region and the ability of towns to take full advantage of new mining projects by hosting workers and consequently attracting new residents in the long term.

Over 32 000 households in Northern Ontario (approximately 10%) are in core need, meaning they fall below at least one of the adequacy, affordability, or suitability standards (Figure 2.21) (Statistics Canada, 2021[5]). While this is below the average for Ontario (13.8%) and consistent with the national average (approx. 10%), over 6 500 households including 5 300 on Indigenous reserves are not assessed for core housing needs (often due to data limitations). Furthermore, an additional 17 500 households do not qualify for assistance because they can technically afford median rent, despite living in substandard conditions. This means that 73% of inadequate homes in the region are excluded from core housing need metrics, potentially underrepresenting the need for housing support in the region (Northern Policy Institute, 2018[80]). The mining sector in Northern Ontario does not have a significant impact on the proportion of housing in core needs with 9.3% of housing in mining subregions within Northern Ontario in core need compared with 11.6% in non-mining subregions.

Figure 2.21. Northern Ontario districts share of housing in core need, 2021



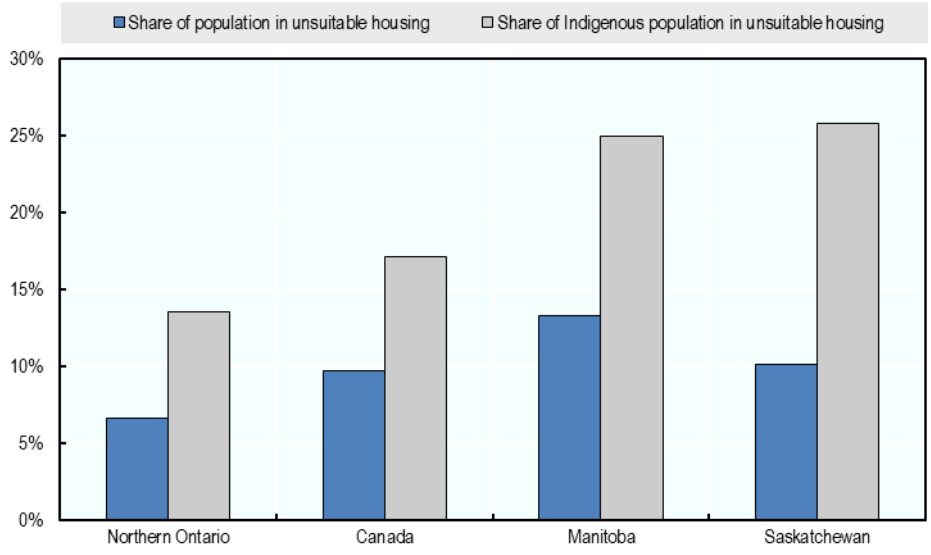
Source: (Statistics Canada, 2021[5])

There are also shortages of housing stock across the region, especially to support new mining activity. Issues with zoning for new residential land, high costs of construction, and limited local capacity in the construction sector limits new builds. For instance, within the city of Timmins, the cost of construction per square foot is over CAD 400 (Grant, 2024[81]), which can be higher than the cost of building in Toronto (ODIMA Construction, 2024[82]), making it unattractive for existing and new residents to build and difficult for local governments to replenish housing stock. There is also a short building season (4-6 months) due to long winters (Government of Canada, 2021[83]). The current lack of solutions for addressing these challenges prevents some areas of the region from providing housing for workers for new mining projects, often resulting in temporary camps and fly-in-fly-out or drive-in-drive-out arrangements instead of new

residents contributing to the tax base (as has been the case in Geraldton during construction of the Greenstone Gold Mine).

Housing conditions for Indigenous Peoples across Northern Ontario are on average worse than overall housing conditions, with large disparities within the region. For instance, the share of the Indigenous population in the region living in unsuitable housing (meaning too many occupants to live comfortably) is 13.5% compared with 6.7% of the overall population (Figure 2.22). While this is higher than the national average (17.1%), Manitoba (24.9%), and Saskatchewan (25.8%), Indigenous Peoples still make up 48.9% of those living in unsuitable housing, despite being only 17% of the total population.

Figure 2.22. Share of population living in unsuitable housing, 2023



Note: 'Share of population in unsuitable housing' refers to the average across the entire population including both Indigenous and non-Indigenous Peoples.
Source: (Statistics Canada, 2023[84])

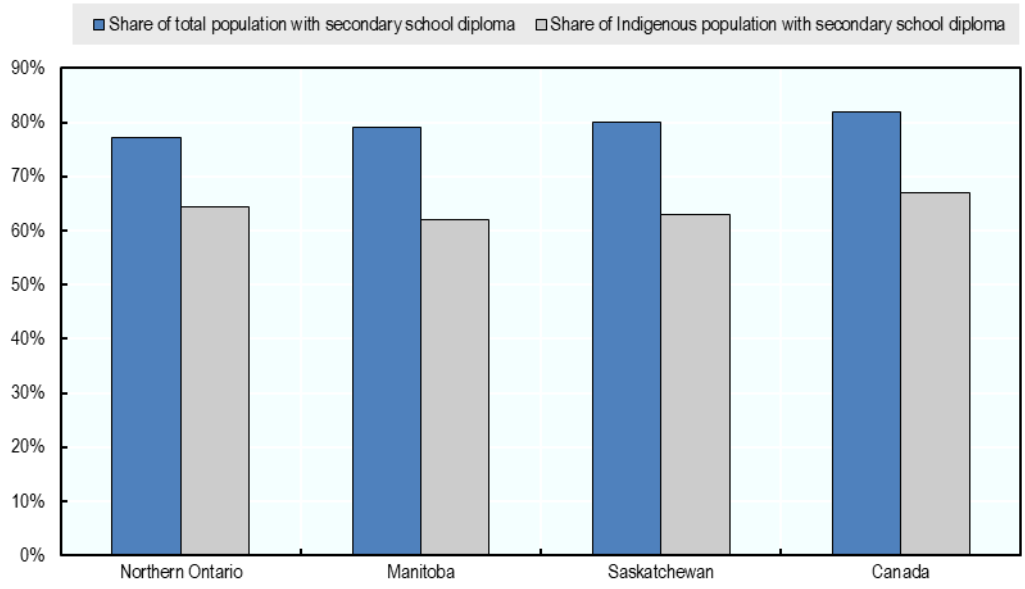
Northern Ontario performs well overall on education, yet key issues persist in securing a skilled workforce, particularly for the mining sector

Northern Ontario outperforms domestic and international benchmarks on education, with significant mining know-how and nation-leading education and research institutions that support the mining sector. However, Indigenous disparities exist, and the mining industry still faces challenges attracting a skilled workforce. Northern Ontario's proportion of the population whose highest level of education is a secondary school is 77.1%, sitting below the average for Manitoba (79.1%), Saskatchewan (80%), and the national average (82%) as depicted in Figure 2.23. The share of the population that is tertiary educated[3] is 64.3%, which is higher than the national average (57%), Canada's rural regions (46.6%), and OECD mining regions (33.4%) (Figure 2.24). This suggests that there is a strong trend of educational progression across the region. Mining activities may have a positive impact on education in Northern Ontario with 65% of those in mining subregions in Northern Ontario being tertiary educated compared with 63.7% in non-mining subregions. Furthermore, Greater Sudbury a district with significant mining activity has the highest tertiary education rate of the region at 77.1%.

However, Indigenous students in Northern Ontario face additional barriers, including the need to leave their communities for both high school and post-secondary education, which leads to lower participation rates. Overall, 64.5% of Indigenous Peoples have a secondary school diploma as their highest level of

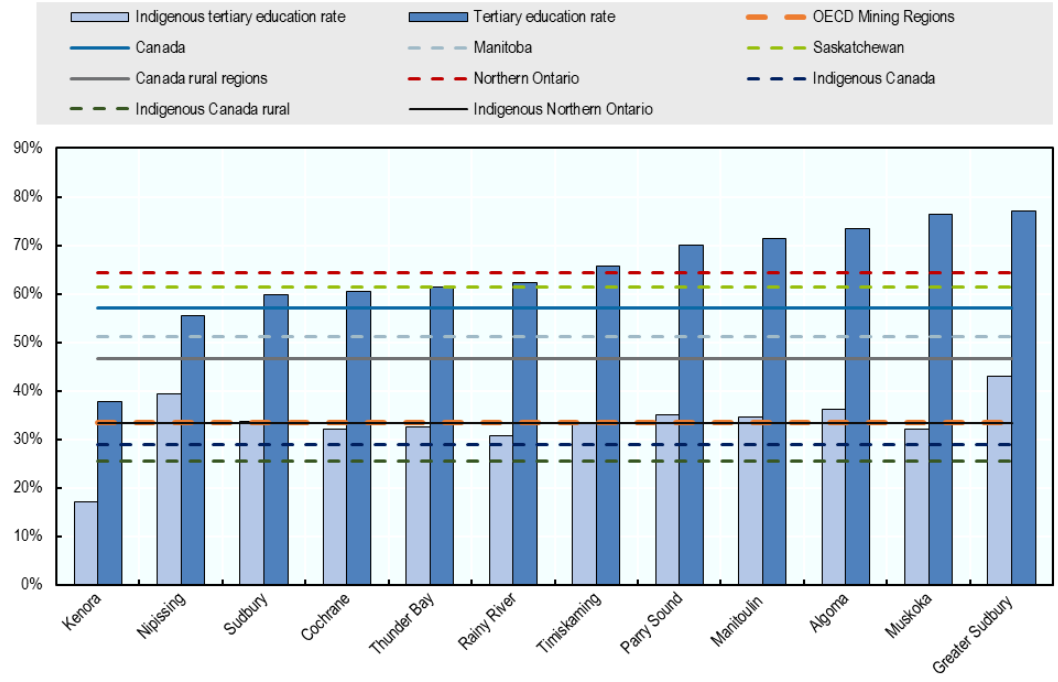
education, compared with 77.1% across the broader population, yet only 33.3% have a tertiary education compared with 64.3% across the broader population.

Figure 2.23. Share of population with secondary school diploma as highest level of education, 2021



Source: (Statistics Canada, 2021[5]); (Statistics Canada, 2021[48])

Figure 2.24. Share of population with tertiary education, 2021



Source: (Statistics Canada, 2021[5]); (Statistics Canada, 2021[48])

Key challenges for mining sector skills in the region

Within Northern Ontario's mining sector, the lack of a robust workforce pipeline is a critical challenge facing the mining industry (Ontario Mining Association, 2023[85]). While this presents issues in meeting the demand for workers to maintain current and future projects, it also represents a significant opportunity of employment pathways for young people in the region if the adequate education and training is provided and negative perceptions of the sector are addressed.

The remote nature of mining operations in Northern Ontario presents substantial challenges in attracting and retaining skilled workers. Although mining is a major employer in the region, it does not hold the same prominence across the province, and a significant portion of the mining workforce is recruited from outside the region, with some Fly-in-Fly-Out (FIFO) workers also not living in the region, highlighting an unavailability of workers or a potential mismatch between local skills and the type of workers needed for new projects. While specific statistics for Northern Ontario are scarce, the prevalence of FIFO practices in the region suggests a notable presence of non-local workers in the region's mining industry, a direct result of the remoteness of mines and limited supporting transport infrastructure (Saxinger and Gartler, 2017[86]). This situation compels the industry to draw talent to remote areas, often competing with employers in more accessible locations where the majority of the workforce resides. The challenge is particularly acute for credentialed positions, where the supply-demand gap is evident, and the mining sector must vie for talent without the advantage of a local workforce base.

Furthermore, mining sector employers are increasingly at risk of losing their Indigenous talent. While specific data on Northern Ontario is unavailable, national surveys suggest that Indigenous peoples across Canada are significantly more likely than non-Indigenous employees to say they expect to leave the sector. In a survey conducted in 2016, 42% of Indigenous participants noted they will likely or very likely to look for work outside the Canadian mining industry in the next five years compared to 23% of non-Indigenous respondents (Mining Industry Human Resources Council, 2016[87]).

These educational disparities have significant implications for Northern Ontario's mining sector. The industry anticipates a shortage of over 3 500 skilled workers by 2040 in Ontario, driven by the growing demand for critical minerals essential for electric vehicles and green technologies (National Observer, 2024[39]). For instance, at Northern College in Timmins, the female participation in mining-related courses does not exceed 20%, an untapped wellspring of talent that is visible in Table 2.4.

Table 2.4. Northern College Timmins women's participation rates

Programme	% of women
Motive Power Technician (HDET)	19%
Motive Power Technician (AST)	16%
Civil Engineering Technician	17%
Computer Engineering Technician	32%
Construction Engineering Technician	35%
Electrical Engineering Technician	15%
Electrical Engineering Technology	17%
Mechanical Technician - Industrial Millwright	9%
Mechanical Techniques - Industrial Millwright	10%
Mechanical Technician - Welder Fitter	16%

The strength and diversity of mining education and training institutions in Northern Ontario play a critical role in supporting regional development and sustaining the mining ecosystem. By offering a mix of academic credentials, applied training, and innovation platforms, these institutions help to cultivate a local talent pipeline and improve workforce retention in remote communities. The training and education ecosystem of Northern Ontario is further expanded on in this report in Ch.4.

Northern Ontario faces worse health outcomes than nationally, particularly for Indigenous communities

Northern Ontario faces persistent disparities in health outcomes compared to the rest of the province and the country, despite strengths in healthcare training and innovation, with Indigenous Peoples facing worse outcomes. The region is home to leading institutions such as NOSM University, which has helped increase physician retention in rural and remote areas, and a growing network of community-based healthcare and research centres.

Between 2015 and 2017, life expectancy across Northern Ontario was approximately 79.3 years, which is below the national average of 82.1 years, and life expectancy in Saskatchewan (80.2 years) and Manitoba (80 years) (Statistics Canada, 2017[88]), yet only marginally below the average across OECD mining regions (79.7 years) (OECD, 2023[89]). While data on Indigenous life expectancy within Northern Ontario specifically is not available, the average life expectancy for Indigenous Peoples across the province of Ontario is 77.20. Considering the province overall has a higher life expectancy on average than Northern Ontario (82.6 years) suggests that Indigenous Peoples in Northern Ontario specifically will not only experience lower life expectancy than Indigenous Peoples in Ontario but also compared with non-Indigenous peoples in the region. Furthermore, the health region (classifications used to measure health data at the sub-provincial level across Canada) in Northern Ontario that has the lowest life expectancy rate at 76.6 years (Northwestern Health Unit) also has the highest proportion of Indigenous Peoples (approx. 37.3%), implying disparities may exist.

Alongside lower life expectancies, Northern Ontario also has a higher share of people with underlying health conditions than the national average, with Indigenous Peoples significantly more likely to suffer from underlying health conditions. In Northern Ontario, 37.2% of the population (18 years and older) have at least one underlying health condition. This is significantly higher than the national average (29.9%), Manitoba (29.3%), and Saskatchewan (31.2%). For Indigenous Peoples, data is not available specifically for Northern Ontario, yet across the province 47.1% of Indigenous Peoples (18 years and older) have at least one underlying health condition. Considering Northern Ontario performs worse than Ontario overall on this indicator (37.2% vs 35%), this suggests that Indigenous Peoples in the region face even greater disparity in terms of health quality.

Structural barriers and behavioural risk factors continue to drive some health challenges in the region. Northern Ontario's sparse population and vast geography limit access to timely and consistent healthcare, particularly in isolated communities. In Northern Ontario, 86.5% of people report having a regular healthcare provider, which is higher than the average in Manitoba (84.9%), yet below the national average (88%) (Statistics Canada, 2025[90]). Preventable chronic illnesses are more common in Northern Ontario, and rates of smoking, alcohol use, and obesity are significantly higher than the provincial average. For instance, smoking rates are 26.0% in the Northeast and 22.9% in the Northwest, compared to just 17.3% in the province overall (The Globe and Mail, 2017[91]). Addressing these gaps will require sustained investment in healthcare infrastructure, culturally appropriate services, and preventative health initiatives tailored to the unique needs of northern populations.

Indigenous Peoples face compounded challenges in ensuring adequate health outcomes across the region. With 31 First Nations communities inaccessible by road, many First Nations communities in Northern Ontario lack hospitals or primary care facilities. Those with nursing stations are often under-resourced and lack culturally appropriate care. Moreover, mistrust in government services can deter residents from seeking medical assistance (Nguyen et al., 2020[92]); (Maar, 2018[93]). With poor housing conditions, as discussed earlier, overcrowding and poor-quality homes can increase the risk of respiratory and infectious diseases. Likewise, limited education or employment opportunities can lead to poor living conditions and chronic stress. These communities also often face poor water quality with many communities under long-term drinking water advisories (discussed in environmental section), and food

insecurity due to the high cost and low availability of fresh food, contributing to high obesity rates, diabetes and other diet-related conditions that can become chronic.

Mental health issues are also prevalent for Indigenous communities across Northern Ontario. Due to colonisation and structural inequalities creating intergenerational trauma, a loss of language, and community disruption, many Indigenous communities face mental health crises. Suicide rates and substance abuse are particularly prevalent among young people in remote Indigenous communities in Northern Ontario (Johnson, 2025[94]). For instance, the fly-in community of Neskantaga First Nation experienced ten suicides between March and August 2020, despite having a population of only 400 people (Ansloos, 2023[95]). Some communities in the northwest of the region report prevalences of prescription opioid abuse between 35%-50% (compared with approx. 12% nationally) with Caribou Lake First Nation having an adult rate of treated opioid dependence of 41% (Kanate et al., 2015[96]).

While Northern Ontario experiences health outcomes below domestic and international benchmarks, particularly for Indigenous populations, the region has a strong healthcare and training ecosystem with many institutions that play a pivotal role in addressing the region's unique healthcare needs. Particularly notable is the high proportion of graduates of these institutions that stay to work in the region. For instance, 90% of physicians who completed both their undergraduate (MD) and postgraduate (residency) training at Northern Ontario School of Medicine University have chosen to stay and practise in Northern Ontario (NOSM, 2025[97]). This is a major strength for the region’s healthcare system as it directly addresses the issue of physician shortages, one of the most persistent challenges in rural and remote areas and presents potential for greater deployment of healthcare services in the future.

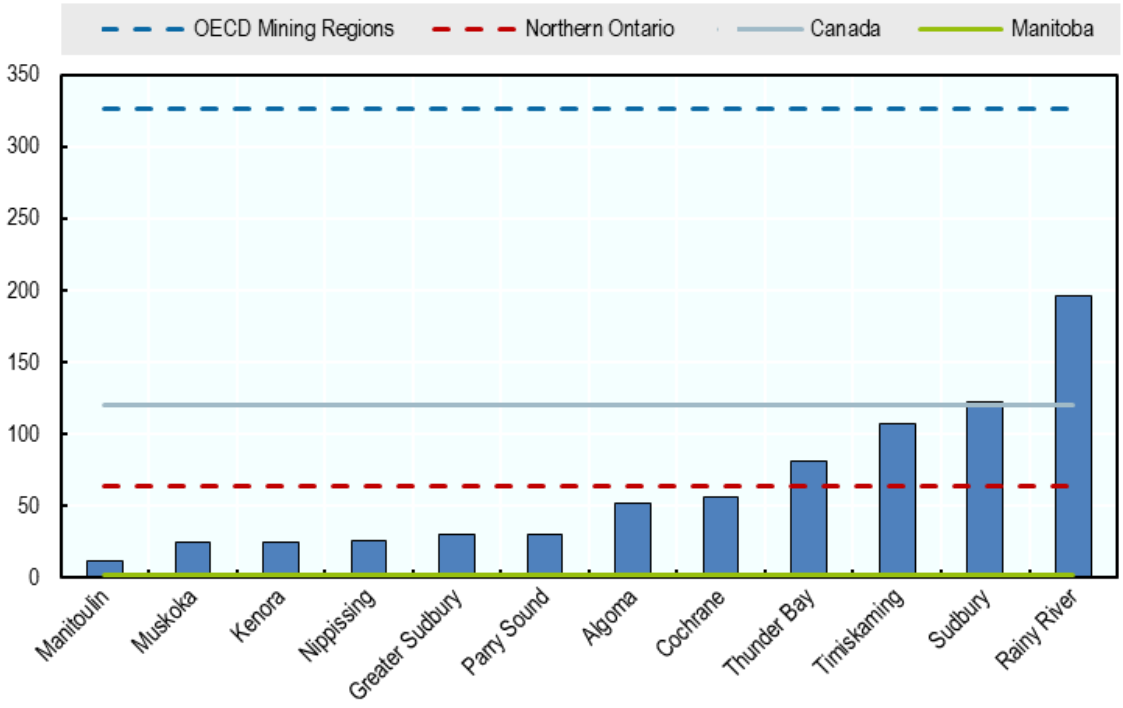
Environmental performance

Northern Ontario emits less than Canadian and OECD benchmarks, yet remote Indigenous communities are often disconnected from the grid

On average, GHG emissions per unit of electricity generated in Northern Ontario is 56.5% lower than the national average (63.2 compared with 145 TCO2eq per GWh respectively). It is also considerably lower than the OECD Mining Regions average at 326 TCO2 per GWh (OECD, 2022[4]). Rainy River is the only service area in the region with GHG emissions above the national average. This region hosts a large industrial emitter (Rainy River gold mine) and has substantial freight transport flows across the border via major highways and rail, including the Fort Frances–International Falls bridge. Long-distance trucking and rail service for mining and forestry add to transport-related emissions. However, other service areas with mines such as Sudbury, are below the national average. This is largely due to the connection of most mines in Ontario to the Ontario power grid. Of the energy in the grid, 94% of electricity is produced from clean-energy sources, allowing for development of cleaner, lower-emissions mining compared to other jurisdictions (Government of Ontario, 2022[98]).

Figure 2.25. Northern Ontario districts' emissions intensity

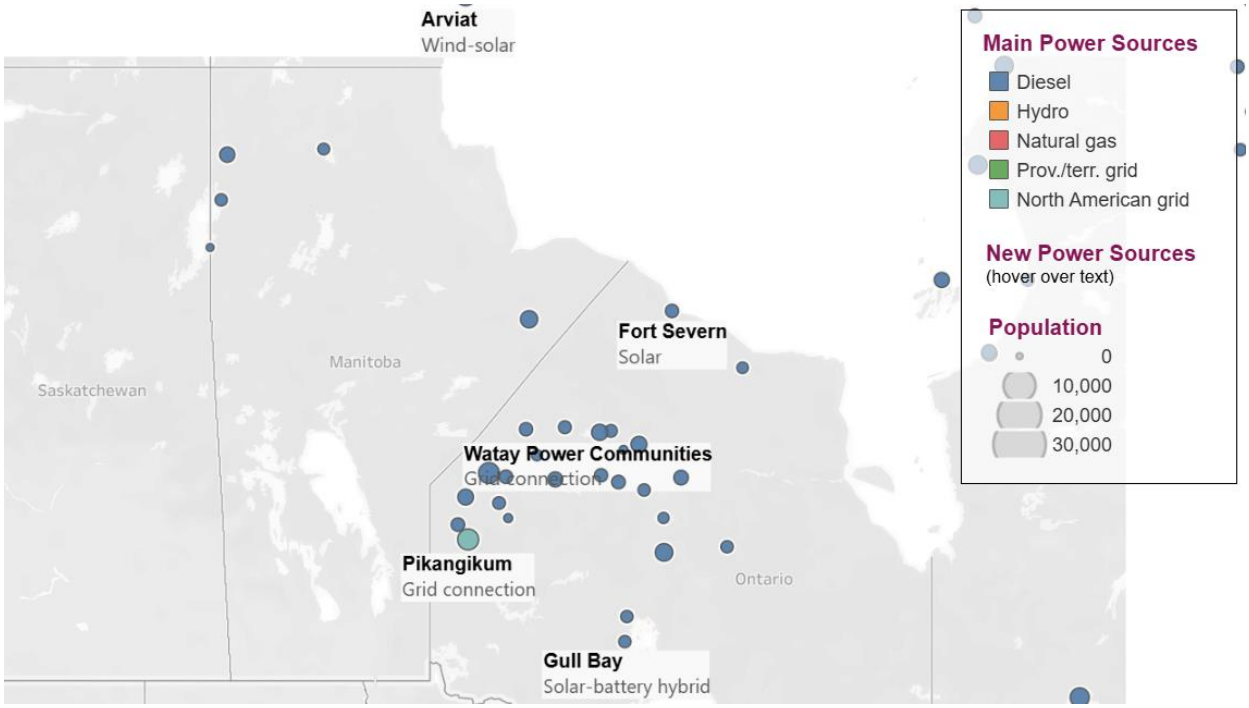
Emissions intensity is measured by tonnes of CO^2 equivalent per gigawatt hour (tCO2eq per GWh).



Note: Saskatchewan emissions intensity is 630 tCO2eq per GWh, which was too high a value to feature in the graph. Manitoba stood at 1.3 tCO2eq per GWh, featured at the very bottom of the graph.
This figure is an unweighted average of emissions intensities (tCO_2eq per GWh) across the 12 census divisions in Northern Ontario. Due to limited availability of electricity generation data at the division level, a weighted average could not be calculated.
Source: OECD author's elaboration

Despite Northern Ontario overall having lower emissions intensity than Canadian and international benchmarks, many Indigenous communities across the region still rely on diesel-generated electricity for space heating and power generation. Across Canada there are 140 remote Indigenous communities that rely on diesel for power generation, with the most (17.8%) located in Ontario and all situated in the North. This is compared with less than 1% in Saskatchewan and 2.8% in Manitoba (Figure 2.26). While diesel has advantages for remote communities due to its reliability and ease of transport, the lack of connection of many remote communities in Northern Ontario to the power grid poses significant environmental challenges (not to mention social challenges such as the cost of fuel and frequent generator failure). Indeed, carbon and particulate pollution that results from burning diesel creates local air quality issues and some homes have had to deal with leaks in their diesel tanks (Rakshit et al., 2019[99]).

Figure 2.26. Map of remote Indigenous and Northern communities in Ontario, Manitoba, and Saskatchewan and their primary source of electricity



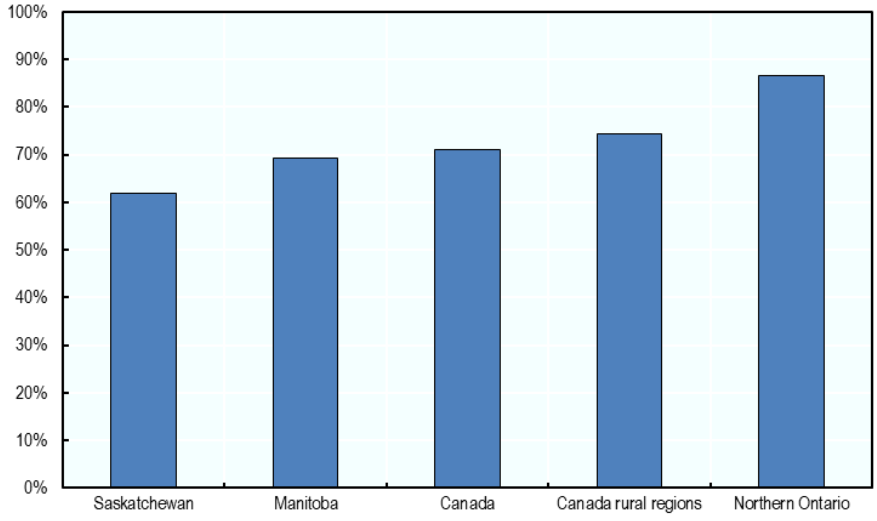
Source: (Statistics Canada, 2025[100])

Industry activity has impacted soil and land-cover, with many abandoned mine sites. Yet Northern Ontario still has a higher share of green area than Canada's rural regions

One significant consequence of mining is landcover disturbance and soil degradation. Existing operations, such as those in the Sudbury Basin, have historically led to severe deforestation, soil acidification, and ecosystem degradation due to emissions from smelting operations and extensive land clearing. Over a century of industrial activity in Northern Ontario has resulted in the ecological disturbance of more than 10 000 hectares of land, with large swaths of vegetation destroyed due to sulphur dioxide emissions and metal contamination (Boerchers et al., 2016[101]). While this is a relatively small proportion of Northern Ontario's land mass, emissions acidified soils with samples from this area revealing copper concentrations ranging from 11 to 1,890 mg/kg and nickel concentrations from 5 to 2,150 mg/kg, levels that are significantly higher than background values and detrimental to plant and microbial life (Dudka, Poncehrenandez and Hutchinson, 1995[102]). This has a significant impact on native species, creating long-term habitat degradation and signalling the impact on the land where industry activity takes place.

Despite the evident soil impacts from industry activity, Northern Ontario performs relatively well on the share of green area cover. The share of land with green area cover in Northern Ontario is approximately 87% compared with approximately 75% across Canada's rural regions and approximately 71% nationally (Figure 2.27). This indicates that despite evident environmental impacts from industry, the region has been able to largely maintain its vast forests, wetlands, and natural landscapes. This does not however, take away from the concentrated environmental impacts on communities located close to mining activity.

Figure 2.27. Share of green areas, 2021



Source: (OECD, 2021[103])

Local government initiatives and partnerships such as the Sudbury Re-Greening Programme have however, been instrumental in ensuring the protection of Northern Ontario's vast green spaces (Box 2.4).

Box 2.4. Sudbury Re-Greening Programme

The Sudbury Regreening Project is one of the most recognised ecological restoration efforts in Canada, aimed at reversing the severe environmental degradation caused by over a century of nickel and copper mining and smelting in the Sudbury Basin. By the 1970s, Sudbury had become one of the most polluted regions in North America, with over 1 000 km² of land stripped of vegetation due to acid rain and toxic metal emissions. In response, a multi-decade regreening initiative began in 1978, led by the City of Greater Sudbury, in partnership with community groups, scientists, and industry.

As of 2020, more than 10 million trees have been planted and 3,400 hectares of barren land have been treated with limestone, fertilizer, and seed to restore soil quality and restore vegetation. This regreening has resulted in increased biodiversity, improved air and water quality, and a dramatic transformation of the once-scarred landscape. Despite these successes, challenges remain, particularly in restoring native species and remediating deeper soil contamination.

Source: (City of Greater Sudbury, 2003[104])

Despite re-greening efforts, the legacies of mining activity in the region have created significant land cover and underground disturbances with mining infrastructure left behind. In Ontario, there are over 5 000 known abandoned and inactive mine site features across the province, many of which are located in Northern Ontario (Government of Ontario, 2024[105]). While these sites can present new opportunities for employment in mine rehabilitation and potential mine tourism, they also often contain hazards, such as open shafts, unstable structures, and contaminated tailings, that are harmful to the environment and reduce the attractiveness of Northern Ontario towns to new residents.

Key figures on abandoned mines in Northern Ontario

Across Northern Ontario, there are:

- 450 open pit/open cut mine features considered an active hazard that have no closure plan
- 331 tailings dam sites considered an active hazard that have no closure plan
- 5 018 mine features including open pits, shafts, quarry, tailings, water towers, and ore stockpiles that are considered an active hazard and have no closure plan

Source: (Government of Ontario, 2024[105]).

Despite the challenges faced by the region with abandoned mine sites and associated site features, the rehabilitation of these areas presents an opportunity for economic development through the creation of tourism and employment opportunities in mine rehabilitation, especially for Indigenous communities.

Industry activity has contributed to water contamination in the region and remote First Nations communities still struggle to access clean drinking water

Ontario is home to about 25% of Canada's wetlands, with a significant concentration in the north (Ontario Nature, 2022[106]) and Northern Ontario is home to over 250 000 freshwater lakes, rivers, and waterways including parts of the Great Lakes basin (Northern Ontario Travel, 2023[107]). These freshwater systems are vital for drinking water, recreation, and supporting aquatic ecosystems.

Water contamination remains a concern in Northern Ontario due to historical and ongoing industrial activities. Industry activity in the region has impacted water bodies leading to the acidification of over 7 000 lakes within a 17 000 km² area, adversely affecting aquatic life (Cooperative Freshwater Ecology Unit, Laurentian University, 2004[108]). For instance, in the town of Cobalt, legacy silver mining has resulted in elevated levels of arsenic and mercury in local water bodies as well as mercury levels in certain species exceeding safe consumption limits (Leung, 2009[109]). Similarly, the mercury contamination in the Wabigoon River system, stemming from industrial discharges from a chemical plant in the 1960s and 1970s, continues to affect communities like Grassy Narrows, with mercury levels in fish remaining dangerously high (Lee et al., 2025[110]).

The unique and vital environmental assets of Northern Ontario including its waterways have been stewarded by First Nations communities since time immemorial. First Nations stewardship is integral to conservation efforts and ecological resilience. Ongoing initiatives such as the Biinaagami project protecting the Great Lakes are essential to preserving local waters (Box 2.5). Furthermore, collaborative initiatives between Indigenous groups, governments, and mining companies are essential for effective environmental management. This is particularly true in the mining sector, where partnerships between companies and First Nations communities allows for the effective monitoring of mining impacts on local environments. For instance, Long Lake 58 First Nation has taken a primary role in environmental monitoring as part of the Definitive Agreement with the Greenstone Gold Mine, ensuring thorough environmental conservation of lakes and waterways in the region (Anishinabek News, 2019[111]).

Box 2.5. Biinaagami initiative

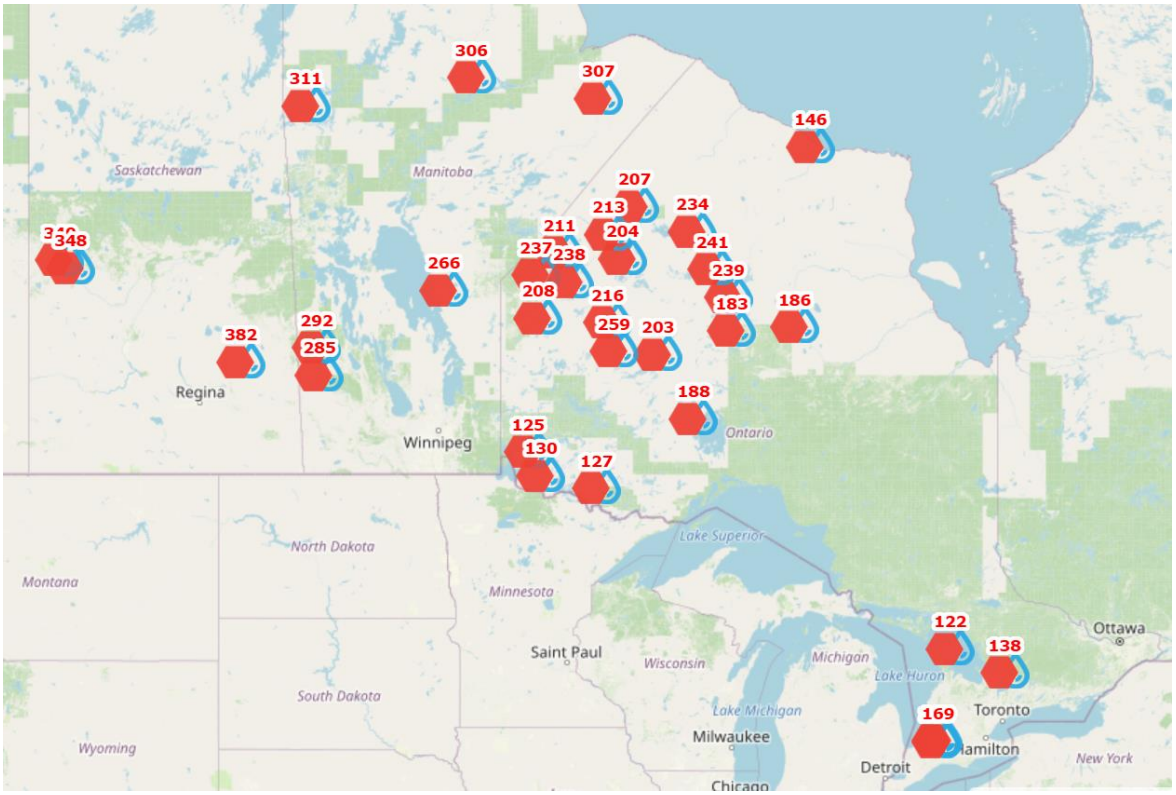
Biinaagami (meaning pure, clean water in Anishinaabemowin) is a collaborative, interdisciplinary and multimedia project aimed at restoring and protecting the environmental and cultural sustainability of the Great Lakes region. The initiative emphasises a 'two-eyed seeing approach' harmonising Indigenous and western sciences.

The Biinagami giant floor map is an immersive tool allowing viewers to traverse the majestic watershed to understand its geography, history and cultures. Through augmented reality, this map will serve as a portal to myriad narratives, commencing with the Water Walkers, who exemplify the connection of First Nations peoples with these waters.

Source: (Canadian Geographic, 2023[112])

Despite First Nations' significant contributions to environmental stewardship across the region, these communities are often the most negatively impacted by environmental degradation including water contamination issues that are largely a consequence of industry activity. Recent studies have detected the presence of toxic PFAS chemicals in the Great Lakes basin in Northern Ontario. Pollution occurring within the region has led to increasingly difficult living conditions for many First Nations communities in Northern Ontario, particularly due to drinking-water advisories and diesel reliance. Northern Ontario has the highest concentration of drinking-water advisories (warnings regarding contamination of drinking water) across Canada. In Ontario, there are 27 long-term drinking water advisories on First Nations reserves, 23 of which are located in the North. This is significantly higher than the number of advisories in other areas of Canada, compared with six in Manitoba and two across the province of Saskatchewan, as laid out in Figure 2.28. This has been a significant issue for Northern First Nations communities spanning decades with some communities such as Neskantaga, under drinking-water advisories for over thirty years, the longest in Canada.

Figure 2.28. Drinking water advisories Ontario, Manitoba and Saskatchewan



Source: (Government of Canada, 2025[113])

Conclusion

Northern Ontario is a strategically important region for Canada's low-carbon transition, offering a wealth of critical minerals, ecological assets, and Indigenous knowledge. The mining sector has delivered clear economic benefits in subregions with high specialisation, supporting higher incomes, lower unemployment, and stronger labour market outcomes for both Indigenous and non-Indigenous populations. In particular, mining subregions have enabled Indigenous Peoples to close income gaps at faster rates than in non-mining subregions of Northern Ontario.

However, these gains have not always translated into broad-based regional development. Population decline, youth outmigration, and high unemployment persist, particularly in areas lacking economic diversification. Social challenges remain acute for Indigenous Peoples, who continue to face structural barriers in housing, healthcare, and education. These challenges are most severe in remote and fly-in communities. While Northern Ontario outperforms benchmarks on tertiary education and emissions intensity, the region continues to grapple with environmental legacies, including contaminated water, abandoned mines, and diesel reliance, which are once again worse for remote First Nations communities.

Unlocking the region's full potential requires a more inclusive and coordinated approach to development. This means building stronger partnerships with First Nations, improving infrastructure and service delivery in remote areas, and aligning workforce, education, and innovation policies with long-term economic goals, topics which will be discussed in Chapters 3 and 4. With the right investments and governance, Northern Ontario can move beyond resource dependence toward a more resilient, equitable, and sustainable future.

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Notes

[1] The GDP per capita for OECD mining regions is available for 2018. It was calculated in USD (USD 40 312) and converted to CAD against the exchange rate as of 02 May 2025.

[2] Unemployment for 2025 is calculated using statistics for Northeast and Northwest Ontario. These Economic Regions do not include Muskoka District that is included in other analyses of this paper

[3] Tertiary educated refers to the total number of individuals with their highest certificate, diploma, or degree including College, CEGEP or other non-university certificate or diploma, university certificate or diploma below bachelor level, and bachelor's degree or higher (including master's and PhD).

Annex 2.A. Terminology related to indigenous peoples in Canada

Annex Box 2.A.1. Indigenous terminology

The original Nations and Peoples of what is now Canada include the Mi'kmaq, Mohawk, Anishinabek, Cree, Dakota, Piikani, Kainaiwa, Inuit, Dene, Haida Nations and many others. Today, for official purposes and in relation with modern state institutions, other names for them have come into use:

- The collective noun 'Indigenous Peoples', analogous to the term 'European', is used to refer to the descendants of all of the original nations and Peoples of northern North America.
- The synonymous term 'Aboriginal Peoples' is still used in the Canadian Constitution, though under the influence of the United Nations Declaration on the Rights of Indigenous Peoples and international law it is being supplanted.

Both terms 'Indigenous' and 'Aboriginal' are artefacts of the arrival of European settlement, useful for distinguishing the societies that were here from the societies of the new arrivals who began to settle around 500 years ago, but otherwise concealing important national and cultural differences.

While the most salient and accurate terms are the names used by Indigenous Nations and Peoples to identify themselves, for the purposes of statistical record keeping, program eligibility, and some political processes, other distinctions have been created. The Constitution Act (1982) in Section 35 recognises 'the existing aboriginal and treaty rights of Indians, Inuit and Métis'. It is generally accepted that these three constitutional categories exhaust the possible ways of being Indigenous, although in most parts of Canada, the term 'Indian' has been replaced by 'First Nation'.

An older distinction survives, and still has practical effect. This is the legal distinction between people who have 'status' under the Indian Act, and those who do not. Someone who has status is registered on a list maintained by the Department of Crown-Indigenous Relations and Northern Affairs Canada and the Department of Indigenous Services (hence the near synonym for Status Indian, 'Registered Indian'). A person who is so registered is usually but not necessarily a member of an "Indian Band," and is subject to the federal Indian Act. The Indian Act assigns 'province-like' responsibilities for Status Indians' health, education and social welfare provision to the federal executive branch, even while it makes Status Indians subject to provincial laws of general application. Importantly, people subject to the Indian Act also, for decades, did not have the rights of full Canadian citizens (e.g., no right to vote in federal elections until 1960). Status Indians are also subject to Band Council bylaws, which is another jurisdictional layer that creates uncertainties around application in specific contexts (e.g., provincial/territorial hunting regulations versus Band Council conservation bylaws).

The other two constitutional groups, Inuit and Métis, were never registered under the Indian Act, although both have been subject to now-abandoned enrolment procedures. Métis, who are members of an Indigenous society that developed in the western Canadian plains during the 18th century, were never subject to registration or the Indian Act. Métis individuals were listed during the late 19th century during as an attempt at the settlement of their land rights through the issuing of 'scrip', which entitled them to land or a cash settlement. Outside of the Indian Register, there can be some debate about specific individuals' claims to Indigenous identity.

Source: Adapted from OECD 2020. Linking Indigenous Communities with Regional Development in Canada. OECD Publishing, Paris.

Annex 2.B. Identification methodology for OECD mining regions

The OECD Mining Regions Toolkit uses the following methodology to identify areas in OECD countries to classify as a 'mining region (OECD, 2022[4]):'

1. Identify the small regions in the OECD country (Territorial Level 3). The OECD has more than 2 400 TL3 regions in its 38 member countries. The distribution of these regions by country is a mix of statistical and administrative boundaries that are at a geographically comparable scale and consistent with national classifications. Thus, the segmentation of the country into these territories is consistent for the cross-country analysis. The OECD territorial classification provides a list of all TL3 regions for OECD countries.
2. Defining regional mining specialisation based on employment location quotients (LQ).
3. The degree of regional specialisation in mining is obtained by comparing the share of mining employment in the region with the share of mining employment in the country.
4. A value of LQ above one implies that the region is more specialised than its respective country. The employment specialisation in mining, based on LQ values, is ranked from highest to lowest. The threshold selected to categorise a mining region is an LQ above 1.5, so a region is considered to be specialised if it exceeds 50% of the country's mining specialisation. Applying this threshold to the sample of OECD TL3 regions, 360 OECD regions are 1.5 times more specialised in mining than their own country.

Final adjustment based on desk research. To build a geographically balanced benchmark and control by country effects of the LQ (e.g. countries highly specialised in mining with a relatively even geographical distribution of the activity), the methodology assigns the regions with a higher LQ than the benchmark by following the country's weight in total OECD mining employment. In other words, the number of regions in the benchmark is in line with the share of the country's mining employment in the total number of mining workers across the OECD. A desktop research process examines each selected region to ensure there is a good geographical balance in the benchmark (and avoid overrepresentation of a given country). As a result of this process, 50 mining regions constitute the OECD mining regional benchmark.

Annex 2.C. Complete processing mines Northern Ontario

Annex Table 2.C.1. Complete list of Northern Ontario Mining Operations

Map number corresponds to Figure 1.2.

Map number	Name	Company
Gold Mines		
1	Bell Creek Mine	Pan American Silver Corp. – Lake Shore Gold Corp.
2	Black Fox Mine (Fox Complex)	McEwen Mining Inc.
3	Borden Mine	Newmont Corp. – Porcupine Gold Mines
4	Côté Mine	IAMGOLD Corp.
5	Detour Lake Mine	Agnico Eagle Mines Ltd.
6	Eagle River Mine	Wesdome Gold Mines Ltd.
7	Greenstone Mine	Equinox Gold Corp.
8	Hollinger Mine	Newmont Corp. – Porcupine Gold Mines
9	Hoyle Pond Mine	Newmont Corp. – Porcupine Gold Mines
10	Island Gold Mine	Alamos Gold Inc.
11	Macassa Mine	Agnico Eagle Mines Ltd.
12	Magino Mine	Alamos Gold Inc.
13	Musselwhite Mine	Orla Mining Ltd.
14	Rainy River Mine	New Gold Inc.
15	Red Lake Mine	Evolution Mining Ltd. – Red Lake Gold Mines
16	Timmins West Mine	Pan American Silver Corp. – Lake Shore Gold Corp.
17	Williams Mine	Barrick Gold Corp.
18	Young – Davidson Mine	Alamos Gold Inc.
Base Metal Mines		
19	Fraser Mine	Glencore PLC – Glencore Canada Corp.
20	Kidd Creek Mine	Glencore PLC – Glencore Canada Corp.
21	McCreedy West Mine	Magna Mining Inc.

22	Sudbury Operations: Coleman Mine, Copper Cliff Complex, Creighton Mine, Garson Mine, Totten Mine	Vale S.A. – Vale Canada Ltd.
Platinum Group Metal Mines		
24	Lac des Iles Mine	Impala Platinum Holdings Ltd. – Impala Canada Ltd.
Major Industrial Mineral Operations		
6	Penhorwood Mine (talc)	Margis Talc Canada Inc.

Source: (Ontario Mining Association, 2025[25])

3 First Nations leadership and engagement in mining in Northern Ontario

This chapter explores relationships between diverse First Nations, governments and the mining industry, with recommendations on how to create more equitable and sustainable outcomes for First Nations rightsholders in Northern Ontario. It first describes Indigenous rights recognition within Canadian mineral-related laws. Then, it examines the challenges and opportunities faced by First Nations in engaging with mining operations in Northern Ontario, and the mining industry's environmental, social, and economic impacts. Finally, it proceeds to outline Indigenous-led pathways for sustainable futures, organised into four themes: rights, planning and capacity building, access and inclusion, and partnerships.

Box 3.1. Key findings and recommendations

Northern Ontario has made important strides in strengthening dialogue and partnerships between First Nations and the mining sector in recent decades including numerous initiatives by government and private sector to advance opportunities for First Nations. Yet, despite this and the wealth created by mining activities in the region there are still communities that lack access to drinkable water, reliable electricity, and affordable housing (Chapter 2). The renewed surge of mining activity in Northern Ontario combined with growing social and market pressure for responsible projects presents an opportunity to strengthen First Nations' engagement and benefits and help close persistent socio-economic gaps.

In recent decades, Canada and the province of Ontario have promoted numerous rights-based, partnership-driven approaches in mining engagements with First Nations. Amendments to Ontario's 2009 Mining Act introduced mandatory consultation and enhanced cultural protections. At the federal and provincial levels, targeted funding programmes, such as the Indigenous Natural Resource Partnerships Program and Ontario's Indigenous Opportunities Financing Program, are strengthening First Nations' business capacity and participation in mining governance. Loan guarantee schemes have expanded access to capital, enabling communities to secure equity stakes and take part more fully in large-scale resource and infrastructure projects, if they so desire.

Northern Ontario already offers notable examples of First Nations' active participation in the region's mining sector, including equity ownership in projects, First Nations-led environmental monitoring, and economic coalitions including First Nations. Company-led programmes on transparency, respect for Indigenous knowledge, and shared prosperity are also leading practices in the region. As Canada advances its commitment to align domestic laws with the UN Declaration on the Rights of Indigenous Peoples (UNDRIP), these federal and provincial practices position Ontario as a good example in promoting Indigenous rights in the mining sector across the OECD.

Advances in mining for development and economic competitiveness should be carried out in order to ensure that First Nations also benefit from these developments. Approaches to streamline permitting and speed up projects, such as Ontario's Bill 5 "Protect Ontario by Unleashing our Economy Act, 2025" need to be carefully implemented to ensure meaningful Indigenous engagement in mining projects' approvals and implementation. Furthermore, Ontario's Mining Act has scope to be further strengthened as a mechanism to support meaningful engagement including addressing some exemptions of brownfield sites from consultation, gaps in access to environmental data, and better aligning the provincial legal framework with Free, Prior, and Informed Consent (FPIC) of the UNDRIP in all stages of mineral development. This means actively involving First Nations representatives in shaping permitting, regulatory, and legislative reforms.

As mining accelerates, support mechanisms for First Nations must also expand. Complex government processes and insufficient outreach continue to hinder access to capital and procurement opportunities, highlighting the need for support to combat consultation fatigue. Additionally, continued efforts are needed to mitigate risks from mining, including environmental contamination from mine tailings and abandoned sites, violence against Indigenous women and girls in mining zones, and disruption of traditional land uses.

Ontario has the potential to demonstrate further leadership in promoting responsible mining that upholds Indigenous rights and brings real and lasting benefits to communities, which would also increase investment predictability and project sustainability.

Main Recommendations

- Rights to Land, environment, and safety
- Ensure Indigenous rights are protected in mining related laws and contracts, by:
  - Building on existing Indigenous engagement protocols from the public and private sector in collaboration with First Nations across Ontario to provide a formal mechanism for guiding companies towards securing FPIC. While many companies already carry out activities to achieve FPIC (to varying degrees), a formalised mechanism can provide all companies, especially those in exploration phases and those who are not currently members of frameworks such as Towards Sustainable Mining (TSM), with a guideline and set of monitoring principles to strengthen FPIC across the region and move closer to aligning provincial activities with UNDRIP.
  - Developing mechanisms for Indigenous co-management of abandoned mine site reclamation (accessible for communities that wish to be involved), including participation in decision-making, oversight, and integration of traditional knowledge in risk assessments and monitoring.
  - Evaluate amendments to Ontario's Mining Act to encourage consultation and benefit-sharing for expansions of existing (brownfield) mines and patented lands, which are in some cases exempt. To reduce consultation fatigue for First Nations, each Impact-Benefit Agreement can specify the preferred thresholds of that particular First Nation for amendments to brownfield sites that will trigger consultation, ranging from all amendments to only major changes.
- Improve transparency and access to environmental information related to mining projects, by:
  - Updating Ontario's Abandoned Mines Information System (AMIS) to include regular, up-to-date field assessments, a functional risk-ranking tool with transparency on risk-ranking assignment, comprehensive tracking of hazards, integration of Indigenous knowledge, and public accessibility.
  - Promoting a common system for easy access to information about the status of implementation of standards for responsible mining (e.g. Towards Sustainable Mining) and transparency on their monitoring. The system could further show whether the standards adopted on a particular project include clear guidance on how FPIC is obtained, and how Indigenous knowledge is integrated into environmental monitoring and governance.
- Enhance safety for Indigenous people in mining communities and operations, by:
  - Considering adopting an already established Indigenous gender-based safety framework at the provincial level (such as IGBA+). It can be used for monitoring to address safety risks for Indigenous women, girls, Two-Spirit, and gender-diverse individuals.
  - The framework can include creating governance and reporting frameworks (e.g., task forces), through cooperation of industry and government and First Nations, for ongoing monitoring and assessment of safety issues. It should include community-based incident reporting systems, especially in vulnerable regions to address anticipatory planning, funding for the diversity of safety issues and Indigenous-led training and data collection for safety frameworks.
- Strengthen capacity building for First Nations organisations to ensure communities can fully benefit from mining project opportunities, by
  - Supporting capacity development in the sector by building on existing training workshops tailored to First Nations communities and organisations/businesses (e.g., support a train-the-trainer model for in-community program delivery). This includes leveraging the region's

education and training institutions to provide resources to address individual community's capacity needs, with access to more in-depth training programmes.

- Increasing capacity and knowledge/information within communities specifically on the topic of accessing equity ownership in mining projects and supply chains, if desired, through tailored training programmes.
- Evaluating with First Nations their desire to expand Indigenous Guardians programs into mining regulatory frameworks to include First Nations knowledge in safeguarding the environment. Federal and provincial governments, in collaboration with the mining industry and First Nations should include Guardians' participation in environmental assessments, permitting, and compliance monitoring, ensuring that both Traditional Knowledge and scientific data are used in decision-making. Indigenous-led environmental stewardship frameworks could help guide project assessments and ongoing monitoring, focusing on cumulative impacts over the project lifecycle and planning across environmental, health, and social risks.

- Ensure opportunities for First Nations co-ownership/equity in mining projects if desired, by
  - Strengthening and ensuring viability of funding programs to enable communities to participate in mining project ownership if desired. Utilise programmes such as such as Ontario's Indigenous Participation Fund and New Relationship Fund and the federal Indigenous Natural Resource Partnerships Program, particularly for communities with moderate or emerging mineral activity.
  - Ensuring loan guarantee programs at both federal and provincial levels (e.g., Canada's Indigenous Loan Guarantee Program and Ontario's Indigenous Opportunities Financing Program) support both new (greenfield) and existing (brownfield) projects.
  - Considering facilitating information mechanisms to support partnerships between companies and First Nations communities that prioritise offering equity stakes to First Nations in new projects at both the pre-Final Investment Decision (pre-FID) and post-FID stages of project development.
  - Exploring the viability of a First Nations Resource Charge to allow First Nations to opt in and agree with government and industry a pre-specified charge on resource development projects within their traditional territories. This approach can assist with providing communities with stable and predictable revenues, while also streamlining negotiations and improving predictability for companies. The First Nations Tax Commission have been exploring such an approach.
  - Resourcing research on innovative models of Indigenous co-ownership that can contribute to de-risking operations for First Nations communities in Northern Ontario.
- Enhance access and inclusion of First Nations in decision making and business opportunities, by
  - Ensuring procurement policies advance Indigenous economic development and reconciliation as co-operation among governments, Indigenous and companies, as previously recommended by the 2019 OECD report *Linking Indigenous Communities with Regional Development in Canada*, by:
    - Evaluating with First Nations and companies the development of clear Indigenous procurement targets, and policies, potentially utilising the Indigenous Business Definition developed by National Indigenous organisations.
    - Where First Nations rightsholders express interest, considering procurement quotas for Indigenous-owned firms in remediation contracts, with verified Indigenous-owned

businesses, and a dedicated legacy remediation fund, co-managed with Indigenous partners to address high-risk sites.

- Promoting opportunities for the optional inclusion of First Nations in mining project decision-making. While some agreements between First Nations and mining companies already include project decision-making roles and regular feedback mechanisms, sector-wide consistency and accountability could increase the credibility of sustainability efforts that are part of mining projects.
- Expanding and fund Indigenous-led land-based learning programmes, including Indigenous Guardians and culturally grounded training initiatives, by supporting the development of region-specific curricula, Indigenous-led training hubs, and partnerships with educational institutions and mining companies, ensuring these programmes blend traditional knowledge with technical mining skills, use cohort-based models, and provide hands-on, community-based learning opportunities that foster self-determination, environmental stewardship, and workforce readiness for diverse roles in mining.
- Supporting engagement of Northern Ontario First Nation communities to join international Indigenous networks and international platforms on mining policy.

- Strengthen partnerships and collaboration between Nations where desired, by
  - Expanding the Comprehensive Community Planning initiative to support regional planning in addition to community level plans.
  - Enhancing the role of Indigenous Financial Institutions to include support for strategic planning activities.
  - Investing in optional mechanisms to increase collaboration among First Nations and municipalities through joint training, shared resources, and collaborative economic development initiatives, such as the Community Economic Development Initiative (jointly run by the Council for the Advancement of Native Development Officers and the Federation of Canadian Municipalities), to strengthen both communities and facilitate joint projects.
  - Having annual regional mining roundtables involving First Nation and industry leaders to build relationships and encourage dialogue amongst these parties.

Introduction

Northern Ontario is situated on the traditional territory of the Anishinaabe peoples, including the Ojibwe, Odawa, Potawatomi, Saulteaux, Algonquin, as well as the Cree and Oji-Cree Nations. These Nations have stewarded the land since time immemorial. Section 35 of the Constitution Act, 1982 recognises and affirms the existing Aboriginal and treaty rights of Indigenous peoples in Canada including the inherent right of self-government (see Box 3.2 for overview of terminology). First Nations governments exercise this jurisdiction through their laws, policies, and practices. The Government of Ontario views the expansion of mining as a driver to bring multigenerational opportunities to Northern Ontario, including First Nations communities. It has taken early legal and policy steps to improve relations between First Nations and the mining sector, notably through the 2009 amendments to Ontario's Mining Act, which introduced requirements for consultation and recognition of Indigenous rights in mining exploration and developments (Ma'lingan, 2012[1]). While the direct benefits of mining to First Nations are difficult to quantify due to the confidentiality of agreements[1], census data shows that Indigenous Peoples living in mining-specialised subregions of Northern Ontario have higher incomes and employment growth compared to those in non-mining areas (Chapter 2). By the end of 2024, Indigenous workers made up roughly 15% of Northern Ontario's mining workforce, thus reflecting their considerable involvement in the sector.

Despite legislative and policy advancements and the aforementioned economic gains, the wealth generated by mining has disproportionately benefited companies and non-Indigenous populations, with persisting gaps in economic and social well-being indicators between First Nations and other communities in the region (Chapter 2). Challenges include impacts on health (mental, physical, emotional, spiritual), traditional land use, environmental stewardship, and community safety.

This chapter explores relationships between diverse First Nations, governments and the mining industry in Northern Ontario, and proposes recommendations to create more equitable and sustainable outcomes for First Nations rightsholders. It does so while respecting and acknowledging inherent Indigenous sovereignty: First Nations speak for themselves and there is a diversity of perspectives. Firstly, the chapter outlines Indigenous rights recognition within Canadian mineral laws. Then, it explores the challenges and opportunities faced by First Nations in the mining context of Northern Ontario, including mining's impact on environmental, social, and economic aspects of life the region. Finally, it outlines Indigenous-led pathways for sustainable futures with regards to rights (land, environmental, culture and safety), planning and capacity building, access and inclusion, and partnerships. These pathways encompass strategies such as aligning mining laws with FPIC principles, enhancing Indigenous regional planning, ensuring access to expertise and capital, promoting Indigenous recruitment and retention in the mining sector, and fostering Indigenous equity ownership in major projects.

Canada's Constitution recognises three distinct Indigenous groups: First Nations (formerly referred to in law as "Indians"), Inuit, and Métis. In Northern Ontario, land and resource rights are primarily held by First Nations through historic treaties, while Métis communities also hold recognised rights related to harvesting (Government of Canada, 2022[2]). Accordingly, the term "First Nations" will be used when referring to assessments, policies or activities relating specifically to land rightsholders in Northern Ontario, including engagement with mining projects. The broader term "Indigenous Peoples" will be reserved for general usage, such as statistics (which include all Indigenous Peoples residing in Northern Ontario), official federal and provincial programmes, or references to international best practices.

The findings and recommendations of the report with regards to First Nations reflect the scope and research capacities of the process, drawing mainly on insights from the Nations interviewed, the First Nations that provided feedback and research literature. The report does not capture the experiences of all 90+ Nations in the region and does not intend to represent a unified voice of all First Nations in Northern Ontario.

Box 3.2. Terminology

The original Nations and Peoples of what is now Canada include the Mi'kmaq, Mohawk, Anishnabe, Cree, Dakota, Piikani, Kainaiwa, Inuit, Dene, Haida Nations and many others. Today, for official purposes and in relations with modern state institutions, other names for them have come into use:

- The collective noun 'Indigenous Peoples', analogous to the term 'European', is used to refer to the descendants of all of the original nations and peoples of northern North America.
- The synonymous term 'Aboriginal Peoples' is still used in the Canadian Constitution, though under the influence of the United Nations Declaration on the Rights of Indigenous Peoples and international law it is being supplanted.

Both terms 'Indigenous' and 'Aboriginal' are artefacts of the arrival of European settlement and are useful for distinguishing the societies that were here from the societies of the new arrivals who began to settle the vast region around 500 years ago but otherwise concealing important national and cultural differences.

While the most salient and accurate terms are the names used by Indigenous Nations and Peoples to identify themselves, for the purposes of statistical record keeping, programme eligibility, and some political processes, other distinctions have been created. The Constitution Act (1982) in Section 35 recognises 'the existing aboriginal and treaty rights of Indians, Inuit and Métis.' It is generally accepted that these three constitutional categories exhaust the possible ways of being Indigenous, although in most parts of Canada, the term 'Indian' has been replaced by 'First Nation'.

An older distinction survives and still has practical effect. This is the legal distinction between people who have 'status' under the Indian Act, and those who do not. Someone who has status is registered on a list maintained by the Crown-Indigenous Relations and Northern Affairs Canada and the Indigenous Services Canada (hence the near synonym for Status Indian, 'Registered Indian'). A person who is so registered is usually, but not necessarily, a member of an "Indian Band," and is subject to the federal Indian Act. The Indian Act assigns 'province-like' responsibilities for Status Indians' health, education and social welfare provision to the federal executive branch, even while it makes Status Indians subject to provincial laws of general application. Importantly, people subject to the Indian Act also, for decades, did not have the rights of full Canadian citizens (e.g. no right to vote in federal elections until 1960). Status Indians are also subject to Band Council bylaws, which is another jurisdictional layer that creates uncertainties around application in specific contexts (e.g. provincial/territorial hunting regulations versus Band Council conservation bylaws).

The other two constitutional groups, Inuit and Métis, were never registered under the Indian Act, although both have been subject to now-abandoned enrolment procedures. Métis, who are members of an Indigenous society that grew up in the western Canadian plains during the 18th century, were never subject to registration or the Indian Act. Métis individuals were listed during the late 19th century during an attempt at the settlement of their land rights through the issuing of 'scrip', which entitled them to land or a cash settlement. Outside of the Indian Register, there can be some debate about specific individuals' claims to Indigenous identity.

Source: (OECD, 2019[3])

First Nations governance and rights in a mining context

The governance of mineral exploration and Indigenous rights

The governance of mineral development involves the interplay of Indigenous rights, policies and protocols, federal and provincial governance, and evolving legal frameworks. First Nations have inherent rights which exist independent of any Crown authority and include the right to self-determination. Treaty rights, like the right to hunt or fish, are protected under the Constitution and based on treaties signed between First Nations and the Crown. Treaties and their affirmation in the Constitution Act 1982 and subsequent jurisprudence provide the legal foundation for the multiple processes of self-determination currently underway.

Six primary treaties between Indigenous Peoples and the Crown cover Northern Ontario. The Robinson Treaties, signed in 1850, include the Robinson-Superior Treaty and the Robinson-Huron Treaty, which cover areas around Lake Superior and Lake Huron, respectively. These treaties were negotiated to address concerns over mining development in the region. Treaty 3, also known as the North-West Angle Treaty, was signed in 1873 and covers northwestern Ontario, including areas like Kenora and Sioux Lookout. Treaty 5, signed in 1875, extends into a small portion of Ontario, although it primarily covers Manitoba. The largest treaty in the province is Treaty 9, also known as the James Bay Treaty, which was signed in 1905-1906 and covers much of Northern Ontario, including the land directly south of James Bay.

Treaty 9 involves Cree and Anishinaabe peoples and was created to open up Northern Ontario for settlement and resource development. The Ring of Fire is on Treaty 9 territory. These treaties collectively shape the legal and political landscape of Indigenous rights and land use in Northern Ontario.

The Government of Canada has a direct relationship with Indigenous Peoples as described in Section 35 of the Constitution Act 1982 and in different pieces of legislation and agreements, which govern these relations.[2] Of critical importance is the *Indian Act*, which has governed and controlled virtually every aspect of the lives of Status Indians. The *Indian Act* was an instrument of containment and control, aimed at the extinction of Indigenous Peoples as peoples and is irredeemable. It is widely recognised that the lineaments of the unjust period of colonialism are baked into every section and clause of the act (OECD, 2019[4]).

While the federal government has direct relations and obligations to Indigenous Peoples in Canada, Indigenous Peoples' relations with provincial governments vary.

- For those living on reserves, the federal government provides funding and support for essential services, including healthcare, education, child and family services, housing and infrastructure; managing financial matters such as taxation, negotiating and implementing treaties, self-government agreements, and land claims; and maintaining the Crown duty to consult and accommodate First Nations regarding their rights and interests in land and resources. These responsibilities are primarily exercised through Indigenous Services Canada and Crown-Indigenous Relations and Northern Affairs Canada, though practical delivery often overlaps with provincial and territorial governments, leading to complex and sometimes ambiguous jurisdictional arrangements.
- For those living off reserve, provinces and territories provide services such as education, health care, child welfare, policing, and skills and employment programmes, through laws and programmes of general application that apply to all residents. While provincial-territorial Indigenous relations may not be directly legislated, all provincial and territorial governments have departments or agencies devoted to maintaining a relationship with Indigenous residents. In Ontario, this is the purview of the Ministry of indigenous Affairs and First Nations Economic Reconciliation (IAFNER), but other Ministries also have units focused on Indigenous engagement. For example, Ontario's Ministry of Energy and Mines has an Indigenous Consultation and Partnerships Branch.

Under constitutional law, Provinces have primary jurisdiction over mineral exploration, extraction, development, and management within their territories, as well as private property and land-use regulation. The Government of Ontario's mineral development is primarily regulated by the *Mining Act*, which establishes the process for staking claims, exploration, and mine development and closure. The federal government's role is more limited, focusing on matters indirectly impacting mining such as foreign investment and competition restrictions, as well as mining activities in the territories (where devolution of responsibilities to the territorial government is not yet in effect) and on federal lands. Environmental regulation and taxation related to mining are shared responsibilities.

However, the Impact Assessment Act (IAA), which is a federal act, applies when a mining project becomes a federally "designated project." Project types included on the Project List are those that are determined to have the greatest potential for adverse and complex effects in areas of federal jurisdiction related to the environment and are called designated projects. Examples of designated projects on the Project List include marine terminals, nuclear facilities and major mines (Government of Canada, 2025[5]). IAAC uses a model of consultation with Indigenous Peoples that aims to achieve free prior and informed consent. This model is aligned with the Federal Government's commitment to implement UNDRIP and advance reconciliation (Government of Canada, 2025[6]).

The duty to consult and, where appropriate, accommodate Indigenous Peoples is a constitutional obligation for both levels of government before taking actions that may affect Aboriginal or Treaty rights.

Furthermore, Canada, along with all OECD countries, is a signatory to the 2007 United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), which established the principle of Free, Prior, and Informed Consent (FPIC) as an international norm that ought to guide relations between Indigenous Peoples, states, and extractive industries. The principles of FPIC pertain to multiple articles under UNDRIP including on the relocation of Indigenous Peoples (Article 10); on the right to practice and revitalise laws, traditions and customs (Article 11); the right to redress for lands, territories and resources that have been confiscated, taken, occupied, used or damaged (Article 28). Article 32 has particular pertinence in the context of mining activities. It asserts that:

- Indigenous Peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources.
- States shall consult and co-operate in good faith with the Indigenous Peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilisation or exploitation of mineral, water or other resources.
- States shall provide effective mechanisms for just and fair redress for any such activities, and appropriate measures shall be taken to mitigate adverse environmental, economic, social, cultural or spiritual impact (United Nations General Assembly, 2006[7]).

The Government of Canada adopted the *United Nations Declaration on the Rights of Indigenous Peoples Act* in 2021 (Government of Canada, 2021[8]). The Act includes commitments to developing and implementing an action plan to achieve the objectives of the UN Declaration, taking measures to ensure federal laws are consistent with it, and tabling annual progress reports in Parliament. Its purpose is to create a roadmap for reconciliation, promoting mutual respect and understanding between Indigenous and non-Indigenous Canadians. While the Act's obligations apply specifically to the federal government, it recognises that provincial and territorial governments have their own approaches to implementing the Declaration. To date, only British Columbia (BC) and the Northwest Territories (NWT) have adopted provincial/territorial legislation to implement UNDRIP, in 2019 and 2023 respectively (Box 3.3).

Ontario has also incorporated various mechanisms to respect Indigenous rights:

- In 2009, the Government of Ontario revised the *Mining Act* to better address First Nations rights by requiring mandatory consultation with Indigenous communities at key stages of mining exploration and development, introducing provisions to protect culturally significant sites from mining activity, and establishing mandatory training for prospectors on Indigenous rights. The amendments also established a dispute resolution process and encouraged partnerships between mining companies and First Nations.
- Since 2018, the province established a consolidated and expedite process to involve early First Nation in exploration activities on their territories. A 'One Window' Coordination Process allows prospectors and mining companies in Ontario to stake claims facilitated by a digital claim-staking process.[3] When a proponent submits an exploration plan for a 30-day exploration permit, the Ministry of Energy and Mines identifies and notifies potentially affected First Nations within five days (by email), providing them with details of the proposed activities. These communities then have three weeks to raise concerns about possible impacts on their Aboriginal or Treaty rights. If concerns are raised, the Ministry of Energy and Mines works with both the community and the proponent to address them. If more time is needed, the Director of Exploration can require the proponent to apply for a permit instead, allowing for further consultation. Additionally, the Director can place a temporary hold on the process to allow more time for consideration of community concerns. Before making a final permitting decision, the Director may also impose additional terms and conditions to mitigate any identified adverse effects on Indigenous rights.

  While this process aims to ensure that Indigenous consultation is integrated into early exploration activities and that concerns can be addressed before work begins, for many First Nations the

volume of claims makes it challenging to respond to them adequately within the prescribed process.

In 2023, Ontario's introduced the *Building More Mines Act* in 2023 (Bill 71), which introduced new "recovery permits" for legacy mine sites, often in areas with unresolved land claims, and enhanced decision-making power to the Minister of Energy and Mines. The act streamlined permitting but raised concerns among Indigenous communities, with Indigenous leaders asserting that the Act prioritises mining industry efficiency over their rights and environmental protections and calling for stronger consent and consultation requirements (Northern Ontaio Business, 2023[9])

Ongoing legal challenges from First Nations who see the Act as undermining their sovereignty and treaty rights, include:

- In August 2025, Marten Falls First Nation filed a statement of claim in Ontario Superior Court against both Ontario and Canada, challenging the constitutionality of Bill 5 (Ontario) and Bill C-5 (Canada). The Nation is seeking interim and permanent injunctions preventing both levels of government from funding or otherwise advancing mining projects in the Ring of Fire, and CAD 300 million in compensation for cumulative damages. The Nation is concerned that the proposed Little Jackfish River hydroelectric project – which would supply power to the mining projects in the Ring of Fire – would be accelerated under the BCA and Bill 5 processes at the expense of environmental impacts and bypass the Indigenous-led process they had been championing. The Nation argues that any development on the Ring of Fire would have major impacts, including making large areas of traditional territory no longer usable for hunting and fishing. This is a departure from the Nation's earlier position on development; as recently as July 2025 they participated in a joint ceremony with Webequie First Nation to symbolise their "shared commitment to an Indigenous-led development process" for the Ring of Fire, with Wyloo company representatives in attendance (Jones, 2025[10]).
- This follows the July 2025 statement of claim, also filed in Ontario Superior Court, by a group of nine Ontario First Nations similarly challenging the constitutionality of Bill 5 and Bill C-5. The group of Nations are seeking an interim injunction preventing both levels of government from allowing the implementation of the statutes, pending a ruling on their constitutionality. It also calls for the repeal of Bill 5 in its entirety, the repeal of the *Building Canada Act* portions of Bill C-5, as well as CAD 100 million in compensation for breach of the Honour of the Crown (Gray, 2025[11]).
- In January 2024, the Chiefs of Ontario, representing 133 First Nations communities, called for a one-year moratorium on mining claims, asserting that the current consultation process is insufficient (Chiefs of Ontario, 2023[12]).
- In July 2024, Grassy Narrows First Nation, also known as Asubpeeschoseewagong Anishinabek, launched a legal challenge against Ontario's Mining Act arguing that the province's mining claims regime is unconstitutional and violates Indigenous rights. The lawsuit seeks to halt the issuance of further mining claims in or near their territory and requests the rescission of existing claims, which currently cover approximately 42 per cent of their interim core area of interest for mining (Cavaluzzo, 2024[13]).
- One month later, six Northern Ontario First Nations (Apitipi Anicinapek Nation, Kitchenuhmaykoosib Inninuwug, Ginoogaming, Attawapiskat, Aroland, and Fort Albany) filed a lawsuit against the province, arguing that the current regime undermines their treaty rights and violates their equality rights under the Canadian Charter of Rights and Freedoms. The legal challenge focuses on three primary issues: i) the automatic recording of mining claims without prior engagement with First Nations under the "free entry" system ('One Window' Coordination Process), ii) the inadequate consultation process regarding exploration on those claims, and iii) the inability of First Nations to protect their lands from these intrusions (ICLG, 2024[14]).

Box 3.3. Implementation of UNDRIP: Provinces and Territories

To date, only British Columbia (BC) and the Northwest Territories (NWT) have adopted provincial/territorial legislation to implement UNDRIP, in 2019 and 2023 respectively. In BC, the government is revising the Mineral Tenure Act (MTA), which involves co-operation and consultation with First Nations, engagement with industry stakeholders, and developing a shared vision for mining reform with the First Nations Leadership Council. It is also implementing a distinctions-based consultation and co-operation process with First Nations to develop and implement these reforms, adhering to UNDRIP principles. This process includes preparing and implementing an action plan and issuing annual progress reports.[4]

However, challenges remain, as evidenced by a 2023 BC Supreme Court ruling (Gitxaala v. British Columbia) that the automatic registration of mineral claims under the Mineral Tenure Act (MTA) violated the Crown's duty to consult under Section 35 of the Constitution Act, 1982. In response, the Government of BC replaced the automatic claim registration with an application-based system that includes consultation with First Nations over a 30-day period, similar to Ontario's system. The adequacy of this application-based system remains contested by some First Nations as well as the BC exploration industry.[5]

In the Northwest Territories, the government has revised the *Mineral Resources Act and Protected Areas Act* to enable consensus-based modes of collaborative governance where Indigenous and public governments operate co-operatively to address shared challenges. Beyond this, the Government of Canada's Northern Regulatory Initiative, led by Crown-Indigenous Relations and Northern Affairs Canada, is working to align mining practices with UNDRIP principles as part of the Canadian Critical Minerals Strategy in Yukon, the Northwest Territories, and Nunavut. This approach focuses on increasing Indigenous participation in resource management processes, supporting collaborative multi-party dialogues to address common regulatory priorities, and advancing regional, baseline, and cumulative effects studies in priority areas. The initiative provides financial support to Indigenous governments and organisations to enable their full and informed participation in land use planning activities and impact assessments for proposed projects.

Other jurisdictions across Canada (Ontario, Quebec, Alberta, Saskatchewan, Manitoba, and New Brunswick) have expressed concerns about implementing UNDRIP, and its potential impact on resource development projects. While the province of Ontario has not adopted legislation to implement UNDRIP, it has developed a consultation framework implementing the duty to consult with Aboriginal communities on mineral exploration and mine production in Ontario. As the legal landscape evolves, federal and provincial/territorial governments are refining their approaches to respect Indigenous rights while managing Canada's significant mineral resources. This could potentially reshape how mining rights are governed in Ontario, ensuring that Indigenous communities have a more substantial say in what happens on their traditional lands.

Source: (BC Ministry of Mining and Critical Minerals, 2025[15]), (Government of Ontario, 2025[16]), (BC Ministry of Mining and Critical Minerals, 2025[15]), (Government of Ontario, 2025[17]).

First Nation governance: Agreements, protocols, and moratoriums

First Nations in Northern Ontario assert their sovereignty by developing their own agreements, protocols, and moratoriums to govern mining activities on their territories. This is rooted in the desire to—as rightsholders—ensure that mining aligns with community values, rights, and long-term well-being. For example:

- Atikameksheng Anishnawbek have established clear consent protocols and require that mining proponents engage directly with the Nation before any development, emphasising equity ownership, participation, and protection of land for future generations.
- Others, like the Wabun Tribal Council, have developed collective negotiation models and governance structures within Impact Benefit Agreements (IBAs) to ensure compliance and maximise benefits. Protocols often include requirements for cultural respect, traditional knowledge integration, and transparent procurement processes to prevent exploitation by non-Indigenous entities.

In other provinces, Nations have developed detailed frameworks to guide mineral exploration and mining activities within their traditional territory, such as the Cree Mining Policy's Eeyou Istchee in Quebec (Box 3.4).

These Indigenous-led frameworks are designed to foster informed decision-making, uphold the principle of FPIC and ensure that mining supports both economic development and the preservation of cultural and environmental values. While these initiatives demonstrate a commitment to self-governance and land protection, they often face implementation challenges due to conflicts with provincial laws and ongoing tensions between Indigenous rights and resource development interests. Settler government laws and regulations define legal obligations for the mining industry that are related to fiscal terms (taxes and royalties), environmental protection, operational standards, health and safety, and social commitments. In parallel, First Nations assert their sovereignty by developing their own laws and protocols to govern mining activities on their territories. The intersection of the two may be spaces of partnership or contestation.[6] Some First Nations, like Grassy Narrows, have implemented land declarations and moratoriums prohibiting mining and exploration without consent.

Box 3.4. The Cree Nation Mining Policy

The Cree Nation Mining Policy in Quebec is a comprehensive framework that governs how mineral exploration and mining activities are conducted within Eeyou Istchee, the traditional territory of the James Bay Cree. Developed through decades of advocacy, the policy is rooted in three pillars: support for mining as a tool for economic and social development, a commitment to sustainable practices, and a focus on transparency and collaboration. The policy affirms that the Cree are not opposed to development, but insist that any mining must respect Cree rights, protect the environment, and deliver tangible benefits to their communities. No mining development can proceed without agreements that address social, economic, and environmental concerns, ensuring that projects align with Cree values and traditional approaches to land stewardship.

The policy also establishes a standardised approach for Cree involvement at every stage of mining, from exploration to closure, and leverages unique governance tools such as the Environmental and Social Protection Regime under the James Bay and Northern Quebec Agreement. This ensures Cree participation in decision-making, environmental assessments, and the negotiation of Impact Benefit Agreements, which secure employment, business opportunities, and long-term community benefits. Recent reforms to Quebec's mining laws further strengthen Indigenous rights by requiring early

engagement, consultation, and authorisation for exploration activities that impact the land, closing previous regulatory gaps and giving the Cree greater influence over resource development.

The importance of the Cree Mining Policy lies in its role as a model for Indigenous rights in mining: it places Indigenous communities at the centre of decisions affecting their lands, ensures their voices are heard from the earliest stages of development, and sets a precedent for responsible, equitable, and sustainable resource management that respects both traditional knowledge and modern economic needs.

Source: (Cree Nation, 2024[18])

Government funding programmes and supports for Indigenous Peoples and businesses in the mining sector

Various levels of government in Canada have created funding programmes to encourage Indigenous engagement and participation in the mining sector. Federal programmes generally emphasise large-scale priorities such as capacity building, infrastructure development, geoscience research, regulatory participation at the federal level, and tax incentives for critical minerals exploration (Table 3.1). Examples include the Indigenous Natural Resource Partnerships Program, the Critical Minerals Infrastructure Fund, and the Critical Minerals Exploration Tax Credit. These federal initiatives tend to offer large, multi-year funding and are designed to align with Canada's overall strategy for critical minerals and Indigenous participation in resource development.

In contrast, Ontario's funding programs are more localised, supporting Indigenous participation in Ontario's regulatory processes, business and economic development, early-stage mineral exploration, and relationship building with mining proponents (Table 3.2). Programmes like the Indigenous Participation Fund and the Ontario Junior Exploration Program are generally smaller and more targeted, with support for specific activities such as hiring mineral development advisors or covering Indigenous participation expenses in exploration projects. The New Relationship Fund (NRF) supports First Nations, Métis communities, and Indigenous organisations efforts to build consultation and engagement capacity and expertise, create jobs, develop business partnerships, improve economic opportunities. Significantly, the Indigenous Opportunities Financing Program (IOFP)—formerly the Aboriginal Loan Guarantee program—triples the Government of Ontario's loan guarantee capacity to CAD 3 billion and expands eligibility beyond electricity to include mining, critical minerals, energy, pipelines, and broader resource development. There are also general funds, such as Ontario's Skills Development Fund, open to a wide range of organisations, that specifically includes Indigenous Peoples and organisations as eligible participants and applicants. In 2024, Agnico Eagle received CAD 10 million to create a comprehensive skills development programme to support the availability of a qualified workforce for their mines, with a priority to train Indigenous Peoples from Northern Ontario First Nations (Agnico Eagle, 2024[19]).

FedNor is the Government of Canada's economic development agency for Northern Ontario, providing funding and support to promote inclusive economic growth across the region. Advancing Indigenous participation in local economies, especially in sectors like mining and critical minerals is a key priority of FedNor. FedNor funds Indigenous-led projects that foster business development, skills training, infrastructure, and job creation (Table 2.1). Recent investments include millions in support for First Nation economic development corporations, mining-focused training programmes, and community infrastructure upgrades. By working closely with Indigenous partners and aligning with federal strategies like the Canadian Critical Minerals Strategy, FedNor works to build long-term, community-driven economic opportunities in Northern Ontario. A number of other federal programmes can be leveraged to support Indigenous participation, such as the Employment and Social Development Canada (ESDC) Indigenous Skills and Employment Training (ISET) Program, the Skills and Partnership Fund (SPF), and the Indigenous Habitat Participation Program (IHPP).

Table 3.1. Selected federal government funding programmes to support Indigenous participation in the minerals and metals sector

Programme Name	Administering Body	Funding Focus	Eligibility	Description
Indigenous Natural Resource Partnerships (INRP) Program	Natural Resources Canada	Capacity building, project advancement, engagement	Indigenous communities, organisations	Supports Indigenous participation in resource development, including mining and critical minerals. Recent funding: CAD 25.5 million for 17 projects.
Critical Minerals Infrastructure Fund (CMIF)	Natural Resources Canada	Infrastructure for critical minerals, Indigenous grants	Indigenous groups, communities	Up to CAD 13.5 million (2024–30) to support Indigenous engagement on and participation in clean energy and transportation projects in critical minerals.
Community Opportunities Readiness Program (ISC)	Indigenous Services Canada	Support for economic development (e.g. business planning, feasibility studies, commercial development, market readiness, infrastructure projects).	First Nations and Inuit communities and their governments, organisations and associations, some non-Indigenous organisations working on behalf of these communities and the Province of Ontario (in relation to the Canada-Ontario Resource Development Agreement).	A proposal-based programme that aims to fill funding gaps for Indigenous economic development initiatives, helping communities secure additional financing and realise successful business ventures.
Northern Participant Funding Program (NPFP)	Crown-Indigenous Relations and Northern Affairs Canada	Participation in impact assessments, regulatory processes	Indigenous governments, NGOs, individuals	Up to CAD 150 000/project/year for participation in assessments of major mining projects.
Critical Mineral Exploration Tax Credit (CMETC)	Canada Revenue Agency	Tax incentive for exploration investment	Investors in flow-through shares	30% tax credit for specified critical minerals for certain mineral exploration expenditures, available up until 31 March 2027
Regional Economic Growth through Innovation (REGI)	FedNor	Funding for Indigenous Entrepreneurs to help start and grow a business	Indigenous entrepreneur	Through Canada's Regional Development Agencies, two common streams of programming exists to help entrepreneurs start and grow their businesses.
Northern Ontario Development Program	FedNor	Funding for projects led by First Nations, municipalities, and other organisations	First Nations, municipalities, organisations and institutions	Invests in projects that support community economic development, diversification, job creation, and self-reliant communities in Northern Ontario.

Note: This is not a comprehensive list of programmes. Oher programmes than those identified here benefit Indigenous Peoples through training, employment, or capacity-building opportunities. Examples include: NRCan's Science and Technology Internship Program – Green Jobs, ESDC's Indigenous Skills and Employment Training Program and Skills and Partnership Fund, as well as several IAAC capacity or research funding streams. These programmes may support Indigenous individuals, organisations, or community participation, and eligibility or delivery can involve third parties rather than direct Indigenous-administered funding.
Source: (Crown Indigenous Relations and Northern Affairs Canada, 2018[20]), (Government of Canada, 2022[21]), (NRCAN, 2025[22]), (NRCAN, 2025[23])

Table 3.2. Ontario government funding programmes to support Indigenous participation in the minerals and metals sector

Programme Name	Administering Body	Funding Focus	Eligibility	Description
New Relationship Fund	Ontario Ministry of Indigenous Affairs and First Nations Economic Reconciliation (IAFNER)	To build consultation and engagement capacity and expertise (i.e. for mining projects)	Indigenous communities and organizations in Ontario	Supports job creation, developing business partnerships, and improving economic opportunities.
Indigenous Participation Fund	Ontario Ministry of Energy and Mines	Participation in regulatory processes, economic development, values mapping, relationship building, conferences, mineral development advisors	Indigenous communities, organisations in Ontario	Multiple streams: advanced exploration/development, early exploration, education, mineral development advisors (up to CAD 130 000/year), values mapping, conferences. Ongoing applications.
Ontario Junior Exploration Program (OJEP)	Ontario Ministry of Energy and Mines	Early-stage exploration, Indigenous participation expenses	Junior mining companies in Ontario	Up to CAD 200 000/project; Indigenous participation expenses eligible for 100% funding up to CAD 10 000.
Indigenous Economic Development Fund (IEDF)	Ontario Ministry of Indigenous Affairs	Grants, financing for Indigenous entrepreneurs, businesses, organisations	Indigenous entrepreneurs, businesses, organisations	Supports business development, including mining sector initiatives.
Indigenous Opportunities Financing Program	Building Ontario Fund (transitioning from Ontario Financing Authority, effective Q2 2025)	Loan guarantees for Indigenous equity investment in large-scale infrastructure projects (energy, mining, critical minerals, pipelines, resource development, etc.)	Entities wholly owned by one or more Indigenous partners in Ontario	Provides provincial loan guarantees (up to CAD 3 billion total) to enable Indigenous entities to finance a portion of their equity investment in eligible infrastructure projects, including mining and critical minerals. Expanded in 2025 to include mining and resource development.

Source: (Government of Ontario, 2025[24]), (Government of Ontario, 2025[25])

First Nations and mining in Northern Ontario: Challenges and opportunities

Mining impacts

The history of mining in what is today Ontario stretches back thousands of years. The earliest evidence of mining activity comes from Indigenous Peoples, who extracted and traded minerals for tools, weapons, and decorative objects. For example, the Sheguiandah quartzite quarry on Manitoulin Island dates to around 7,500 BC, and red ochre mined at the Mattawa River before 1650 (Julig, 2009[26]). Commercial mining by European settlers began in the early 19th century and has since that time had significant and wide-ranging environmental, social, and economic impacts on First Nations communities across Northern Ontario.

Historically, mining activities that have been undertaken without sufficient environmental guidelines and monitoring have been linked to substantial damages to the lands and waters that First Nations have relied on for millennia. Some environmental impacts include contamination of water sources from mine tailings and waste rock, affecting drinking water and aquatic ecosystems (Chapter 2). For example, uranium mining dating back to the 1950s near Serpent River First Nation is linked to radioactive tailings in the watershed, leaching uranium, radon, and thorium into local water systems (Leddy, 2013[27]). This contamination has disrupted ecosystems, poisoned fish populations, and caused elevated rates of cancer and lung diseases among community members. When it has not been well-managed, mining operations have caused habitat

destruction and fragmentation, impacting wildlife populations and affecting traditional activities like fishing and harvesting.

Environmental damages from mining activities have persisted long after mine closure. There are approximately 5 865 abandoned mining projects in Ontario that require remediation, with a significant concentration of these sites located in Northern Ontario. These sites include a mix of abandoned, orphaned, and legacy mines, many of which pose ongoing environmental, health, and safety risks. Remediation efforts are underway at some of these sites, such as the former Nova Beaucage mine near Lake Nipissing, but the scale of the problem means that many sites remain in need of cleanup and long-term management. Almost all closed or abandoned mine sites require some form of ongoing monitoring and maintenance to ensure that remediation measures remain effective and that environmental contamination does not recur or worsen over time.

In Ontario, government and regulatory agencies oversee these programmes, but the responsibility for monitoring can also fall to mining companies, unless the company is insolvent or no longer exists, in which case the government assumes responsibility. The province maintains an Abandoned Mines Information System (AMIS) database to track these sites, though the exact number requiring active monitoring at any given time fluctuates as new sites are identified and others are closed out after successful remediation.

Despite challenges in remediation, North Ontario also hosts cases demonstrating that grassroots and local government action can substantially help address legacy mining effects. For example, in Sudbury, decades of nickel and copper mining, along with smelting operations, have left a devastated, barren landscape—often described as a “moonscape”—due to widespread sulphur dioxide emissions and metal contamination. In the 1970s, a coalition among community members, local government, mining companies, scientists, and volunteers launched a campaign to rehabilitate the barren, acidified landscape, a re-greening process that is now worldwide recognised (Box 3.5).

Box 3.5. From moonscape to ‘re-greening’ in Sudbury

As a historical and ongoing centre of mining activity, the Sudbury area has had major environmental impacts. Decades of smelting released massive amounts of sulphur dioxide and heavy metals, devastating local ecosystems, acidifying soils and lakes, and leaving the landscape barren and inhospitable—a legacy so severe that Sudbury was once likened to a ‘moonscape.’

Sudbury’s regreening efforts stand as a globally recognised example of large-scale environmental restoration in response to the severe ecological damage caused by over a century of intensive mining and smelting. Beginning in the 1970s, the community, local government, mining companies, scientists, and a broad coalition of volunteers launched a co-ordinated campaign to rehabilitate the barren, acidified landscape. The process involved liming the soil to neutralise acidity, fertilising, seeding, and eventually planting millions of trees and shrubs, transforming thousands of hectares of once-devastated land into thriving forests and healthier watersheds. Over CAD 30 million was invested, with funding from federal and provincial governments, mining companies, and private sources, and the initiative provided both environmental and social benefits, including seasonal employment for local residents.

The regreening movement has evolved to become more inclusive over time. Early efforts were primarily led by scientists, industry, and government, with limited engagement with local First Nations, specifically the Wahnapitae and Atikameksheng Anishinabek. Both are now recognised as important partners, with members serving in advisory and operational roles. Their involvement is formalised through representation on the Vegetation Enhancement Technical Advisory Committee (VETAC), which guides the city’s regreening programme, and through direct collaboration on mine reclamation projects, such as the Joint Environmental Working Group between Sudbury INO and Wahnapitae First Nation. These partnerships include site visits, environmental stewardship, education, and community development,

ensuring that Indigenous perspectives and knowledge contribute to ongoing restoration and monitoring. While extensive regreening and pollution control efforts have since restored much of the area's vegetation and improved air and water quality, significant risks remain from toxic mine waste and tailings dams, which require perpetual monitoring.

Source: (Autumn Watkinson et al., 2022[28])

Socially and culturally, mining has disrupted some traditional ways of life and cultural practices that are intimately connected to the land. In some areas, the influx of temporary workers to mining regions has led to social issues in communities, including increased rates of substance abuse, crime, and violence. The National Inquiry on Murdered and Missing Indigenous Women and Girls highlighted how resource extraction projects and associated "man camps" have been linked to increased violence against Indigenous women and girls (Brunet and S, 2023[29]). Furthermore, some mining developments have resulted in loss of access to culturally significant sites for Indigenous Peoples and intergenerational trauma from historic forced relocation

There are also health impacts of historical mining projects that did not undergo sufficient safeguards. They have occurred from exposure to contaminants and pollutants from mining activities. For instance, uranium and other hazardous substances have been detected in community water supplies near mining sites, as reported by First Nations like Serpent River and Batchewana First Nations. There are also indirect impacts. For example, the mining sector, a major employer in Northern Ontario, has been associated with higher rates of opioid-related deaths among its workforce; this is in part due to the demographics of this workforce being disproportionately male.[7] Data from the early COVID-19 pandemic period revealed that 19.5% of opioid-related deaths in Northern Ontario were among individuals employed in mining, quarrying, and oil and gas extraction (second highest after construction) (Nunn et al., 2024[30]). Workers in these physically demanding jobs may be more susceptible to opioid use and misuse, often as a means to cope with workplace injuries or chronic pain (Maryland Department of Labour, 2025[31])

Communities have diverse opinions on mining. Some see the potential economic benefits and have become proponents of mining projects while others vigorously oppose development that they view as threatening their territories and ways of life, and others who are in between. Many First Nations continue to struggle with the long-term impacts of mining, especially of legacy projects, on their lands, waters, health, and cultures. There are deep concerns about how a new wave of mining development, driven by demand for critical minerals for green technologies and defence manufacturing, may affect Indigenous rights, livelihoods and well-being.

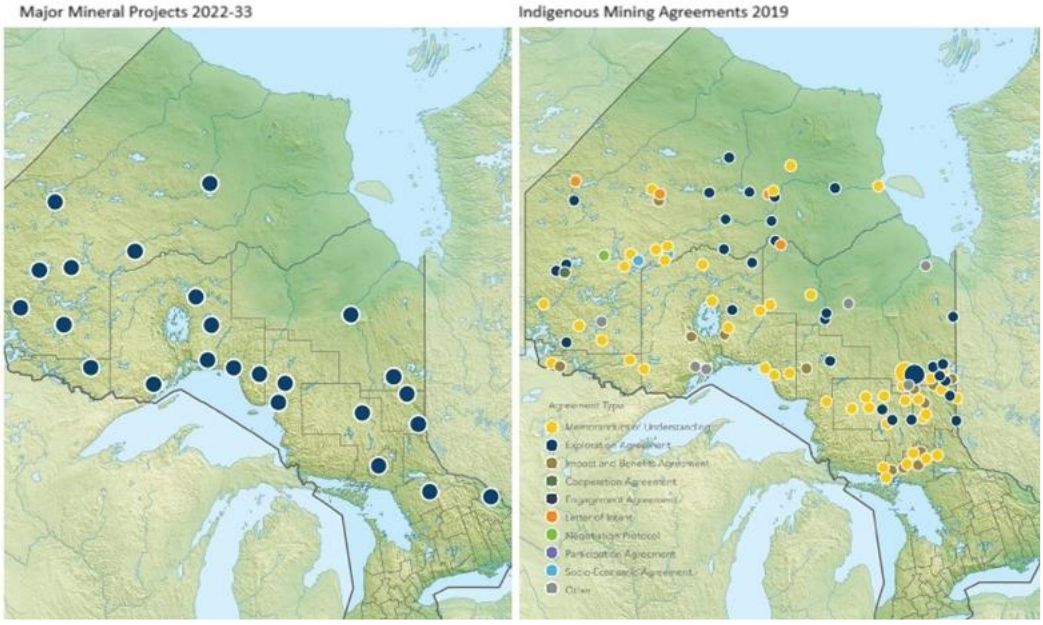
Opportunities to leverage mining for First Nations' self-determination

While there are many acknowledged challenges, there are also opportunities for further involvement from First Nations in economic activities related to mining and to invest in their development priorities and futures. Recent years have seen the emergence of First Nation-owned companies and development corporations that negotiate procurement, employment, and royalty agreements that are often structured to include mechanisms like net smelter returns and governance committees to ensure compliance and transparency.

Mining has provided economic benefits through employment and business opportunities for some First Nations members and led to revenue sharing agreements in some cases (Figure 3.1). For example, agreements with companies like Barrick Gold and Generation Mining have included training, apprenticeships, and socio-economic development funds, supporting business development and local employment for First Nations such as Biigtigong Nishnaabeg and Netmizaaggamig Nishnaabeg (Pic Mobert First Nation). These arrangements, along with federal and provincial funding programmes and

Indigenous economic development corporations, have enabled First Nations to invest in housing, infrastructure, and economic diversification, demonstrating how mining—when guided by equitable partnerships and community consent—can provide benefits. However, the distribution of economic benefits to communities has often been inadequate and uneven, exacerbating inequalities between Nations. There are also concerns about how the boom-and-bust cycles typical of resource extraction economies may create instability (also known as the 'resource curse'). When mines close or commodity prices drop, communities can be left without economic alternatives.

Figure 3.1 Major mineral projects 2023-33 and Indigenous mining agreements 2019



Source: (Ontario Mining Association, 2025[32])

Increasingly, First Nations are establishing partnerships with industry proponents. These partnerships can be formalised through benefit agreements, which have become an industry standard in Canada. Today, there are more than 500 exploration and post-exploration stage agreements across the country and over 140 in Northern Ontario, such as impact benefit agreements, long-term relationship agreements, and collaboration agreements. While these agreements are commercially negotiated, and therefore not available to the public, common provisions relate to jobs, education, environmental stewardship, Indigenous procurement, community investments and revenue sharing. More recently, Indigenous groups are pursuing equity in mining projects and/or decision-making opportunities for projects that may affect their communities, gaining not only increased profit but also greater control over social and environmental impacts (though they will need to bear both benefits and potential drawbacks as a result). Projects that approach communities through genuine partnership and respect for local values have led to partnerships that generate social and cultural benefits to Indigenous communities. Some examples include:

- The First Nations-industry agreement between Atikameksheng Anishnawbek, Wahnapitae First Nation, and Technica Mining, has created an Indigenous-led company that provides employment, skills training, and economic opportunities for Indigenous communities, while embedding cultural values in business practices (Aki-eh Dibinwewziwin Limited Partnership, Z'gamok Enterprises Inc., Z'gamok Construction LP, Eshkaa Niibiish Day Inc).
- Canada Nickel Company's agreement with the Mattagami, Matachewan, and Flying Post First Nations to prioritises First Nation-owned businesses for major project contracts, ensures regular

engagement sessions, and includes mechanisms for land and environmental monitoring. It also establishes a First Nations Business Representative and specialized training programmes, emphasising transparency and local skills development.

- As well as those outlines in Box 3.6 and Box 3.7.

Box 3.6. An Indigenous-led mining partnership: Aki-eh Dibinwewziwin

Aki-eh Dibinwewziwin is a groundbreaking Indigenous-led mining partnership in Ontario, established by the First Nations communities of Atikameksheng Anishnawbek, Wahnapitae First Nation, and Technica Mining, a leading Canadian mining contractor. The partnership's name, Aki-eh Dibinwewziwin, which means "to be owned by the earth", was thoughtfully chosen by language holders from each of the participating First Nations. This name reflects the deep-rooted connection to land, stewardship, and the traditional values that guide the communities involved.

The formation of Aki-eh Dibinwewziwin marks a significant shift in how mining projects are approached within the Robinson Huron Treaty area, which encompasses much of the Sudbury Basin and surrounding territories. Historically, First Nations in this region have not fully benefited from the economic activities taking place on their lands. This partnership was created to address that imbalance by ensuring that Indigenous communities are not only consulted but are also active participants and beneficiaries of resource development on their traditional territories.

Aki-eh Dibinwewziwin is structured as a limited partnership, with First Nations holding a majority ownership stake. This arrangement empowers the communities to have a direct say in how mining operations are conducted: from environmental stewardship to employment and economic development. The partnership provides world-class mine contracting services, drawing on Technica Mining's extensive expertise in underground and open-pit mining, construction, and maintenance, while integrating Indigenous knowledge and values into every aspect of operations. The positive economic impact of the partnership is already being realised. Aki-eh Dibinwewziwin has secured major contracts, such as the advanced exploration contract for the Crean Hill nickel-copper project in Sudbury.

Leadership from all partner communities have emphasised that this initiative is about more than business, it is about reclaiming sovereignty, ensuring that the spirit and intent of the Robinson-Huron Treaty are honoured, and a sustainable future is built. By embedding traditional values and environmental stewardship into mining operations, Aki-eh Dibinwewziwin stands as a model for how First Nations and industry can work together in a spirit of mutual respect, creating economic opportunities while safeguarding the land and culture for generations to come.

Source: (Aki-eh Dibinwewziwin, 2025[33])

Box 3.7. Taykwa Tagamou Nation and the Crawford Nickel Sulphide Project

Canada Nickel Company has set a new standard for Indigenous engagement in the mining sector through recent agreements with First Nations connected to its Crawford Nickel Sulphide Project. In early 2025, the company signed a progressive contracting agreement with the Mattagami, Matachewan, and Flying Post First Nations. This agreement prioritises First Nation-owned businesses for major project contracts, ensures regular engagement sessions, and includes mechanisms for land and environmental monitoring. It also establishes a First Nations Business Representative and specialised training programmes that emphasise transparency and local skills development.

A CAD 20 million investment by Taykwa Tagamou Nation (TTN) has secured the Nation an 8.4% ownership stake in the company Canada Nickel. This investment is one of the largest direct equity stakes by a First Nation in a Canadian critical minerals project. It grants TTN the right to nominate a board member, giving the Nation direct influence over company decisions, including those related to environmental stewardship and procurement. These agreements go beyond traditional consultation by positioning First Nations as business partners and co-managers of the land. They include clear commitments to environmental monitoring and ongoing collaboration, reflecting a shared commitment to responsible resource development. This model demonstrates how early, meaningful engagement and shared economic benefits can foster stronger, more equitable relationships between mining companies and Indigenous communities. However, it is also important to note that owners are financially vulnerable as their payouts come after lenders, therefore they only receive payouts based on the cash flow available.

Source: (Canada Nickel, 2025[34])

A renewed demand for mining

As Northern Ontario sees growing interest in mining projects, with global demand for critical minerals surging, centring mining development strategy in Indigenous rights, knowledge, and decision-making will be crucial for more equitable and sustainable approaches. This requires moving beyond consultation to true partnership and shared governance and benefits over lands and resources, for First Nations that wish to be involved in mining projects. This is a cornerstone to ensure relations between First Nations, governments and the mining industry lead to outcomes that genuinely benefit Indigenous communities and protect the environments they have stewarded for millennia. In the words of Chief Bruce Achneepineskum of Marten Falls First Nations:

> *"We reserve the right to make decisions in our traditional territory. We have watched others enjoy the fruit of development, while our community has languished in poverty and a perpetual lack of opportunity. It is impossible to change our circumstances without the proposed projects in the Ring of Fire. Without these projects, our community will continue to wither away. However, with these projects, we can inject hope into our community and plant the seeds for a brighter future" (Marten Falls First Nation, 2021[35]).*

To be successful in mining partnerships, First Nations need both greater capacity and upfront investment. Engaging with mining companies before building this capacity often leads to missed opportunities or weak agreements, as communities may lack the resources, expertise, or leverage to negotiate effectively. It is crucial to focus on building scale—developing internal skills, governance structures, and economic strategies—before entering into such negotiations. Mining projects and industry timelines can move quickly, making it difficult for communities to keep pace and prepare adequately.

The increasing focus on Environmental, Social, and Governance (ESG) criteria in the mining industry presents opportunities for First Nations to influence corporate behaviour and secure better outcomes. Capital markets are increasingly demanding respect for Indigenous rights, which can create leverage for First Nations in negotiations with mining companies. As the mining industry evolves to meet the demands of the green economy and heightened ESG expectations, First Nations are positioned to play an increasingly central role in shaping the future of resource development on their traditional lands by utilising their traditional knowledge. There is growing recognition of the importance of incorporating Indigenous knowledge and practices into mining operations. For example, the establishment of Elder's advisory committees to address water concerns and the use of Indigenous language in environmental discussions.

Examples of concrete opportunities for First Nations that wish to be involved in mining projects include:

- Leveraging new federal loan guarantee programmes to access capital.
- Forming regional economic coalitions for collective bargaining and benefit-sharing.
- Developing businesses in areas such as mine contracting, logistics, environmental services, and renewable energy.
- Advance equity participation to shape the terms of resource development on their lands.
- Leverage mining wealth for economic diversification in areas such as renewable energy, agriculture, and tourism that can complement or provide alternatives to mining-based economic development. Some communities are investing in cultural centres and eco-tourism initiatives that capitalise on their rich heritage and natural resources. For example, Biigtigong Nishnaabeg is exploring economic diversification beyond mining, including a feasibility study for bioeconomy projects and potential Indigenous tourism opportunities arising from their new cultural centre and archaeological findings.
- Development of Indigenous-led environmental monitoring programmes, directly engaging FNs for the provision of land/environmental monitoring services. For example, Biigtigong Nishnaabeg First Nation, which has conducted extensive baseline aquatics monitoring, funded by federal government and industry, to prepare for mining impacts. They have invested in mapping, cultural studies, and environmental data collection since the 1990s.
- Play a significant role in the remediation and closure of mining sites, ensuring that the process has integrity.

Mining industry standards increasingly prioritise Indigenous rights and FPIC through formal protocols, governance models, and reporting requirements. Leading frameworks, such as the Mining Association of Canada's *Towards Sustainable Mining* (TSM) Indigenous and Community Relationships Protocol, require companies to identify and engage Indigenous communities, build meaningful relationships, and seek FPIC for new projects and expansions affecting rights. Similarly, the Initiative for Responsible Mining Assurance (IRMA) employs a multi-stakeholder governance model with equal voting power for six sectors—including affected communities and Indigenous leaders—ensuring balanced and representative decision-making.

The Prospectors and Developers Association of Canada's (PDAC) "Driving Responsible Exploration" (DRE) framework provides specific principles and toolkits to help explorers engage respectfully and effectively with local and Indigenous communities throughout the exploration process, emphasising the importance of building trust, collaboration, and long-term relationships. In parallel, the recently launched UL Ecologo certification (ULC TS-2723:2024) establishes comprehensive third-party standards for responsible mineral exploration. It evaluates companies on criteria such as environmental stewardship, meaningful engagement and accommodation of local and Indigenous communities, local procurement including Indigenous service providers, and fair business practices.

Kawana ‘bi ‘kag—‘Ring of Fire’

For greenfield operations, there are a different set of challenges, especially for *Kawana ‘bi ‘kag*, the ‘Ring of Fire.’ This region has been identified by the Ontario government as one of the most promising mineral development opportunities for critical minerals in the province, including chromite, cobalt, nickel, copper and platinum. It is located approximately 500 kilometres northeast of Thunder Bay and covers about 5,000 square kilometres.

A mining project in this region has been a challenging discussion for all parties involved, the First Nations living in that territory, the government, and the interested companies. This region contains one of the world's largest, most intact ecological systems—the Hudson Bay Lowlands, which forms part of the world's second-largest peatland complex and is globally significant for both climate change mitigation and biodiversity protection. The peatlands sequester an estimated 35 billion tons of carbon, playing a key role in regulating the global climate (Rodon et al., 2025[36]). The remote location and lack of infrastructure in this regions mean that mining development would require significant new infrastructure construction, including all-season roads, which would open up previously intact wilderness areas to further development pressures.

The massive investments needed in infrastructure including energy and road infrastructure would bring different opportunities and challenges to fly-in First Nations living in this region. If properly planned in strong co-operation with Nations, this infrastructure could help improve connectivity and quality of life. For instance, all-season road access to the Ring of Fire is an important step to creating economic opportunities in the region. Progress has been made on the three key access roads linking the Ring of Fire: Webequie Supply Road Project, Marten Falls Community Access Road Project and Northern Road Link Project. Marten Falls First Nation and Webequie First Nation have led these project as proponents and/or co-proponents (Government of Ontario, 2025[17]). They have shaped Indigenous-led impact assessments (IAs) for the two first roads to avoid sensitive areas. This has resulted in carefully plotted routes rather than the most direct paths. The IA for the Northern Road Link is lagging behind by about three years and not expected to be ready for ministerial approval until 2029 or 2030.

Nevertheless, some communities have concerns about safety and health of community members when those roads open and with the project itself. Although Marten Falls and Webequie have led the EA process, they have not yet formally consented to the projects, and broader First Nations approval remains uncertain, particularly from communities like the Neskantaga, who have expressed concerns about the government's approach and inclusivity. Final approval and the start of construction hinges on these communities' decisions, and even after environmental and community consultations conclude, the construction of hundreds of kilometres of road through remote wilderness is expected to take many years, leaving the timeline for completion uncertain and dependent on ongoing negotiations and approvals. This entails a new set of relationships, agreements and potentially partnerships between First Nations and mining firms.

Development in this region could create new pathways for income generation, long-term employment, infrastructure investment, and community-led governance over land and resources. Improved all-season road access and energy infrastructure, if designed in partnership with First Nations, could reduce community isolation, lower the costs of goods, and open up possibilities for local businesses, education, and health services. However, to capture these opportunities, there must be substantial up-front investment in communities—particularly in addressing long-standing infrastructure gaps such as safe housing, reliable energy, water, and transportation. Strengthening these foundations is essential to ensure that First Nations can participate from a position of strength, rather than being forced into reactive negotiations. Equally important is the need for genuine consent, inclusive planning, and Indigenous-led environmental assessments to balance development with cultural values and environmental stewardship. By prioritising pre-investments and supporting First Nations governance capacity, the Ring of Fire could become not only an engine of economic growth but also a catalyst for greater sovereignty, resilience, and well-being across the region.

Governance and policy related challenges

The regions and themes highlighted below reflect areas most commonly identified by participants as sources of ongoing concern, practical complexity, and the greatest need for policy action. These issues—such as determining whom to consult in disputed territories, negotiating benefit-sharing, and ensuring meaningful inclusion of First Nations in mining development—are not only prominent in research and practice, but also represent unresolved points of tension affecting both project outcomes and the broader landscape of Indigenous rights and regional economic development in Ontario.

Unclear whom to consult in some cases

In Ontario, determining which First Nations to consult for mining claims is complicated in some cases by overlapping or disputed traditional territories, incomplete or outdated government records, and the lack of publicly accessible maps delineating Indigenous land rights. Provincial and federal governments often rely on internal, confidential maps for consultation processes, which are not always shared with Indigenous communities or industry proponents due to legal sensitivities, unresolved land claims, or political concerns about setting precedents.

These confidentiality concerns can create ambiguity, as companies may inadvertently exclude affected Nations or rely on incomplete data, leading to inadequate consultation. For example, in regions like the Ring of Fire, multiple First Nations have asserted rights to the same area. But without transparent mapping, there is uncertainty over who actually holds authority. Additionally, government confidentiality can fuel distrust, as Indigenous communities argue it undermines their right to define their own territories and participate meaningfully in decision-making. This can exacerbate inter-Nation tensions, and complicate relations between First Nations and government, as well as Nations and industry proponents. The resulting disputes delay projects, increase legal risks, and perpetuate cycles of litigation. Concerns over management of shared territories should first and foremost be a matter for Indigenous Nations to resolve themselves without external and imposition, particularly when it has been the state that was responsible for imposing the ownership model of lands and resources in the first place.

The Métis Nation of Ontario (MNO) has increasingly asserted rights and jurisdiction in Northern Ontario, particularly in relation to natural resource development. Through recent governance initiatives and registry-based recognition of Métis communities, the MNO is seeking to expand on existing harvesting rights (Government of Canada, 2022[2]) to secure consultation and land-related rights that overlap with areas of intensive mining exploration and development. These claims have generated tensions with both provincial authorities and First Nations, many of whom argue that Métis rights in the region are historically limited or unrecognised. The Wabun Tribal Council and other First Nations have initiated court challenges against Ontario's policy of mandating engagement with the MNO for mining projects; these cases question whether the MNO possesses legitimate, court-affirmed rightsholder status under section 35 of the Constitution. The disputes have broader implications for the mining sector, as companies are now caught between conflicting demands from First Nations and the province, with litigation outcomes likely to affect regulatory procedures, benefit agreements, and project approvals. At the same time, the Ontario government continues to state its obligation to consult all Indigenous groups, including recognised Métis communities, while First Nations press for judicial clarification and resolution of the contested rights. These legal cases are expected to set important precedents with regard to the entities that are entitled to consultation and accommodation in the context of natural resource extraction in Northern Ontario.

Negotiations are an unlevel playing field

The power dynamics between governments, First Nations, and the mining industry are asymmetrical and can result in the marginalisation of Indigenous rights and sovereignty. While the actions of mining companies may include FPIC, formal requirements such as Ontario's Mining Act are insufficiently aligned

with UNDRIP's FPIC standards. Challenges for First Nations include structural inequities in negotiation capacity, as many lack resources to hire specialised legal, financial, and technical advisors, while mining firms and governments control critical data about project impacts and profits. While funding and training support to build capacity within interested First Nations (e.g. in law, engineering, and environmental science) is provided by different government levels, funds are still limited and there is scope to improve uptake.

To strengthen capacity, there is growing interest in regional economic coalitions among some First Nations to pool resources, co-ordinate development strategies and maximise benefits across traditional territories (as seen in the "Wabun Model" for collective action and benefits in Box 3.8).

Box 3.8. The "Wabun Model" for collective voice and benefit

The "Wabun Model" refers to the approach developed by the Wabun Tribal Council (WTC) in Ontario for negotiating and managing mining agreements to maximise benefits for its member First Nations. This model is built on collective action, where the council—representing Brunswick House, Chapleau Ojibwe, Flying Post, Matachewan, Mattagami, and Beaverhouse Nations—works together to negotiate with mining companies, ensuring that the communities most directly impacted by mining receive proportionally greater benefits, while all member Nations share in the overall compensation. By pooling revenues and leveraging their collective bargaining power, the Wabun Model ensures that benefits such as royalties, employment, procurement opportunities, and community investments are distributed more equitably and transparently. Benefits to this model include:

- *Pre-Negotiation Planning and Mapping*: WTC maps traditional territories and establishes "economic boundaries" for each community, including buffer zones where territories overlap. If a mining project is proposed in a buffer zone, affected communities negotiate together to reach a unified position before engaging with industry, ensuring clarity and fairness in benefit-sharing.
- *Standardized Agreements and Flexibility*: The Council has developed a standard Exploration Agreement (EA) template that all exploration companies must sign before operating on Wabun territory. This streamlines negotiations and ensures key elements—such as economic benefits, consultation requirements, cultural considerations, and successor clauses—are consistently addressed. Agreements can be customised for unique circumstances or concerns.
- *Impact Benefit Agreements (IBAs):* For projects that advance beyond exploration, WTC negotiates IBAs covering employment, procurement, training, environmental protection, and revenue sharing. To date they have successfully negotiated over 60 exploration agreements and eight IBAs with major industry players.
- *Internal Communication Protocols*: During negotiations, all communication between companies and communities is managed by a designated negotiation team to avoid confusion.
- *Implementation and Oversight*: Each IBA is overseen by a First Nations IBA Coordinator and an IBA committee, who monitor compliance at mine sites, facilitate communication, and ensure that the terms of the agreement are adhered to.
- *Collective and Individual Benefits*: While WTC negotiates on behalf of all member communities, each First Nation retains autonomy over its share of benefits and how they are used. This approach promotes both collective strength and individual community priorities.
- *Revenue Sharing with Ontario*: WTC is a signatory to historic resource revenue sharing agreements with the Ontario government, entitling member First Nations to a share of provincial mining taxes and royalties. These funds are controlled locally and directed toward community priorities such as economic development, health, education, and culture.

- *Advocacy and Rights Protection*: WTC is proactive in defending member rights, including opposing agreements or consultations with organisations it deems not to be legitimate rightsholders (e.g. the Métis Nation of Ontario), and has sought to protect its members' interests in court.

This regional, coalition-based strategy allows for greater scale in economic development, supports the creation of Indigenous-owned businesses, and strengthens governance and oversight of agreements. While some Nations may see this as ceding a degree of sovereignty, the model has proven effective in building political strength, fostering a regional vision, and generating sustainable wealth and opportunities for multiple communities, rather than just those immediately adjacent to mining projects.

Source: (Wabun Tribal Council, 2025[37])

Partnership Agreements have scope for improvement

There are a range of benefit sharing models between First Nations and the mining industry that range from voluntary, company-led initiatives to those that entail Indigenous ownership and control. In Canada, Impact and Benefit Agreements (IBAs) are the most common (Table 3.3). They have evolved from a focus on employment and environmental protections to encompass a wide range of activities such as education and training, to funds for economic development, socio-cultural support and communications structures, environmental monitoring and protection, or direct payments and financing.

Table 3.3. Benefit sharing models and governance types

Type of model	Description
A. Government-Controlled Benefit Sharing	
Resource sharing revenues/benefit funds	Sharing of industry revenues collected by governments and shared with Indigenous Peoples and/or communities. This includes but is not limited to taxes, royalties, penalties, permit and other fees.
Local content obligations	Targets for the hiring of local workers and procurement of local goods and services may be included in host government agreements with companies, and in some cases is set out in law. Government-mandated local content is frequently interpreted as 'national' content, rather than targeting local and Indigenous communities.
Mandatory social investment	Social investment spending can be mandatory as part of a host government agreement or national legislation, whereby companies are required to invest in infrastructure programmes, such as road construction or health facilities, as a condition of their licence.
B. Voluntary Company-Led Initiatives	
Voluntary engagement	Companies may voluntarily engage in community engagement and/or investment in addition to their mandatory obligations under law. For example, the International Council on Mining and Metals (ICMM) 'Community Development Toolkit' and 'Good Practice Guide: Indigenous Peoples and Mining".
Strategic social investment	Social investment spending on programmes are designed to survive beyond the life of the industrial project and/or to create value for the industrial project. These might include micro-credit programmes, local livelihoods support programmes, skills training, enterprise development support, or conservation programmes.
C. Partnership Model	
Voluntary local initiatives	Companies may develop partnership programmes based on voluntary targets and initiatives to train and bring in the local and Indigenous workforce to a project, with training and enterprise support linked to opportunities to secure employment or contracts, often with an element of preferential contracting. This may or may not form part of a wide benefit-sharing agreement.
Benefit-sharing agreements	Benefit-sharing agreements are negotiated directly with communities and may include payments, profit sharing, local hiring, skills development, education, cultural support and environmental protection. These are likely to be closely related to impact assessments, and may also provide the basis for an FPIC process. Benefit sharing agreements may include benefit funds: the payment and management of royalties from development activities to affected Indigenous communities and peoples.

D. Indigenous Ownership and Control	
Indigenous ownership	Indigenous Peoples' ownership of companies or equity shares in enterprises involved in extracting or processing resources or enterprises providing services to the industry. Opportunities can be enhanced through government support and preferential contracting.
Indigenous control	Indigenous control relates to Indigenous Peoples' right to determine their own development priorities and strategies, and includes participation in strategic-level decision-making on resource-related policies, programmes and regulations, including resource mapping, zoning and land allocation, and FPIC.

Source: Adapted from (Wilson, 2019[38])

However, IBAs have some significant drawbacks: i) while sometimes requested by First Nations, confidentiality clauses can undermine Indigenous groups' bargaining power and foster internal divisions; ii) as private contracts, IBAs may be signed without full community knowledge or consent, reducing transparency and accountability; and iii) communities often face barriers to realising promised benefits due to gaps in available education/training, certification, or resources (see (OECD, 2020[39]) for a detailed overview).

Increasingly, many First Nations favour either partnership or ownership models and/or Indigenous benefit funds—approaches that may better address the need for secure, long-term and Indigenous-led development and decision-making control. For example, the previously mentioned Aki-eh Dibinwewziwin is a leading example of an Indigenous-led partnership with a mining company. Likewise, the Greenstone Gold Mines Partnership demonstrates how multiple First Nations can join ahead of new projects to leverage mining wealth for developing critical infrastructure and improving economic conditions of the communities (Box 3.9).

A First Nation Resource Charge is being explored by the First Nations Tax Commission as a type of Indigenous benefit fund. This idea stemmed from the 2014 Tsilhqot'in decision by the Supreme Court of Canada, which affirmed Indigenous land rights and clarified how Aboriginal title is proven, and required governments to obtain consent or justify infringements when developing on such lands (First Nations Tax Commission, 2024[40]). This would entail a tax on resources, infrastructure projects and expansions taking place on traditional territories. It would replace the negotiated one-off financial arrangements whenever a project takes place on First Nations title.

Box 3.9. Greenstone Gold Mines Partnership

In Ontario's Greenstone region, a tripartite partnership was formed between Greenstone Gold Mines Ltd., Kenogamisis Investment Corp. and Minodahmun Development LP (First Nations business entities).

- Kenogamisis Investment Corporation is a joint venture corporation of Animbiigoo Zaagi'igan Anishinaabek, Aroland First Nation, Ginoogaming First Nation and Long Lake #58 First Nation, created to maximise participation by the First Nations in development projects.
- Minodahmun Development LP is a First Nation-owned partnership created by Animbiigoo Zaagi'igan Anishinaabek, Aroland First Nation and Ginoogaming First Nation to ensure First Nations benefit from development, while growing the local economy.

The commitments include an agreement to upgrade the roads that connect First Nations communities to the provincial highway network, funding for the Indigenous Workforce Development Program through the province's Skills Development Fund, and for funding the construction and maintenance of the Migizi Plaza Rest Stop, which will serve the needs of First Nation members, tourists and residents. The

Government of Ontario bolstered the deal with commitments of public funding (e.g. pledging improved road infrastructure and local skills programmes) as part of the mine's IBA.

Source: (Ontario Press Office, 2024[41])

These agreements are mostly for new projects (greenfield), but for modifications/expansions of "brownfield" sites (existing operations) companies are not required to update agreements with First Nations. Therefore some more dated agreements may not reflect current best practices such as robust procurement or employment clauses and may not be indexed to inflation, reducing the economic value First Nations are receiving from mining operations on their territory. While specific data is not available on all amendments made to mines within Northern Ontario or the province more broadly, Ontario had four new major mine expansions between 2019-2024, meaning approximately 11% of the 36 active mines across the province are being actively expanded (Ontario Mining Association, 2025[32]). This highlights the need to specify within agreements between companies and First Nations (such as IBAs) the thresholds for amendments to brownfield sites that will trigger consultation (this will differ depending on the preference of each First Nation), ranging from all amendments to only major changes. This can help to ensure stronger trust between companies and First Nations and reduce consultation fatigue in First Nations by providing the choice to be consulted on amendments to brownfield sites.

Priorities for the future to improve First Nations engagement in mining and wellbeing outcomes across Northern Ontario

Indigenous perspectives on mining in Northern Ontario are diverse—there is no single "Indigenous view" on resource extraction. Experiences range from established agreements enabling mine expansions in connected areas, to large-scale, high-investment projects like the Ring of Fire that require extensive negotiation and consent. Across the region, First Nations are actively defining their own pathways, exercising agency in shaping mining development while navigating the constraints of colonial legal and economic frameworks. Based on the abovementioned challenges and opportunities, emerging priorities for the future include:

- *Resolving contestations over consultation requirements (Duty to Consult, or DTC):* First Nations territorial claims are unresolved in some cases. This is a challenging issue to navigate. Governments could disclose internal maps and data to prevent exclusionary practices, but First Nations may prefer for this information to be confidential. Moreover, the issue of shared/overlapping territory goes well beyond the duty to consult. In fact, DTC is not a process intended to resolve disagreements pertaining to issues involving rights, title, and continued stewardship of the lands and waterways that have sustained First Nations. Ideally this is a matter for First Nations to resolve, without external/colonial imposition.
- *Embedding the principle of Free, Prior and Informed Consent (FPIC) and Indigenous partnership as core criteria in mining projects' approvals:* This mechanism can be used to operationalise FPIC with proper risk assessment benefits for both Indigenous rightsholders and mining companies. Capital markets are beginning to value projects with strong Indigenous partnerships, thus influencing project certainty and cost of capital. While many companies strive to adhere to FPIC (to varying degrees), FPIC standards are not yet universally adopted, creating a lack of uniformity and uncertainties of how companies can universally implement FPIC (especially for new companies entering the region and junior firms).
- *Ensuring Indigenous-led, strategic economic planning and business development:* Of the approximately 30 fly-in First Nations communities in Northern Ontario, many are in a state of crisis due to chronic water, health, and mental health emergencies, all of which undermine their ability to meaningfully engage in mining development opportunities. Addressing these foundational

challenges requires substantial, upfront investments in core infrastructure (e.g. safe water supply, adequate housing, healthcare, and social support) before communities can participate on equal footing as partners in the mining sector. Without resolving these urgent deficits, the burden of underinvestment leaves communities at a disadvantage, compounding existing inequalities and resulting in Nations negotiating from a position of vulnerability, rather than strength and self-determination (OECD 2019). Investing first in these critical areas not only honours the rights and dignity of First Nations but also creates the necessary social, economic, and governance capacity for communities to share in decisions and benefits related to resource projects.

- *Improving legacy brownfield agreements*: In some cases (usually for small amendments) "brownfield" sites (existing mines) and patented lands are excluded consultation. This sometimes results in grey areas that have a lack of legal levers for communities to renegotiate in the situation where amendments are made to mining projects, impacting trust and creating uncertainty in partnerships.
- *Increasing opportunities and information to allow First Nations conduct informed decision about equity ownership in mining projects and supply chains, if desired*: Equity ownership can potentially transform the role of First Nations from recipients of compensation to active partners with decision-making power regarding economic benefits, governance, and long-term prosperity. This should be presented as an opportunity for interested First Nations with proper information and capacity-building, as it can also expose the First Nation to risks. It should also be taken into account that not all First Nations are interested in equity ownership.
- *Strengthening capacity to close expertise and information gaps*: First Nations administrations have many demands on their resources. They need to be resourced and have support for capacity building and training in specialised areas in order to effectively engage with the mining industry. Currently, many Nations rely on external experts to engage in consultation and negotiations with mining companies, highlighting the need for resourcing to train and equip community members with the skills to fill these positions.
- *Enhancing opportunities for First Nations involvement in long-term mining accountability:* There is scope to enhance and simplify the mechanisms for Frist Nations to monitor and ensure accountability of mining impacts in their territories, including the compliance of company agreements over the long-term (inter-generational). For example, there are no clear frameworks for integrating traditional along with scientific knowledge in monitoring processes, or for monitoring cumulative health and environmental impacts of mining.
- *Establishing robust Indigenous procurement verification systems*: There are many opportunities to grow business through procurement with the mining industry or with governments (e.g. for infrastructure investments). However, there are ongoing issues with non-Indigenous companies misrepresenting themselves as 'Indigenous' for procurement opportunities. This highlights the need for a universally agreed upon definition of an 'Indigenous business' that is constructed in consultation with Indigenous Peoples.
- *Leveraging sustainability standards for improved transparency*: The adoption of national and international sustainability reporting standards (e.g. GRI, IFRS, task force on nature-related disclosures) is increasing. These frameworks can be used by First Nations and potentially formalised to hold mining companies accountable for their environmental and social performance, including engagement with Indigenous Peoples and efforts to adopt UNDRIP.

Indigenous leadership and sustainable mining futures in Northern Ontario

Addressing the challenges and opportunities of meaningful First Nations participation in mining requires a paradigm shift in policy, practice, and relationship-building. This shift must focus on Indigenous

sovereignty, knowledge, and values, and be grounded in equity, transparency, and long-term sustainability for current and future generations. Drawing on interviews with First Nations leaders in Northern Ontario and the *Indigenous Call to Action for Indigenous-led Pathways for Sustainable Futures in Mining Regions*, developed during the 2024 OECD Conference of Mining Regions and Cities (Indigenous participants at 2024 OECD Mining Regions Conference, 2024[42]), this section identifies five critical areas for action: rights to land environment and safety; capacity building; access and inclusion; and partnerships and collaboration.

Rights to land, environment and safety

Indigenous land rights and FPIC

Northern Ontario should consider following British Columbia and the Northwest Territories' model by developing mechanisms to adopt UNDRIP and subsequently the principles of FPIC in provincial/territorial law. Under *the Declaration on the Rights of Indigenous Peoples Act,* BC has committed to co-developing new legal and policy frameworks with First Nations and to working with Indigenous organisations, such as the BC First Nations Energy and Mining Council, to develop strategies for critical minerals that prioritise Indigenous rights and economic participation. Similarly, the Northwest Territories is implementing the UNDRIP Implementation Act by modernising the Mineral Resources Act and its regulations under a protocol established by the Intergovernmental Agreement on Lands and Resources Management. This is a first for the territory and ensures that Indigenous governments are directly involved in shaping the rules and processes governing mining activities.

An intermediate step of the adoption of UNDRIP can include the creation of formal guidelines to assist in the uniform adoption and monitoring of FPIC across Northern Ontario's resource projects. Principle 6 of Indigenous Services Canada's *Principles respecting the Government of Canada's relationship with Indigenous peoples* acknowledges the need to go beyond the duty to consult and recognises the right of Indigenous Peoples to participate in decision-making in matters that impact their lands (Government of Canada, 2025[43]). Furthermore, many mining companies in the region are already adhering to FPIC (to varying degrees) and are legally required to consult impacted First Nations. Despite this, in Northern Ontario, there exists no formal mechanism to guide mining companies as they carry out FPIC and the monitoring of this process and outcomes from project to project. Guidelines such as the TSM Indigenous Community and Relationships Protocol (Box 3.10) set out criteria to ensure effective Indigenous engagement and dialogue with the aim to achieve FPIC across all stages of the mining lifecycle (Mining Association of Canada, 2021[44]). Protocols such as this can be strengthened to fit the context of Ontario and formalised to not only ensure greater alignment with FPIC but also provide all companies (even those who are not TSM members) with a guideline and set of monitoring principles to strengthen First Nations decision making in projects.

Box 3.10. TSM Indigenous and Community Relationships Protocol

The Indigenous and Community Relationships Protocol is part of the Mining Association of Canada's framework called Towards Sustainable Mining (TSM) and provides a structured assessment tool for mining facilities to evaluate their Indigenous and community engagement performance. It centres on five performance indicators:

1. Community of Interest (COI) Identification
2. Effective COI Engagement and Dialogue
3. Effective Indigenous Engagement and Dialogue

4. Community Impact and Benefit Management
5. COI Response Mechanism

These indicators guide companies in conducting proactive, meaningful, and context-appropriate outreach and relationship-building with Indigenous peoples and other communities. Under Indicator 3, companies are expected to foster meaningful engagement and decision-making processes with Indigenous communities, specifically, to aim to achieve free, prior, and informed consent (FPIC) for any impacts affecting Indigenous rights, and to sustain that consent throughout a project's lifecycle. This indicator further requires companies to facilitate equitable access to business opportunities for Indigenous peoples, and ensure that staff receive training in intercultural competency, conflict resolution, human rights, and anti-racism. Moreover, the protocol also emphasises that FPIC implementation should align with the principles of UNDRIP (United Nations Declaration on the Rights of Indigenous Peoples) and respect applicable legal and constitutional frameworks. Companies are not expected to substitute government consultation responsibilities but to complement them through good-faith engagement aimed at broad support, not necessarily unanimous consent. All companies operating in Ontario who are members of the Mining Association of Canada must follow this protocol, which in 2025 included all major companies in the region including Vale, Glencore, IAMGOLD, and Agnico Eagle, among others.

Source: (Mining Association of Canada, 2021[44])

The Government of Ontario's introduction of Bill 5, the *Protect Ontario by Unleashing our Economy Act*, 2025, need to be carefully implemented as First Nations express fears of the Act potentially weakening environmental safeguards, reducing oversight of mining and development projects, and limiting opportunities for meaningful First Nations consultation and consent. The Bill's stated goal is to accelerate major infrastructure and resource extraction projects, particularly in response to global economic pressures and trade risks. The Bill proposes to streamline and fast-track approvals for projects in sectors such as mining by minimising regulatory delays and reducing what the government calls bureaucratic "red tape". A central feature of Bill 5 is the creation of "special economic zones," which allow the provincial cabinet to designate some areas in Ontario, such as the mineral-rich Ring of Fire in Northern Ontario, as exempt from some provincial and municipal laws and regulations, including those related to environmental protection, endangered species, and land use.

This Bill has been met with strong opposition from Indigenous leaders and organisations across Ontario (Schwientek, 2025[45]), who are concerned it will allow the government to fast-track critical consultation processes that protect threatened species, cultural heritage, and treaty rights, concentrating decision-making power in the hands of ministers. First Nations leaders have warned that Bill 5 could impact the province's duty to consult. There are also concerns that the bill would restrict legal avenues for First Nations to challenge government decisions, as it prohibits lawsuits over actions taken under its provisions. The Government of Canada is also producing similar legislation (Bill C-5) to expedite projects that are of a national interest, which raises similar concerns.

Improving the competitiveness of the Provincial and Canadian economy (and its resilience in a context of trade disruptions) needs to be seen as an opportunity to also strengthen Indigenous rights, rather than threaten them. Many Nations have demonstrated readiness to sit at the table and advance projects in common, others need more capacity support and greater trust and recognition of their sovereignty. As in other OECD counties, the urgent competitiveness agenda calls for more effective internal negotiation to reach agreements that can benefit the region. Some of the recommendations of this chapter aim to build that middle ground.

Transparent environmental reporting

Transparent reporting ensures that First Nations have access to accurate, timely, and complete information about environmental risks, emissions, and remediation plans. Existing comprehensive frameworks for responsible mining help improve sustainability reporting standards. Some of these frameworks are already adopted by many companies in the region, including such as the Mining Association of Canada's *Towards Sustainable Mining Protocol* and the Global Reporting Initiative (GRI), Task Force on Nature-related Financial Disclosures (TNFD), the Initiative for Responsible Mining Assurance (IRMA) Standard and forthcoming Canadian auditing standards that require transparent disclosure of environmental, social, and Indigenous engagement practices.

Despite the increasing adoption of these standards across companies, there is a lack of clear mechanisms to monitor their implementation or compare them among their different metrics. Therefore, Ontario Mining Association in co-operation with the government should promote a common system for easy access about the status of these standards and transparency on their monitoring. The system could be supported by training for First Nations to allow environmental monitoring to be carried out by Nations themselves.

Transparency on legacy sites is also relevant to improve trust and First Nations engagement in their remediation. In many legacy sites, historical contamination and insufficient consultation left communities with long-term environmental and health burdens. Information about legacy mines in Northen Ontario could be improved by strengthening Ontario's Abandoned Mines Information System (AMIS) and the monitoring capacity to track environmental hazards and land tenure conflicts. This system is outdated and has incomplete data, with a lack of functional risk ranking system and limited public accessibility. Much of AMIS's information is based on site assessments from the 1990s and early 2000s and many sites lack current, on-the-ground verification. The inability to accurately rank sites by public safety and environmental risk makes it difficult to prioritise remediation, while only a small fraction of sites, have been properly inspected. Ontario's Ministry of Energy and Mines has yet to estimate the full cost of rehabilitating all abandoned sites, leaving financial planning fragmented. AMIS also fails to comprehensively document chemical contamination or physical instability, and does not consistently account for complex land tenure or overlapping interests, which can delay cleanup. Furthermore, the system's reports and risk assessments are not always transparent or accessible to the public or Indigenous communities, who have called for real-time data sharing and Indigenous-led monitoring.

To improve AMIS, the Government of Ontario should prioritise up-to-date field assessments, starting from high-risk sties, and ensure that the risk-ranking tool is fully operational and transparent. There needs to be greater understanding of how site classifications are assigned. Comprehensive tracking of environmental hazards—including chemical and physical risks—must be integrated, and the system should be updated to reflect current land tenure and jurisdictional complexities. Financial planning should include regularly updated cost estimates for remediation, and AMIS should be made more accessible through user-friendly interfaces, real-time data sharing, and the integration of Indigenous knowledge and monitoring programmes. These steps would help ensure more effective, equitable, and transparent management of Ontario's abandoned mine legacy.

Ensure community safety

First Nations have a right to safety that is enshrined in both legal and treaty frameworks, as well as international human rights standards. This right to safety encompasses protection from environmental harms, health risks, and social disruptions that can arise from mining operations on or near their traditional territories. A right to safety obligates mining companies and governments to engage in meaningful consultation, co-develop monitoring and closure plans, and address issues such as tailings management, emissions, water quality, and the social impacts of mining (including housing, substance abuse, and violence). For example, studies have pointed to increases in human trafficking and sexual abuse associated with resource development and the presence of work camps (Brooks, 2023[46]). Safety is not

just the absence of harm, but also the presence of conditions that allow First Nations to thrive on their lands, reflecting the spirit of reciprocity and mutual care embedded in treaty relationships.

In 2019, the Canadian government introduced a new requirement to consider the "intersection of sex and gender with other identity factors" in impact assessment and energy project reviews under the Impact Assessment Act (IAA) and Canadian Energy Regulator Act (CERA). However, this framework could benefit from more effective implementation methods Hence, for mining projects, an Indigenous focused framework at the provincial level can provide helpful direction (Johnston, Walker and Hoogeveen, 2024[47]). The Indigenous Gender-Based Analysis Plus (IGBA+) Toolkit is a transformative framework designed to address the unique safety risks faced by Indigenous women, girls, Two-Spirit, and gender-diverse individuals in mining regions. It complements frameworks like the MMIWG Calls for Justice (e.g. Call 13.2 on gender impact assessments) and the Mining Association of Canada's Indigenous and Community Relationships Protocol. IGBA+ recommends that companies co-develop safety strategies that honour Indigenous sovereignty. Its effectiveness depends on enforcement and resource allocation. Governments and industry must: adopt binding requirements for IGBA+ in mining approvals and monitoring; fund Indigenous-led training programmes to build technical and negotiation capacity; address gaps in data collection, particularly for Two-Spirit and gender-diverse communities. By embedding IGBA+ into mining governance, stakeholders can advance safety, equity, and reconciliation, thus ensuring Indigenous women and girls are empowered as decision-makers in shaping the future of their territories.

Safety is a multi-dimensional issue and a joint responsibility that can be effectively identified and directed by First Nations in conversation and collaboration with governments, industry, and support services including relevant NGOs using frameworks such as IGBA+. A key point of highlighting this is to consider safety as a form of governance agreement and potential partnership and to note the need for anticipatory planning and resourcing to address the diversity of safety issues that communities may experience. For vulnerable regions such as the Ring of Fire, governance and reporting frameworks could be established for ongoing monitoring and assessment of safety issues alongside the establishment of community-based incident reporting systems. Introducing a framework such as IGBA+ at the provincial level will also reduce complexity for companies and protect against reputational risk, providing a clear mechanism to follow to ensure structured and inclusive gender-based safety assessments and monitoring.

Capacity building

Access to appropriate expertise

Mining negotiations often require First Nations to hire specialised consultants, engineers, and financial experts to overcome information asymmetries and ensure fair agreements, interpret technical reports, manage environmental impacts, and enforce compliance through governance models like IBA implementation committees. It is ideal that much of this expertise be 'in-house,' ensuring institutional memory and community voice. This should not come at the expense of other aspects of governance and administration, such as investment in social and cultural initiatives. To this end, funding programmes like the Government of Ontario's New Relationship Fund and Mineral Development Advisor positions have enabled First Nations to build consultation and engagement capacity and access technical expertise.[8] Federally, the Indigenous Natural Resource Partnerships Program provides funding to support Indigenous communities, businesses, and organisations' economic participation and readiness for engagement in natural resource projects, including mining. Furthermore, agreements such as the one between the Musselwhite Mine and the Windigo First Nations included contracts for catering and housekeeping services to the mining camp. These initial contracts enabled the First Nation communities in the area to build their own operations and capacity (Intergovernmental Working Group on the Mineral Industry, 2016[48]).

In order to increase access, the Government of Ontario should consider expanding the Mineral Development Advisor (MDA) stream of the Indigenous Participation Fund (IPF) by lowering the activity

threshold for eligibility and allowing communities with moderate or emerging mineral activity to qualify. The programme could broaden the range of qualifying activities to include consultations, environmental monitoring, and negotiations for Impact Benefit Agreements, as well as anticipatory planning for projected mineral development. Introducing a pre-development stream and supporting regional partnerships would help build capacity in smaller or less active communities. Extending funding terms, providing renewal options, and allocating a portion of funds to regions with high economic need or legacy mine issues would promote equity. Enhanced training, mentorship, and streamlined application processes, along with regular outreach and performance monitoring, would further ensure that First Nations have the resources and support needed for meaningful participation in mineral development and oversight. There are a range of federal and provincially funded programs to support engagement and participation in mining. First Nations representatives have reported administrative barriers in accessing these funds due to the variety of sometimes complex application and reporting procedures. Efforts to simplify this process can help increase uptake.

Research, innovation, and education partnerships also help build and facilitate access to various types of expertise. The First Nations Major Projects Coalition is a good example of this. The coalition is the First Nation-led organisation to provide a collaborative platform for Indigenous communities to assert their expertise and advice in the context of major resource and infrastructure projects. A number of government and industry-funded programmes also support capacity building. Academic centres such as Lakehead University's Centre of Excellence for Sustainable Mining and Exploration connect researchers with First Nations, Métis, government, and industry partners to address challenges in sustainable economic development, environmental protection, and the affirmation of Aboriginal and Treaty rights.

Beyond this both government and industry can support for capacity development in the sector by helping to finance Mining 101 training workshops tailored to First Nation communities and organisations (e.g. support a train-the-trainer model for in-community programme delivery) Research collaborations, initiatives such the Anishnawbe Business Professional Association (ABPA) and the University of Toronto's Faculty of Law, examine the effectiveness of current legal frameworks, equity ownership models, and procurement standards. These types of partnerships are often more cost effective for First Nations than reliance on external consultants. As demand for mineral exploration increases, it is critical that these types of initiatives be resourced and expanded.

Access to affordable capital and equity ownership

Promoting Indigenous equity ownership and participation options in major mining projects and related infrastructure initiatives (where it is desired by First Nations) is crucial for long-term economic benefits. A forward-looking approach to Indigenous economic inclusion in mining emphasises embedding Indigenous equity participation at both the pre-Final Investment Decision (pre-FID) and post-FID stages of project development (Box 3.11). Mining companies should prioritise offering equity stakes to Indigenous communities in new projects.

Affordable capital remains a persistent barrier, with many Nations historically excluded from direct ownership or meaningful participation in resource projects as a result. Private sector banks in Ontario are playing a growing role in providing access to capital, but their willingness to lend typically requires evidence of stable cash flows—such as net smelter return royalties or long-term service contracts with mining companies—before extending credit. While loans for acquiring equity provide First Nations ownership in a project, allowing for direct participation in governance and a share of profits, they also expose them to business risks. This may not be a preferred model.

For First Nations interested in pursuing ownership, less traditional financial models can be explored that are more appropriate for Indigenous communities, placing community assets and organisations under less risk. For instance, in Australia's Northern Territory, the Indigenous owned Gulkula mine supplied high-quality bauxite to Rio Tinto rather than selling directly to market. This de-risks the marketing side of the

operation and provides an example of how mature engagement between established mining companies and Indigenous Peoples can lead to mutual benefit (Barnes et al., 2024[49]).

Furthermore, loan guarantees are also an equity avenue for First Nations. They are not direct funding but a promise to back a loan, making it easier and cheaper for First Nations to borrow money for major investments, including equity stakes in mining projects. In 2024, the Government of Canada launched a novel Indigenous Loan Guarantee Program with up to CAD 10 billion in loan guarantees, helping First Nations secure financing for equity stakes and major investments at lower interest rates.[9] It guarantees repayment of loans should a First Nation be unable to meet its obligations and provides funding for investment analysis and due diligence. This helps First Nations make informed decisions about potential mining investments.

Ontario has recently expanded and rebranded its Indigenous loan guarantee initiative, now called the Indigenous Opportunities Financing Program (IOFP), previously known as the Aboriginal Loan Guarantee Program (ALGP). This programme is designed to support Indigenous participation in major infrastructure and resource projects by providing government-backed loan guarantees. In the 2025 Ontario Budget, the programme's funding was tripled from CAD 1 billion to CAD 3 billion. This move reflected the government's commitment to increasing Indigenous access to capital for large-scale projects. The IOFP's mandate has also been broadened. While the original programme focused primarily on electricity infrastructure—such as renewable energy, transmission, and generation projects—the IOFP now covers a wider range of sectors, including energy, pipelines, mining, critical minerals, resource development, and other eligible infrastructure projects.

Starting in the second quarter of 2025, the IOFP will be administered by the Building Ontario Fund, which will consolidate access to a suite of financing tools for Indigenous partners, with the loan guarantee as a central feature. The programme is available to entities wholly owned by one or more Indigenous partners, and loan proceeds must be used to fund a portion of their equity investments in eligible projects. The government typically guarantees about 75% of a loan taken by an Indigenous entity to invest in an eligible project, making it easier and more affordable for Indigenous communities to secure financing. The process includes obtaining financial and legal advice and may involve costs similar regardless of project size, making the programme most efficient for projects over CAD 5 million. Once approved, the government guarantees the loan, and the Indigenous entity can proceed with its equity investment in the project. These financial tools should be available for new (greenfield) projects as well as existing (brownfield) opportunities.

These funding programmes are important. However, the demands for access to capital may outstrip them. The Canadian Climate Institute estimates that governments will need to facilitate Indigenous access to capital of around CAD 7.5 billion to enable them to secure a 25 per cent equity stake in upstream critical minerals mining projects by 2040 (Canadain Climate Institute, 2025[50]). The First Nations Major Projects Coalition (FNMPC) estimates that over the next decade, more than CAD 50 billion will be needed to support First Nations' equity financing in major projects across Canada (First Nations Major Projects Coalition, 2023[51]).[10]

Box 3.11. Indigenous equity participation in mining – A two-stage capital access model

In a forward-looking approach to Indigenous economic inclusion, mining proponents can embed Indigenous equity participation at both pre-Final Investment Decision (pre-FID) and post-FID stages of project development. This model positions Indigenous interests not merely as stakeholders, but as co-investors—capable of taking on aligned risk in exchange for proportionate reward.

At the pre-FID phase, Indigenous groups are formally invited to participate in capital raising alongside mainstream and institutional investors. They are provided the same Information Memorandum (IM) and access to commercial advisors, ensuring full transparency on project risk, returns, and timelines.

At the post-FID stage, further equity tranches or convertible instruments can be made available, enabling participation as the project de-risks. Indigenous interests are offered the same guidance on internal rates of return (IRR), consistent with what is extended to other capital partners.

This model ensures alignment across financial, operational, and cultural objectives, while enabling Indigenous investors—including representative economic vehicles—to build wealth, shape governance, and reinvest into community priorities. It reflects a principled, market-aligned pathway to Indigenous economic inclusion.

De-risking Project Finance and Creating Project Certainty

Introducing Indigenous interests into capital raising not only promotes equity—it also de-risks project finance by fostering early trust, transparency, and co-ownership. When Indigenous investors are granted early access to project design options and management dialogue, their input can shape more culturally attuned and environmentally responsive development pathways. This enables the proponent to address cultural heritage, land use, and environmental concerns at the front end, rather than during the consents and agreement phase, which usually occurs toward the back end of the development timeline.

Clear alignment on risk and return expectations builds confidence among all financiers, while Indigenous co-investment signals community support. This involvement is an increasingly important factor for lenders and regulators. The result is stronger social agency, faster approvals, and more resilient project economics. Inclusive capital design is not just fair—it is financially strategic.

Source: Darren Godwell, i2i Global

Royalties frameworks

Beyond access to affordable capital to facilitate equity ownership and business development, there is growing interest in some communities for more direct revenue models that could benefit First Nations. Ontario has taken steps in this direction, signing resource revenue sharing agreements in 2018 with Indigenous councils representing 35 Nations to share 40% of mining taxes and royalties from existing mines and 45% from future mines, resulting in millions directed to Indigenous communities for economic and community development (Government of Canada, 2025[43]). This system ensures equity among participating First Nations and reduces potential territorial disparities. The First Nations Tax Commission advocates for a First Nations Resource Charge that would allow First Nations to opt in and impose a pre-specified charge on resource development projects within their traditional territories or ancestral lands. This would provide them with stable and predictable revenues while also streamlining negotiations and improving business competitiveness (First Nations Tax Commission, 2023[52]). Government of Ontario should explore the viability of such an approach and provide the option where First Nations are interested.

Royalties' frameworks may also be considered under the Government of Canada's National Benefits-Sharing Framework (NBSF), which at the time of publication, is under development. The NSBF aims to ensure that Indigenous communities, particularly First Nations, directly and equitably benefit from major resource projects—such as mining—on their traditional territories (Government of Ontario, 2025[16]). The framework is being co-developed with Indigenous Peoples, communities, and businesses to reflect their priorities and needs, and to create more transparent, standardised, and enforceable mechanisms for sharing economic benefits, including royalties, equity ownership, employment, and business opportunities, while also supporting community well-being and long-term sustainability. The framework responds to calls from First Nations for more holistic, regionally inclusive approaches and aims to move beyond ad hoc, project-specific agreements and toward a consistent national standard that recognises Indigenous rights, supports self-determination, and advances economic reconciliation in the resource sector. The NBSF has the potential to transform some of the most persistent challenges facing First Nations, access to capital among them. It has the potential to provide a flexible revenue stream that First Nations could use to meet their development priorities—as opposed to project-based funding or earmarked transfers.

Royalty streams can provide stable funding. For example, Nations Royalty, founded by the Nisga'a Nation in partnership with mining financier Frank Giustra, is pioneering a groundbreaking model in Canada by pooling First Nations' mining royalties to create a majority Indigenous-owned, publicly traded, dividend-paying company (Nations Royalty, 2025[53]). The company began by consolidating the Nisga'a Nation's royalties from several major mining projects in BC's Golden Triangle into a single investment vehicle. This enabled them to convert their individual royalty streams—typically negotiated through benefit agreements with mining companies—into shares in Nations Royalty, offering investors diversified exposure to mining assets while creating a stable revenue stream for its Indigenous shareholders. The model is designed to reduce risk for participating First Nations, especially those with royalties tied to a single mine, by spreading income sources across multiple projects. The company is actively seeking to expand its portfolio by inviting other royalty-holding First Nations across Canada to join. This could unlock greater value, foster economic reconciliation, and build one of the world's leading royalty companies, one that is rooted in Indigenous ownership and governance.

Indigenous inclusion in ongoing monitoring and engagement of mining activities

First Nations in Northern Ontario are increasingly included in the monitoring and engagement of mining activities through a combination of formal agreements, community-led programmes, and strategic partnerships, many of which are supported by targeted funding. IBAs often establish governance structures such as monitoring committees and implementation boards, engaging First Nations to oversee compliance, environmental standards, and benefit-sharing throughout the mine's life.

Research collaborations with First Nations have also been established to conduct monitoring. For example, Michipicoten First Nation collaborates with Trent University researchers and graduate students to analyse water samples and wildlife data related to mining activities on their territory. This partnership helps the Nation to independently verify environmental reports from mining companies, develop technical capacity within the community, and ensure monitoring processes reflect both scientific standards and Indigenous knowledge. Community-driven initiatives like the Government of Canada's Indigenous Guardians Programme empower First Nations to conduct environmental monitoring using both traditional knowledge and scientific methods (Box 3.12). There has been strong demand for this programme, which is not mining specific.

To strengthen its relevance in mining regions, First Nations that are interested could collaborate with the federal and provincial governments and the mining industry to formally integrate Guardians into mining regulatory processes. This could include participation in environmental assessments, permitting, and compliance monitoring so that Traditional Knowledge and scientific data are jointly used in decision-making. For those interested in such engagement, mining companies could fund Indigenous-led

monitoring, provide real-time data access, and grant Guardians unrestricted site access. Dedicated funding could also be allocated for Guardians to lead remediation of abandoned mines and track environmental and cultural risks where there is interest. Technical capacity can be enhanced through partnerships with academic institutions like Lakehead University that would provide training in relevant monitoring and analysis skills. Programmes like this can support Indigenous data sovereignty by developing Indigenous-controlled platforms for environmental data sharing, ensuring transparency and accountability. By embedding Guardians as key decision-makers in mining governance, Canada can better uphold Indigenous rights, advance reconciliation, and ensure that mining activities respect FPIC.

Box 3.12. The Indigenous Guardians Program

The Federal Indigenous Guardians Program has significantly empowered First Nations to monitor lands including those affected by mining and to participate in mine remediation efforts. Through substantial federal investments—over CAD 200 million nationally, including recent multi-million dollar allocations to Northern Ontario communities—the programme supports Indigenous-led environmental stewardship initiatives that place trained Guardians on the ground as the “eyes and ears” of their Nations. These Guardians are responsible for monitoring environmental conditions, collecting data on water, wildlife, and land health, and ensuring that mining activities—both active and abandoned—are managed in ways that respect Indigenous rights, traditional knowledge, and local priorities.

In practice, Guardians programmes have enabled First Nations to conduct independent, culturally informed monitoring at mine sites, such as at Voisey’s Bay, where on-site Indigenous Guardians have improved communication between communities, governments, and mining companies. They have also played a direct role in identifying and responding to environmental hazards. In Northern Ontario, federal funding has supported projects like the Matawa First Nations Management’s Four Rivers Regional Guardians Network and the Biinjitiwaabik Zaaging Anishinaabek community programme, which specifically include protocols for monitoring mining sites and integrating traditional knowledge with scientific analysis. These initiatives not only enhance environmental oversight and remediation but also foster local employment, build technical capacity, and strengthen community decision-making around resource development.

Importantly, the Indigenous Guardians Program is Indigenous-led, with funding decisions and programme design controlled by First Nations themselves through the National Guardians Network. This structure ensures that monitoring and remediation activities are responsive to the needs and values of each Nation, rather than being dictated by external governments or industry. As a result, the programme has become a model for reconciliation, supporting First Nations in fulfilling their stewardship responsibilities, building trust with industry, and ensuring that mining and mine remediation are carried out in a manner that protects both the environment and Indigenous ways of life

Source: (Government of Canada, 2025[54])

Access and Inclusion

Enhance Indigenous procurement opportunities

Indigenous procurement in the mining sector represents a significant opportunity for advancing Indigenous economic development and reconciliation. Mining project procurement is often the largest operational expense, creating substantial potential for Indigenous businesses to participate meaningfully in local and regional economies. Organisations such as Mining Shared Value work to promote best practices and transparency in local and Indigenous procurement, while resources like the Canadian Minerals and Metals

Plan (CMMP) Local Procurement Checklist offer practical guidance for both companies and Indigenous suppliers. These tools encourage firms to set clear procurement targets, involve Indigenous communities in determining business eligibility, and support meaningful partnerships that foster supplier development and capacity building.

Despite these growing opportunities, Indigenous enterprises often face barriers such as limited organisational capacity, inconsistent access to information about contract opportunities, complex procurement processes, and geographic challenges. Set-asides in contracts, Impact and Benefit Agreements (IBAs), and joint ventures have proven helpful, but expanding the reach and impact of Indigenous procurement will require continued support from government policy, industry leadership, and targeted outreach. Addressing these challenges through inclusive policies and partnership strategies will not only ensure shared economic benefits, but also strengthen relationships between mining companies and Indigenous communities, laying the foundation for long-term business growth and operational stability.

Mining companies should streamline their procurement processes to increase accessibility for Indigenous suppliers, including providing plain-language guidelines, up-to-date information on procurement opportunities, and culturally relevant outreach. Expanding mentorship and training supports for Indigenous entrepreneurs—especially those operating in remote communities or through community-owned ventures—will build organisational and technical capacity to participate effectively in bids and contracting. Integrating Indigenous business directories, standardised business definitions, and feedback mechanisms into procurement systems can further reduce barriers to entry and ensure opportunities are widely communicated. Cultural competency training for company staff and contractors is crucial, fostering mutual respect, understanding, and effective partnerships with Indigenous suppliers and leadership. Ultimately, embedding procurement requirements, consistent reporting, and Indigenous participation metrics into government and industry standards will promote long-term economic reconciliation and shared prosperity in the mining sector.

Beyond mining sector procurement, governments at all levels should work in partnership with Indigenous Peoples to design and implement procurement policies that create real opportunities for Indigenous businesses to participate in and benefit from infrastructure projects. This includes establishing clear Indigenous procurement targets. For example, a percentage of contracts could be set aside specifically for Indigenous businesses. Moreover, Indigenous communities should be directly involved in defining what constitutes an Indigenous business for procurement purposes. These policies should evaluate using the Indigenous Business Definitions that were developed by National Indigenous organisations (NACCA, 2023[55]).

The Government of Ontario has had an Aboriginal Procurement Program since 2015. It has achieved some positive outcomes, such as increasing contracting opportunities for Indigenous-owned businesses, particularly in Northern Ontario, and supporting local employment and capacity-building. However, the programme faces significant challenges. Results from the 2020 Canadian Council of Aboriginal Business Survey finds that only around 36% of Indigenous businesses in Ontario are aware of the programme, and just 20% have ever bid on a provincial government contract (Canadian Council of Aboriginal Business, 2020[56]). Many Indigenous businesses report barriers such as the complexity of government procurement, lack of experience, and uncertainty about the relevance of their products or services to government needs (Canadian Council of Aboriginal Business, 2020[56]). While joint ventures have helped some Indigenous businesses access larger contracts, finding suitable partners and managing those relationships can be challenging. The majority of Indigenous businesses have not engaged with government procurement opportunities, indicating that the programme's reach and impact could be expanded through improved outreach, simplified processes, and more targeted support.

Enhance recruitment and retention of Indigenous Peoples in mining companies and firms

Strengthening collaboration and partnerships is essential for increasing Indigenous participation in mining, where communities wish to participate, and responsibility for implementation should be shared across different levels of government and the private sector. The federal government should set national standards and provide funding for Indigenous skills development, training, and mentorship programmes. It should also ensure that its policies promote inclusive and equitable participation in the mining sector. The provincial government of Ontario should continue (and expand) targeted investments such as the recent CAD 3.1 billion commitment to Indigenous participation in mining. This commitment includes loan guarantees, grants, and scholarships for Indigenous students interested in mining and resource development careers. The province should also support structured, ongoing dialogue among Indigenous communities, mining companies, and government authorities to identify employment interest from communities and priorities and co-create solutions. This would go a long way in encouraging partnerships with Indigenous-owned businesses and local employers to create direct pathways into mining careers.

Mining companies should operationalise culturally relevant recruitment strategies, including outreach through community visits and school presentations, and involve Indigenous staff in recruitment to inspire potential candidates. Many companies already undertake such outreach, but broader adoption and formalisation are needed. Companies should also develop and expand mentorship programmes, especially those pairing new Indigenous hires with experienced Indigenous workers to facilitate orientation, integration, and ongoing support. While some formal and informal mentoring exists, scaling these programmes across the sector will further support retention. Larger mining firms, with greater resources, should provide comprehensive wrap-around and retention services tailored to Indigenous workers, while smaller firms should be encouraged and supported to do the same.

Inclusive decision-making and governance should be mandated by governments, requiring the involvement of Indigenous Peoples in project development, environmental management, and employment policy decisions. Both federal and provincial governments should require regular monitoring and evaluation of recruitment and retention strategies. This should include structured meetings and feedback from Indigenous employees and communities in order to ensure that initiatives remain effective and responsive over time. Some companies and agreements already include Indigenous governance roles and regular feedback mechanisms, but sector-wide consistency and accountability are needed.

Include Indigenous Peoples in remediation and abandoned mine sites reclamation

To ensure Indigenous Peoples are meaningfully included in abandoned mine site reclamation in Ontario, Ontario's *Mining Act* could be amended to mandate supporting Indigenous co-management of abandoned mine sites, where communities are interested. This would include Indigenous participation in decision-making bodies, joint oversight committees, and the integration of Traditional Knowledge into risk assessments and environmental monitoring. The process could mirror the First Nations Major Projects Coalition (FNMPC) framework (FNMPC, 2024[57]), which prioritises Indigenous sovereignty in project approvals. Ontario's Abandoned Mines Information System (AMIS) should be updated to include Indigenous-defined risk criteria, such as threats to cultural sites and traditional food systems, and enable Indigenous-led monitoring, supported by expanded Indigenous Guardians programmes (Chong and Basu., 2024[58]).

The Government of Ontario could legislate procurement quotas for Indigenous-owned firms in remediation contracts. Procurement rules should prioritise verified Indigenous-owned businesses for remediation contracts, and a dedicated legacy remediation fund, co-managed with Indigenous partners, could be established to address high-risk sites. Financial assurance requirements should be strengthened so that companies secure bonds covering more than the estimated remediation costs, with Indigenous

communities involved in approving these estimates. Transparent, real-time data sharing about contaminants and site conditions is essential, with GIS platforms managed by First Nations.

Invest in land-based and Indigenous-focused learning

Land-based learning offers a powerful means of strengthening First Nations' economic development and engagement with Ontario's mining sector by weaving together traditional knowledge, cultural values, and practical skills that reflect community priorities. This approach fosters self-determination and environmental stewardship and can enhance workforce readiness. Through land-based education, community members gain the skills necessary to participate meaningfully in mining projects such as environmental monitoring. Programmes such as the Indigenous Guardians Program exemplify this by training participants to assess ecological impacts using both traditional knowledge and scientific methods, empowering communities to advocate for sustainable practices and hold companies accountable. This dual expertise is crucial for informed consent processes and ensures that mining activities align with Indigenous land-use plans, such as those developed under Ontario's Far North Land Use Planning Initiative.[11]

By combining hands-on training in resource management with cultural teachings, land-based learning prepares Indigenous Peoples for diverse roles in mining while preserving sovereignty over traditional territories. Initiatives like Aki-eh Dibinwewziwin emphasise culturally grounded skills such as land mapping and treaty rights awareness, which are essential for leadership in mining operations. These programmes also support Indigenous-led businesses, like Ednysian Camp & Logistics, by fostering entrepreneurship rooted in community values. Moreover, land-based learning helps address historical distrust by equipping Indigenous communities with the tools to engage proactively with industry. The Anishinabek Nation's advocacy for mandatory cultural competency training for mining professionals underscores the importance of understanding Indigenous protocols and land relationships as a way to reduce conflicts (Anishinabek Nation, 2011[59]). Land-based education is supported by resources like the First Major Projects Coalition *Spirit of the Land Toolkit*, that integrates traditional ecological knowledge into the complete mine lifecycle, including mine closure planning, ensuring that projects respect sacred sites and biodiversity (First Nations Major Projects Coalition, 2025[60]). Such approaches align with the growing demand for ESG compliance in mining and provides integrated policy and technical guidance to support consent-based decision-making and the protection of Indigenous cultural rights.

To advance land-based learning, region-specific land-based curricula is needed to emphasise skills like GIS mapping, environmental monitoring. The Government of Ontario and industry partners can support this by funding Indigenous-led training hubs that blend traditional knowledge with technical mining expertise. Educational institutions should collaborate with First Nations to create curricula that integrate traditional ecological knowledge and land-based learning with technical mining skills. Programmes such as the "stope school" developed by Barrick Gold and Confederation College could be expanded to include more Indigenous content, while field schools that bring training to learners in remote communities—such as Confederation College's carpentry training in fly-in communities—help reduce barriers to participation and ensure skills are relevant to local mining projects. Initiatives like Women in Trades and Lakehead University's collaborations with industry partners address sector-specific gaps. Mining companies can also play a role by sponsoring cultural camps and land-based learning opportunities for Indigenous youth, which could spark interest in both traditional practices and modern mining techniques.

A cohort model is especially important for training because it fosters a strong sense of community, belonging, and mutual support. In cohort-based programmes, such as the Aboriginal Women in Mining Program (Box 3.13), learners progress together and support one another through challenges unique to Indigenous students, such as being away from home, facing cultural barriers, or balancing family obligations. This model helps reduce isolation, increases motivation, and enhances retention and completion rates, as students encourage each other and learn collaboratively. In the context of workforce training, especially in sectors like mining, cohort models can also facilitate mentorship, collective problem-

solving, and the sharing of lived experiences, all of which are vital for building capacity, confidence, and leadership among Indigenous participants. The Aboriginal Women in Mining (AWIM) programme is primarily funded by the Government of Canada through Human Resources and Skills Development Canada (HRSDC) as part of the Skills and Partnership Fund (SPF). In addition to federal funding, the programme has received support from the Ontario government, notably through the Investing in Women's Futures programme, which allocated CAD 325,000 over three years to Keepers of the Circle, the parent organisation of AWIM, to provide pre-employment training and wraparound supports for Indigenous women in northeastern Ontario. These types of programmes are a leading practice and should be expanded.

Box 3.13. Aboriginal Women in Mining programme

The Aboriginal Women in Mining (AWIM) programme, led by *Keepers of the Circle*, is a transformative initiative designed to support First Nations and Métis women in accessing employment and self-employment opportunities within the mining sector and other non-traditional industries. AWIM provides a holistic pathway that begins with personal development and life skills training, followed by technical instruction and industry-specific certifications, such as the Common Core Modules required for mining work. The programme also offers job coaching, on-the-job placements, and direct connections to employers, ensuring that participants are well-prepared for long-term, meaningful employment. Since its inception in 2013, AWIM have trained over 700 Indigenous women and Two Spirit individuals, with more than half securing employment or work placements in mining or related fields.

In 2019, the Bucket Shop (a manufacturing and heavy equipment firm) partnered with Keepers of the Circle and the Canadian Welding Bureau (CWB) to create a programme that mirrored the curriculum used in Ontario colleges, but condensed it into an intensive eight-week, five-hours-per-day practical format. The CWB generously donated the curriculum, typically a 2.5-year programme, allowing participants to gain the same foundational skills in a much shorter timeframe. Trainees learned essential welding techniques and, upon completion, took the CWB welding test, with all participants earning at least one welding ticket. Over two years, the programme graduated 42 Indigenous women, five of whom were hired full-time by the Bucket Shop, while the others received references and support to pursue careers in the mining sector.

The initiative not only addressed the skilled trades gap in the region but also demonstrated that, with the right support and culturally sensitive approach—including staff training on Indigenous culture and history—Indigenous women could quickly gain industry-recognised credentials and transition successfully into non-traditional roles. The programme's success has influenced the development of a new, fast-tracked credentialed training pathway in partnership with local colleges and the Ministry of Education, ensuring continued opportunities for Indigenous women in mining-related trades, with a strong emphasis on cultural inclusion and practical, workplace-based learning.

Source: (Keepers of the Circle, 2025[61])

Provide greater opportunity for Indigenous representation within international organisations and events related to mining

Providing greater opportunities for Indigenous representation within international organisations related to mining and sustainable development is important for ensuring Indigenous perspectives are considered at a global level. Among key international organisations, only United Nations bodies and the Arctic Council have specific forums for the representation and participation of Indigenous Peoples.[12] The OECD has also committed to fostering platforms for ongoing dialogue and knowledge-sharing among Indigenous communities, governments, industry, and researchers in support or Indigenous rights.

Participation in international forums can be costly and information might not reach participants in time. Governments in partnership with mining companies can keep supporting the participation of Indigenous leaders in such international forums and conferences. Sponsorships for Indigenous representatives to attend and present at international mining events as well as secondees opportunities to work in mining-related organisations, such as the *International Council on Mining and Metals* (ICMM), could be strengthened. Additionally, supporting the development of international Indigenous networks focused on mining and resource development can help amplify Indigenous voices on the global stage.

Partnerships and collaboration

Indigenous regional planning

The basic unit of governance of a First Nation is a band, which is a creation of the Indian Act. This structure has sometimes set up bands to compete with one another for resources and recognition (and thus potentially exploited by governments and industry). Each First Nation has a common history, language and territory; if FNs work together as a collective they can pool resources and know-how to realise their development objectives. This is an ongoing political project across many First Nations that changes how they collectively voice their interests.

Indigenous regional planning supports such co-ordinated and strategic engagement. This can take a variety of forms. For example, the development of regional economic coalitions among First Nations, such as the Wabun Tribal Council model, which can strengthen negotiating positions and ensure more equitable distribution of benefits for all members. Regional planning requires resourcing and a range of expertise to be successful. The OECD has previously recommended that the Government of Canada encourage regional partnership and strategic planning by:

- Expanding the Government of Canada's Comprehensive Community Planning initiative (funded by Indigenous Services Canada) to support regional planning in addition to community level plans;
- Expanding the role of Indigenous Financial Institutions to include support for strategic planning activities and governance building;
- Simplifying the community and infrastructure planning framework for First Nations (consolidate planning requirements); and
- Providing support for multiple First Nations communities to undertake joint community and infrastructure planning (OECD 2019).

These recommendations remain relevant today. It is also noted that there is a need for more regional support institutions that are non-profit and apolitical. Presently, when communities need this type of support, they often hire consultants, which is expensive and creates a resentful relation of dependency.

Regional planning is critical for impact assessments such as the unique government-First Nations Regional Assessment process for the Ring of Fire area (Government of Canada, 2025[5]). Co-led by 15 First Nations and the Impact Assessment Agency of Canada (IAAC)[13], the collaborative framework will evaluate the environmental, health, social, and economic impacts of potential mining and infrastructure developments to inform future project-specific impact assessments under the federal *Impact Assessment Act*. The resulting final report will be submitted to the Chiefs of all First Nations, partners and the federal Minister of Environment and Climate Change to guide decision making. The original framework lacked mechanisms for Indigenous governing bodies to co-enforce or co-lead the assessment, leading to accusations of token participation and a top-down approach. Concerns also arose about the narrow scope prioritising mining interests over holistic considerations like climate impacts, gender-based analysis, and the protection of peatlands critical for carbon storage. These issues prompted a reset in 2023, with the federal government committing to a revised, co-developed process. The revamped regional model, finalised in 2025, addresses many of these critiques and offers significant benefits for participating First Nations. The terms

of reference now require collaboration on defining assessment boundaries, data collection methods, and mitigation strategies, which should reduce the risk of fragmented or exclusionary planning.

The Government of Ontario has raised concerns about the regional assessment process, federal intervention and the perceived undermining of provincial jurisdiction and priorities. This favours a project-by-project, road-by-road approach to environmental assessments rather than a comprehensive, cumulative regional review (Remiorz, Ryan, 2012[62]). However, while the regional assessment may take time, it will help First Nations to comprehensively understand risks, plan, and engage with industry proponents. The process can also strengthen Indigenous capacity for self-determination, providing a template for future partnerships and fostering economic opportunities aligned with sustainability principles. This is a novel and potentially leading practice in the field of impact assessment, though it is still relatively new and untested.

First Nations-Municipal partnerships

Over the past two decades, the landscape of Northern Ontario has been shaped by a growing awareness that historical divisions, if left unaddressed, will continue to impede economic growth, social cohesion, and the realization of a just society. In response, First Nations and municipalities have begun to forge new relationships, moving from transactional interactions to collaborative, long-term partnerships that prioritise community well-being, economic opportunity, and cultural preservation.

Collaborations often focus on sector-specific growth. Municipalities like Thunder Bay have partnered with Fort William First Nation to attract major industrial investments, including a ferrochrome processor, by presenting a united front to potential investors and government agencies. Additionally, partnerships in infrastructure development, such as Biigtigong Nishnaabeg First Nation and the municipality of Marathon's port authority project, can create opportunities for long-term economic diversification beyond mining activities (Box 3.14). By aligning economic interests and pooling resources, First Nations and municipalities are able to undertake projects that would be difficult, if not impossible, to achieve independently.

Despite their successes, First Nations–municipal partnerships in Northern Ontario face ongoing challenges. Communication gaps, differing timelines and priorities, and capacity limitations can delay projects and strain relationships. Smaller municipalities and First Nations may lack the staff or financial resources to sustain long-term collaborations, while navigating provincial and federal funding criteria often requires external support. First Nations–municipal relations in Northern Ontario can be strengthened through a combination of relationship-building, formal agreements, inclusive consultation, and ongoing education. A foundational step is recognising Indigenous communities as sovereign partners and engaging in government-to-government relationships based on mutual respect, trust, and shared decision-making. Municipalities can move beyond project-specific or ad hoc engagement by establishing ongoing, structured partnerships, such as regular consultation meetings and the creation of joint advisory boards or reconciliation committees. These mechanisms ensure that Indigenous voices are consistently included in municipal planning and decision-making, not just when legal obligations arise.

Formal agreements, like local Friendship Declarations or Indigenous-Municipal Relationship Agreements, provide clear frameworks for collaboration and set expectations for how municipalities and First Nations can work together. The Declaration of Mutual Commitment and Friendship, developed by the Association of Municipalities of Ontario (AMO) and the Ontario Federation of Indigenous Friendship Centres (OFIFC), is a model (or example) that municipalities can adapt locally to articulate shared goals and responsibilities with local First Nations. These agreements help to institutionalise the relationship, making it more resilient to changes in leadership or staff. Building cultural competency among municipal leaders and staff is another crucial element. Training on Indigenous history, rights, and contemporary issues can help break down barriers, address systemic racism, and foster a deeper understanding of the contributions and needs of Indigenous Peoples. This cultural awareness supports more respectful and effective collaboration.

Capacity building on both sides is essential. Municipalities and First Nations can benefit from joint training, shared resources, and collaborative economic development initiatives. Programmes such as the Community Economic Development Initiative (CEDI), which is a partnership between the Federation of Canadian Municipalities and Cando (Council for the Advancement of Native Development Officers), have demonstrated success by supporting more than 20 partnerships across Canada, providing toolkits, and facilitating joint projects that strengthen both communities (CEDI, 2025[63]). Addressing systemic barriers is another critical function of these partnerships. By simplifying bureaucratic processes and sharing resources, partnerships make it easier for smaller or under-resourced communities to access funding and participate in regional development.

Strengthening these relationships requires a long-term commitment to reconciliation. This includes responding to the Truth and Reconciliation Commission's Calls to Action, adopting inclusive policies, and advocating for municipal involvement in broader land claim and treaty implementation discussions when municipal interests are affected. By embedding these practices into their operations, municipalities and First Nations in Northern Ontario can create durable, equitable partnerships that improve social equity, economic opportunity, and community well-being for all residents. As Northern Ontario continues to navigate the challenges of resource development, demographic change, and social transformation, these partnerships offer a blueprint for building inclusive, resilient communities that honour the past while embracing the future. When municipalities and First Nations work together, they create a collective future that is stronger, more just, and more sustainable than the sum of its parts.

Box 3.14. Municipal-First Nations Infrastructure Partnerships: Biigtigong Nishnaabeg and the municipality of Marathon port project

The municipality of Marathon's new port project, developed in partnership with Biigtigong Nishnaabeg First Nation, and logistics company QSL, stands to deliver significant benefits to local First Nations. Through a formal memorandum of understanding, Biigtigong Nishnaabeg is a co-owner and co-decision-maker in the port authority, ensuring that First Nations have a direct voice in the governance, management, and long-term planning of the port. This partnership model creates opportunities for equitable economic development, with First Nations positioned to share in revenues generated by port activities, access new employment and training opportunities, and participate in procurement and supply chain contracts linked to both the port and the broader mining and resource sector.

The port's revitalisation is expected to support the movement of critical minerals and other resources, aligning with regional mining projects in which First Nations are already involved, and strengthening their role in the local economy. Additionally, the collaborative approach to port development reflects a commitment to reconciliation and mutual prosperity. This sets a precedent for future infrastructure projects in the region by embedding Indigenous rights, consent, and benefit-sharing into the core of economic development.

Source: (Ross, 2022[64]), (CBC News, 2024[65])

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Notes

[1] In 2019, the mining industry provided approximately CAD 60 million to Indigenous governments and community partners.

[2] This includes modern treaties (also known as comprehensive land claim agreements) and the Royal Proclamation of 1763 (a statement of the British Crown that recognises Indigenous sovereignty).

[3] The relevant sections are ss. 78 and 78.6 of the Mining Act and Ontario Regulation 308/12. This regulation provides certain procedures by which s. 35 consultation is to be carried out in relation to proposed early exploration activities, which are set out in Schedules 2 and 3 of the regulation (plans activities and permit activities).

[4] Some mining companies in BC are proactively adopting UNDRIP principles, for example, Tahltan Nation's partnership with Skeena resources for the Eskay Creek gold-silver project, which is the first mining project in British Columbia to have permits authorised by an Indigenous government, reflecting full recognition of Tahltan title and rights and aligning with the principles of UNDRIP.

[5] The 2025 BC Court of Appeal hearing in Gitxaała Nation v. British Columbia centres on whether the province's Declaration on the Rights of Indigenous Peoples Act (DRIPA) legally enforces alignment with the UN Declaration on the Rights of Indigenous Peoples (UNDRIP). Gitxaała Nation and Ehattesaht First Nation argue that DRIPA—passed in 2019 to implement UNDRIP—requires BC to reform its Mineral Tenure Act (MTA) to ensure free, prior, and informed consent (FPIC) and consultation before granting mineral claims. They contend the 2023 BC Supreme Court ruling, which found the MTA's automatic claim system unconstitutional but declined to enforce UNDRIP via DRIPA, erred by treating DRIPA as non-justiciable (unenforceable in court). BC maintains that DRIPA's alignment process is a political, collaborative effort outside judicial oversight. Intervenors, including the First Nations Leadership Council and BC Human Rights Commissioner, support the Nations, asserting DRIPA is quasi-constitutional and mandates courts to interpret laws consistently with UNDRIP. The appeal's outcome will determine whether DRIPA holds enforceable legal weight or remains a non-binding commitment, impacting Indigenous rights in resource governance.

[6] For example, Manitoba's First Nations Mineral Development Protocol, establishes mutually agreed processes for consultation and partnership throughout the mineral development cycle, ensuring Indigenous communities have a defined and respected role in decision-making.

[7] The proportion of opioid-related deaths in Ontario is significantly higher among males than females, with males accounting for about 71–78% and females for 22–29% of these fatalities in recent years.

[8] The New Relationship Fund and Mineral Development Advisor programmes in Canada are funded by the Government of Ontario through the Ministry of Indigenous Affairs and the Ministry of Mines, respectively. The New Relationship Fund provides financial support to First Nations and Métis communities and organisations to build consultation and engagement capacity, particularly in the context of resource development projects like mining. The Mineral Development Advisor programme, administered by Ontario's Ministry of Mines, specifically supports Indigenous communities in accessing technical expertise and advice for engaging with mineral exploration and development projects.

[9] The Canada Indigenous Loan Guarantee Corporation is a subsidiary of the Canada Development Investment Corporation (CDEV)—a federal Crown corporation established by the Government of Canada to manage and hold certain investments and assets on behalf of the government. CDEV operates at arm's length from government and is responsible for managing major federal investments in sectors such as energy, natural resources, and infrastructure.

[10] This figure is based on research indicating that approximately $630 billion in capital investments are anticipated in sectors such as energy, mining, forestry, infrastructure, and trade, with Indigenous communities seeking equity participation in many of these projects.

[11] Ontario's Far North Land Use Planning Initiative is a collaborative process between the Ontario government and First Nations to determine how public lands in the Far North region, an area covering about 42% of the province, will be used, protected, and developed. This initiative was established under the *Far North Act*, 2010, which provides a legislative framework for community-based land use planning. The Act sets out a joint planning process, giving First Nations a leadership role and ensuring that planning is consistent with the recognition of Aboriginal and treaty rights, including the duty to consult.

[12] These are the UN Permanent Forum on Indigenous Issues (UNPFII), Expert Mechanism on the Rights of Indigenous Peoples (EMRIP), UN Special Rapporteur on the Rights of Indigenous Peoples and the UN Voluntary Fund for Indigenous Peoples. The Arctic Council includes the Indigenous Peoples' Secretariat.

[13] The Working Group comprised community members of the following 15 First Nations, with administrative support from Matawa and Mushkegowuk Councils; Aroland First Nation, Attawapiskate First Nation, Constance Lake First Nation, Eabametoong First Nation, Fort Albany First nation, Ginoogaming First Nation, Kashechewan First Nation, Long Lake #58 First Nation, Marten Falls First Nation, Missanabie Cree First Nation, Moose Cree First Nation, Neskantaga First Nation, Nibinamik First Nation, Webequie First Nation, and Weenusk First Nation. The Impact Assessment Agency of Canada is also a member of the Working Group.

4 Leveraging mining for long-term development in Northern Ontario

This chapter examines how to enhance the policy and governance framework in Northern Ontario to leverage mining for greater economic opportunities and liveability in all communities.

Box 4.1. Key findings and recommendations

- Northern Ontario is a key asset for Ontario and Canada to secure a reliable mineral supply and improve industrial sovereignty and competitiveness. While mining can be a vehicle to enhance development opportunities for First Nations and rural communities in Northern Ontario, realising this opportunity requires a greater focus in improving basic conditions for the regional business environment for mining as well as the engagement of First Nations and communities.
- The federal and provincial governments have already strengthened their financial and support programmes to improve both competitiveness of the mining sector and the development in Northern Ontario communities. Federal programmes provide notable support to the mineral sector on project infrastructure, innovation, and exploration. In parallel, the provincial government has dedicated efforts to facilitate the development of mineral-related projects, mineral-related innovation (particularly on the battery value chain), exploration and permitting. Both levels of government have increased programme support for First Nations' participation in mining (chapter 2).
- However, federal and provincial policies still need a stronger place-based approach for Northern Ontario in order to focus on strengthening conditions that support both mining projects competitiveness and sustained benefits for First Nations and communities. Some priorities identified in this report include i) enhancing regional innovation ecosystems with stronger links among innovation players and reduced fragmentation of innovation funds; ii) strengthening local labour markets by improving community liveability and skills' matching as well as transforming perception of mining jobs and iii) reinforcing infrastructure for projects and communities, notably housing.
- Implementing the policies that can leverage mining for a resilient development in Northern Ontario requires a stronger federal–provincial-local coordination to align higher-level policy interventions with local needs. Specific governance priorities include stronger municipal financial capacity (e.g. with updated property tax assessments) and improved long-term access to funding, beyond population formulas. Proactive actions to support readiness of First Nation and municipal governments ahead of mining project arrivals or modifications is particularly needed. This includes equipping local governments to engage early with companies, align industrial plans with local strategies, and negotiate agreements (e.g. on the integration of transient workers). Saskatchewan's Regional Development Partnership can be a model to build local preparedness. Similarly, region-wide partnerships that go beyond bilateral agreements should be further encouraged to promote shared planning and benefits.

Key recommendations:

1. Improve Northern Ontario's conditions for both project competitiveness and liveability of First Nations and local communities:

- Enhancing the mining innovation ecosystem in Northern Ontario through:
  - More formalised collaboration and shared innovation goals among regional innovation players, supported by a unified Northern Ontario brand and spaces for interaction, especially for in small municipalities.
  - Promotion of Indigenous-led innovation based on co-governance of innovation programmes and support to Indigenous-led innovation hubs or networks.
  - Strengthen innovation funding by consolidating resources to provide larger support for flagship mineral projects and targeted funds for small businesses, improving communication

of opportunities, delivering clear and timely application feedback, and ensuring funding programmes remain stable and long-term beyond government changes.

- Strengthen connections among local businesses, junior and major mining companies through mining-led innovation challenges, testing platforms, and improved government and industry data on procurement and information for providers. Provincial and municipal governments, in collaboration with the Ontario Mining Association, should work jointly to advance this goal.

- Strengthening local labour markets by:
  - Enhancing outreach to youth their parents and women with hands-on activities, plain language communications, and culturally relevant outreach for Indigenous youth and women. This involves moving beyond traditional information sessions towards experiential activities, where parents and youth can interact directly with mining equipment, technology, and machinery, to spark interest and showcase real opportunities in the sector. Cultural outreach should be done in partnership with Indigenous communities and schools.
  - Improving skill matching with enhanced workforce data and forecast capacity, initiatives for career exploration opportunities in high school, and partnerships with mining companies to expand on-the-job training and mentoring as it can be effective to attract entry-level applicants lacking full skill sets. Workforce data can further rely on pre-employment screening systems and new technologies (such as AI) with a view to identifying regional occupation and skills demand and map workforce characteristics.
  - Strengthening quality of life for workers and families by complementing targeted public policies on service provision with public–private partnerships to expand childcare, recreation, and cultural investments. Amid population decline and shifting immigration policies, provincial and municipal governments also need foresight strategies to adapt service delivery, including greater use of digital solutions.
- Improving industrial and community infrastructure in the region by:
  - Leveraging mining to support investments in transport and energy infrastructure for unconnected communities, ensuring consent from First Nations communities. This should be accompanied by a stronger emphasis on direct public investment in road and energy infrastructure for First Nations, regardless the acceptance of a mining project in their lands.
  - Partnering with mining companies to modernise community infrastructure of local communities, especially roads, digital and recreational infrastructure.
  - Enhancing access to affordable housing for First Nations and local communities by complementing targeted public funding and homeowner repair incentives with industry partnerships to ease municipal access to land, reduce construction costs through shared economies of scale and repurpose or plan mining camps for housing. Newman or Coolgardie in Australia can be examples of how companies can help expand housing supply by freeing up workers' accommodation for community use, or by leveraging mining contractors to support housing construction.

2. Strengthen the governance framework to ensure lasting effects of policies and harness mining for long-term development:

- Improving municipal and First Nations Government planning capacity to harness long term benefits from mining by:
  - Leveraging existing forums spaces to promote a project-specific multi-stakeholder committee to prepare communities before changes in mining projects are made or new mines are opened. Such a committee could bring together rights holders, if desired, and local actors around a specific project to identify local development priorities in advance. The

Saskatchewan's *Sylvite Four-Six Regional Development Partnership* for BHP's Jansen project offers a model for this, building capacity in municipal and First Nations governments to jointly plan in advance to make the most of mining projects.

- Evaluating the development of a communities' group at the provincial level to support the development of mineral related-strategies and help with policy implementation. Other OECD regions have established this type of governance groups. For example, Antofagasta in Chile established a multi-stakeholder group to help define the priority actions of the regional mining strategy and monitor its implementation.
- Supporting municipal governments, particularly small ones, with capacity and knowledge sharing to conduct long-term (+10 years) local development plans to capitalise growth opportunities from mining and diverse sectors. These plans would benefit from having concrete short-term and long-term strategic projects and monitoring mechanisms to track outcomes. Currently, few municipalities in the region have long-term plans, which could lead to missed opportunities and weaker resilience capacity.
- Incentivising transient workers participation in the local economy in consultation with communities, while ensuring communities/ First Nations voices are heard in standards for integration and behaviour.

- Enhancing funding access for local governments to manage externalities and maximize mining benefits by:
  - Evaluating the update of property tax assessment, as they do not reflect up-to-date property values (still based on 2016 assessments)
  - Improving access and predictability of provincial grants with opportunities for multi-year funding and infrastructure funding. This includes evaluating making the Northern Ontario Resource Development Support (NORDS) a permanent fund, maintaining its flexibility, and simplifying access to the Northern Ontario Heritage Fund Corporation (NOHFC).
  - Facilitating partnerships between municipalities and industry to enhance local fiscal benefits from mining. This is particularly relevant for operations located just outside municipal boundaries but dependent on community services. These arrangements should also be developed in consultation with First Nations to increase legitimacy and alignment on shared benefits. Marathon's legislative agreement with Barrick Gold mine to tax mine buildings outside municipal boundaries provides a model for other municipalities in the region.
  - Streamlining visualisation and communication of all the funds that are related to mining opportunities for Local communities and First Nations.
- Support greater coordination across local governments, First Nations- if desired- and companies to implement policies by:
  - Supporting better alignment among growth plans of mining companies with First Nations and local economic development plans. This alignment could help identify future opportunities regarding labour, infrastructure and overall planning of the community.
  - Strengthening inter-municipal cooperation with formal agreements to share good practices, promote joint labour market analysis and synergies in in investments.

Introduction

Northern Ontario's mining sector is vital to Canada's strategy for securing mineral supply and driving resilient, self-reliant economic growth. Amid rising global trade disruptions, advancing critical mineral projects has become strategically important to advance industrial resilience and the green transition in the

country. Northern Ontario holds not only significant deposits of critical minerals, but also mining expertise and education supply as well as a strong business ecosystem, particularly for upstream services. In recent years, both federal and provincial governments have ramped up financial and strategic backing for extraction and processing projects. In parallel, federal and provincial policies have been set to support involvement and capacity of First Nations (chapter 3) and better outcomes for local economies and the environment.

Despite the strategic assets and policy advancements, Northern Ontario faces challenges to simultaneously facilitate competitive mining projects, while ensuring First Nations engagement and greater well-being in for local communities. As mentioned in the previous chapter, a primary priority to improve both business environment and local benefits is enhancing First Nations' role in policy and project decision making. This priority adds up to particular bottlenecks in the mining ecosystem of the region including skills shortages, unused potential of regional innovation assets, and gaps in infrastructure for both companies and communities. Moreover, coordination between federal and provincial policies has room for improvement to address key development priorities in the region and enhance access to funding and capacity support for First Nations and municipal governments.

This chapter explores the existing policy framework for mining in Northern Ontario, identifies opportunities to address key priorities in Northern Ontario's mining ecosystem, and provides recommendations for more coherent policy actions that can help reconcile mining competitiveness with inclusive, and sustainable development opportunities in the region.

The policy framework and governance for mining in Norther Ontario

Northern Ontario has historically relied on natural resource industries, with differences of focus across communities (Chapter 1). During the 70s, Forestry was a main economic activity in the west of the region (Thunder-Bay and Marathon area), while mining reinforced its establishment in the east (Sudbury and Timmins). The period after 1970 saw a growing dependence on more direct public sector employment in the wake of local political pressures to address employment in the region (Di Matteo, 2022[1]). There was a growth in provincial and federal offices, including the federal taxation centre in 1982 in Sudbury, a new provincial government building in Sudbury in 1978, as well as Science North in 1984 (Box 3.2). This occurred in parallel with gradual recognition to First Nations rights, but amid gaps in proper engagement in the local economy and decision-making (chapter 2).

Box 4.2. Dedicated government bodies for Northern Ontario started four decades ago.

In the 1980s, growing recognition of Northern Ontario's unique economic and geographic challenges led to the creation of specialised government bodies and initiatives aimed at improving the region's development prospects.

In 1985, the Ministry of Northern Development and Mines (MNDM) was established by the Ontario provincial government, marking a significant shift in provincial policy as a dedicated ministry responsible for coordinating regional development, resource management, and infrastructure investment in Northern Ontario. The MNDM became the central point of contact for northern communities and industries operating in the region, addressing longstanding disparities between the north and more populous southern regions of the province.

A year later the Northern Ontario Relocation Program (1986) aimed to boost local economies by transferring 1,600 provincial civil servants to various northern Ontario communities, brining stable employment and increased local spending.

In 1988, the province created the Northern Ontario Heritage Fund Corporation (NOHFC) to provide financial support for projects that promote economic diversification, stability, and growth in the region. It has since become a key funding source for infrastructure, innovation, and small business development.

At the federal level, the Federal Economic Development Initiative for Northern Ontario (FedNor) was also launched in the 1980's, reflecting a similar recognition of the region's development needs. Administered by Industry Canada, FedNor became the federal government's primary vehicle for regional economic development in Northern Ontario, offering funding and support to businesses, municipalities, Indigenous communities, and non-profit organisations. FedNor's programmes have focused on enhancing business competitiveness, fostering innovations, and building economic capacity in smaller and more remote communities.

These initiatives marked a shift toward region-specific governance, designed to address Northern Ontario's distinct needs and support long-term, sustainable development.

Source: (Di Matteo, 2022[1])

Mining is gaining renewed global and national momentum, fuelled by soaring demand for minerals essential to clean energy technologies and the transition from fossil fuels. Intensifying trade disruptions- including a fivefold rise in export restrictions on critical minerals over the past decade- have further accelerated national efforts to secure reliable mineral supplies. This context underscores the strategic importance of mining regions like Northern Ontario, which holds significant critical mineral reserves, technical expertise, and a supportive business ecosystem.

As one of Canada's key assets for enhancing mineral resilience and industrial sovereignty, unlocking Northern Ontario's full potential requires more than accelerating project implementation. It also demands meaningful First Nations participation and delivery of long-term benefits for local communities to ensure projects remain sustainable and socially accepted over time. Federal and provincial governments have a range of institutions and policies aimed at advancing both mining competitiveness and community well-being in parallel.

Different federal and provincial institutions play important roles in Northern Ontario' mining sector.

In Canada, mining policy is a shared responsibility between federal and provincial governments, with specific tasks across level of governments:

- The federal government is in mainly charge of national scale thematic geoscience, nuclear energy and uranium mining, explosives regulations, international trade and investments, navigable waters management.
- The provinces are in charge of resource ownership and management, jurisdiction scale framework geoscience, resource exploration and development regulations, operational licensing, permitting, and monitoring, land-use decision making.
- Shared responsibilities include: environmental protection and conservation, Indigenous affairs, Innovation, science, technology, R&D, Infrastructure, health and safety, land access

Subject to aboriginal title and private ownership, the federal government owns all minerals located offshore and under any federally owned land, while each province owns the mineral located in its territory, subject to those minerals owned by the Government of Canada.

At the federal level, the main federal Ministry (referred in the Canadian context as Department) in charge of mining is Natural Resources Canada (NRCan), which develops national policies to ensure the country's natural resources are developed sustainably, competitively and inclusively. It oversees Crown land work permits for various work types.

In Ontario, mining policies are primarily developed and administered by the Ontario Ministry of Energy and Mines, which sets strategies and regulations for the mineral sector. It is the main authority responsible to analyse and grant permits, while the provincial Ministry of the Environment, Conservation and Parks oversees all permits related to use of water. Ontario's ministry responsible for mining has undergone three reorganisations since 2021:

- Before 2021, The Ministry of Energy, Northern Development and Mines (MENDM) managed the mining portfolio. In 2021, the province separated the MENDM in two: the Ministry of Energy and the Ministry of Northern Development, Mines, Natural Resources and Forestry.
- In 2022, the Ministry of Northern Development, Mines, Natural Resources and Forestry was split into 3 Ministries: the Ministry of Mines, the Ministry of Northern Development, and the Ministry of Natural Resources and Forestry.
- In 2025, the province merged the Ministry of Mines with the Ministry of Energy, forming the new Ministry of Energy and Mines.

Table 4.1 summarises the main federal and provincial government agencies with relevant roles for mining development.

Table 4.1. Main provincial and federal ministries with roles in mining in Northern Ontario

(Selected)

Government level	Ministry (Department in Canadian context)	Role relative to mining
Province of Ontario	**Ministry of Energy and Mines**	**The lead Ministry on minerals and metals sector**, developing strategies and regulation for the mineral sector. -Oversees mining exploration, development, and rehabilitation. -Administers the Mining Act, which governs land access, exploration, claim staking, among others. Promotes mineral investment and supports geological surveys
	Ministry of Northern Economic Development and Growth (MNEDG)	-Supports economic and community development in Northern Ontario through investments, loans and partnerships. -Connects Northern communities and businesses with economic development programmes and services. -Helps Northern businesses participate in export markets.
	Ministry of the Environment, Conservation and Parks	-Ensures that mining activities comply with environmental laws. -Reviews environmental impact assessments and regulates emissions, waste, and water use, by overseeing the Environmental Assessment Act and Environmental Protection Act
	Ministry of Labour, Immigration, Training and Skills Development	-Regulates health and safety in mines through the Occupational Health and Safety Act. -Enforces workplace safety standards and inspections. -Supports workforce training and skilled trades relevant to mining
	Ministry of Natural Resources	-Manages of Ontario's Crown lands, water, oil, gas, salt and aggregates resources, including overseeing Crown land work permits and makes Crown land available for renewable energy projects.
	Ministry of Indigenous Affairs and First Nations Economic Reconciliation (IAFNER) It also serves as the "Ministry	-Ensures consultation with Indigenous communities, particularly in areas where mining may affect Indigenous or treaty rights. -Supports partnerships between Indigenous groups and mining companies

	Responsible for Ring of Fire Economic and Community Partnerships"	-Enhances government awareness of Indigenous people, issues and best practices for consulting and engaging with Indigenous people
Federal level	Natural Resource Canada (NRCAN)	**The lead federal ministry for the minerals and metal sector** -Develops mining policy relevant to the minerals and metals sector at a national scale, international, or transboundary in nature, including and legislation, supports. -Supports the competitiveness of the sector, international trade and investments, Provides thematic geoscience/geological information on a national scale.
	Environment and Climate Change Canada	-Regulates general environmental impacts of mining activities, overseeing Environmental Assessments, pollution prevention, and Greenhouse Gas (GHG) emissions reporting. Plays a role in biodiversity and habitat protection in mining areas
	Indigenous Services Canada (ISC) and Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)	-Oversees Indigenous consultation and rights, especially for mining projects affecting Indigenous lands and communities. CIRNAC manages mineral development in the North, including Nunavut, NWT, and Yukon (alongside territorial governments). -Administers the Critical Mineral Strategy's Northern Regulatory Initiative.
	The Federal Economic Development Agency for Northern Ontario (FedNor)	-Focuses on economic development for the region -Encourages diversification in rural and single-industry communities -Strengthens rural entrepreneurship and local capacity
	Impact Assessment Agency of Canada (IAAC)	-Conducts federal impact assessments for major mining and infrastructure projects. -Ensures major projects comply with environmental, health, Indigenous rights, and socio-economic standards.
	The Canadian Nuclear Safety Commission (CNSC)	Regulates the use of nuclear energy and materials in Canada to protect health, safety, security and the environment
	Innovation, Science and Economic Development Canada (ISED)	Supports mining innovation, R&D, and clean tech initiatives. Administers the Strategic Innovation Fund's Critical Minerals' Stream and works with Works with NRCan on critical minerals and clean energy supply chains

Note: Other Federal Ministries have responsibilities relevant to mining, including Employment and Social Development Canada on labour. National Research Council Canada on research for innovation, Fisheries and Oceans Canada (DFO) on inland fisheries, Housing, Infrastructure and Communities Canada might have a role in infrastructure.

There are a number of regulations that make up the legislative framework within which federal and provincial ministries operate. Recently, the legal framework for mining in the country and the province has evolved toward legislation that supports mining competitiveness and operations. As mentioned in the previous chapter, in the province, the *Mining Act of Ontario* is the key legislation governing mining activities. It regulates mineral rights acquisition and maintenance, oversees claim staking, prospecting, and mineral exploration, among other matters. In 2023, the province introduced the *Building More Mines Act* to reduce regulatory burdens and create efficiencies in approvals for mineral exploration and mine development, making the permitting process more predictable.

To enhance competitiveness in the sector, both the federal and the provincial governments issued acts. For this, the province approved the 2025 Bill 5. *Protect Ontario by Unleashing our Economy Act*, while the federal level the Bill C-5, the *One Canadian Economy: An Act to enact the Free Trade and Labour Mobility in Canada Act and the Building Canada Act*. Both acts aim to speed up strategic projects, including critical mineral projects, with streamlined regulatory approvals and financial support. In 2025, the federal government also launched the Major Projects Office (MPO), with the aim to improve federal-provincial collaboration to fast-track approvals for mining-related infrastructure projects. A priority for the MPO includes to help more critical minerals projects get to final investment decisions within a two-year window (Government of Canada, 2025[2]).

Under this institutional set up, each ministry oversees relevant regulations for the mining industry and defines policies to either support the sector's competitiveness or the rightsholders and communities to benefit from it.

Federal and Provincial Policies for Mining: from extraction to processing.

The federal government's policies on mining largely seek to ensure that the natural resources are developed sustainably, providing a source of jobs, and opportunity, while preserving the environment and respecting communities and Indigenous peoples. The main guiding policy for the sector at the national level is the Minerals and Metals policy (1990s). Two main recent strategies set out the priority actions to increase competitiveness and sustainability of the minerals and metal sector in the country. This includes Canada's Critical Mineral Strategy (2022) and the pan-Canadian Minerals and Metals Plan (2019), notably by:

- Driving mineral exploration, accelerating project development, and improving the competitiveness of the sector through public geoscience, tax support measures (e.g. the Critical Mineral Exploration Tax Credit and the Clean Technology Manufacturing Investment Tax Credit), and regulatory streamlining, with a focus on critical minerals.
- Advancing reconciliation with Indigenous peoples and increasing Indigenous participation in the sector.
- Investing in sustainable infrastructure, including clean energy and transportation projects, that accelerate critical minerals development (Critical Minerals Infrastructure Fund)
- Enhancing science, technology, and innovation for resource efficiency and mitigate environmental impacts.

The federal strategic vision is supported by a series of funding programmes, tax incentives, bilateral and multilateral collaborative initiatives and scientific research and research collaborations (Table 4.2).

Table 4.2. National strategies and support mechanisms for minerals and metals development

(examples)

Type	Title	Description
Strategic initiatives	**Canadian Critical Minerals Strategy (CCMS) (2022)**	The Strategy, released in December 2022 and backed by CAD 3.8 billion in funding, seeks to increase the supply of responsibly sourced critical minerals and support the development of domestic and global value chains for the green and digital economy, as well as defence/dual-use applications. The Strategy has 6 key focus areas: i. drive exploration, research and development and innovation ii. accelerate responsible project development iii. build sustainable infrastructure iv. advance reconciliation with Indigenous Peoples v. grow a diverse workforce and prosperous communities vi. strengthen global leadership and security.
	Pan-Canadian Minerals and Metals Plan (2019)	Launched in 2019, the plan is a pan-Canadian initiative that was developed in collaboration with provinces, territories, and with the participation of Indigenous peoples, industry, academia, non-governmental organisations and other stakeholders. It includes a vision, principles and strategic directions to drive industry competitiveness with a focus on six strategic directions: i. Enhancing economic development and competitiveness; ii. Advancing the participation of Indigenous Peoples; iii. Improving the environmental footprint of the sector; iii. Fostering science, technology, and innovation; iv. Supporting communities; and v. Providing global leadership.
	Critical Minerals Infrastructure	Provides federal funding until 2030 for clean energy and transportation infrastructure

Funding Programmes (examples)	Fund (CMIF), (under the CCMS)	projects necessary to enable the sustainable development and expansion of critical minerals in Canada. (e.g. It offers up to CAD 50 million per project for private companies and Indigenous groups, and up to CAD 100 million for provinces and territories.) The CMIF supports both preconstruction and shovel-ready projects.
	Indigenous Natural Resource Partnerships Program., (under the CCMS)	Increase the economic participation of Indigenous communities and organisations in the development of natural resource projects (see previous Chapter)
	The Energy Innovation Program (EIP) - Mining Decarbonization Demonstration	Support the uptake of energy decarbonisation technologies within Canada's mining sector. It focuses specifically on demonstration activities within Canadian upstream to midstream operations.
Tax Incentives (examples)	Critical mineral exploration tax credit (under the CCMS)	Offers a 30% refundable credit to individual investors for eligible exploration expenses targeting specified critical minerals, aiming to boost investment, support domestic supply chains, and advance the transition to a low-carbon economy.
	Clean economy investment tax credits	Provide businesses with financial support for clean technology and project investments by offering refundable tax credits. For example, the Clean Technology Manufacturing credit support for 30% of the cost of investments in new machinery and equipment for clean technologies
Bilateral and multilateral collaborative initiatives with Provinces and Territories	Regional Energy and Resource Tables	Partnerships between the federal government, and individual provinces and territories, with collaboration from Indigenous partners, and insights from key stakeholders. The Tables identify and advance promising low-carbon opportunities in the energy and resource sectors, by improving regulatory efficiencies, attracting investment and ensuring timely project completion, among others.

Note: There are more federal strategies and programmes that support the sector and mining communities directly or indirectly, including through infrastructure development, innovation and research, scientific and research collaborations (e.g. with CanmetMINING and the GSC) and international bilateral and multilateral partnerships on minerals.
Source: (Natural Resources Canada, 2022[3]); (Natural Resources Canada, 2019[4]); (Government of Canada, 2023[5])

In addition to federal support policies and programmes, there are relevant industry-led frameworks to support greater sustainability and responsibility of the mining sector, including the Canadian Mining Association's Towards Sustainable Mining (TSM) Indigenous and Community Relationship Protocol, The Prospectors & Developers Association of Canada (PDAC)'s Driving Responsible Exploration, and the UL ECOLOGO Certification programme for manufacturers and retailers.

In Ontario, the main guiding strategy for mining development is the Ontario's Critical Mineral Strategy 2022-27, which defines actions to address main priorities to boost sustainable mining (Government of Ontario, 2022[6]). To support these policy goals the province has developed a number of key programmes that provide funding and capacity support to promote a number of priorities areas for the sector (Table 4.3):

- Increasing exploration through the Ontario Junior Exploration Program (OJEP).
- Facilitating mining projects implementation by reducing red tape and delays in permitting (Mining Act of Ontario, Building More Mines Act)
- Improving Indigenous capacity to participate and benefit from mining.
- Boosting innovation in critical minerals value chain, particularly in downstream phases (Critical Minerals Innovation Fund).
- Ontario is also investing about CAD 500 million to create a new Critical Minerals Processing Fund to provide financial support for projects that accelerate the province's critical mineral processing capacity and made-in-Ontario critical minerals supply chain.

Table 4.3. Ontario's main policies, regulations and support mechanism for minerals and metal development.

Type	Title	Description
Policy	**Ontario's Critical Mineral Strategy 2022-27**	This is a **five-year plan** designed to establish the province as a global leader in responsibly sourced critical minerals. The strategy focuses on six key areas: i) enhancing geoscience data, supporting mineral exploration, ii) expanding domestic processing, iii) improving regulatory frameworks, iv) investing in innovation and R&D, v) fostering economic development with Indigenous partners, and vi) growing the skilled workforce.
Regulation	Building More Mines Act, 2023	This Act aims to reduce regulatory burdens and create efficiencies in mineral exploration and mines development by: -Expediting the process of opening new mines and modifying existing ones. -Simplifying regulatory processes to minimise delays in project approvals -Ensuring rehabilitation standards are met while making the process more predictable and less onerous.
	Bill 5. Protect Ontario by Unleashing our Economy Act 2025	This Act aims to accelerate infrastructure, resource and critical mineral projects to protect Ontario's economy from external trade pressures. Key change include establishing "special economic zones and a "One Project, One Process" approach to permitting
	Mining Act of Ontario 1990	This Act is the key legislation governing mining activities in the province. It regulates mineral rights acquisition and maintenance, oversees claim staking, prospecting, and mineral exploration and manages mine development related to land tenure. It ensures safe and sustainable mine closure.
Funding Programmes	Ontario Junior Exploration Program (OJEP)	OJEP is an Ontario government initiative supporting early-stage mineral exploration. It provides, among others, up to CAD 200 000 per project, covering 50% of eligible exploration costs. Its key objectives include: -Expanding mineral development, including critical minerals. -Encouraging more exploration projects across the province. -Boosting opportunities, especially in northern and Indigenous communities. -Reducing Investment Risk enhancing Ontario's appeal for mining investment.
	Critical Minerals Innovation Fund (CMIF)	Boost innovation in the mineral value chain of Ontario, for example by providing up to 50% of eligible project costs, with a maximum of CAD 500,000 per project. Goals of the fund are: -Support exploration, mining, production, and processing. -Stimulate Investment -Enhance Collaboration among industry, academia, start-ups, and research firms. Key Priorities: the battery supply chain, deep exploration and mining innovation, and mineral recovery.
	Critical Minerals Processing Fund	The fund will provide strategic financial support to projects that accelerate the province's critical minerals processing capacity and made-in-Ontario critical minerals supply chain, including building and upgrading critical mineral processing infrastructure.

Note: There are other provincial strategies and programmes that support the sector and mining communities directly or indirectly, including the Northern Ontario Resource Development Support, educational and broader innovation programmes, as well as the Indigenous-related programmes mentioned in Chapter 3, such as the New Relationship Fund, the Indigenous Participation Fund, and the Indigenous Economic Development Fund (IEDF), among others.
Source: (Government of Ontario, 2022[6]); (Legislative Assembly of Ontario, 2023[7]); (Legislative Assembly of Ontario, 2025[8]); (Government of Ontario, 1990[9]); (Government of Ontario, 2021[10]); (Government of Ontario, 2022[11]); (Government of Ontario, 2025[12])

Overall, this array of policies and funding programmes form a strong policy framework to support both industry development and regional well-being with First Nations participation (Chapter 2).

However, as outlined in the previous chapter and revised in the following section, this policy framework has scope to increase coherence and focus to address key priorities in the mining ecosystem and the First Nations and host communities. While competitiveness is highly important in the current geopolitical environment, balancing the urgency of project implementation with the specific needs of First Nations and local communities is essential to ensure sustainability of project in the long-run.

Some municipalities have also elaborated mining strategies, which is indeed an increasingly necessary action for local communities to ensure projects are aligned with their development community goals.

Thunder Bay's first Mining Readiness Strategy was issued in 2020 to maximise and expand benefits from the sector by, for example, launching a mining service and supply directory to promote local and Indigenous vendors and networking to encourage industrial suppliers in Sudbury, Timmins and beyond. It also aimed to open a branch in northwestern Ontario to provide closer services to future mines in the area.

Snapshot of assets and challenges of the mining ecosystem of Northern Ontario

The regional mining ecosystem refers to a set of conditions/factors enabling mining in a region, including infrastructure, skills, policies, supply chains, geology, among other factors required to make mining projects possible. Adopting an ecosystem approach can enhance interaction between the sector and various subnational conditions to bolster the competitiveness of the sector and create development and economic opportunities for the host communities.

In this sense, Northern Ontario's mining ecosystem is uniquely positioned to drive strategic autonomy and economic resilience of Ontario and Canada. However, there are some areas that need to be reinforced to ensure its strengths translate into competitive projects and long-term local benefits. This section will reintroduce the main assets and bottlenecks identified throughout the previous chapters.

Assets of the Mineral ecosystem in Northern Ontario.

Northern Ontario has assets across the minerals and metals value chain, exceling in upstream support activities. The region stands out for its mineral endowment, research and education institutions green energy supply to produce raw materials and its leading practices in Indigenous engagement in the sector.

Table 4.4. Main Assets of Northern Ontario mineral ecosystem

Asset	Description	Key Figures
Mineral endowment.	The mineral endowment ranges from lode gold deposits to magmatic copper-nickel-palladium-platinum deposits, as well as critical elements such as lithium.	-Northern Ontario hosts 28 of the 36 active mines in Ontario, and is the largest producer of gold in Canada. - Deposits of eight of the 34 critical minerals identified for Canada
Research and education institutions for mining	The region has an array of dedicated research and testing centres, universities and colleges for professional and technical education as well as research particularly on environmental practices and community engagement	-Two universities with research on mining: Laurentian University (34th out of 50 in Canada in 2023) and Lakehead University (35st) (Research Infosource, 2024[13]) - Three colleges that focus on mining: Boreal College, Northern College and Cambrian. -Renowned research and training centres: MIRARCO, CEMI, Cambrian Centre for Smart Mining, CanmetMINING research lab --Indigenous-led institutions for training/education (Kenjgewin Teg First Nations-led post-secondary institute) and for innovation and capacity building (The Indigenous Centre for Excellence in Mineral Development)
Business support ecosystem	Supply of providers and service companies with knowledge and standards to meet mining needs	Sudbury, Timmins and Thunder Bay host companies with knowledge on mining. Sudbury is home to about 350 mining service and supply business
Leading practices in Indigenous Peoples engagement in mining	Northern Ontario hosts various positive practices of Indigenous empowerment and participation in Mining (Chapter 3) that are supported by government and private practices, including enhancing capacity, workforce development, and business and income	Over 140 active agreements exist between mining companies and Indigenous communities in Ontario. Indigenous communities represent almost

	opportunities among others..	15% of the total mining workforce. Co-ownership, and mining providers.
Export and refining infrastructure	-Two metal smelters, a steel producer and one uranium refinery -Municipalities with mining have access to quality roads, railways and airports.	-Sudbury has 2 smelters, Agloma steel producer in Sault Ste. Marie, Blind River uranium refinery -Connection to internal and external markets through Lake Superior or the south of Ontario
Green energy supply	Ontario's clean and reliable electricity grid based on renewable source is a major asset for reliable and affordable energy supply for production low-carbon raw materials.	Northern Ontario's electricity sector emits 56.5% less GHG per GWh than the Canadian average and 82% less than OECD mining region average

Source: (Research Infosource, 2024[13])

Unlike other rich-resource municipalities in the OECD (e.g. in Europe) (OECD, 2025[14]), non-Indigenous communities and some First Nations communities in Northern Ontario have a constructive approach towards mining projects. In main population centres of the regions (e.g. Sudbury, Timmins, Thunder Bay), municipal governments, First Nations, and communities generally view mining projects as opportunities for development and are open to negotiation. This is a strength in the business environment compared to other OECD countries, where local opposition has led to project vetoes, even to the exploration phase (e.g. Portugal) (OECD, 2025[14]),.

These assets are also connected to the main industries in Ontario. The province represents one of the two largest automotive manufacturing jurisdictions in North America. It has the distinction of serving as the Canadian headquarters for five global original equipment manufacturers: Stellantis, Ford, General Motors, Honda, and Toyota. Taken together, these companies typically assemble about two million light vehicles each year at their Canadian plants. They are supplied by an ecosystem of nearly 700 parts suppliers across the country.

An internationally recognised cluster for mining

The three main population hubs in the region provide services, expertise and skills that support the minerals and metals sector: Sudbury, Thunder Bay and Timmins. They are also service centres for advanced education and health for other municipalities in the region and First Nation communities.

Among these hubs, Sudbury stands out as an internationally renowned integrated cluster for mining, with all the characteristics of a world class innovation ecosystem for mineral supply (Box 4.3). It combines knowledge-institutions, more than nine mines in the municipal boundaries, research centres, large mining companies with processing facilities as well as more than 350 mining supply and service providers. This geographical concentration of assets in the mining value chain is a market-driven force that attracts additional business that aim to locate close to major clients and obtain spillovers from competitors.

While the presence of these elements itself does not translate into successful innovation clusters, the different institutions and players in Sudbury collaborate and partner for new economic opportunities. The recognition of this cluster led to the formation of a dedicated cluster-oriented organisation MineConnect, which initially focused on the municipal ecosystem, and later expanded province-wide, becoming the leading industry association in Northern Ontario to market and globalize the products and services of the region's mining supply and service companies. Other examples of these cluster-type of collaboration include:

- University's research projects focused on resource efficiency and mining sustainability.
- Joint support to maintain testing facilities in the municipality for providers and training (NORCAT).
- Collaboration for events on knowledge exchange and recently reconciliation discussions.

Box 4.3. Sudbury: a leading municipal mining ecosystem in the OECD

Greater Sudbury is a historic mining hub in its own. The cluster has its roots in the 1970s when the main mining companies in the municipality—INCO and Falconbridge—began downsizing, which led to massive job losses, upwards of 10 000 jobs. This created many independent contractors who went to work in the mines where they had previously been employed (Di Gregorio, 2020[15]; Buse, 1996[16]). The Roundtable Promoting Greater Sudbury's Mining Service and Supply cluster, held in late 2002 , was a seminal event where representatives from industry organisations, research institutions, and government met to discuss the characteristics of the cluster.

Around this time, a cluster-oriented organisation, the Sudbury Area Mining Supply and Services Association, was founded. This organisation is today known as MineConnect and links members with international opportunities, promotes networking among members and media, holds networking events and trade missions, and publishes information about the ecosystem and events on its website.

Today, the city has an array of mining companies, providers, education centres and mining workers:

- 9 base metal mines,
- International mining firms including: Vale, Glencore and KPHM
- Two smelters
- One refinery
- Two Mills
- 350 mining service and supply business, including international organisation like EPIROC
- Three post-secondary institutions in the city provide innovation and applied research capacity
- Government institutions supportive of mining activities provide grants and capacity programmes, supported by planning instruments like the City of Greater Sudbury's economic development strategy that promotes the mining supply and services cluster.
- Competitive ICT infrastructure
- 27% of the direct mining workforce in Ontario (chapter 2)

Considering its number of mines, population size, and density, Sudbury stands out as one of the largest municipal mining clusters of the OECD (Table 4.5).

Table 4.5. OECD municipal mining clusters (selected municipalities)

Municipality/city (Country)	Population (population density)	Number of Mines	Universities
Greater Sudbury, Canada	170k (53 ppl/km^2)	9	2
Kamloops, British Columbia, Canada	97.9k (328.6 pp/km^2)	1	1
Abitibi-Témiscamingue, Quebec, Canada	147k (2.6 ppl/km2)	12	2
Flin Flon, Manitoba/Saskatchewan, Canada	5 000 (376 ppl/km^2)	15	0
Karratha, Australia	24k (1.5 ppl/km2)	0	Online campus
Kalgoorlie, Australia	29k (594.47 pp/km^2)	3	1
Huelva, Andalusia	143.5k (944.1pp/km^2)	4	1

Antofagasta city, Chile	353k (6 281 ppl/km^2)	10	2
Greenlee County (home of Clifton-Morenci Mining district), Arizona	9.5k (1.9 ppl/km^2)	1	0
Pinal County, Arizona	522.6k (97pp/km^2)	1	0
Elko county, Nevada	53k (1.2 ppl/km^2)	30	1
Kiruna, Sweden	17.3k (1 517pp/km^2)	1	1
Kainuu, Finland (region)	70k (3.5pp/km^2)	2	1

Source: (Di Gregorio, 2020[15]); (Statistics Canada, 2022[17]); (SaskMining, n.d.[18]); (Remplan, 2024[19]); (The Diggings, 2024[20]); (Pinal County, 2025[21]) (Ministere de l'Economy, de l'Innovation et de l'Energy, 2025[22]) (Mining Technology, 2020[23])

Challenges of the mineral ecosystem in Northern Ontario

Northern Ontario, like other OECD mining regions, is facing common challenges related to increasingly difficult conditions for mining projects, including declining ore quality, long lead times, and permitting hurdles compared with large producing countries in Africa or Asia. Additional pressures include a current downward pressure in prices and volatility due to short-term supply growth from established producers such as the Democratic Republic of the Congo (cobalt), Indonesia (nickel), and China (natural graphite and lithium) (IEA, 2025[24]), as well as broader geopolitical uncertainty.

However, beyond market-related bottlenecks for the industry itself, the region faces some structural challenges in advancing competitive mining project, while ensuring First Nations and other communities derive greater benefits from the sector. Some of these challenges are linked to the region's rural characteristics and remoteness, including brain drain, workforce shortages, high cost to provide services and housing, as well as barriers to attain economies of scale in the local economy given the small internal market.

Other challenges have emerged from planning and governance gaps. First Nation's engagement and buy-in remains a top priority for greater regional well-being and mining projects' implementation. Moreover, municipal capacity to leverage mining for long-term growth, information gaps for local business to benefit from federal and provincial support services, and historic overfocus on extraction to the detriment of local value added in the north are some other particular factors that need attention from governments.

These challenges affect the capacity of projects to find the right skills and needed providers and service locally, and can impact the social acceptability of projects, which can slow down the permitting process and increase operational risks. At the same time, these challenges affect the communities' ability to capture mining benefits for development. Table 4.6 outlines the main regional factors preventing mining operations to produce sustained local well-being.

Table 4.6. Main challenges to leverage mining for long-term well-being in Northern Ontario

Challenge	Description
Remaining gaps in meaningful participation of First Nations with persistent inequalities in quality of life	-Ambiguity in consultation processes and limited access to technical and legal expertise in First Nations. -Worse-off indicators in accessing public services, or clean water in some First Nations communities, despite the presence of mining. These issues affect First Nations' perceptions of mining and their engagement in seeking win-win outcomes.
Skills shortages in mining	Ageing, brain drain, misconceptions in youth population and lack of attractiveness of some municipalities reduces workforce for mining in

	areas where projects take place.
Affordable housing and accessibility to community services, particularly in remote municipalities	Housing shortages (cost of land and availability of land in mining municipalities) and lack of accessibility to childcare and quality recreational services reduces attractiveness of mining municipalities for workers and families.
Gaps in the Innovation ecosystem, and disconnection among regional innovation players	Innovation remains (34.9 patents per 1 million inhabitants) below average in Canada's rural regions (54.9) and OECD mining regions. Despite having all the elements of an innovation ecosystem, there is a lack of formal interaction among innovation leaders and various structures.
Municipal planning and financial capacity to leverage mining projects for development	- Municipal governments (particularly small ones) face fiscal mismatch between incomes and costs of mining externalities. -Lack of long-term municipal economic plans, with diversification options.
Abandoned mines	5 865 abandoned mining projects in Ontario that require remediation, with a significant concentration of these sites located in Northern Ontario. Environmental impacts and missed opportunities in land repurposing that influence both community perceptions and business prospects.

Northern Ontario's enabling conditions to leverage mining for competitiveness and liveability

Although mining has long underpinned the region's economy, today's surging global demand for critical minerals presents an unparalleled opportunity to facilitate the competitiveness of both existing and new operations. Capitalising on this would stimulate local business growth, boost economic resilience, and foster inclusive, sustainable development.

Main regional enabling factors can help achieve the dual goal of facilitating mining projects and ensuring long-term sustainable development locally include:

- Enhancing the mining innovation ecosystem in the region.
- Strengthening local labour markets for mining.
- Leveraging mining for infrastructure development, particularly housing.

Enhancing the mining innovation ecosystem in Northern Ontario

Innovation in the mining sector is a critical lever for aligning mineral development with regional growth. It enhances supply efficiency, strengthens environmental sustainability, and unlocks local business opportunities. Technological and process innovations improve extraction methods and worker safety- especially as deposits become deeper and more complex- while enabling local entrepreneurs to deliver new products and services to the industry. Innovation is central to meeting green transition goals, including more resource-efficient operations, reduced use of energy, water, and land, and expanded circular practices such as tailings valorisation, waste rock reuse, equipment recycling, and recovery of minerals from secondary sources.

However, as mentioned in Chapter 2, innovation outcomes in Northern Ontario remain below national and international benchmarks, with less than half the patents per inhabitant than the average of Canada's rural regions (34.9 patents per 1 million inhabitants vs 54.9) and 80% of the OECD mining regions average (44.3). While patents are an imperfect proxy for innovation - since not all innovations are patented or registered where they are developed- the gap can be an indication of areas for improvement, especially given that many OECD mining regions face similar structural challenges.

Given the significant presence of R&D infrastructure and innovation players in the region, innovation issues may involve the type and quality of collaboration among players, the knowledge transfer and exchange - given the extension of the region- as well as the capacity to leverage R&D infrastructure into market-oriented innovation.

The implementation of some flagship innovation projects has been slower than anticipated given the capacity to raise substantial funding for the operation. As discussed in this section, the region has multiple sources of funding for innovation (local, provincial, and federal), but funding remains fragmented in small scales, which make it difficult to speed up implementation.

Particularly for rural regions, innovation should be understood beyond technological products, process and social innovation models. In this area, Northern Ontario has valuable experience, given its process of Indigenous engagement in resource governance and in economic transitions from sectors like forestry to mining. These locally embedded innovations-though not captured by patents- should be more widely documented and shared across Canada and internationally.

This section highlights key actions to strengthen the region's innovation ecosystem. While not exhaustive, they reflect priority areas identified during OECD field visits and stakeholder and rightsholder consultations that focused on the following: the collaboration among innovation players, Indigenous-led innovation, funding access, and innovation support to entrepreneurs and small businesses.

Improving collaboration across regional innovation players.

Northern Ontario is home to a diverse group of organisations with the capacity to drive innovation in the mining sector, supported by a long-standing tradition of mining research (Table 4.7). These organisations collectively form a robust innovation ecosystem, drawing on years of expertise. For instance, Laurentian University has launched several mining innovation initiatives and is home to the Mining Innovation, Rehabilitation and Applied Research Corporation (MIRARCO), which has been advancing research in mining technologies and processes since 2000.

Table 4.7. Main players in Northern Ontario's mining innovation ecosystem (selected)

	Main players (selected)	Main features
Universities	Laurentian University	Hosts: - MIRARCO (see below) -Goodman School of Mines: academic research with workshops and certification programmes - Laurentian Mining Innovation and Technology (LMIT) initiative -Mineral Exploration Research Centre (MERC) -Direct collaboration with mining companies on research programmes
	Lakehead University	Hosts: - Centre of Excellence for Sustainable Mining & Exploration (CESME) -Mineralogical & Experimental Laboratory -Past experiences of co-op placements with companies like Goldcorp, and Teck Resources
Colleges	Collège Boréal (Boreal College in english)	Applied Research: mining-based applied research in the region
	Cambrian College	Hosts to the Centre for Smart Mining that facilitates new technology adoption in the mining sector. A national renowned colleague for its focus in mining research programmes.
	Confederation College	While focus is on training, has a range of mining related programmes in both semi-skilled and skilled mining occupations with potential for applied research.
	Northern College	Mining education with access to geological mapping tools and drilling simulators.

Research and invocation centers	NORCAT	Stimulate entrepreneurship, tech innovation, and skilled labour in the Greater Sudbury area: -Underground facilities for companies to develop and test new technologies in an operating mine setting - Training methods and equipment for mining workers. -Premises to host start-ups, mid-sized companies, and research organisations
	Mining Innovation, Rehabilitation and Applied Research Corporation (MIRARCO)	Conducts research on innovative technologies and processes (since 2000). A pilot initiative (still in demonstration phase) is the Centre for Mine Waste Biotechnology.
	Centre of Excellence for Sustainable Mining & Exploration (CESME)	Encourage and support research, education and outreach activities regarding the nature and impacts of mineral resource exploration
	Centre of Excellence in Mining Innovation (CEMI)	Coordinate innovations that can be integrated into mining operations. Initiatives include: -Mining Innovation Commercialisation Accelerator (MICA), that supports commercialisation of innovative technologies. -Scouting for innovative technology, identifying industrial challenges -Ultra Deep Mining Network
	CANMETMining in Sudbury	Natural Resources Canada's CanmetMINING conducts research and development (R&D) on a variety of processes and technologies involved in minerals and metals sectors- e,g, research on production of lithium-bearing minerals, recycle minerals from mine waste, or breaking rock underground without explosives.
Cluster-network oriented organisations	MineConnect	Ontario's mining supply and services association with nearly 300 member companies across areas like automation and BEV development. Support innovation ecosystem with trade missions, networking, and a digital platform.
	Anishnawbe Business Professional Association (ABPA)	Non-profit organisation based in Northern Ontario that advocates for and supports the growth of Indigenous business and economic development with networking and information sharing.
	Indigenous Centre for Excellence in Mineral Development	Promotes Indigenous-led innovation by embedding Indigenous Knowledge into the mining life cycle and supporting applied research collaborations, funding intermediaries, and designing culturally relevant supports.

Local innovation players in Northern Ontario collaborate at multiple level and are backed by governments, industry and innovation institutions:

- **With government support**. Public funding and grant programmes are key drivers of innovation, providing essential resources for research and development. Federal institutions (e.g. NRCan, NRC, ISED) as well as provincial (e.g. Ministry of Energy and Mines and Ministry of Northern Development) play an important role in supporting innovation, by providing funding, through direct collaboration on R&D projects, and as convenors to foster muti-stakeholder dialogue on innovation. One example of a single mining-innovation related project receiving support from different public sources include:
    - Mirarco's proposed Mine Waste Biotechnology centre, a major project to recover minerals (mainly for the battery value chain) from mine waste streams through bioleaching and bioremediation processes (bacteria use for break apart minerals), has received funding from various levels of government: seed funding from Greater Sudbury Development Corporation, pilot testing funds from MICA Network grant, and funds from the federal level through NRCan, and the provincial level through NOHF.
- **With mining companies.** Companies are a primary driver of innovation, investing in their own processes, sharing expertise, and providing funding to other players. While many innovation-related partnerships with local players focus on training and education, collaborations on research addressing First Nations and social aspects of mining have recently attracted substantial grants. Examples of partnerships with mining companies include:
    - A renewal of IAMGOLD's partnership with Laurentian University in 2025, with a CAD 2.5 million investment into the IAMGOLD President's Innovation Fund for Strategic Investment

at Laurentian University supporting academic and research projects aligned with the university's strategic priorities, especially in mineral resources and mining education.

- Cambrian College's collaboration with Vale to develop a Battery Electric Vehicle Training Program, as well as its Centre for Smart Mining's partnerships with mining technology firms to facilitate industry entry (Cambrian College, 2024[25]).
- Vale's partnership with Laurentian University to explore value creation from mining waste.

- **With Innovation institutions**: Organisations like MIRARCO and the Centre for Smart Mining actively collaborate, and list each other as primary research partners.

Beyond locally based organisations, the province of Ontario also hosts key institutions that foster mining innovation. Notably, the Ontario Centre of Innovation (OCI) is a non-profit that connects industry, academia, and government to maximise the commercial impact of research and streamline funding for companies and entrepreneurs.

A formalised interaction with common goals for innovation

Despite the collaborative efforts within Northern Ontario's innovation players, much of the co-operation currently relies on informal, ad-hoc connections, often built on long-standing personal relationships within the ecosystem. While this close-knit environment promotes trust and frequent interaction at industry events, such as PDAC or the EV Batteries Conference in Sudbury, it can also create bottlenecks, particularly for newcomers, vulnerability if people leave or relationships break down, and capacity of the players to be aligned around common innovation goals, keep up with progress and ensure continuity.

There is currently no formal co-ordinating body to unify players around shared, long-term innovation goals. As highlighted in Table 4.7, organisations such as CESME, MICA, MineConnect and MIRARCO, play significant roles in promoting innovation and facilitating collaboration. However, these entities primarily pursue their own innovation agendas, rather than a regional one. Such a subnational innovation goals can are useful in other OECD regions to create synergies among innovation ideas, resources and players, especially in areas with low population density. Similarly, clear common goals can better inform provincial and federal programs in order to tailor support and funding. Currently, much of the region's innovation activity is reactive, driven by provincial or federal funding calls and grant opportunities.

Establishing a dedicated coordinating body or platform could help align the diverse visions and strengths of regional stake and right holders, enabling the identification and pursuit of common innovation priorities for Northern Ontario. This coordinating role could be rotational among RDI (Research, Development, and Innovation) institutions, with the authority to convene regular meetings and foster agreements for collaborative projects. Such a platform should be guided by a strategic innovation roadmap, setting clear medium- and long-term objectives across the ecosystem.

Experts have already highlighted a similar need for stronger horizontal co-ordination at the national level, among federal innovation-related institutions, as a major action to advance innovation outcomes in the country (Innovation, Science and Economic Development Canada, 2023[26]). This entails the creation of a single entity—such as the Canadian Knowledge and Science Foundation—to oversee interdisciplinary research competitions, and drive mission-oriented research initiatives. Adopting such an approach at the provincial level would also help ease accessibility for local actors in Northern Ontario to innovation support programmes.

Stronger brand across the region.

The Northern Ontario brand as an integrated innovative mining hub is not clear nationally or internationally. In practice, each major centre – Greater Sudbury, Timmins, Thunder Bay – markets its own mining assets and strategy. In the west for example, Thunder Bay region has been split into smaller mining economic

clusters: Marathon, Terrace Bay, Greenstone. While localised promotion can strengthen local markets and help meet the population's needs, Northern Ontario's mining potential is fragmented. Opportunities are being missed to promote the entire innovation ecosystem for investors and to create synergies. For example, while Greater Sudbury exemplifies the characteristics of an integrated mining cluster, connections and recognition of other potential mining clusters outside of Sudbury remain underutilised.

A unified regional brand for Northern Ontario's mining sector could strengthen investment attraction and promote strategic synergies across municipalities, while still respecting and leveraging the distinct assets of each subregion—East and West and mining hubs. Co-ordinated at either the provincial or Northern Ontario level, this brand should showcase the region's full value proposition: diverse mineral deposits, robust business ecosystems, community and industrial infrastructure, and critically, the leadership of First Nations. Central to this effort must be the inclusion of Indigenous communities with clear recognition of Indigenous-owned enterprises, and the role First Nations play in shaping sustainable mining development.

Promoting co-location strategies for circular economy

Industrial clustering and co-location strategies, such as industrial parks, are widely used to foster collaboration across firms and drive innovation. Sharing physical space enables companies to engage in industrial symbiosis, where secondary products and by-products are reused as valuable inputs in related processes. This reduces waste, improves resource efficiency, and unlocks new business models, especially in circular economy practices (OECD, 2025[14]).

Proximity in unlocking business opportunities in recycling or reusing mineral raw materials is a critical factor. High transport costs to access and move products relative to the final value is a common challenge to make circular economy models viable. Some OECD regions have addressed this through purpose-built industrial parks. For example, Finland's *Kokkola Industrial Park* brings together chemical and oil companies whose by-products generate energy for the entire site and serve as inputs for downstream industries—including processing of lithium. In Outokumpu, Finland, industrial symbiosis is built around a central innovative actor, with local firms embedded to provide tailored services, R&D, and advanced inputs.

Northern Ontario, and particularly Sudbury and Timmins, has significant potential to develop clearer industrial symbiosis initiatives across its mining ecosystem. This includes targeted partnerships with mining companies to attract investors to reuse tailings for construction, or smelter heat for processing. Sudbury can further mobilise anchors like *NORCAT* as innovation hubs for local suppliers and entrepreneurs.

The region has also opportunities to create synergies among mining and forestry. Thunder Bay, for instance, has significant potential for collaboration between the mining sector and the region's pulp and paper industry, particularly in the areas of energy and chemical use. For the latter, Lakehead's Biorefining Institute could serve as a vehicle to advance research in material use and synergies among both sectors. Promoting proximity of providers or processing facilities among each other could also facilitate these synergies. In other OECD countries, such as in Australia, where byproducts from pulp and paper production (biochar) have been used in the smelting of iron ore to produce green pig iron (Mining.com.au, 2025[27]).

Leverage mining to promote Indigenous-led and social innovation

Indigenous communities hold place-based knowledge systems that are vital for effective land stewardship, climate resilience and biodiversity protection. These knowledge systems can offer innovative approaches to complex mining challenges, including mine reclamation, water monitoring, and climate adaptation. Yet, Indigenous entrepreneurs and innovators remain underrepresented in formal innovation platforms due to systemic barriers with business languages, common visions of work, limited funding access and digital infrastructure and skill gaps (Chapter 3).

Promoting Indigenous-led innovation in Northern Ontario mining can be instrumental to advance on reconciliation and value-added opportunities for First Nations as well as to create more environmentally sustainable, and socially responsible mining projects. Beyond technology, promoting Indigenous-led innovation can help create new governance models of projects, equity partnerships or land stewardship. This will also foster broader social innovation in the region, which is defined as a mechanism that involves the creation and implementation of novel ideas – spanning products, services and processes – while promoting new forms of social interactions and partnerships (OECD, 2025[28]).

Promoting further integration of Indigenous Knowledge into mining processes and supporting applied research collaborations are concrete actions that can help spark new ideas for the sector but also within the Nations. Examples include new organisational models to work with mining companies for environmental restoration or rehabilitation (e.g. Elders' Advisory Council in Timmins), others include leveraging income from resource industry to create social enterprises for new types of provision to First Nations, or creating new frameworks to monitor the environmental impacts of mining projects (Box 4.4).

Box 4.4. Examples of Indigenous-led innovation in mining: Canada and OECD countries.

Social Innovation – Elders' Advisory Council for **Mine Restoration (Timmins, Canada).**

In response to an incident involving the death of a moose and the need of the mine to show corporate responsibility, the Mattagami First Nation formed an unprecedented **Elders' Advisory Council** for mine restoration – a collaborative body of Indigenous knowledge-holders advising on mine remediation and cultural revitalisation. Although informally funded through contributions and supporting agencies, the initiative was *Indigenous-driven.* The outcome was a new governance model where Indigenous elders work alongside engineers to guide reclamation, ensuring environmental repair reflects cultural values and creating the "two-eyed seeing" template that blends Indigenous and Western approaches in resource management. (McCarthy et al., 2014[29]).

Environmental Stewardship – Indigenous-Led Mine Rehabilitation (Western Australia, Australia)

The *Gelganyem Seed Project* (established 2019) in the Kimberley region of Western Australia is a good example of innovation to reuse a closed mine. It was triggered by Rio Tinto's closure of the Argyle diamond mine and the acute need for native seed to revegetate the disturbed land. Gelganyem, which is operated by a local Aboriginal charitable trust, negotiated a seed-supply contract with the mining company and government, hiring local Aboriginal workers to collect and store seed. Funding came through mining closure obligations and supportive grants. In 2020 the Midwest Employment and Economic Development Aboriginal Corporation (MEEDAC) opened the first Aboriginal-owned native-seed farm to supply restoration plant material across the area.

These projects create various benefits: Ecologically, they supply indigenous plant stock needed for large-scale mine rehabilitation; Economically and socially, they provide new Indigenous-owned businesses, jobs, and opportunities for entrepreneurial skill development in post-mining ecosystems. For instance, over 200 km of traditional lands were accessed for seed collection, and local families now earn income from long-term restoration.

Source: (McCarthy et al., 2014[29]); (D and Pedrini, 2022[30])

Integrating Indigenous-led innovation involves co-creating solutions with Indigenous peoples from the outset. Provincial and Federal policies should focus on some areas to boost such innovation, including:

- Co-govern innovation programmes with Indigenous communities, entrepreneurs, businesses and organisations.

- Fund Indigenous-led innovation hubs and networks to facilitate exchange of ideas, access to information, capital and technology.
- Improve digital and data infrastructure for Indigenous Peoples

Centres like the Indigenous Centre for Excellence in Mineral Development are relevant examples to support First Nations innovations, link them with industry, financial and training opportunities (Box 4.5).

Box 4.5. The Indigenous Centre for Excellence in Mineral Development (ICEMD)

The Indigenous Centre for Excellence in Mineral Development (ICEMD) exemplifies how Indigenous innovation can be supported through a place-based and relational approach. Operating as a "single window" for information, referrals, and training tools, ICEMD aims to strengthen Indigenous capacity to participate in mining, when and how communities choose.

ICEMD promotes Indigenous-led innovation by embedding Indigenous Knowledge (IK) and Traditional Knowledge Holders (TEK) into the mining life cycle and supporting applied research collaborations, funding intermediaries, and designing culturally relevant supports. It offers a model for how industry, governments, and academia can partner with Indigenous communities to create inclusive pathways for innovation.

Source: www.icemd.ca

Improving funding support with streamlined information, complementarity and continuity

Innovation players and rightsholders in Northern Ontario can accesses various finding programmes at the provincial and federal level, which can be combined with private sector support. However, this funding support is often seen as fragmented with different application processes, information sites and timings across programmes (Table 4.8).

Table 4.8. Main funding programmes for innovation in mining for Northern Ontario

Name	Level	Description
Export Marketing Assistance Program	Municipal offer (Greater Sudbury), with funding from Federal (FedNor) and provincial (NOHFC) levels.	Helps “export ready” firms, not-for-profits, and associations expand their market reach by covering export marketing costs (exhibition costs, product testing, market research and intelligence)
Northern Ontario Heritage Fund Corporation	Provincial	Various channels of investment, including direct grants to innovation centres (e.g. more than CAD 1 million to expand NORCAT’s underground mining centre)
Critical Minerals Innovation Fund (CMIF)	Provincial	Supports Ontario's critical minerals sector through investments in projects related to battery supply chain, innovative techniques for deep exploration and mining, recovery of minerals, and other innovative projects that support the critical minerals sector. It providesup to CAD500 000 in funding for a maximum of 50%of eligible project costs.
FEDNOR’s business support programmes	Federal	At least five programmes for businesses grow and innovation with potential links to mining, such as: Regional Economic Growth through Innovation (REGI), and Community Futures Program (CFP). Overall, programmes provide funding in areas such as Innovation adoption, SMEs’ scale-up or business support networks for under-represented groups

Scientific Research and Experimental Development tax credits	Federal/ provincial	The federal SR&ED tax credit offers a 15% non-refundable credit to most businesses, with an enhanced 35% refundable credit for eligible Canadian-Controlled Private Corporations (CCPCs) on the first CAD 3 million of qualifying R&D expenses. In Ontario, businesses may also access additional tax credits: an 8% refundable Ontario Innovation Tax Credit (OITC), a 20% refundable OBRITC for research contracted to institutions, and a 3.5% non-refundable ORDTC to reduce provincial tax.

Ontario has increased its investment in mining innovation in recent years. Notably, the Critical Minerals Innovation Fund (CMIF), part of Ontario's Critical Mineral Strategy 2022, tripled its funding support between 2022- 2024 (from an initial CAD 5 million budget to CAD15 million) (Ontario Government, 2024[31]) and kept increasing in 2025 with more than CAD 7 million (Ontario Government, 2025[32]). Example of projects funded by CMIF include:

- Carbonix Inc., an Indigenous-owned company, to help refine the process for converting mining waste petroleum coke and other byproducts into high-energy density graphite for use in the battery supply chain,
- Canada Nickel Company to fund research to commercialise carbon capture processing techniques for nickel to produce battery grade nickel, or
- Frontier Lithium Inc. to help develop innovative lithium processing techniques and establish lithium mining and mineral processing in Ontario for use in battery and EV manufacturing supply chains.

The province also announced more than CAD 7 million in 2024 through NOHFC to support mining supply and service sector projects, innovation, workplace safety, and business development in Northern Ontario. Also, loan guarantees, grants, and scholarships to Indigenous peoples announced by the province are aiming to accelerate critical minerals production (Chapter 3).

The Federal support to business development and innovation has also step in to support innovation in the sector. For example, ISED provided CAD 40M to CEMI (topped up in 2025) to create the MICA network and support the commercialisation of innovation, while FedNor provided more granular funding for businesses and entrepreneurs in Northern Ontario municipalities, many related to mining. FedNor has at least five funding programmes that can directly support business grow and innovation to leverage mining development:

- Business Scale-up and Productivity (BSP) to help SMEs scale up, commercialize new products and enter new markets by adopting innovative technologies, with repayable funding up to 50% of project costs (to a maximum of about CAD 500,000 per project).
- Targeted Manufacturing Initiative – Productivity Improvements (TMINO) to help established Northern Ontario manufacturers modernize their operations, with repayable contributions to finance upgrades in production technology.
- Regional Innovation Ecosystems (RIE) supports not-for-profit organisations that build and strengthen innovation "ecosystems" in Northern Ontario (e.g. incubators, accelerators, industry cluster, and mentorship networks), with grants and support services.
- Regional artificial Intelligence Initiative to accelerate AI adoption with reimbursement up to 50% of capital costs for AI solutions.
- Community Futures Program to support local economic development, diversification and entrepreneurship serving mostly SMEs and business starts ups from under-represented groups, with loans (typically with up to CAD 150 000 per business), loan guarantees, or equity investments.

Despite the availability of funding, some issues raised during the OECD visits to the region seem to be affecting the effectiveness of these funding programmes, particularly for small firms and entrepreneurs:

- Lack of continuity of programmes over the long-term. Stakeholders have expressed concerns about the lack of long-term continuity in innovation programmes. Changes in government often lead to the introduction of new funding programmes without allowing existing programmes to mature and succeeded, which is crucial for long-term mining projects that require sustained support for commercialisation.
- Lack of tailoring programmes to the northern context. Some provincial funding programmes are designed with a generic approach, setting predefined goals that require local actors to adapt to top priorities rather than leveraging local strengths. For example, battery-related innovation is primarily directed to southern Ontario, sidelining northern potential. Moreover, programme eligibility criteria can limit the capacity of Northern innovation ecosystems. For instance, colleges, which are key drivers of innovation in Northern municipalities, are often ineligible to lead programmes like Skills Future.
- Fragmentation of funding programmes. For large projects the amount of different funding sources is small relative to the cost. For example, while MIRARCO's proposed Centre for Mine Waste Biotechnology has received crucial funding from all levels of government (at least four sources) to jumpstart test and pilots, funding remans significant below the capital required to build the centre (about 20% of the CA 38.7 million required) (MIRARCO, 2024[33]) (Northern Ontario Business, 2024[34]). While large funds exist (e.g. Canada's Strategic Innovation Fund provides investments starting at CAD 10 million for projects), innovation projects in rural mining municipalities can find it difficult to navigate a more complex application process when they are competing against large established firms.

  For small firms, fragmentation increases difficulty to navigate and access the different funding opportunities. In Ontario, programmes such as OCI, eCampus Ontario, NOHFC, and the Ontario Research Fund all have support lines for mining and critical minerals. For example, a startup might apply to both OCI and NOHFC for help building a prototype, or to both eCampusOntario and OCI for research support. This adds bureaucracy in the application processes, duplication of efforts, and extra paperwork.
- Feedback on applications**.** Applicants have reported a lack of constructive feedback on rejected applications, hindering their ability to improve future submissions and access subsequent funding opportunities.
- Indigenous communities and organisations also face the same funding and long-term programme support challenges as non-Indigenous groups, but with added barriers. Limited capacity to navigate complex, fragmented application processes is compounded by urgent liveability issues such as lack of clean water, inadequate housing, health and mental challenges, and addiction. These conditions make it especially difficult to access the funding needed for long-term development.

The province can improve its funding support in innovation by ensuring programmes have a long-term vision, medium- and long-term outcome indicators, and are tailored to specific characteristics of innovation ecosystems in Northern Ontario. To do so, the region needs to help conduct structural assessments of different municipal hubs to identify specific needs and tailor funding programmes accordingly. For example, multi-year grants for circular economy projects, such as repurposing tailings for construction materials, can stimulate new businesses in the region.

Furthermore, federal and provincial governments should consolidate innovation programmes targeting mineral innovation into single funds capable of delivering substantial, milestone-based investments to flagship projects. Given the sector's global competitiveness and its strategic importance for the country, a single funding source would accelerate the transition from pilot to commercial scale and help establish high-impact innovation project to anchor other activities. Since most mining innovation is implemented in rural areas, public funding can address unique challenges for projects in this context, such as scale, information gaps, and limited access to capital. Therefore, larger seed public grants can also attract

additional private and corporate investment. Beyond the impact of single large funds, such co-ordination can also reduce duplication and maximise resource efficiency across innovation programmes.

Ensuring adoption of funding also requires clearer communication on funding programmes and feedback on the innovation application process. Greater outreach about programmes and application conditions might be needed for innovation players and First Nations who might need additional time to access information and sort out application processes. In turn, constructive feedback, as mentioned before, is also needed to help applicants refine their proposals and increase their chances of future success.

Boosting entrepreneurship and small business integration in the mining value-chain

Entrepreneurship faces difficulties in mining reliant economies. The dominance of a globally integrated mining sector in small local markets creates labour competition through above-median wages, limits market diversity, and leads to lock-in effects for local SMEs (OECD, 2024[35]).

While the SME environment in main population hubs (Sudbury, Timmins and Thunder Bay) performs well (Chapter 2), scope for improvement could be given to small mining municipalities in Northern Ontario, where local businesses must adapt to high industry standards and compete with external suppliers. Additional barriers, such as weak linkages to needs of the mining industry and limited access to seed capital, further constrain entrepreneurial activity in rural Northern communities.

Previous mentioned programmes such as the corporations' centres funded by the FEDNOR's community futures programme (Federal Economic Development Agency for Northern Ontario, 2024[36]) and Aboriginal Financial Institutions provide loans, and advice to Indigenous and non-Indigenous entrepreneurs. The region also has platforms to support early start-up creation, notably start-up incubators in major urban hubs. This is the case of Sudbury's start-up incubator focused on tech business that is funded by the municipal government and FedNor (federal funds for four years). It offers grants for new ideas and connects with larger investors. MICA in Sudbury has also benefited from federal funds ((in the first quarter of 2025 it received CAD 5 million in federal finance) to fund start-ups that create solutions for the mining sector.

However, demand to start a business in municipalities specialised in mining is low, particularly in the small and remote areas. Barriers-to-entry include: high salaries paid by the mining company, competition for reduced workforce, scarce connections to mining company needs, and information related to funding programmes. In some municipalities (Greenstone, Sudbury), access to affordable land can also be a challenge to set up a new industrial business, e.g. processing facility. Such hurdles are exacerbated for First Nations, whose women-led, and youth-led enterprises are underrepresented in access to capital and support programmes.

Beyond economic and funding incentives, entrepreneurial culture in a rural mining context can be further supported with entrepreneurship in early education, tailored coaching and mentoring, and strategies for second chance (OECD, 2019[37]):

- Entrepreneurship in early education in the school. Integrating entrepreneurship in high-school curriculum has brought positive outcomes in OECD rural regions, based on challenges context linked to industrial needs, financial and managerial literacy (OECD, 2024[35])
- Tailored coaching and mentoring to First Nations women and youth, as well as persons with a disability
- Second chance programmes to address the stigma and consequences of business failures (such as the EU Second chance for honest entrepreneurs) by facilitating exchanges of best practice and legal procedures to wind up a business, in the case of non-fraudulent bankruptcy.

Indigenous entrepreneurship also requires approaches that reflect the unique realities Indigenous business owners face. Unlike mainstream business actors, Indigenous entrepreneurs often operate in underserved

communities, navigating distinct legal and cultural frameworks. For Indigenous learners, most business education does not reflect these differences (University of Waterloo, n.d.[38]). For example, Indigenous learners face challenges to fit into Canadian business programmes that focus on corporate scenarios.

In Northern Ontario, concrete opportunities to foster new businesses in the mining ecosystem of Northern Ontario have emerged by leveraging partnerships with mining companies. Business support platforms, competitions, testing platforms and information of industrial needs should be used to spur entrepreneurial ideas. This is the case of IAMGOLD's challenge for Google developers (Box 4.6).

For Indigenous entrepreneurship, dedicated Indigenous-led organisations can specifically help promote entrepreneurship by promoting inclusive systems that recognise Indigenous entrepreneurs' strengths. For example, the Canadian Council for Indigenous Business helps improve access to capital with targeted programmes like the Indigenous Women Entrepreneurship Fund and partnerships with Indigenous Financial Institutions. The Council also supports business training, mentorship, and procurement opportunities through initiatives like the Tools and Financing for Aboriginal Business (TAFB) program. Additionally, tools such as the Certified Indigenous Business directory help Indigenous businesses gain credibility and access new markets, including through government and corporate procurement.

Box 4.6. Private-led start-up support

Côté Gold Challenge for Artificial Intelligence in Mining

The Côté Gold DevFest Challenge, hosted by IAMGOLD in partnership with Laurentian University and the Google Developer Group (GDG) Sudbury, is a strong example of how companies can chanel ESG resources into entrepreneurship and innovation to address industry challenges. Focused on the theme of "Responsible AI in mining", the challenge invited students, AI specialists, and developers to create AI solutions capable of evaluating open-pit blasts using drone footage. Over six-weeks, participants developed programmes that could analyse blasts within seconds, showcasing both technical innovation and potential operational efficiency gains.

This initiative highlights how ESG-aligned investments can go beyond traditional environmental or social programming. By funding competitions, mentorship, and collaboration platforms, IAMGOLD supported young talent, education, and responsible technology development, while generating insights relevant to their core operations. This approach combines community engagement, innovation and workforce development, showing how mining companies can invest in entrepreneurship to advance both sustainability goals and technical priorities.

Source: IAMGOLD Corporation - Artificial Intelligence in Mining: "Côté Gold Challenge" Showcases Innovative Solutions

Leveraging mining companies' procurement for local business development

Canada, being a member of the World Trade Organisation (WTO) and subject to the Agreement on Trade-Related Investment Measures (TRIMs) and the General Agreement on Tariffs and Trade (GATT), does not use demand-side local content regulations requiring businesses to geographically discriminate in who they procure goods and services from (Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development, 2018[39]). While there are no policies or regulations to require a percentage of goods and services in the mining sector to be procured from local businesses, there are de facto local procurement requirements when it comes to large-scale industrial projects engaging with First Nations and supply-side initiatives to support small businesses in supplying more competitively to mining companies.

Two main instruments exist to ensure greater procurement from mining in the region:

- Impact Benefit Agreements (IBAs) or other agreements negotiated between mining companies and First Nations, which are commercially negotiated and private agreements. Most proposed mining projects will in effect be bound by these commercial agreements, including any local procurement provisions with First Nations (Chapter 3e).
- Supply-side initiatives support small businesses to be more competitive in the supply to mining companies. Supply side government measures include policies to support local businesses to compete with global standards and network activities with buyers (Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development, 2018[39]). Some of these forms of supplier support are available to all businesses, while in other cases a business must be Indigenous-owned to be eligible (Table 4.9). While most of these forms of support are not specifically targeted for the mining sector, new programmes such as Ontario's Critical Minerals Innovation Fund are focused on ensuring local economies benefit from increasing demand for minerals.

Table 4.9. Examples of support programmes for businesses in Northern Ontario

Ontario programmes to support supplier in general	Ontario programmes to support Indigenous specific suppliers	Federal programmes to support supplier in general	National programmes to support Indigenous specific suppliers
The Critical Minerals Innovation Fund's support to "projects that involve research, development and commercialization of innovative technologies, techniques, processes and solutions for critical minerals	Indigenous Economic Development Fund (IEDF) which includes provide start-up and expansion financing for SMEs as well as financing, skills training and other economic development initiatives that are collaborations between Indigenous communities and the private sector	Canada's Small Business Financing Programmes which help support small businesses to access loans from financial lenders	Indigenous Service Canada the Aboriginal Entrepreneurship Program (AEP) provides access to capital and business opportunities to Indigenous entrepreneurs and business owners in Canada
The Ontario Made Manufacturing Investment Tax Credit to support Ontario Manufacturers to reduce costs, encourage innovation, and to increase competitiveness. A 10% *refundable* Corporate Income Tax credit on qualifying investments in buildings, machinery and equipment for manufacturing or processing in Ontario		The government of Canada's Business Benefits Finder to help suppliers search for specific types of business support available to the sector	The Indigenous Growth Fund (IGF) which provides funding for Indigenous Financial Institutions or "IFIs" that lend to Indigenous businesses. The Government of Canada as well as two crown corporations are funders. (Indigenous Growth Fund, n.d.[40])
		The Mining Innovation Commercialization Accelerator (MICA) Network to help bridge the gap between innovation and commercialisation for Canadian SMEs	Export Development Canada provides Indigenous businesses working capital, credit, knowledge and advice, investment matching, and additional funding to enter export markets (Export Development Canada, n.d.[41])

Source: (Ontario Government, 2024[42])

In addition, municipal governments offer support to businesses based in their jurisdictions. For example, the Sudbury Catalyst Fund is a large fund (5 million CAD) administered by the Nickel Basin Federal Development Corporation and the City of Greater Sudbury that provides funding to tech related start-ups in the municipality.

There are also cases where multiple municipal governments fund one institution that serves businesses across all their jurisdictions. For example, the Rainy River Future Development Corporation (RRFDC) is funded in part by several Northern Ontario municipalities and supports entrepreneurs to start or expand their business by providing planning assistance and loans (Rainy River Future Development Corporation, n.d[43]).

On top of these supply-side support programmes, Ontario would benefit from a clearer recognition of "local content" as a concept in policy programmes. It could help assess mining benefits in local economies and highlight companies' efforts for local procurement, especially when it comes to non-Indigenous suppliers. Government supply-side measures appear to provide a supportive environment for businesses supplying the mining sector in the province. However, few public statistics are available- from mining companies or the government - on the share of procurement retained within the region. Even where "local-local" procurement is reported, the specific geographic area covered by this category is not disclosed.

Therefore, the province should consider improving public information on local procurement at the local level. While provincial information with regards to Ontario's mine supply and service sector is clear (e.g. more than 40,000 employed people, with over 1 400 mining supply and service companies in Ontario), granular statistics could help tailor policies to increase support for those more rural economies hosting mining projects. This would increase the public's awareness of opportunities linked to the mining sector, facilitate discussion and business connections, and increase accountability for efforts by both government and industry to increase local procurement.

This can be done, for example, by creating programmes to measure and report on mining sector procurement from local and provincial businesses. For example, in other OECD regions such as Western Australia, the provincial government created a Local Content Advisor Network, which issues reports summarising local content efforts and results by industry (Government of Western Australia, 2024[44])

Industry organisations like the Ontario Mining Association could also help enhance information about procurement in the region and guide companies to boost supplier web pages sections. For example, the Mining Association of British Columbia works with the Mining Suppliers Association of BC (MSABC) to show detailed figures for how much mining sector spending is going to different regions of the province. Agnico-Eagle, (Agnico-Eagle, n.d[45]), which is already operating in the region, offers a comprehensive web page section for its Nunavut website. Likewise, most mining companies operating in Australia have a clear supplier web page.[1] For instance, the Australian company Mineral Resources has an extensive section on its website dedicated to suppliers. It provides information about their code of conduct and also its Australian Industry Participation (AIP) plan with specific categories of goods and services it will need (Mineral Resources, nd[46]).

Strengthening local labour markets for mining value chains

Northern Ontario hosts a robust network of mining education and training institutions that are integral to the region's economic vitality as well as world class training centres for the industry. Colleges, universities, research centres and companies- within Northern Ontario's innovation ecosystem also play a key role in education and training, forming a strong regional network for skills development.

Most colleges offer mining-related courses and corporate upskilling programmes aligned with industry needs, helping maintain the pipeline of technical talent. Partnerships between colleges and companies demonstrate close collaboration in programme design (Box 4.7). Colleges across the region cover different communities and have developed some complementary specialisations. In the east, Cambrian College mostly focuses on robotics, mining technology, and industrial software, while Collège Boréal (Boreal College *in English*) delivers French-language training with focus on equipment maintenance, safety, and targeted programmes for women in mining. In the west, Confederation College has created tailored programmes for heavy equipment operators, with a strong employment rate (above 74%), while Northern

College's Haileybury School of Mines provides training for mine engineering, exploration and blasting technique.

Box 4.7. Partnerships of Colleges to upskill workers in Northern Ontario

Cambrian College:

Partnered with Vale on their Vale Electric Vehicle Lab, as part of the Centre for Smart Mining (CSM) to support the shift to electric vehicle technology in mining. The lab enables testing of large-scale batteries, powertrains, and duty cycles for underground EVs, while helping mining suppliers to convert to battery-powered systems. The partnership also supports workforce development through student placements with Vale.

Collège Boréal (Boreal College in English):

Partnered with EPIROC to strengthen the Battery Electric Vehicle (BEV) Maintenance Program, ensuring the students in the programme have access to the training tools and materials that will make future courses 'best in class'. This programme aims to equip students with essential skills for maintaining electric vehicles in mining operations.

Newmont Corporation sponsors the Collège Boréal's Mining Potential programme. Newmont covers programme fees for students from underrepresented groups, helping to make mining education more accessible and supporting workforce development in Northern Ontario.

Northern College:

Haileybury School of Mines (HSM) at Northern College partners closely with mining companies to deliver training that meets industry needs. Programmes like the Basic Underground Hard Rock Miner and Surface Diamond Driller Assistant Common Core are developed with input and support from companies such as Goldcorp, Kirkland Lake Gold, and Boart Longyear, ensuring students gain relevant, hands-on experience with industry standard equipment.

These partnerships help keep the curriculum up-to-date and create direct pathways to employment. HSM also works with the Mining Industry Human Resources Council (MiHR) to provide scholarships and increase student access to mining careers.

Confederation College

Confederation College collaborates with mining companies along the North Shore of Lake Superior to deliver an industry-driven programme. Through initiatives like the North Shore Mining Training Strategy, developed with employers, employment agencies, and government support, the college helps meet regional labour, market demands and supports rapid workforce entry.

Working with companies such as Generation Mining and New Gold, Confederation College has created tailored programmes for roles like heavy equipment operators. Its "Mining Potential" program, run with Northwest Employment Works, also supports workforce diversity by offering free entry-level training for women, youth, and newcomers to fill key skills gaps in the mining sector.

Source: https://collegeboreal.ca/en/formation/battery-electric-vehicle-mining-maintenance-program/
Vale Base Metals Contributes $750,000 to Cambrian College Electric Vehicle Lab | Cambrian College
Northern College's Haileybury School of Mines Evolves to Serve the Mining Industry - Northern Ontario Business
Confederation College Partners with North Shore Mining Training Strategy to Provide Free Training Opportunities | Confederation College

Among universities, Laurentian University has established a strong balance between academic instruction and applied research in mining, aligning closely with the sector's evolving needs**.** The Bharti School of

Engineering offers a mining engineering programme for careers in the global mining industry, while the Goodman School of Mines co-ordinates mining-related programmes and fosters leadership development (Box 4.8). This school delivers interdisciplinary training and research initiatives that span the entire mining cycle, from exploration to reclamation (Goodman School of Mines, 2025[47]). These initiatives have reinforced Laurentian's position as a leading mining research institution in Canada. Notably, the university also offers a Master of Indigenous Relations (MIR), which can be tailored to mining-related fields and aims to improve understanding of Indigenous perspectives on resource development and environmental stewardship.

Box 4.8. Laurentian University Goodman School of Mines

Laurentian University in Greater Sudbury offers a comprehensive Bachelor of Mining Engineering programme through its Bharti School of Engineering, emphasising both surface and underground mining methods, mine planning, and environmental considerations (Laurentian University, 2025[48]). The university also provides graduate programmes, including a Master of Engineering with specialisations in Mining Engineering and Mining-Mechanical Engineering, catering to advanced studies in resource management processes (Laurentian University, 2025[49]). Complementing these academic offerings, the Goodman School of Mines at Laurentian delivers interdisciplinary training and research initiatives that span the entire mining cycle, from exploration to reclamation (Goodman School of Mines, 2025[47]).

Source: (Goodman School of Mines, 2025[47])

One of Northern Ontario's most renowned assets in education and training is NORCAT. Established in 1995 in Sudbury, NORCAT (Northern Centre for Advanced Technology) is a not-for-profit innovation and training hub that delivers world-class mine safety training, operates Canada's only underground training mine, and supports advanced mining technology development and commercialisation (Box 4.9).

Box 4.9. NORCAT's role in training and upskilling

NORCAT is dedicated to training and upskilling labour in the mining sector. It operates the NORCAT Underground Centre, in Sudbury, Ontario – the only training facility with a fully functional underground mine. This allows students to gain practical, hands-on experience in a real-world environment. Programmes are designed to meet industry and regulatory standards, preparing trainees for roles in mining, drilling, and equipment operation.

NORCAT offers a range of programmes, including the Underground Hard Rock Miner, Surface Miner, and Diamond Driller Common Core certifications. It also provides customised workforce training for corporate clients, such as role-specific courses for miners and supervisors. Their innovative VR and AI-enhanced training tools, developed with partners like Vale and the Vector Institute, ensure modern, safe, and effective learning for both domestic and international students.

NORCAT sustains its programmes through commercial fees, government grants, and industry partnerships. International projects, such as training over 200 workers for Torex Gold in Mexico and a U.S. partnership with Great Basin College, reflect its expanding global reach.

Source: https://www.norcat.org/underground-centre/

However, structural factors and perception of the sector affect mining labour markets in Northern Ontario

Despite being a mature mining jurisdiction with a historic mining presence, the region's industry faces some challenges in filling technical and professional positions. During OECD visits to the region, suppliers and mining companies frequently cited workforce shortages as a major obstacle to maintaining competitive operations. Several factors explain the difficulties in meeting labour demands in the industry as outlined below:

Lack of interest and information about work in the sector, particularly among youth. This is a widespread issue across the OECD. In Canada, young people often still perceive mining as a physically demanding occupation with poor work–life balance. In a 2020 poll of 3,000 youth across Canada, mining ranked last among nine career sectors. This ranking was unchanged in a similar 2023 poll, where 40% of respondents stated they would definitely not consider a career in the mining industry (The Mining Industry Human Resources Council (MiHR), 2023[50]). In the region, mining continues to be viewed less favourably among those under 35 compared with other sectors, with 27% of respondents not considering a job in the sector (Mining Industry Human Resources Council, 2023[51]). While pay and job security is a considerable consideration for people aged 15-30, concerns about job safety, lack of knowledge about the skills required, poor work–life balance and scepticism that the sector is becoming more environmentally responsible (with only 57% believing this) (Mining Industry Human Resources Council, 2023[51]) remain key deterrents.

Programs such as the Ontario Mining Association's *This is Mine Life* campaign, supported by the Government of Canada and the Government of Ontario through the Labour Market Partnerships program of the Ministry of Labour, Immigration, Training and Skills Development, aim to spark interest in mining careers among young people and newcomers. These initiatives are showing results in shifting young people's perceptions. An Ipsos omnibus survey of Ontario youth (ages 16–28) in February 2025 found that 39%, about 1.3 million young people, including 91,000 in Northern Ontario, would consider working in the mining sector (Ontario Mining Association, 2025[52]).

Lack of attractiveness of the areas where mining operations are located. Most mining operations, especially new ones in Northern Ontario, are situated in remote, rural municipalities. While these areas offer access to nature and a peaceful lifestyle, they struggle to attract and retain residents due to limited affordable housing, access to quality services and education, childcare, and cultural infrastructure. These issues discourage families from relocating, particularly when a partner's employment or children's education and social needs are considered. For example:

- The municipality of Marathon is successful in attracting and training young people but struggles to retain professionals and young families. This is due to limited recreational infrastructure (e.g. an old swimming pool) and relatively more expensive housing compared to larger cities.
- Support healthcare services, including addictions treatment, are also limited in some municipalities due to a lack of qualified staff

Challenges in re-skilling or acquiring the appropriate competencies. Many mining occupations require specialised technical and professional skills that are increasingly scarce in Northern Ontario. The sector faces difficulties in sourcing qualified candidates due to a wave of retirements, especially in senior and technically demanding roles.

With regards to professional programmes, youth in the region are less likely to pursue post-secondary education than in the average of Ontario, and those who do often delay enrolment (Zarifa, Hango and Pizarro Milian, 2017[53]). Many must relocate to southern Ontario to pursue desired education pathways due to limited local options, particularly in high-demand STEM fields, which contributes to a "brain drain". Financial constraints, such as tuition reductions and freezes since 2019, have further strained the finances

of institutions in the region, which rely heavily on government grants and tuition for funding (Office of the Auditor General of Ontario, 2022[54]).

Furthermore, recent decreases in the number of student visas that will be issued across Canada (by about 40%) (Government of Canada, 2025[55]) further impacts the availability and quality of mining programmes. This is because international students' high tuition rates largely subsidise a university's overall operating budget, meaning all programme budgets suffer with lower international student enrolment, including mining programmes.

Certain certification and training programmes are perceived to be complex and bureaucratic, especially by residents of rural municipalities. This is partly due to information gaps and the concentration of training centres in larger population hubs.

- For instance, in Marathon, there is a shortage of transportation drivers with the required licenses. Since the mine is located far from the town center and there is no public transport, youth without a driver's license or vehicle struggle to take up employment opportunities.
- Similarly, vocational education certification is often viewed as overly difficult and lacks standardisation across Canada (e.g. qualifications to become a truck driver).
- The provincial government requires municipalities to apply for and manage funding through the Ministry of Labour's skills fund, but many small municipal governments—particularly First Nations administrations—struggle with limited administrative capacity to manage these funds.

Educational disparities have significant implications for Northern Ontario's mining sector. The industry anticipates a shortage of over 3 500 skilled workers by 2040 in Ontario (National Observer, 2024[56]). There is also a gender imbalance present in many mining-related programmes across the region, representing a challenge for gender equity across the sector, yet also an opportunity to attract a new pool of talent (Chapter 1). Without enhanced local education and training programmes, the region risks being unable to meet this demand. Addressing these educational and workforce challenges is vital for the sustainability of Northern Ontario's mining sector, yet existing education and training facilities play a significant role in this process.

Attracting youth and women by transforming perceptions

Mining encompasses a broad array of occupations, from equipment operators and geologists to process engineers and environmental specialists. For example, Mining Industry Human Resources Council in Canada identified about 100 job classifications relevant to mining (Mining Industry Human Resources Council, 2024[57]). Traditionally, roles focused on physical extraction (e.g. haul-truck drivers and drillers), but expanding digitalisation and automation is also generating demand for higher-skilled positions, including data analysts, IT specialists, and autonomous operations controllers (Mining and Automative Skills Alliance, 2024[58]; Shell, 2023[59]).

There are several initiatives underway to address poor perceptions and potential misconceptions surrounding the mining sector. These interventions include a "*Mining Needs You*" social media campaign led by the Mining Industry Human Resources Council, which has received a favourable response (60% positive), contributing to improved impressions of the mining industry (Mining Needs You, 2025[60]).

Improving information about the job opportunities in current mining work and the outreach strategies to youth are priorities to improve labour sustainability for the sector in the region. To do so, some particular actions should involve:

- Conduct hands-on outreach activities with both youth and parents. While outreach in schools and universities is common, greater efforts should be made to engage parents as well. Moving beyond traditional information sessions to experiential activities, where parents and youth can interact

directly with mining equipment, technology, and machinery, has proven more effective in sparking interest and showcasing real opportunities in the sector..

- Communication with plain language to demystify the nature of the roles can help make people aware that various skills are needed in the sector.
- Prioritize culturally relevant outreach for Indigenous youth and women, delivered in partnership with Indigenous communities, schools, and leadership

Improving workforce forecast capacity and career paths for a better skill matching

Beyond outreach strategies, the region would benefit from having greater visibility on the current and future skill needs for the industry as well as the current skills in the labour force. Provincial, municipal and First Nation governments do not have complete information on the future needs of the mining companies established in the region, including plans for automation on digitalisation of operation.

Labour-market intelligence tools can help Northern Ontario address labour shortages in mining and fill job vacancies in the region and mining sector. Some estimates refer to around 9 000 job vacancies in Northern Ontario (Northern Economist 2.0, 2025[61]). Traditional labour data such as employer surveys or provincial averages mask local realities and lag behind sudden shifts. For example, public dashboards from Workforce Planning Ontario and MiHR (Mining Industry Human Resources Council) offer more timely, localised insights that can direct targeted action.

Newer methods that analyse labour data can help the region support municipalities and education institutions to strengthen local labour markets. Online job postings and apply text analytics, like natural-language processing, provide granular, near-real-time insights into specific occupations and in-demand skills. This approach improves matching between workers and opportunities, even across different stages of mining. Other OECD regions, such as Flanders, Belgium, have established pre-employment screening system (called 'Jobbereik', meaning job reach) to provide jobseekers with occupations that they could pursue based on their current role's competencies and transferable skills.

Close work among educations institutions and companies can also help drive students and curricula towards industry needs. While the region already has important collaboration in this regard, early interaction with universities and colleges in the area, especially with new companies arriving in the region or when projects are modified, can help to link students with new job opportunities and to adapt short courses to new industry needs.

Overall, some concrete actions for the region include:

- Enhancing workforce data and forecast capacity by further developing a pre-employment screening system and leveraging new technologies (such as AI) to identify regional occupation and skills demand and map workforce characteristics
- Supporting initiatives for career exploration opportunities in high school, outlining a training path with forward contracts in mining.
- Promoting partnerships with mining companies to expand on-the-job training and mentoring is an effective way to attract entry-level applicants lacking full skill sets. Showcasing and promoting existing experiential learning opportunities, such as co-ops and apprenticeships in the region, can further strengthen this approach.

Bridging Indigenous work aspirations and mining jobs

Aligning Indigenous aspirations with mining employment presents ongoing challenges rooted in both structural barriers and mismatches between available roles and community goals. Many mining jobs offered to Indigenous workers are entry-level or manual roles that do not align with aspirations, or do not outline clear paths for skilled, leadership, or community-based work. Limited access to education and

training, combined with the geographic isolation of many Indigenous communities, further restricts opportunities to acquire needed skills (Nightingale et al., 2017[62]); (Cox and Mills, 2015[63]).. Cultural obligations and the demanding nature of mining schedules can also create conflicts to adapt or grow in mining roles.

Several successful community-led strategies have improved Indigenous participation in mining. Programmes like Indigenous Job Readiness Training by NATT Group and Z'gamok Enterprises, on-site training from Kenjgewin Teg and Legend Mining, and fully-funded courses through Northern College and Taykwa Tagamou Nation providing hands-on training and culturally relevant education. The Cree Human Resources Development organisation tracks community skills to better match residents with future job opportunities (Bland, 2018[64]).

Also, agreements between companies and First Nations have boosted Indigenous employment opportunities in the sector, with clear employment targets. For instance, at the Musselwhite mine, approx. 19% of the almost 700 employees are Indigenous Peoples. The mine has a target of 30% employment from the signatory and affiliate communities of Windigo and Shibogama First Nation Councils with around 11% of the current Indigenous workforce coming from these signatory communities (Government of Canada, 2015[65]).

To build on this progress, mining strategies should focus on place-based training, support for Indigenous businesses, and tools like job-matching platforms. Investments in apprenticeship programmes and tools like digital job-matching platforms can better align employment with community priorities and promote long-term economic inclusion. It is relevant to keep supporting tailored programmes for Indigenous female employment in the industry, including culturally relevant training programmes as well as cultural awareness training for non-Indigenous employees.

Improving liveability to attract and retain labour force

As mentioned in Chapter 1, demographic decline is affecting Northern Ontario due to strong trends of outmigration and population ageing. A reducing population weakens both municipal capacity to capture long-term value from mining, as it increases costs to deliver services and reduces local fiscal revenues. Population decreases also affect the operational efficiency of mining projects, which require greater reliance on fly-in fly-out or drive-in drive-out labour and suppliers. The challenge is also true for First Nations communities, where many members live off-reserve and rely on some of the services (technical education and health) provided by the municipality.

Despite the job opportunities that mining can bring to host communities, retaining residents and attracting new ones heavily rely on improving the liveability in terms of access to public and recreation services, as well as community infrastructure in Northern Ontario rural municipalities. Even targeted migration policies fall short when fundamental living conditions—such as housing, infrastructure, education, and healthcare—are lacking.

In this context, policy to attract and retain labour force in Northern Ontario need to prioritise the provision of high-quality family support services (e.g. healthcare, childcare, and cultural activities, especially for youth) as well as the supply of affordable housing. Northern Ontario's mining municipalities have different sources to ensure the initial investment in these amenities:

- Provincial and federal funds, including the NOFC or FEDNOR's Northern Ontario Development Program (NODP). This last programme invests in projects led by municipalities, First Nations, and other organisations and institutions (e.g. strategic community and business planning, and strengthening of communities' industrial and business assets) and provides funding for communities or First Nations to hire staff to help develop the local economy.
- Mining companies' ESG efforts and community investments support improvements in living conditions. Northern Ontario offers various examples of companies supporting community

infrastructure, cultural events, health and education services in the municipalities and Indigenous communities, such as:

- Greenstone Gold Mines: Through an impact benefit agreement with Minodahmun Development LP (a partnership of Animbiigoo Zaagi'igan Anishinaabek, Aroland First Nation, and Ginoogaming First Nation), Greenstone Gold Mines supports the creation of a homegrown Indigenous workforce and local mine service businesses. This includes partnerships for exploration drilling and employment opportunities aimed at long-term economic development for First Nations communities.
- Newmont Goldcorp supports community well-being in Red Lake, Northern Ontario, through a range of social and infrastructure initiatives. In addition to formal Collaboration Agreements with Wabauskang and Lac Seul First Nations which guide joint efforts in education, health and cultural programming, the company invests in local quality of life. This includes operating a recreational facility, sponsoring youth programmes and events, and supporting the development of the Red Lake Medical Clinic.

However, improving impact of this investments, especially the companies' activities, requires local However, improving impact of these investments, especially the companies' activities, requires local governments to identify the main needs and ensure the availability of resources for ongoing maintenance and management.

On top of the initial investment, these municipalities often have to deal with externalities related to mining. The primary issue is therefore the capacity of local governments to maintain service quality and upgrade infrastructure over time. The next section will discuss housing accessibility strategies while the last section of this chapter will explore strategies to increase long-term fiscal revenues to address those liveability needs.

Adapt policies and communities for a shrinking population

Alongside efforts to increase community attractiveness and increase population sizes in remote rural municipalities, policies need to remain cost-efficient and realistic in a context of structural demographic shrinkage in rural areas. Across OECD rural regions, net outmigration to urban hubs and low fertility rates are structural trends requiring smart policy responses that avoid basing all investments solely on population growth targets. Recent OECD work has outlined a number of policy strategies to help municipalities adapt services to maintain well-being standards despite population decline (Box 4.10).

Box 4.10. Main OECD recommendations to adapt municipal services to population decline: Smart shrinking

As many regions face ongoing population decline and ageing, so calledd smart shrinking has become a vital approach to ensure long-term resilience and well-being. These demographic shifts can lead to labour shortages, underused infrastructure, and weaker public services, ultimately threatening economic vitality and social cohesion. Without strategic action, affected areas risk falling into a cycle of decline. However, with forward-looking, place-based policies, demographic change can become an opportunity for more inclusive and sustainable development focused on quality of life.

To help regions proactively adapt, the OECD has outlined seven key recommendations for smart shrinking:

- Acknowledge the demographic reality and anticipate change through evidence-based policy responses.
- Tailor adaptation and mitigation strategies to each region's specific demographic context.

- Align policies with the appropriate territorial scale to ensure relevance and impact.
- Adapt spatial planning and housing policy to reflect changing population needs.
- Create age-friendly places that foster resilience and social inclusion.
- Strengthen coordination across sectors and levels of government for integrated solutions.
- Enhance fiscal resilience by doing more with less in the face of demographic change.

These strategies enable policymakers to shift from reactive responses to proactive planning, turning demographic challenges into drivers of innovation and well-being.

Source: OECD, Shrinking Smartly and Sustainably, 2025

Agreements to further benefit from drive-in drive-out or fly-in fly-out workers

Given the remoteness of some municipalities, municipal governments can also conduct agreements to benefit from drive-in drive-out or fly-in fly-out to improve community liveability. Many operations require a minimum of fly-in fly-out workers as local workforce in remote areas tend to not be enough or not count with the needed skills for the projects. Therefore, municipalities have opportunities to increase interaction of those transient workers to fund investment in community infrastructure and boost the local economy. Strategies to further retain income of these workers locally include providing cultural and recreational alternatives and partner with companies to provide and maintain the temporary accommodation solutions. Good examples on this front include the Coolgardie municipality in Australia, that has invested in adapting old buildings for housing FIFO workers.

Box 4.11. Municipal investment for FIFO housing: Worker's Accommodation Villages in Coolgardie, Western Australia

The Shire of Coolgardie, Western Australia established Worker's Accommodation Villages in Coolgardie and Kambalda West for housing FIFO workers in the area. The geographical convenience of the location and appropriate amenities have been a catalyst for long-term contracts with mining companies to domicile their workers. The Shire has invested over AUD 20 million into the creation of a 200-room village at Kambalda and will recoup these costs three years ahead of plan.

This increased tax income from waste management, leading to the improvement of the Waste Management Facility on the outskirts of Coolgardie. Also, the local hotel, previously closed for lack of patronage, has reopened once more as the town becomes a vibrant eating, drinking and recreation hub again.

Source: (Kalgoorlie Miner, 2025[66])

Leveraging mining for infrastructure development

Despite its resource wealth, parts of Northern Ontario still suffer pronounced infrastructure deficits due to its vast size and low population. As mentioned in Chapter 1, many First Nation communities remain unconnected to the road infrastructure and the energy grid, and lack secure access to clean water. Mining projects can be leveraged to support these investments. Moreover, housing shortage and lack of available land hampers capacity to attract families and new businesses to the region.

Focus on addressing housing gaps

Housing accessibility has been a persistent issue affecting liveability in the region. Between 2016-24, homelessness in northern Ontario grew four times faster than in non-northern communities (Donaldson et al., 2025[67]). Lack of affordable housing in Northern Ontario is a multifaceted issue influenced by remoteness and low population, which limits economies of scale for housing investments. Some causes of the issue include:

- High construction costs given the short building season, distance to building providers, and long distances between houses that impact costs of water and electricity connections. These higher costs, coupled with lower profit margins, discourage developers from initiating affordable housing projects.
- Poor condition of existing housing stock. Much of the existing housing, particularly rental units, is over 40 years old and in poor condition. The high costs associated with maintenance and repairs deter both landlords and homeowners from investing in upkeep.

Although these challenges are common across all the municipalities in the North, those with mining activity or potential have additional challenges to access land and manage boom and bust from the sector:

- Important portions of land inside the municipal boundaries may be dedicated to mining activities, with companies reserving areas beyond the mine operation itself in case new extensions and discoveries are feasible. Municipalities are also limited by federal land and large portions of land dedicated to natural protected areas,
- Labour shortages for construction since mining activity draws workers away from residential construction by offering higher wages
- The cyclical nature of mining, when arriving in a small municipality, can send rents and home prices rocketing. This was the case of Greenstone municipality with the arrival of Equinox mine in 2020, where more than 300 people were needed for the construction phase, and residents increased expectation to rent and sell housing to some of the workers, which sent the market into a frenzy.

Despite the extensive geographical area, land access remains a critical challenge not only to attract workers and families but also providers and small business. As in other OECD mining regions, land availability for housing and business development ranks as one of the top development challenges, stressing that solely market approaches are not enough to resolve the structural challenge. Limited affordable and housing options also affect community liveability in the region. Vulnerable populations, including seniors and individuals with mental health or addiction issues, struggle to find housing.

The government has the opportunity to leverage mining momentum to partner with companies and channel wealth of the industry to address the housing crisis in municipalities with mining potential. Other OECD regions have promoted partnerships with companies focused on housing shortages (Box 4.12).

Box 4.12. Partnerships with mining companies to address housing shortages: Newman, Western Australia

BHP is actively partnering with local governments to address housing shortages in Western Australia's Pilbara region. Through an AUD 158 million, 15-year housing programme, including AUD 100 million dedicated to upgrading 700 homes in Newman, BHP is refurbishing properties to make them more suitable for families and workers.

The company has also sold homes to the Shire of East Pilbara and leased others to community organisations and Indigenous groups. In collaboration with the Shire and Traditional Owners, BHP supports precinct planning initiatives like the East Newman Precinct Structure Plan to revitalize neighbourhoods. Despite challenges such as labour shortages and vacant properties, BHP continues to work with local leaders to boost housing availability and support essential community services.

Source: (BHP, 2020[68])

Overall, the province of Ontario needs to help address housing shortages in mining communities by:

- Partnering with private companies to address main housing issues, either by:
  - Realising land reserved for mining companies to housing options
  - Co-investing in housing supply by supporting funding for main works, provide construction materials or mobilise contractors to support housing construction.
  - In remote municipalities, co-ordinate installation of mining camps close or inside municipal boundaries to offer those facilities as a housing solution after the cycle of construction or operations are over.
- Increasing direct funding with public investment and with homeowners' financial incentives by:
  - Targeting public funding for the construction and maintenance of affordable and non-profit housing units for low- to moderate-income residents, especially in municipalities expecting new mining projects.
  - Providing financial assistance or incentives for homeowners and landlords to repair and maintain existing housing stock.
- Encouraging municipalities to adopt inclusive zoning practices that facilitate the development of diverse housing types, including multi-family and mixed-use developments.
- Collaborating with Indigenous communities to design and implement housing solutions that are culturally relevant.

Addressing transport and energy infrastructure gaps through mining partnerships

A modern mining industry and thriving communities both require reliable **transportation, energy, and digital** networks – all of which have scope for improvement in the North:

- Transport infrastructure is scarce in far north communities: The provincial highway network (11,000 km) serves southern and urban regions, but far north communities lack all-season roads (northernontariommts.wordpress.com). Many First Nations and remote settlements are only accessible by seasonal winter roads (ice roads constructed for a few months, which cover at least 3,160 km) and air transport (with about 29 provincial remote airports). However, winter roads are inherently costly to build and maintain and their seasons are shortening, which has increased the reliance on remote airports for year-round access. Furthermore, transport infrastructure is a

challenge for cost-efficient competitive mining projects. Train lines have been mainly built to carry raw materials, but are still scarce in the region.

- While Northern Ontario's hydroelectric energy supply is an asset to produce minerals with low CO2 emissions and reduce the carbon footprint of the sector, some potential mining projects are in off-grid areas, which requires additional investment for connection. Furthermore, some remote communities still remain disconnected from the grid, including more than 12 fly-in First Nations that rely on **diesel generators** for electricity and heating. This solution is both expensive and environmentally harmful. Furthermore, beyond hydroelectricity, the North has seen little new large-scale renewable development (solar, wind), unlike the developments in the south.
- Digital connectivity also has scope for improvement, as large parts of the region have limited Internet access. Some communities only have expensive satellite or dial-up service, and many rural residents lack high-speed (50/10 Mbps) connections.

  The federal and provincial governments have announced a joint investment to extend fibre-optic broadband to more than 60 communities along Lake Huron (Sudbury to Sault Ste. Marie) (Government of Canada, 2024[69]). Likewise, Ontario launched satellite broadband initiative (ONSAT) in 2024 to deliver satellite Internet to remote sites, but it was paused in 2025 to explore other more cost-efficient solutions (Infrastructure Ontario, 2025[70]).

Against this backdrop, federal and provincial governments prioritise partnerships with First Nations to advance in closing the infrastructure gaps. For interested First Nations, leveraging potential mining projects to advance those investments can be a useful solution. The federal government has already provided projects with grants to build road or energy infrastructure to enhance the competitiveness of the project (through the Critical Minerals Infrastructure Fund). This public initiative should involve First Nations in the decision making of the infrastructure investment and design.

For First Nation communities that do not wish to rely on mining, more direct public investment is needed. The ongoing discussions within the Ring of Fire project have proven that not all communities perceive the access to infrastructure to be a positive aspect per se. If road and energy infrastructure is not complemented with basic health, social and education services, those investments can jeopardize First Nations liveability (See chapter 3). Some projects have shown that partnerships based on Indigenous-led approaches are powerfull strategies to bring infrastructure to remote communities. For example, the *Wataynikaneyap Power* project (a First Nations–led partnership) built more than 1 800 kilometres in transmission lines in northwestern Ontario, delivering grid power to 24 remote communities (Wataynikaneyap Power, 2024[71]).

For local communities, these mining projects can also help modernise infrastructure, with shared access roads or rails in mining permits, or grants or tax incentives to encourage mines to co-build power lines.

Strengthening the governance framework to make the most of mining in Northen Ontario

Provincial and federal policies offer strong support and tools to improve both mining competitiveness and communities, such as Indigenous peoples who benefit from mining. However, gaps in local capacity to access and implement programmes, along with weak inter-governmental co-ordination to address development priorities, remain major barriers to achieving the intended impact of policies. Beyond the strategies to improve First Nations' engagement in the sector mentioned in the previous chapter, other institutional arrangements are needed to strengthen community capacity and mining governance in the region:

- Enhancing local governments' planning capacity to secure lasting benefits from mining

- Improving municipal access to funding for mining community development.
- Strengthening horizontal co-ordination at local level for governance and management of mining projects

Enhancing local governments' planning capacity to secure lasting benefits from mining

Maximising local benefits from mining in Northern Ontario requires municipal capacity to plan in advance and prepare communities capture the upsides of mining. Municipal governments are central to achieving mining policy goals and securing broader local outcomes, including service delivery, identifying challenges, and tailoring solutions to community needs.

However, municipal governments in the region face significant challenges in accessing project information, planning long-term, and anticipating operational timelines. They are rarely the first point of contact for companies, as project coordination is managed primarily by the province (e.g. Ministry of Energy and Mines) and, in some cases, directly with First Nations through agreements and consultations. Municipalities are generally not informed about First Nations consultation processes and typically do not negotiate benefit agreements with companies, resulting in delayed participation and limited influence over project planning. This lack of early engagement hampers municipalities' ability to access critical information and plan with certainty for the timing and impacts of mining operations.

Challenges in partnering with mining can be exacerbated when a project is located just outside the municipal boundary. Agreements for these projects are mostly ad hoc, and planning can imply further gaps in information about the project and potential economic gains for local businesses. On top of this uncertainty regarding benefits, municipalities need to prepare to address negative externalities. For example, workers and service providers from operations outside municipal boundaries use municipal amenities and services, including restaurants, supermarkets, bars, and pharmacies. Likewise, freight and passenger transport may also use municipal roads, whose maintenance depends on the local government. Without agreements in place, these operations provide no direct fiscal revenue to municipality (no land-use tax or income from service provision such as waste collection or water services); yet municipalities must still manage indirect negative effects such as road maintenance, security, and price increases for residents not involved in mining.

A similar mismatch between project efficiency and local development priorities arises when operations rely heavily on fly-in/fly-out (FIFO) or drive-in/drive-out (DIDO) workers with little integration into local economies. While FIFO/DIDO arrangements can improve efficiency for companies and help governments mitigate the risk of overinvesting in long-term infrastructure amid boom-and-bust cycles (Haslam McKenzie, 2020[72]), permanent FIFO/DIDO camps also bring inherent social and economic challenges that require careful management. In addition to the fiscal mismatch between municipal income and the costs of service provision—such as healthcare—these transient workforces can inflate local prices (e.g. in restaurants), exacerbating inequality and sparking social tension. The predominantly male and temporary nature of these populations can also lead to spikes in alcohol and drug use (Deacon, L., Papineau, J. W., & Lamanes, T., 2017[73]; Dorow, Hilario and O'Leary, 2023[74]).

Some of Northern Ontario's municipalities have missed the opportunity to fully maximise benefits from new mining operations. For example, Greenstone municipality failed to prepare in advance to provide housing solutions for workforce at the new Greenstone Gold mine (about 700 workers in the construction phase and 200 in operation phase), prompting the company to establish a FIFO/DIDO camp on-site (Box 4.13). While mining activity generates some local spending from FIFO/DIDO workers, it fell short of broader municipal expectations to drive population growth and lasting economic opportunities. This limited benefit did not offset rising pressures on roads, social integration, and other community services. As one Geraldton resident observed during the OECD field visit: "With the arrival of the new mine, we saw more spending in

bars and more drug activity, but not many people starting businesses in the community." (A multi-generational family business owner rooted in the community).

Box 4.13. Missing local development opportunities from mining: the case of Greenstone Municipality

In 2021, Equinox Gold and Orion Mine Finance began construction of the Greenstone Gold Mine in the municipality of Greenstone, Ontario, reopening a site dormant since the late 1960s. The project came with significant economic expectations for the municipality, including thousands of jobs and major infrastructure investment. However, the municipality faced critical constraints. Indeed, limited available land and high development costs made it impossible to provide housing for the workers required for the mine's construction and operational phase.

As a result, Equinox Gold established a large work camp—the Ga-Be-She-Win Lodge—directly on the mine site, with a capacity of 610 beds. This facility was developed and operated through a service agreement with the Long Lake 58 First Nation, reflecting a strong partnership with Indigenous communities and providing economic benefits to the First Nation. The arrangement has continued into the operational phase, with about 200 fly-in fly-out workers housed at the camp.

This solution, while effective in meeting the mine's immediate workforce accommodation needs and providing income to the First Nation, represents a missed opportunity for the municipality of Greenstone. The inability to expand local housing stock or adapt existing unused houses meant the community could not capitalise on the associated local economic activity that a larger resident workforce would have generated. The economic and social benefits—such as new permanent housing, increased local spending, economies of scale for community service and community growth—did not come to fruition.

This case highlights the importance of proactive planning and investment in local infrastructure to ensure mining projects translate into long-term community development, rather than temporary, isolated work camps.

Source: Full-scale construction begins at Greenstone Gold Mine in northern Ontario , Open-Pit Mine | GA-BE-SHE-WIN Lodge| Black Diamond Lodging

Canada already has forums to coordinate federal and provincial actions on minerals policy. Some notable include:

- The Regional Energy and Resource Tables is joint partnerships between the federal government and individual provinces and territories, in collaboration with Indigenous partners and with the input of key stakeholders, to identify and accelerate the top economic priorities for a low-carbon future in the energy and resource sectors. A key priority within this tables is the improvement of regulatory efficiencies.
- The Ministerial level Energy and Mines Ministers Conference is an annual gathering of federal, provincial and territorial ministers responsible for energy and mining portfolios.
- The Intergovernmental Working Group on the Mineral Industry promotes collaboration through bilateral and multilateral meetings, supporting senior-level engagements and encouraging information sharing. This commitment is shared with the Finance and Economic Subcommittee, the National Geological Survey Committee, the FPT Committee on Mineral Statistics and the Mining Sector Performance Reports team.

On top of this, the pan-Canadian Canadian Minerals and Metals Plan stood out as an initiative to agree with federal, provincial, and territorial governments on a common vision, principles, targets, and areas of

action for mining development. These forums involved the participation of industry, Indigenous Peoples, academia, non-governmental organisations, and other partners and stakeholders.

These forums are important basis for the province to coordinate with federal level agencies and other provinces, yet there is scope to further integrate mining communities' needs into these multilevel government structures. Building on existing multilevel coordination forums, Ontario would benefit from adopting a more systematic approach to strengthen collaboration across levels of governments and across departments specifically focused on supporting municipalities with new or expanding mining projects. Some actions that Ontario and federal governments can undertake to support First Nation and municipal governments to prepare for new or changes in projects include:

- Establish a dedicated multistakeholder committee to prepare communities before mines open or major changes occur. Such a committee could bring together rights holders and local actors from a specific project or municipality to identify in advance the priorities of the community and those of First Nations. Involving provincial and federal representatives in this committee would enable co-ordination across ministries to deliver joint interventions (e.g. aligning transport infrastructure with energy supply and land access). For example, the community group created to plan for the Jansen project in Saskatchewan could serve as a model for building social capacity early to capture the project's economic benefits (Box 4.14).

Box 4.14. Regional Development Partnerships to benefit from a mining project: The Jansen project in Saskatchewan

A community group established in November 2023 met regularly to discuss various opportunities. The group was known as Sylvite 4-6 Regional Development Partnership (S4-6), in recognition of the mineral being mined at Jansen, and Treaties 4 and 6 territories in Saskatchewan, which are home to the regional communities surrounding BHP's Jansen Project.

The committee is comprised of representatives of urban and rural municipalities and Indigenous Nations in the region surrounding the mine site, as well as representatives of BHP, the Mid Sask Municipal Alliance and the government of Saskatchewan.

Kurt Schreiner, a S4-6 member, is the mayor of LeRoy, a town of 500 located 10 kilometres from the Jansen mine. LeRoy was already growing prior to the BHP announcement but has invested significantly in the development of a new subdivision and improving its own sewer and water infrastructure to accommodate rapid growth in the near future.

By providing the needed services from various levels of government, S4-6 is helping to quickly close the gap between services available and services required for a town such as LeRoy, which is expected to significantly increase in size over the next three to four years.

This type of partnership allows communities themselves to determine what they need to benefit from and the value created by the mining project. It gives the mining company a platform to bring people together and address those needs.

Source: (Sylvite Four-Six regional partnership, 2024[75]) (Saskatoon StarPhoenix, 2024[76]);

- A permanent provincial group or council linked to the provincial mining strategy to gather provincial actors and rightsholders to address joint challenges based on local requests and oversee implementation of policies. The governance mechanism in Antofagasta aimed at doing this with an extended scope including various companies and civil society organisations, which is a powerful tool to ensure continued implementation and monitoring of the strategy beyond political cycles.

Building local development plans in mining municipalities, with monitoring mechanisms.

In order to identify the main short- and long-term priorities and formulate action plans to boost local development, municipal governments need robust planning capacity. They are confronted with several challenges such as retaining and attracting talent, especially in small labour markers where mining companies offer workers more attractive compensation. Also, Northern Ontario's municipalities have responsibilities across large swathes of land with sparsely populated communities, which adds pressure to government staff to identify needs and deliver right policy support to all communities.

Development plans of municipalities across the region do not manage consistent timelines and targets. They often lack forward-looking approaches to identify opportunities beyond extractive industries. Mature mining municipalities like Thunder Bay have developed a mining strategy, Timmins is in the process of developing a long-term growth plan, while other small ones like Marathon or Greenstone still lack a long-term plan to link mining with local development and identify diversification opportunities. This issue has been raised by federal and provincial development programmes that argue that the support is not tailored to municipalities given the lack of identification of needs and action plans at the local level.

This approach of top-down grants for development incentivizes local governments to apply and adapt their priorities to conditions of those federal and provincial grants, rather than ensuring that grants are tailored to most pressing local priorities.

Developing long-term local plans are also important to encourage companies to adapt their ESG initiatives to pre-identified long-term needs. Such planning capacity requires municipalities to have local strategies that identify issues in labour markets, innovation ecosystem, business environment among others.

Other OECD mining regions have tried to address this issue with inter-municipal support bodies, or regional plans with dedicated governance structures to address primary priorities:

- North Karelia has an inter-municipal development agency, Business Joensuu Ltd, from whom municipalities acquired services that are not efficiently performed in the municipal government due to lack of staff or capacity, including business advisory and marketing services, job placement, investment attraction and event services
- Antofagasta has created a multi-actor governance structure to involve community representatives in the formulation of the regional mining policies, the investment priorities and the monitoring of its outcomes. This has helped shape common views and strategic projects from mining companies (Box 4.15).

Box 4.15. Multi-actor governance to implement and monitor a mining strategy: Antofagasta, Chile

Antofagasta's Mining Strategy, launched in October 2022, included a governance mechanism made up of local stakeholders to prioritise projects, decide the best way to implement them, and monitor their results until 2050. It includes various regional stakeholders to ensure the strategy lasts beyond political cycles. It comprises:

- An executive secretary represented by a government official with a defined budget and team for operation and co-ordination.
- A steering committee that prioritises and monitors projects, and proposes new orientations to the strategy. It is composed of different regional actors with periodic rotation, including representatives from the regional or municipal Regional Civil Society Council (COSOC), the Indigenous Development Areas, large mining companies, small- and medium-sized mining companies and academia.
- The technical committee in charge of structuring and finding operators for the strategic projects, providing updates on the progress of the project and the budget, and responding to other requests from the steering committee.

Source: (OECD, 2023[77])

Improving financial capacity for mining communities to harness opportunities and costs from mining

Enhancing municipal revenues to manage externalities and capture mining benefits

While the provincial government retains primary responsibility for development and service delivery, municipal governments in Northern Ontario play a crucial role in ensuring community attractiveness and liveability. Ontario government responsibilities include health (hospitals), education, welfare, highways, housing, natural resources, and municipal affairs. Municipalities, by contrast, oversee local transport, emergency services, utilities, recreation and culture, land-use planning, and social housing, and share responsibility with the province for social protection, among others.

Municipalities with mining activities bear specific costs to maintain living standards that might come under pressure from the externalities of the mining sector. While the province has specific roles in mitigating impacts of the sector, municipal governments are in the front line to provide responses to citizens with regards to a number of issues, for example:

- **Environmental:** Although the province leads on monitoring and mitigating water and air pollution, municipalities bear the immediate impacts and community complaints. Therefore, they need to support funding for land-rehabilitation, ecosystem restoration or environmental monitoring actions.
- **Social:** Mining towns—particularly those with high proportions of fly-in fly-out (FIFO) workers—often experience elevated levels of insecurity and substance misuse. Municipal budgets must cover violence prevention programmes, support services for addiction, and family-violence interventions.
- **Infrastructure:** Heavy industrial traffic accelerates wear on local roads, necessitating more frequent maintenance. Municipalities must also procure land for social housing and incentivise the refurbishment of existing housing stock.

- **Economic:** To attract and retain skilled staff, municipalities must offer competitive salaries for public employees and foster local SME growth by channelling procurement and business-development opportunities

Ontario generates fiscal income from mining through a combination of mining profit taxes, and land related fees. The province imposes a 10% tax on annual taxable mining profits over CAD 500 000, with a reduced 5% rate for remote operations – this mining profit tax typically makes up about 90% of Ontario's mining revenue. While royalties are relatively low compared to other provinces, they are part of Ontario's broader fiscal framework, exemplified by systems like the diamond royalty (Ontario, 2025[78]). Ontario also collects rental fees from companies that use Crown land (land owned by the provincial government) for mining. These fees are separate from taxes and royalties. Companies pay them every year for the right to use the land, whether it is used for exploring, developing, or producing. The amount depends on the type of land agreement and the size of the land. For example, a company might pay a set minimum amount or a fee based on how many hectares they use (Ministry of Northern Development and Mines, 2015[79]) (Government of Ontario, 2007[80]). Overall, Ontario's approach aligns with other Canadian jurisdictions that levy mining-specific taxes and royalties in addition to general corporate income taxes.

To redistribute the income from resource industries and partly mitigate the externalities from mining, the Ontario government has created the Northern Ontario Heritage Fund Corporation (NOHFC) (See Box 3.16). This fund provides financial support focused on economic development rather than routine maintenance. The NOHFC has delivered substantial benefits to Northern Ontario, particularly in supporting economic growth, innovation, and job creation. Since June 2018, the NOHFC has invested over CAD 724 million in over 6000 projects, leveraging more than CAD 2.3 billion in additional investments and creating sustaining over 9400 jobs in Northern Ontario (Northern Ontario Heritage Fund Corporation, 2020[81]). The fund stimulates growth by providing financial assistance to projects that encourage business expansion, innovation, and competitiveness across a range of industries, including mining, advance manufacturing, and renewable energy.

However, this is a project-based fund where grants or loans are allocated in response to an application from the municipalities and on a competitive basis. While it is good to ensure economic projects are highly relevant, the process requires municipalities to wade through bureaucracy with no guarantee of actually receiving the funds. This can make it difficult for mining municipalities with limited staff capacity or with needs to cover high expenses linked to impacts from mining (e.g. maintenance of roads).

Box 4.16. The Northern Ontario Heritage Fund Corporation (NOHFC): Redistributing mining wealth?

The Northern Ontario Heritage Fund Corporation (NOHFC) is a government initiative established in 1988 to stimulate economic growth and development in Northern Ontario. Operating under the Ministry of Northern Economic Development and Growth (MNEDG), its goal is to promote and support economic initiatives through financial assistance. The MNEDG administers the Northern Ontario Heritage Fund Act.

A project-based fund to promote economic development…

The NOHFC is an independent agency that provides various grants, loans, and incentives aimed at businesses and communities. Its funding programmes focus on business development, community enhancement, innovation and research, and workforce development, each designed to support different aspects of regional growth. The agency is governed by a Board of Directors, which is chaired by the Minister of Northern Economic Development and Growth.

The application process varies depending on program and stream, and funding decisions are finalized through the NOHFC Board of Directors. The application process tends to involve a pre-application consultation, initial submission, a detailed business proposal, evaluation, and final review by the NOHFC Board. Funding varies by programme, with some offering conditional contributions (such as the Grow a Business Stream, which covers up to 20% of eligible costs to a maximum of CAD 400 000), while others provide term loans.

With an annual budget of approximately CAD 110 million, the NOHFC plays a key role in economic diversification and sustainable development, particularly in sectors like manufacturing, agriculture, and technology.

.. **with scope to further compensate municipalities for the costs associated with mining**

However, its project-based and/or competitive nature makes it less suitable for municipalities facing ongoing financial burdens or with reduced staff capacity. Furthermore, the bureaucratic application process, pre-established programmatic funding lines can also make it difficult for municipalities to access timely funding and have flexibility on the projects to finance from this.

The fund is intended to redistribute wealth from extractive industries to all municipalities, so it does not necessarily focus on helping municipalities address expenses associated with the side effects of mining or provide multi-year support to this end.

Source: (Northern Ontario Heritage Fund Corporation, 2022[82]); (Northern Ontario Heritage Fund Corporation, 2020[83]); (Ryan, nd[84])

Therefore, unlike other provinces, municipalities in Ontario do not directly receive a share of royalties or income tied to the evolution of mining taxes or revenue, relying instead on provincial grants for investments on development, and the local fiscal revenues for current expenses. Provincial grants can make up to 20% of funding in some municipalities, which often relies on the application capacity of municipal governments (Association of Municipalities of Ontario, 2024[85]). Important grants include the Ontario Municipal Partnership Fund (OMPF), which provides unconditional funding to municipalities across the province.

In terms of local revenues, municipalities in Ontario rely heavily on one single fiscal source, property taxes, that makes up about 40% of their total revenue (Financial Accountability Office of Ontario, 2020[86]). Other municipal revenues include User Fees and Service Charges (about 18% of total local revenues), comprising fees for services such as recreation programmes, waste management, and permits (the Corporation of the City of Brantford, 2021[87]), and development charges and land-related revenues, or “other revenues”, which vary in function of new developments in the area.

Despite the relevance of property taxes for local budgets, municipal governments do not control updates to the property tax levels to be collected. Property assessments, the basis for determining how much tax can be collected, are handled at the provincial level by the Municipal Property Assessment Corporation (MPAC). This provincial non-profit corporation does the assessments and shares those values with municipalities so they can determine property and education taxes (Governemnt of Ontario, 2025[88]).

However, property values are still based on 2016 assessments (Miller Thomson, 2023[89]). Ontario used to undergo a general reassessment every 4 years, but since 2020, because of the COVID-19 pandemic, the reassessment that year was delayed and has been ever since (Kate Porter, 2024[90]). It means that some industrial and mining properties may be taxed at lower rates than their actual value. It is worth noting that adjusting property values to reflect the current market conditions does not necessarily mean that property taxes will rise for all taxpayers (Ryan., 2024[91]). Properties go up by an average, and if every property went up exactly the average, no one would see any change. As property tax in Ontario is calculated using the mill rate, only properties whose value increased by more than the average would pay more. [2]

The outdated property tax assessments and uncertain access to provincial and federal grants are factors that may contribute to a fiscal imbalance for mining municipalities, as the growing wealth from resource-based economies may not align with the municipal costs of maintaining local infrastructure and services that support both the industry and community development. According to OGRA, municipalities are disproportionately responsible for local infrastructure upkeep, yet face significant structural funding shortfalls, contributing to Ontario's CAD 34.7 billion roads and bridges infrastructure deficit (Miller Thomson, 2023[89]).

The province has already extra support that helps to invest in local infrastructure. This is mainly the goal of the Northern Ontario Resource Development Support (NORDS), created in 2021 to support municipalities in funding infrastructure projects related to resource activity – e.g. roads, bridges or culverts serving mines or forestry operations. It committed initially CAD 15 million per year (2021–22 through 2025–26) to be divided across all Northern Ontario municipalities, with allocations based on municipal population/households. Municipalities have used NORDS funding for a variety of projects and reported applications being straightforward (Federation of Northern Ontario Municipalities, 2023[92]). For example, Greater Sudbury used it for a new roundabout to reroute heavy mining trucks and ease congestion, North Bay used it to improve a key industrial arterial road. However, this fund is still a pilot, which creates uncertainty on its permanence over changes of government (Coffin, R., 2025[93]). Some mayors have still argued that amount of this fund is still relatively low for large infrastructure needs as it is no linked to mining revenues (Lentz, M., 2024[94]).

To help address the fiscal imbalance faced by mining-impacted municipalities and ensure local communities benefit more directly from mining-related wealth, the provincial government could consider the following step:

- Assess making the Northern Ontario Resource Development Support a permanent fund, maintaining its flexibility for capital projects and compatibility with other grants.
- Evaluate possibility to directly redistribute a share of mining taxes or royalties to local governments, for example. Other OECD countries, such as Finland have recently changed their jurisdiction to redistribute part of the mining tac to the municipalities that host mining projects
- Keeping up to date property assessments, particularly for industrial and mining properties, to ensure municipal tax revenues reflect current values.
- Supporting municipal capacity to design and collect property tax for mining and industrial properties as well as to establish agreements with companies to improve efficiency of property tax rates for local needs.
- Improved access to grants by streamlining application processes and increasing the availability of provincial and federal infrastructure grants for communities impacted by mining operations. Increasing multi-year funding support could be help municipalities support longer-term financial frameworks for community planning.

On top of government-related support, there are possibilities to incentivise partnerships among municipal governments and companies to share benefits from mining wealth, especially in cases where the operation is just outside the municipal boundaries. In these cases, or cases where mining companies can build operating building outside the municipality, municipal governments do not perceive a main fiscal income from industrial operations: the property tax. Therefore, partnerships to help increase local revenues can help communities see the benefits from these projects. These arrangements should also be developed in consultation with First Nations to increase legitimacy and alignment on shared benefits. Marathon municipality in Northern Ontario is a good example of such agreement with a mining operation outside the municipal boundaries that contributes to local fiscal revenues (Box 4.17).

Box 4.17. Marathon municipality's agreement to tax company's buildings outside municipal boundaries.

Marathon is a municipality of 4000 inhabitants, east of Thunder Bay, which has relied on forestry and then mining throughout the history. As other resource communities in the north, Marathon started as a camp to serve an industrial purpose, in this case the construction of the Canadian Pacific Railway back in the 1880s (known as Peninsula Harbor by then) In the 1980s the town of Marathon, whose emblem stands for "built on the paper, laced with gold", perceived boom in mining thanks to the important gold deposits in the area. Since then, Marathon and the surrounding area changed from a mill town to a mining-reliant economy. The mill in Marathon closed in 2009, and since then the town has been sustained by gold.

The initial Helmo mine was located just outside the municipal boundaries. When Barrick took over the mine in 2009, the municipality managed to agree on a special legislative Act – called Municipal Action Territorial Tax Act – intended to better share benefits with the Barrick Gold mine (use to be three mines now only one). It involves extending the municipal property tax to the mine buildings of the companies that were located outside Marathon's municipal boundaries. This is a unique agreement in Ontario, as required provincial approval at the time.

Marathon and Manitouwage municipalities are the two included in the agreement. All of the above ground buildings are taxed based on municipal law and then the share is divided between the municipalities based on share of employees. This dates back to mid to late '80s. The mayor at the time said that it shouldn't be on the backs of exciting rate payers only to cover the cost that mining brings to communities, for example in terms of new housing or new water sewer. Under the optic that resource wealth should pay for development, political commitment made possible this type of agreement.

Currently, the municipality is preparing for the mine opening of Generation mining, whose more than half of buildings will be in municipal boundaries and will fall under the Assessment Act in Ontario. The income from that new mine is expected to boost the municipal budget

Source: (Kovacs-Kowalke, 2019[95])

Streamlining funding access for economic development

As mentioned in previous sections, provincial and federal governments offer different financial support to local players and First Nations to develop economic, social and environmental actions to harness opportunities from mining. Such support comes from different funds that are managed and communicated by different ministries, which adds an extra effort for local ecosystems to be informed, apply and access these funds. This is illustrated in the substantial efforts made in seeking funds for innovation projects (see previous section).

Furthermore, bureaucracy and requirements to apply and report is seen by some as a disincentive to apply for provincial and federal grants. For example, companies and First Nation governments stress that the information request and monitoring requirements requires a dedicated staff person to manage such applications (e.g. funds related to revalorising mining waste).

Fragmentation of funds and bureaucratic processes related to accessing economic programmes tend to deter First Nations and small municipal governments from seeking government support. Lack of staffing capacity for and information channels about new programmes reduces the probability that applications will be completed. For these governments, applying to public programmes often pulls staff away from other tasks, requiring multitasking. For example, some First Nation governments only have one staff member

who works on programme applications and subsequent reporting. Sometimes this same person also must juggle responsibilities related to partnerships with companies.

The province should evaluate the possibility to establish a single website and contact point to display and provide information about all the funds that are related to mining opportunities for local actors and First Nations. It could promote funds attached to Ontario's Critical Mineral Strategy, OJEP, CMIF, and even support initiatives from other non-governmental actors, such as Ontario's Mining Future 2030.

Strengthening horizontal co-ordination at local level for governance and management of mining projects

The municipal governments in the region have scope to improve their collaboration in terms of joint projects as well as sharing practices in their interaction with mining companies. Currently, municipal plans are mostly done separately with few mentions of joint opportunities with neighbouring municipalities. In some cases, this can represent missed opportunities for shared policies such as connecting regional actors and Indigenous peoples in the innovation ecosystem. As mentioned in Chapter 3, the need for horizontal co-operation across First Nation governments is also needed to share practices and build capacity and synergies.

The region already has mechanisms that promote inter-municipal co-ordination on specific aspects that could be expanded to other areas. For example, with regard to the labour market, Ontario's Local Employment Planning Councils (LEPCs) co-ordinate labour-market analysis across regions, with the North Superior Workforce Planning Board (Thunder Bay area LEPC) working with mining experts to estimate related job demand in major new mines in northwest Ontario (North Superior Workforce Planing Board, 2019[96]). This practice could be extended to support other local enabling factors (e.g. infrastructure, housing, service delivery or innovation).

Beyond ad-hoc councils, other Canadian provinces have explored more formal inter-municipal agreements. This is the case of Aberta's Municipal Government Act that mandates the creation of Intermunicipal Collaboration Frameworks (ICFs) across adjacent councils to create joint services and funding. This formal collaboration can be useful for sharing staff or pooling procurement.

Against this backdrop, the Federation of Northern Ontario Municipalities and the Northwestern Ontario Municipal Association can take a greater role in promoting collaboration across municipalities based on potential benefits from mining projects. As seen in this chapter, basic sharing of experience across municipalities and more coordinated actions to partner with mining companies and First Nations can level up small municipalities facing new projects and improve standards of cooperation across the region.

In conclusion

Mobilising Northern Ontario's assets to secure a reliable mineral supply and enhance provincial competitiveness requires policies that improve the conditions for mining projects, while ensuring First Nations' participation and greater local benefits for resilient development.

To achieve these dual objectives, federal and provincial governments need to focus their support in addressing Northern Ontario's basic development challenges, some of which are identified in the previous and current chapter. These include the meaningful participation of First Nations in the mining sector (Chapter 3), robust local innovation ecosystems and labour markets with greater quality of life, targeted support for businesses, and improved infrastructure for both industrial and community needs.

Implementing these policy measures might not work with a standard governance and implementation approach, it rather needs a place-based governance framework to Northern Ontario's unique context. Key priorities for the policy implementation include:

- **Enhancing municipal planning capacity** to anticipate and manage mining impacts.
- **Improving funding access for municipal and First Nation governments** with streamlined application processes for provincial and federal grants, with multi-year funding and transparent communication.
- **Strengthening vertical and horizontal coordination.** Vertically to harmonize priorities among federal, provincial, First Nations, and municipal governments so that policies are co-designed and co-delivered; horizontally to foster collaboration among neighbouring municipalities and among First Nations to share best practices, pool resources, and act in concert.

Success will require political commitment to engage local stakeholders in co-identifying needs and tailoring policies accordingly, as well as in establishing clear monitoring mechanisms and robust communication channels to track outcomes and adapt interventions over time.

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Notes

[1] All ten of the largest Australian mining companies as of May 2024 have supplier website sections (size based on market capitalisation - https://miningdigital.com/top10/top-10-australian-mining-companies)

[2] Adjusting property values need to current market prices does not necessarily mean that property taxes will rise for all taxpayers. In practice, value reassessments mainly affect those whose property values have grown relatively more than the average. Property tax in Ontario is calculated using the mill rate, which depends on the municipality's revenue needs and the total value of all properties. Therefore, if all properties had increased in value at the same rate since 2016 and the municipal budget remained unchanged, the individual tax rate would fall—keeping tax bills the same. Individual bills only increase if a property's value rises faster than the average or if the municipality raises its budget.

OECD Rural Studies

Mining Regions and Cities in Northern Ontario, Canada

Northern Ontario, Canada, is at the forefront of rising global and national demand for minerals. Home to First Nations since time immemorial, who hold treaty rights over the land, mining development in the region is also shaped by significant mineral resources and long-standing mining expertise.

As federal and provincial strategies boost the support for mining competitiveness, the region must carefully co-ordinate mining projects to ensure that resource wealth delivers lasting regional prosperity, with meaningful engagement of First Nations.

This study examines the opportunities and challenges of rising mineral demand for First Nations and local communities in Northern Ontario. It highlights good practices and offers policy recommendations to turn mining wealth into broader well-being, centred on three pillars: First Nations' engagement, a competitive regional mining ecosystem, and a stronger multi-level governance for mining.

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