Mining = Opportunity For Nunavut Communities

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Presentation Version

NUNAVUT HAS MANY UNKNOWN AND UNDEVELOPED MINERAL RESOURCES NEEDED FOR GLOBAL SOCIETY'S MINERAL SUPPLY.

Let's see why !

ACKNOWLEDGEMENTS

Nunavut is the ancestral homeland of many Peoples and communities that have had adaptive relationships with the Land and society .

There are many excellent sources of information from Indigenous, federal government, territorial government, industry advocates, corporations and subject matter experts that have been drawn upon to provide this perspective that is tuned for **Economic Development Officers**.

There are many doors of **opportunity** already open between Indigenous communities and **their mining sector**. This presentation has been prepared to share in the spirit of Inuit Qaujimajatuqangit (IQ)…
We are all together, in this time, within a global environment.

The Land and its peoples can provide opportunity for prosperity

Thanks to CANDO and Natural Resources Canada for their support.

The presented content is my sole responsibility.

Nunavut's Geography

About 2 million square kilometres

- 40,000 Nunavummiut, 84% Inuit living in about 11,000 dwellings in 25 centres
- 5th largest administrative area in the world (out of 400 areas)
- At about 0.02 residents/sq. km, Nunavut is the <u>most sparsely</u> populated region in the world apart from Antarctica and the open oceans.

Devolution By 2027 !!!

On January 18, 2024, the Government of Nunavut, Nunavut Tunngavik Incorporated (NTI), and the Government of Canada co-signed the ***Nunavut Lands and Resources Devolution Agreement***.

Nunavummiut *"will benefit from:*

- *the **ability** **to make decisions about** lands administration, **development and resource management**"*
- *"**opportunities** to continue strengthening"*
- *"**northern-led investments in** land and **resource development**, creating more jobs and **increasing prosperity across the territory** for generations to come."*

(paraphrased from Nunavut devolution (rcaanc-cirnac.gc.ca))

Presentation Outline

Our Goal Today:

Gain awareness of Nunavut's mineral industry and Indigenous Opportunities

a 2-part presentation with multiple breaks for interaction

Please use the "raise-hand" function at any time for **next** interaction

1: Economic overview of Nunavut's mineral industry

- several interactive opportunities

2:Today's mining activity life cycle related to Nunavut ending with a few key points for Economic Development Officers

Closing interactive opportunity

Appendices

References and links will be available on the CANDO website (edo.ca) with the recording of this webinar.

- Appendix A: References Indexed By Slide Number
- Appendix B: Additional Resource Material

My Role Today

PART 1: Economic Overview

- Recognizing the basis for Indigenous opportunities
- Community control throughout the mining cycle

PART 2: Nunavut Mining Today – The Full Cycle

Explanation in everyday language of today's mining stages with some opportunity insights for partnering with the Nunavut mining sector

Part 1: Economic Overview
Why Talk About Mineral Development?

a) Indigenous Participation and Opportunity

- Brief historical review of Nunavut's mineral developments
- Today's regulatory framework overview
- Devolution offers more community participation

Interactive Break

b) Economic and Environmental Benefits

- Mining is significant to the health of the environment and economy

Interactive Break

c) Today's Mineral Developments Across Nunavut

- Can provide the raw materials needed today and for the future.
- Major exploration and development projects in progress

Summary: Why is Mining an Opportunity in Nunavut ?

Interactive Break

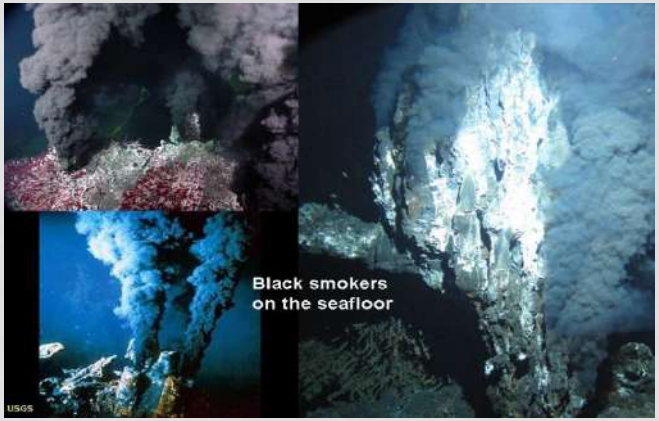
ECONOMIC OVERVIEW
PART 1a:
Indigenous Participation and Opportunity

- Review of Nunavut's mineral history and early Indigenous mining
- Today's regulatory framework overview
- Devolution offers more community participation

Nunavut's Mineral Deposits Were Formed By A Few Types of Ancient **Natural Events**

The Earth and its Moon formed about **4,500,000,000** years ago - **this resulted in Earth becoming enriched with metals** and the moon setting up tidal forces that have been vital to Earth's continuous evolutionary development..

2,700,000,000 years ago (over 40 million years)
Archean greenstone belts worldwide included **hot-spring** gold and base metal deposits being formed on the seafloor. Some deposits needed **major later events** to concentrate the deposits into ore (e.g.: iron, copper, uranium, lead,zinc).



From 2,460,000,000 to 2,060,000,000 years ago (400 million years)
Great Oxygenation Event and Huronian Glaciations: Early life (cyanobacteria) evolved with a new process, photosynthesis, that added oxygen to our atmosphere and oceans.

Nunavut's Mineral Deposits Were Formed By A Few Types of Ancient Natural Events

Mantle Plumes / Flood Basalt Events

1,267 Ma: Coppermine Basalts / Muskox Intrusion
720 Ma: Natkusiak flood basalts (Victoria Island)
95 Ma: Sverdrup Basin flood basalts
56 Ma: West Greenland / Baffin flood basalts
Ni-Cu-Co-PGE's are typically hidden in these formations

Native copper and iron first was used by Indigenous peoples

Mineralizing Events Superimposed on Sedimentary Rocks

1850 Ma: Black Angel Zn-Ag-Pb mine (West Greenland,)
1095 Ma: Nanisivik Zn-Ag-Pb mine
367 Ma: Polaris Pb-Zn-Ag mine (also Pine Point Pb-Zn mine in NWT)

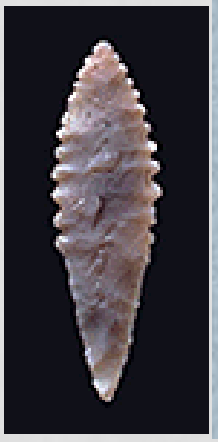
GEOSCIENTISTS are trained specialists required to seek, assess and mine minerals.

Earliest Indigenous "Mining"

Traditional knowledge and archaeological evidence has shown:

- **5000 to 4000 years ago**: the **first** families (**"**Tunit**")** quickly spread from Alaasika to Kalaallit Nunaat after crossing the Bering Sea on ice from northern Siberia.
- "Tunit" hunted using bow and arrows, lived in portable hide tents and wore warm, tailored garments sewn from northern mammals.
- Ivory carvings and stone tools were made using knapped stone tools.

TYPICAL STONE AND TENT DWELLING LAYOUT



FINELY SERRATED FLINT POINT

TUNIT STONE TOOLS
Hunting, food and hide preparation, sewing, cutting

TUNIT IVORY MASKETTE
3600-3900 Years Old
Oldest Facial Carving Artifact
Known in North America

Civilization.ca - Life and Art of an Ancient Arctic People - The Paleo-Eskimos (historymuseum.ca)

Early Indigenous "Mining"

Then 2750-2450 years ago: during a period of cooler climate, Dorset peoples quickly spread east across the Arctic coast from Alaska.

Dorset advantages included better tools for hunting sea mammals and living in"weather-proofed" dug-in shelters with hide roofs near the coast.

Homes were lit and warmed using qulliq (soapstone oil lamps)

Long distance trade in natural copper and iron is evident.

~1500 years ago; Dorset peoples spread inland building longhouses and enclosures

Dorset peoples remained virtually isolated from the Innu, Dene and other peoples of the northern forests and the Thule-Inuit peoples west of the Mackenzie River until the climate began warming 1000 years ago.

Dorset peoples artifacts vanish between 1200 & 1500 AD after 2000 years

Later Indigenous "Mining"

A warming climate from 1200 to 1300 AD changed bowhead whale migration patterns and **"Early Inuit"** peoples quickly spread east from Alaska to Greenland using advanced transportation modes like dog sleds, umiaks and kayaks.

The versatile Inuit adapted to The Little Ice Age (1300-1850 AD) and made use of **natural iron and copper** wherever it was found.

The Inuinnait, ("Copper Inuit") gleaned pure **copper** from the shores of the Coppermine River, Coronation Gulf and Victoria Island and incorporated it into traditional tools.

Copper was **abundant** enough to **trade** with neighbours.

There is no evidence of historical underground copper mining like that developed as early as 9500 years ago around Lake Superior in similar flood basalts.

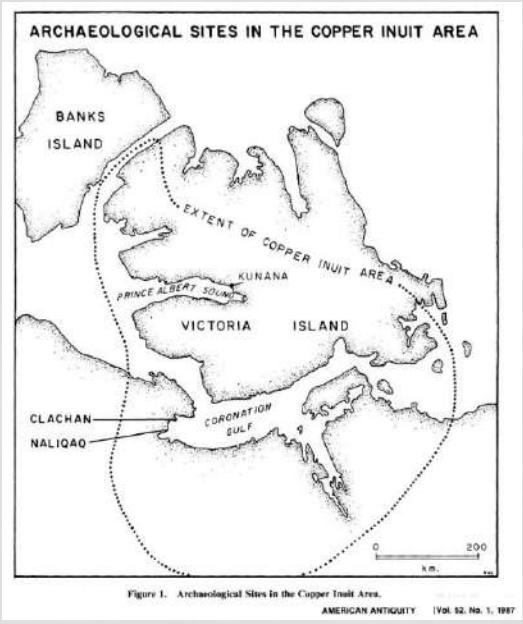


Figure 1. Archaeological Sites in the Copper Inuit Area.
AMERICAN ANTIQUITY [Vol. 52, No. 1, 1987

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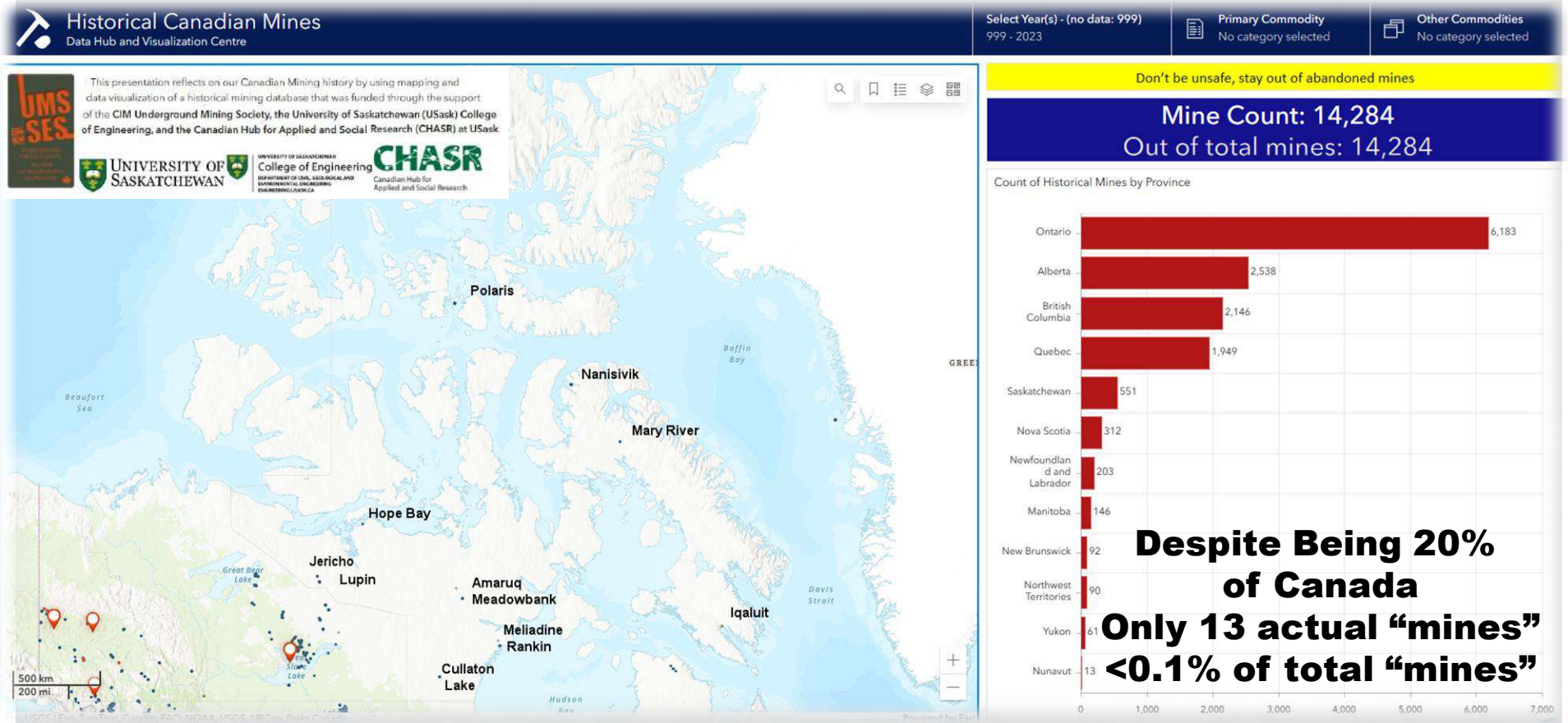
Historical Nunavut “Mining” 1957 to present



Goose gold mine production is expected in Q1-2025 plus other development plans

So far, this is the dawning of immense mineral development opportunity **FOR** Nunavut !!!

https://www.arcgis.com/apps/dashboards/780a4bc0aa524cc38e10a4699bc3511e

10 “Past Producing” Mines

Kitikmeot Regional Inuit Association (KRA)

- Hope Bay (Roberts Bay silver mine) (staked 1964, decline 1973-1975)
- Hope Bay (Ida Bay silver mine)(staked 1965, decline 1973-1975)
- Lupin gold mine (1982-2006)
- Jericho diamond mine (2006-2008)
- Hope Bay (Doris gold mine) (2017-2021)… on care and maintenance

Kivalliq Regional Inuit Association (KivRA)

- North Rankin Nickel Mine (1957-1962), first staked in 1928
- Cullaton Lake Gold Mine (1982-1985)
- Meadowbank Gold Mine (2010-2019)… Meadowbank Complex continues

Qikiqtani Regional Inuit Association (QRA)

- Nanisivik Zinc Mine (1976-2002)
- Polaris Zinc Mine (1982-2002)

3 Currently Producing “Mines”

Kitikmeot Regional Inuit Association (KRA)

- Doris Gold Mine is on Care and Maintenance. Agnico Eagle
- Back River (Goose Project), B2Gold

Kivalliq Regional Inuit Association (KivRA)

- Amaruq Gold Mines (2019 - ?), Agnico Eagle
- Meliadine Gold Mines (2019 - ?), Agnico Eagle

Qikiqtani Regional Inuit Association (QIA)

- Mary River Iron Mine, Baffinland
- Iqaluit North 40 Granular Stone **Quarry**, City of Iqaluit

1 Pre-Producing "Mine(s)"

The **Goose Project** in the Back River Greenstone Belt in the Kitikmeot Region, **B2Gold Corp** is already mining gold ore from 2 open pits and 1 underground mine. Ore is being stockpiled in 2024 for processing once the mill is operational in 2025. Project investment has been over **$900 million** before any revenue begins.

For billion dollar investments in harsh Arctic Terrain, there must be something attractive besides the “great geology”.

Let’s dig deeper….

Today's Regulatory Framework For Mining Projects

1. **Financing**
2. **Social License**
3. **Title**
4. **Permitting**
5. **Contracting**
6. **Sustainable Fieldwork**
7. **Reporting**
8. **… repeat annually**

1. FINANCING

Nunavut has a solid foundation for mineral investment.

- Clear land use plans – **Nunavut Planning Commission** (NPC)
- Clear mineral opportunity – **Nunavut Geoscience (DIG Program)**
- Clear mineral title law – *Mining Regulations,* **Mining Recorder**
- Clear regulator expectations – **Nunavut Tunngavit Inc**.(NTI)
- Clear environmental review: **Nunavut Impact Review Board** (NIRB)
- Clear community engagement – **Regional Inuit Associations** (RIA)

Proponent's mineral investment capital is "liquid" annually.

- Proponents are responsible for professionally managed projects
- Capital is also controlled by shareholders and financial regulators
- Projects are challenged by arctic seasonality and deadlines
- A **Project Spirit** of shared **Inuit Qaujimajatuqangit (IQ)** is essential.

2. SOCIAL LICENSE

In the past 40 years, there have been a wide variety of **forward-looking agreements** made for mineral exploration and development projects **between communities and mining industry proponents** and many more agreements are still in progress.

Project proponents prefer working with community businesses near their project whenever possible.

Community businesses make themselves more attractive to proponents when the businesses can demonstrate significant Indigenous ownership and participation. (An opportunity for EDO's). (eg: Kitimeot Corporation and its associated companies)

Indigenous community businesses can maximize the benefits of set-aside contracts for procurement of goods and services that are included in a Memoranda of Understanding **(MOU)** which were an initial "getting-to-know-you" agreement between the Community and the Proponent.

Signatories for **6 MOU's** (2007-2011) have been from Nunavut Tunngavik Incorporated (NTI), the 3 Regional Inuit Associations (RIA's), and the Nunavut Resources Corporation. From 2003 to 2013 NTI signed 5 **Exploration Agreements.** All Inuit Impact and Benefit Agreements (**IIBA**'s) were signed by RIA's (2011-2018)

Indigenous Mining Agreements

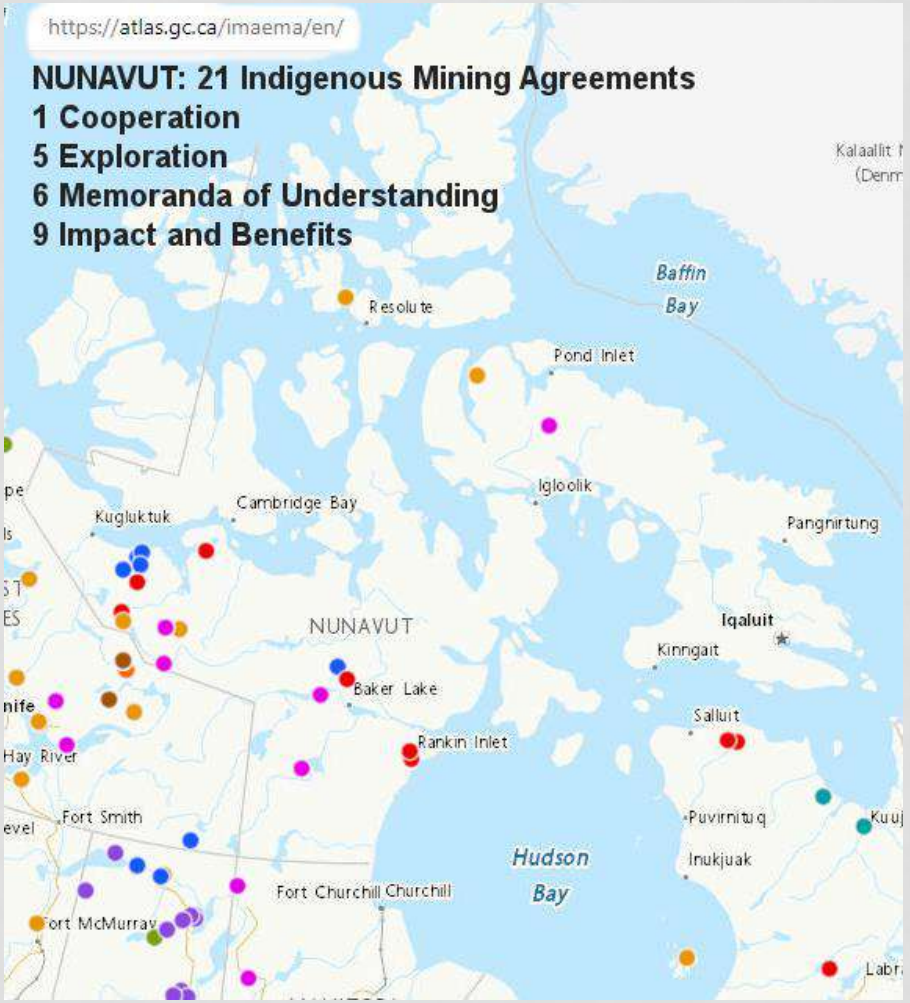
Current (2020) Agreements

COMMUNITY SIGNATORIES

8 Nunavut Tunngavik Inc.
2 Nunavut Resources Corporation
5 Kitikmeot Inuit Association
3 Kivalliq Inuit Association
2.4 Qikiqtani Inuit Association
0.3 Qikiqtaaluk Corporation
0.3 Kakivak Association

PARTNERS

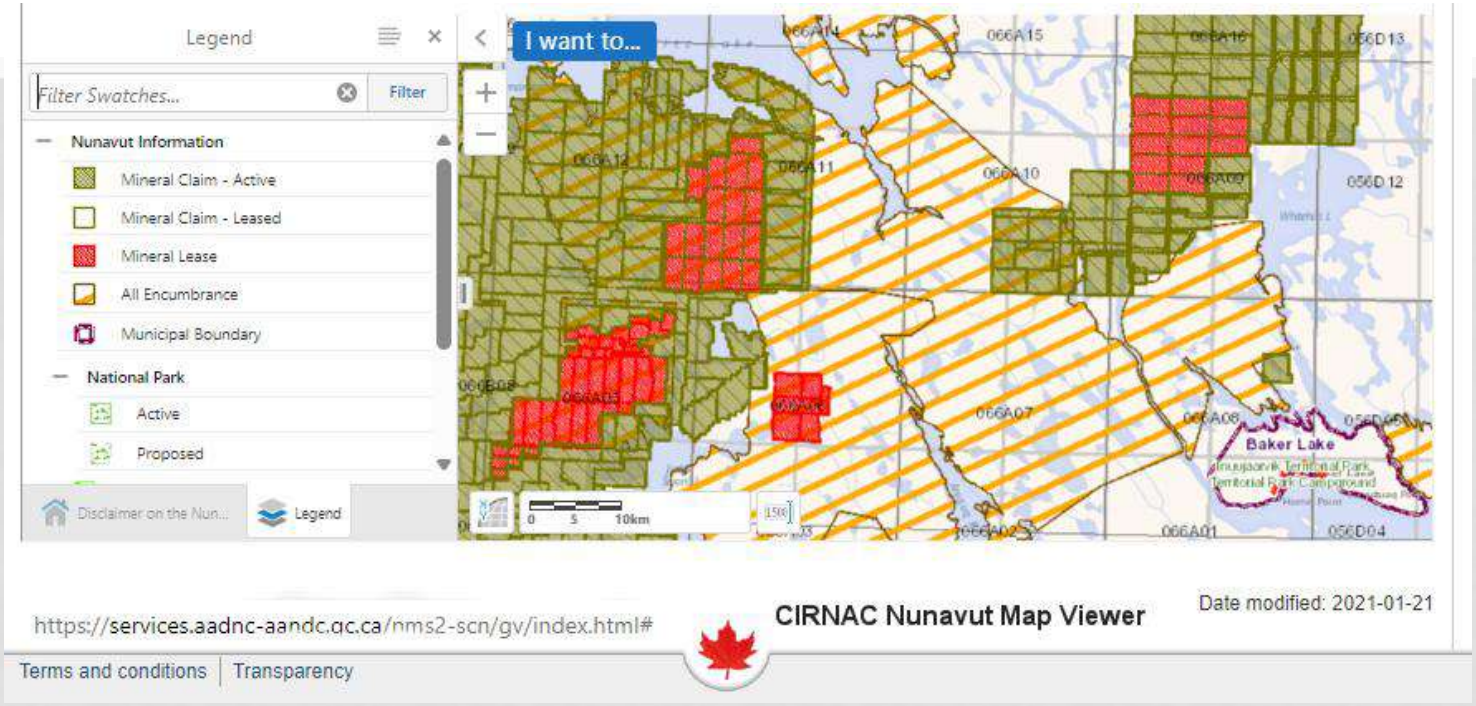
5 Agnico Eagle
1 ATHA Energy
1 B2Gold
3 Baffinland
1 Forum Energy
2 Glencore
2 Government of Canada
4 North Arrow Minerals
1 Abandoned? (former Stornoway)
1 Abandoned? (former WPC Resources)



3. TITLE
Surface and Subsurface

- Under devolution, **mineral tenure laws and the regulatory system** for Nunavut are rapidly evolving into a **fully Nunavummiat-controlled** system by 2027.
- Physical mineral claim staking **was** the traditional method where "claim posts" or stone cairns with tags/documents were erected then recorded when administration fees were paid and the claims "legally registered".
- The system was costly, inefficient, environmentally unfriendly and **created a false sense** of "ownership rights" for claim holders.
- "Map-staking systems" were first introduced in some provinces about 40 years ago.
- Community consultations only became typical in the past 40 years ago to ensure environmental protection, sustainable development and full participation opportunities in what is now called a proponent's **"social license"** to operate.
- 2% of Nunavut is "Inuit Owned Land with subsurface rights" that are held in trust by Nunavut Tunngavik Incorporated (NTI). These subsurface rights can be shared with exploration and development companies through formal agreements.

Current Mineral Titles



- In the past 40 to 50 years across Canada, mineral tenure acquisition laws changed to map-staking which has many environmental, social and economic benefits over traditional claim-staking.
- Nunavut adopted online map-staking in 2021 under the ***Nunavut Mining Regulations***
- A licence and an account from the Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) **Mining Recorder's Office** is needed to access the Nunavut Map Selection (NMS) claim-staking website.
- Up-to-date surface and mining interests can be seen freely using the Nunavut Map Viewer.

4. PERMITTING

- ***Nunavut Mining Regulations*** (39,40) require an annual fee and assessment work report for **the right to hold a recorded claim and assess its mineral potential.** Work reports must be authenticated by the responsible P.Eng.'s or P. Geo.'s.
- This requires average **claim holder expenditures of more than $40,000 per year** per claim (15 to 25 square km area).
- **Half** of this goes straight to "government", **half is for geoscientific field work (by proponent and contractors)**
- **Field work** also requires several **permits** to be in place **through several regulators** before it can begin.
- ---
- **Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG) :** register and regulate the professional engineers, geoscientists and permit holders responsible for their professional work in Nunavut.
- **Nunavut Planning Commission (NPC)** (2015-present): ***proposals align with land use plan***
- (186 proposals, about 25/year, 80% mining-related)
- **Nunavut Impact Review Board (NIRB)** (~1997- present): ***"promote the well-being of the Environment and Nunavummiut"*** (>2200 projects, about half are mineral development related)
- **Land Use Permits: Regional Inuit Associations (KIA, KivIA, QIA), CIRNAC**
- **Water Use: Nunavut Water Board (NWB);** probably an authorization to use water without a licence for early stage projects
- **Scientific Research Licence: Nunavut Research Institute (NRI)**

5. CONTRACTING

Project professionals want capable local contractors

- Kitikmeot Corporation Inc. has links to local contractors
- NWT and Nunavut Chamber of Mines has member lists
- Baffinland.com has a Preferred Inuit Firm (PIF) process.

Are there EDO initiatives possible here?

6. SUSTAINABLE FIELDWORK

NTI has developed a general Mining Policy, a Uranium Policy, a Reclamation Policy and other resources applicable to exploration and mining projects. The texts of all the policies are available from NTI.

Rotational work and supplies in remote camps is on a fly-in / fly-out basis. Water, waste management and other activity permits/agreements are required through NWB and RIA's.

Seasonal operations are normal for early project stages. Permitting needs to begin at least 6 months in advance, probably longer as exploration activity increases.

Advanced exploration with resource definition drilling and environmental studies are the first year-round activity which will require annual re-permitting.

Mining Development and Commercial Operations are typically year-round with increased activity during spring and summer. Compliance inspections and permitting will be on-going.

Reclamation and ongoing monitoring is seasonal over many years and still requires permits.

7. REPORTING

Project professionals must provide timely reports to:

- Corporate officers, share-holders and stake-holders
- Stake-holders include Communities
- Licence and Permit regulators
- Environmental regulators
- Mineral title regulators
- Securities regulators

8. REPEAT

For a variety of reasons, mineral resource exploration and development budgets are vulnerable annually.

- The entire financing to reporting sequence repeats annually.
- Only some licences and permits are easily renewable.
- Multi-year project agreements tied to mineral title can help ensure project commitments are met.
- Performance bonds for final reclamation may be required.

COMMUNITY PARTICIPATION AND OPPORTUNITY

Territorial control of resources requires **informed choices** by the territorial government, regulators, and project proponents.

Nunavummiut participation is essential:

- **in elected governments**
- **in the public service**
- **on regulator boards**
- **in Inuit-owned companies**
- **within projects**.

Inuit within the Mary River Project *share* ***Inuit Qaujimajatuqangit (IQ)*** *which Baffinland recognizes as a key component in their corporate capacity decision-making.*

Other capacity-building initiatives include government programs: $1.5 million over 3 years through the Canadian Northern Economic Development Agency (CanNor)

These robust regulatory and capacity-building systems **should** create prosperity.

Interactive Break Check

Any “hands-up” or questions so far?

PART 1b:
Economic and Environmental Benefits For Canada

- "Canadian mining" employs 665,000 people; 403,000 directly
- 106,000 in "mining" (near mine) versus 297,000 in "mineral processing" (away from mine; smelters/refineries, corporate)
- Inter-provincial work for professionals is common in mining.
- Mineral exploration and development projects naturally have high staff turnover because of seasonality and specialized skillsets for each project stage.
- 16,500 Indigenous people employed in mining which is the most employed in any non-governmental sector.
- minerals represent 22% of merchandise exports; $127 billion
- 155 million tonnes of minerals move on trains annually (53% of tonnage)

Mineral Economics "By-The-Numbers"

- In 2021; the Canadian mining sector accounted for $125 billion or 5% of Canada's Gross Domestic Product.

- 2022: Canadian **mineral** production value was $61.4 billion

Mining is part of the **Primary "Resource" Sector** in the Canadian Economy

- Primary "Resource" Sector = 13% ($247 billion)
- Secondary "Manufacturing Sector = 17% ($319 billion)
- Tertiary "Services" Sector = 70% ($1318 billion)

Sources: Statscan, NRCAN, MAC

Canadian Primary "Resource" Sector Components (% Value in Sector; 13% of Canadian GDP)

The 2022 Canadian Primary "Resource" Sector

48%: Fossil fuel industries ($114 billion)

18%: Electrical, gas, water utilities ($42 billion)

17%: Agriculture ($41 billion)

15%: Mining ($35 billion)

1.6% Forestry ($3.6 billion)

0.5% Wildlife ($0.5 billion)

GRAPHIC COMPARISON OF THE 2022 ENTIRE CANADIAN ECONOMY BASED ON GDP CONTRIBUTIONS

						% Economy
TERTIARY "SERVICES" SECTORS	SERVICES					70%
SECONDARY "MANUFACTURING" SECTORS	MANUFACTURING					17%
PRIMARY "RESOURCE" SECTORS		MINING	AGRICULTURE	UTILITIES	FOSSIL FUELS	13%
WILDLIFE						
FORESTRY						
Percentage of Primary Resource Sector	1 2	15%	17%	18%	48%	100%

Economic and Environmental Benefits in Nunavut

- The 2016 Census found the Canadian mining industry workforce was 9% Indigenous and 13% women.

- Nunavut's mining sector currently employs about 4,000 people

- 3,000 to 5,000 jobs are directly with "advanced projects"

Today's mining industry **is** safer, better-paid and better-regulated than 30 years ago.

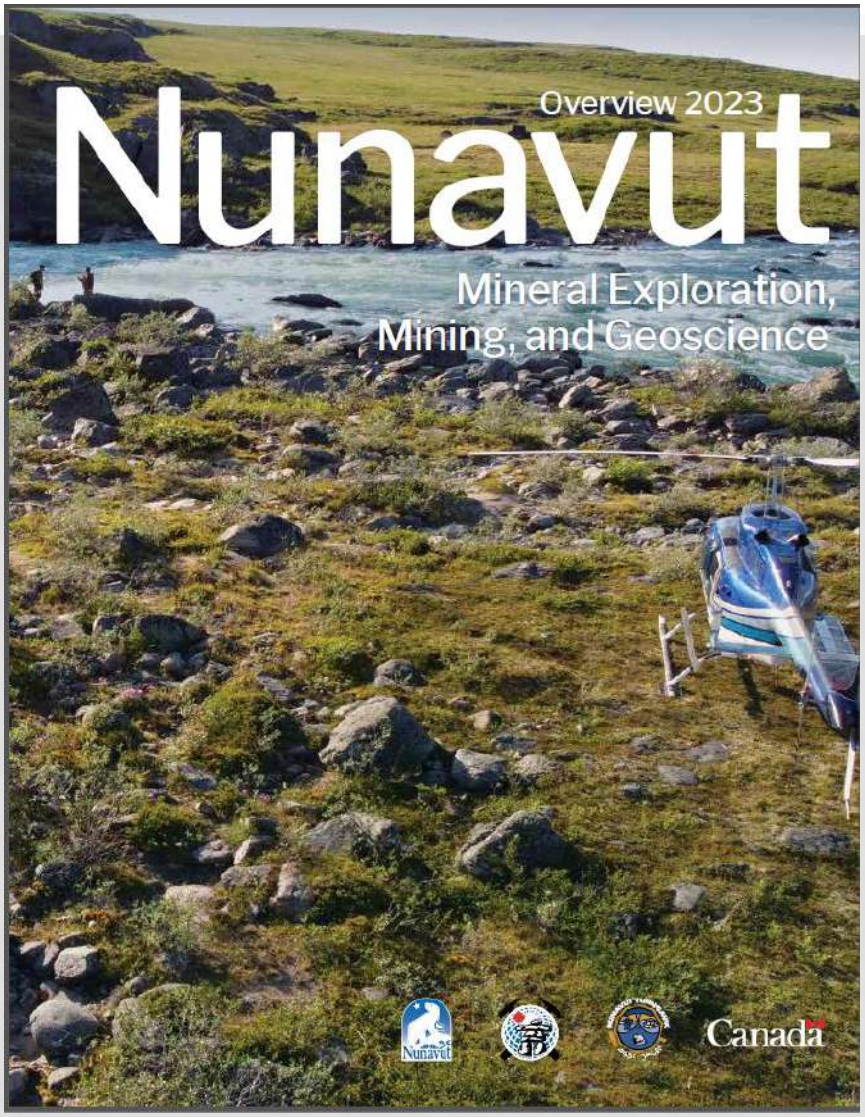
Today's mining industry now has an evolving and highly regulated professional sub-culture whose primary duty is protection of the public and the environment.

Where to Find Information About Recent Mining Activities In Nunavut ?

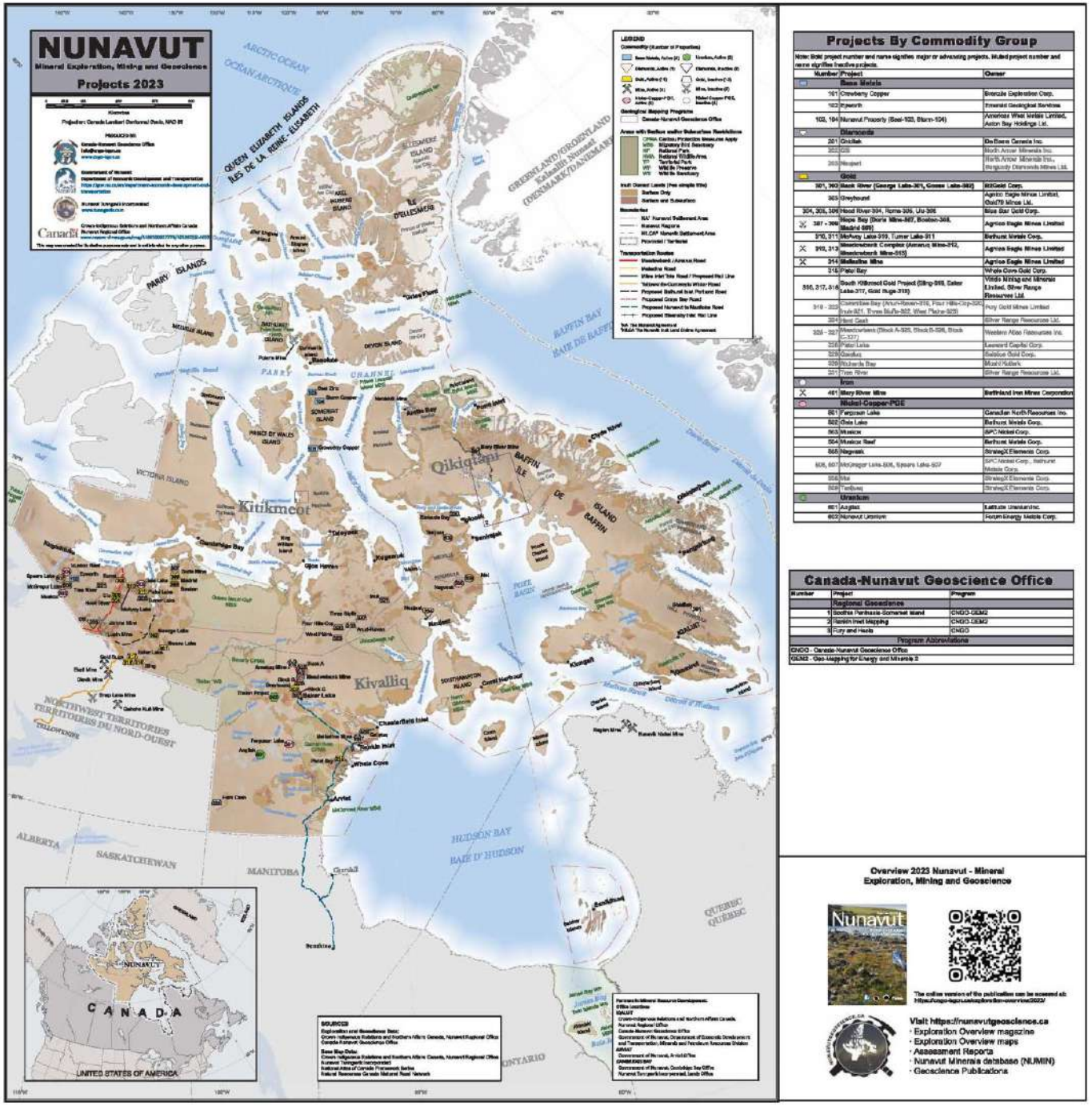
The ***first*** source for annually updated information is the:

Mineral Exploration, Mining,and Geoscience Overview

and its map



Annually Updated Mining Activity Overview Map

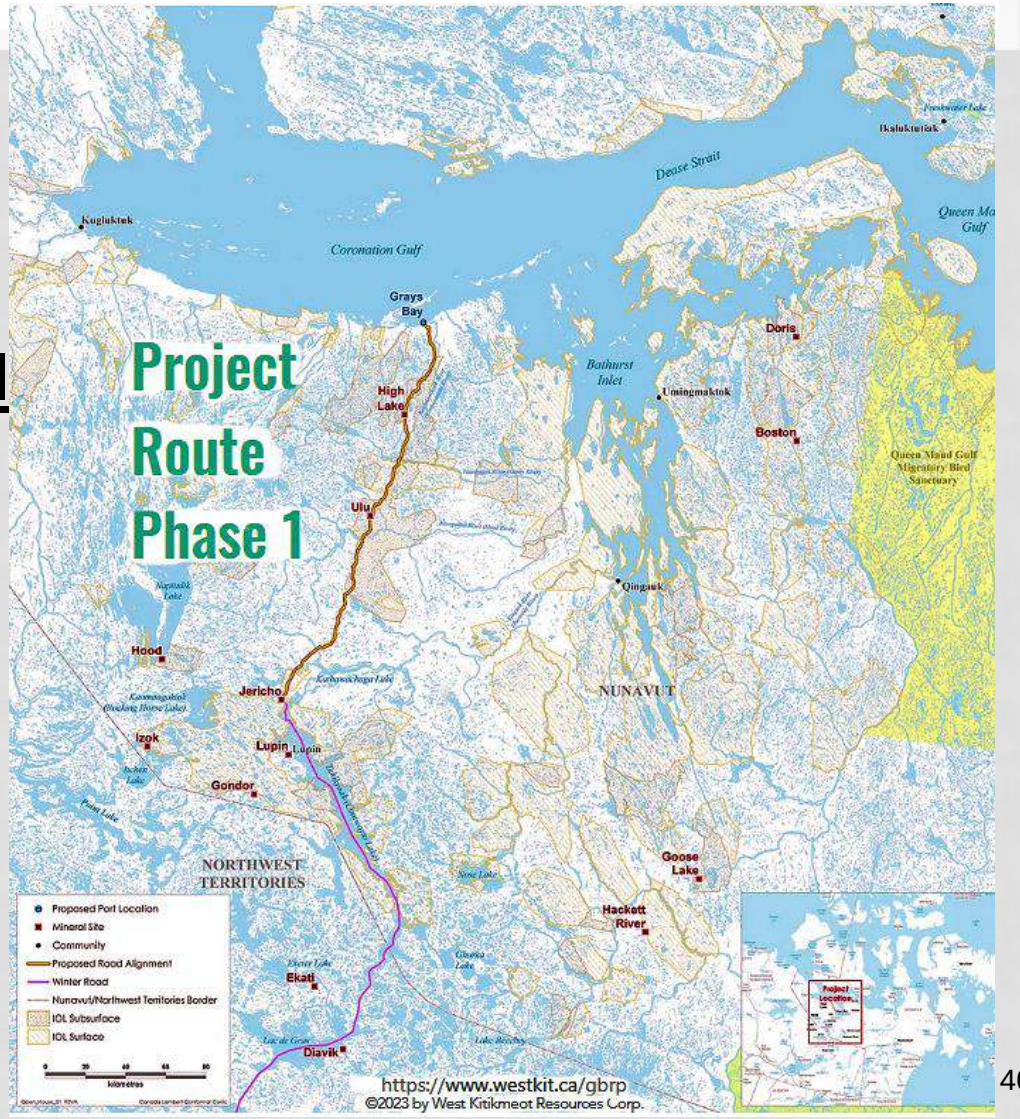


Where to Find Information About Current Mining News In Nunavut ?

- Community discussions benefit from input by responsible professionals.
- Nunavut Geoscience/CIRNAC Office, Iqaluit. Call: (867) 975-4279
- Companies, the NWT and NU Chamber of Mines, Regulators (NPC,NIRB), and Politicians want to consult the public of current events in their mining sector. They do this by:
  - Websites, Social Media, news releases, newsletters
  - Community meetings about projects
  - Call / email through their contact portals
  - Participate in community consultations
- *Nunatsiaq News* online, https://nunatsiaq.com
- Nunavut Mining Symposium, Iqaluit, April 22-25, 2024
- Roundup, January 2025 (Vancouver); PDAC March 2025 (Toronto)

Current News To Follow

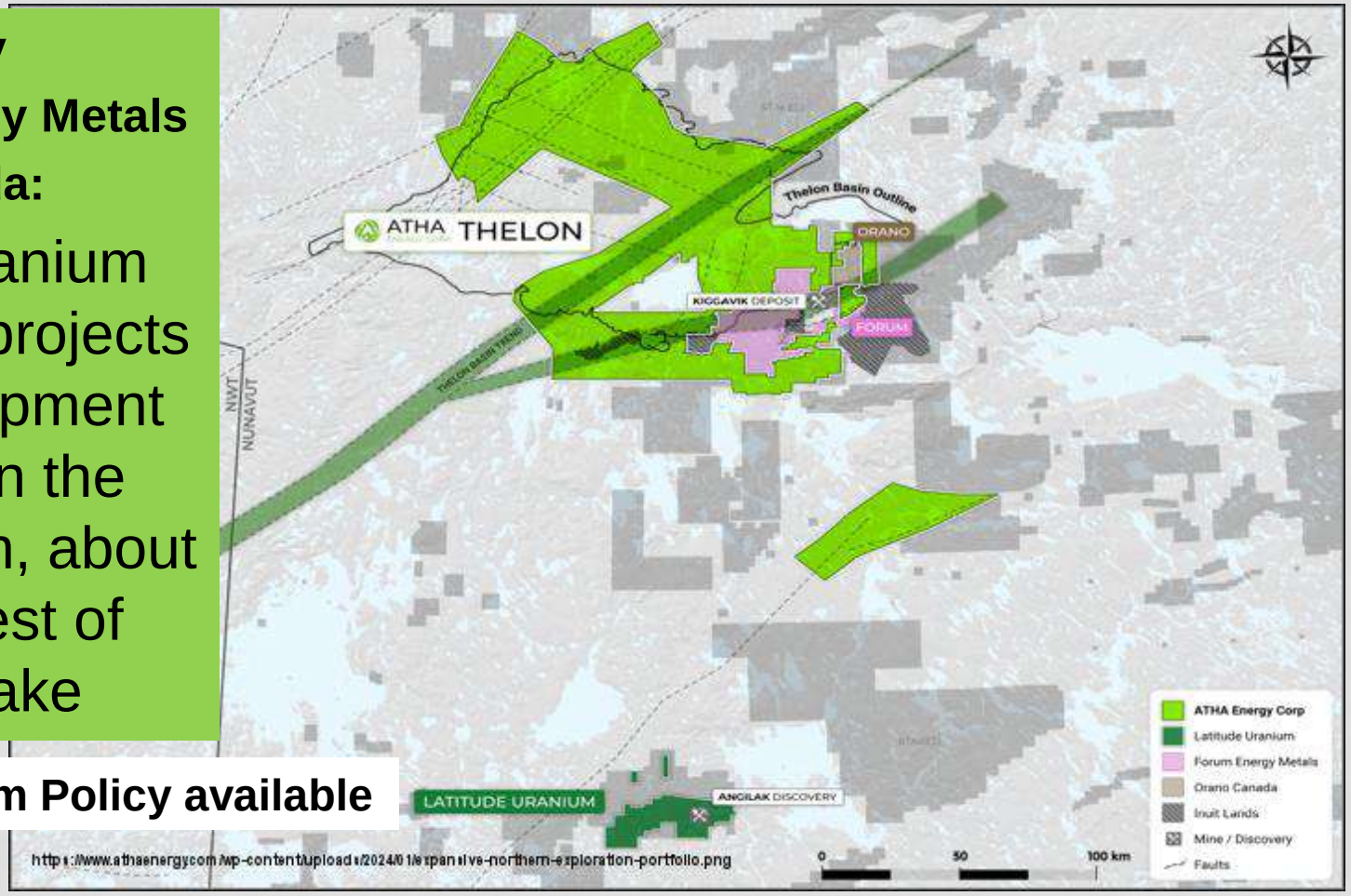
West Kitikmeot Resources' Grays Bay Road and Port Project proposal is a **critical** infrastructure project with many unrealized benefits and opportunities for all Canadians, especially **Nunavummiut**



Developing News To Follow

- **ATHA Energy**
- **Forum Energy Metals**
- **Orano Canada:**

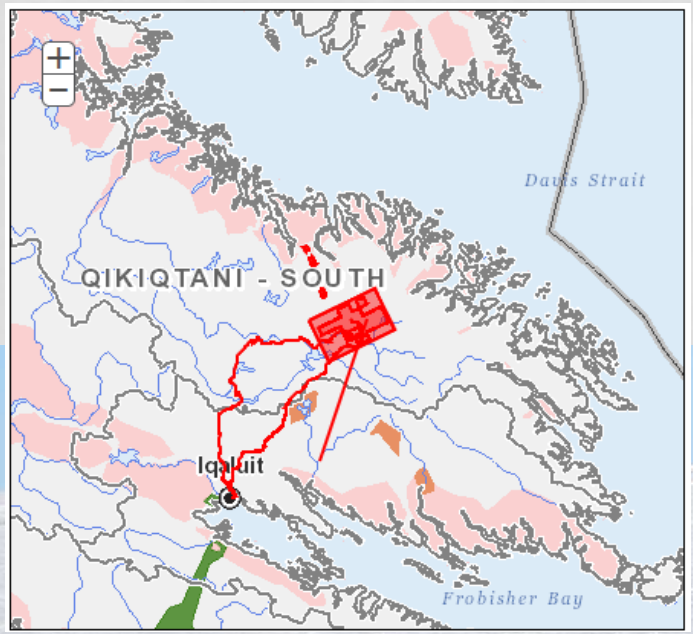
= major uranium exploration projects with development potential in the Thelon Basin, about 100km west of Baker Lake



NTI has a Uranium Policy available

Pending News To Follow

NIAB and De Beers Canada Announcements
About The Chidliak Diamond Project



74 Kimberlites Identified To Date

120 km from Iqaluit

Interactive Break Check

Any “hands-up” or questions so far?

Part 1c: Economic and Environmental Benefits for Nunavut

In 2021 and 2022; Nunavut's mining sector accounted for:

44% of Nunavut's Gross Domestic Product (GDP)

and 95% of Nunavut's Industrial Production Over The Past 4 Years

(Statscan Table: 36-10-0400-01, Release date: 2023-11-08)

Multiple Mine Development and Infrastructure Projects
Are Under Permit Reviews Or Nearing Commissioning

All projects are endangered without Nunavummiut support.

ECONOMIC OVERVIEW

Part 1c: Today's Mineral Developments Across Nunavut

$ 2,432 million value from Nunavut mineral production (2022)

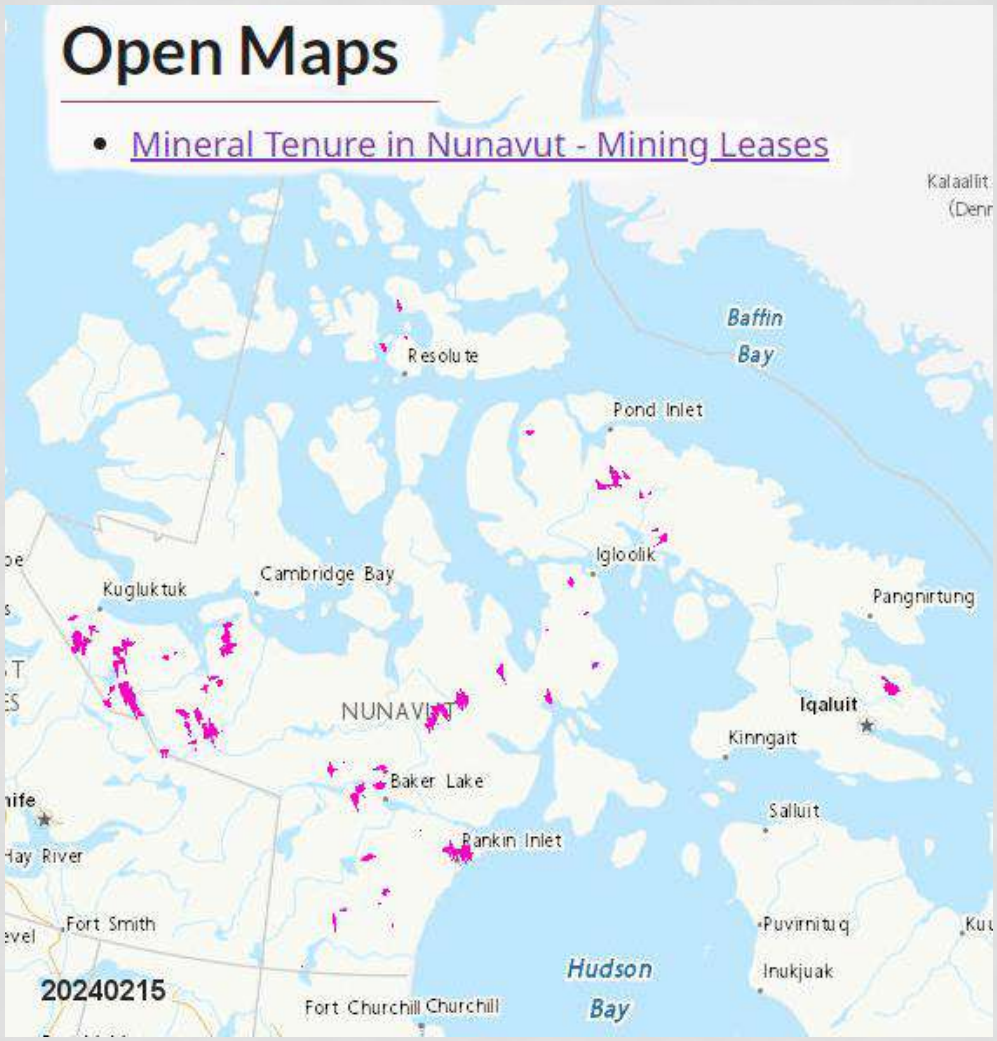
Estimated: ~30 pits and quarries for communities and projects, neutral value

2 gold mines (Agnico Eagle)
1 base metal mines (Baffinland)
3 mines operated by 2 companies

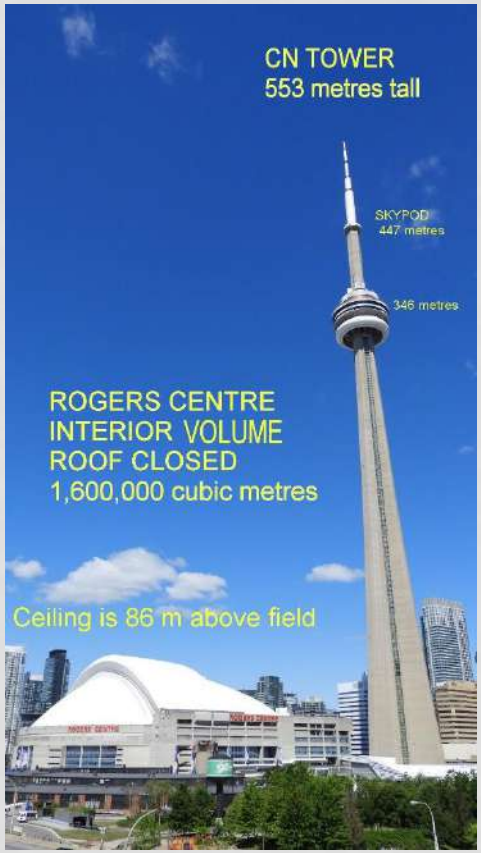
2022: $232.4 million invested in mineral exploration and deposit appraisal.

2023: 59 exploration projects by 26 operators

January 21, 2024: 2508 active claims and 480 leases held by about 80 claim-holders under **1.88% of Nunavut**



Some Comparisons for Unfamiliar Units Commonly Used In Discussing Mineral Economics



Today's precious metal mines have very large tonnages with very low grades that can only be reliably determined by systematic sampling and accurate assaying.

"High grade" precious metal results are **6 grams per tonne** which can also be stated as 6 parts per million (ppm) or 0.2 troy ounces per tonne.

An Artic diamond mine has ore grades of 1.5 carats per tonne
…What's that mean?
……

A hockey puck on a NHL rink = 3 parts per million

Six Canadian dimes on a hockey rink is = 1 ppm

A diamond concentration of one carat per tonne = 0.2 ppm
that equivalent to a penny on a NHL rink

Nunavut's Mining Industry Major Components

2022 "Investments"

1.88% area of NU
(20240121)

Exploration: $ 255 m
Mining Cost $ 1,893 m
Regulators: $ 73 m
$ 2,221m

"Mining" 44% GDP

March 14, 2024
CANDO Webinar

2022 Revenue
CDN $ unknown

Nil % exploration
negligible % Revenue

Estimated 30 sites
"internal operations"
Est.: < 50,000 tonnes

~nil waste

< 20,000 cubic m
~ indoor hockey rink

2022 Revenue
CDN $ nil

Nil % Exploration
0 % Revenue

no minesites,
no operators

No production
so no waste
(~2% elsewhere)

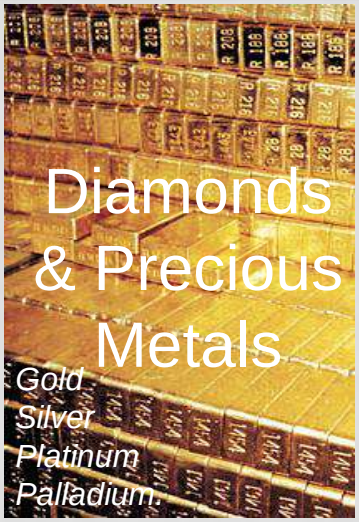
no development

2022 Revenue
CDN $ 643 million
($136 million loss)
34% Exploration $

26 % Revenue
1 minesite,
1 operator Baffinland

~ 6 million tonnes DSO
No waste !!!
(~96% elsewhere)

~ 1 Rogers Centre DSO



2022 Revenue
CDN $ 1,789 million
746,659 oz Au
66% Exploration $

74% Revenue
2 minesites,
1 operator AEM

7.4 million tonnes ore
99.9999515 % tailings
1.2 cubic metres Au WON
from ~1.5 "Rogers Centres of rock

Mineral Commodity Value Per Kilogram (Ontario 2022; CDN$/kg)

COMMODITY US$30-33k/kg	PRODUCT VALUE CDN$ / kg	SUB-SECTOR	SHIPPED VALUE ($ CDN MILLION)	% Shipped Ontario Mineral Value (2022p)	OVERALL SUB-SECTOR VALUE
Platinum Group Elements (Pd & Pt)	$ 96,585.80	Precious Metals **$ 66,809 per kg**	$ 1,644	12%	**52%**
Gold US$70k/kg	$ 57,672.93		**$ 5,358**	40%	
Cobalt	$ 77.71	Base Metals **$ 20.59 per kg**	$ 96	1%	**29%**
Nickel	$ 26.42		$ 1,883	14%	
Copper	$ 12.04		**$ 1,926**	14%	
Wollastonite	$ 0.41	Iron Ore Industrial Minerals **$ 0.12 per kg**	$ 8	0.1%	**7%**
Clay products	$ 0.29		$ 119	1%	
Nepheline syenite	$ 0.20		$ 140	1%	
Lime	$ 0.19		$ 161	1%	
Salt	$ 0.04		**$ 568**	4%	
Stone	$ 0.010	Aggregate **$ 0.01 per kg**	**$ 809**	6%	**12%**
Sand and gravel	$ 0.009		$ 779	6%	
Clay	$ 0.005		$ 0.4	0.003%	
			$ 13,493		**100%**

Derived From: Projected 2022 NRCAN Shipment Values For Ontario

1 kg ~

----- 3X

2X

----- 4X

2X

Raw diamonds are valued @ $500,000/kg @ CDN$100/carat

ANNUAL VOLUMES OF FINAL PRODUCTS SOLD

The volume of the "Rogers Centre" with the roof closed is 1,600,000 cubic metres.

Annual (2022) Nunavut mined volumes for each of the mineral sectors are:

AGGREGATE: no commercial production, local usage

INDUSTRIAL MINERALS: no production

IRON ORE: **6 million** tonnes DSO shipped. About **1 filled "Rogers Centre"**

GOLD: "only" **1.2** cubic metres **WON** from **1.5** **filled "Rogers Centre"**

Total gold produced in Nunavut in 2022
from 2 mines was the size of 3 washing machines.

Per
"Rogers Centre"

SUMMARY
Why is Mining an OPPORTUNITY in Nunavut?

In Canada, **minerals are shared by the public** under clear agreements.

By 2027, **Nunavummiut** will share **even more** in their mineral wealth.

A clear regulatory regime exists for the well-being of Nunavummiut and the environment.

The mineral industry's continued role in society is rarely appreciated.

It is well-appreciated in Nunvaut for its 44% GDP impact (prosperity).

Low population density and frontier-stage mineral opportunities allow projects to create planned legacy infrastructure at no cost to the public which will **generate more opportunities** for **future generations**

BREAK: QUESTIONS OR COMMENTS ABOUT PART ONE

PART ONE: Completed

ECONOMIC OVERVIEW OF NUNAVUT'S MINING INDUSTRY

a) Indigenous Participation and Opportunity

b) Economic and Environmental Benefits

c) Today's Mineral Developments Across Nunavut

Summary: Why is Mining an OPPORTUNITY in Nunavut

Next ….. PART TWO:

MINING IN NUNAVUT TODAY – THE FULL CYCLE

PART TWO:
MINING IN NUNAVUT TODAY – THE FULL CYCLE

1. Pre-Exploration = **3 KEY TURNING POINTS**
2. Early Exploration (Surveys, drill targets, drilling)
3. Discovery (drilling results) = **KEY TURNING POINT**
4. Advanced Exploration (Evaluation, Validation, Planning)
5. Feasibility = **KEY TURNING POINT**
6. Lease, Construction
7. **PRODUCTION: project's only revenue-generating phase**
8. Closure = **KEY TURNING POINT**
9. Reclamation
10. Repurposed Land Usage = **KEY TURNING POINT**

Pre-Exploration / Project Generation: Stage 1/10

Experience, public geoscience information and other information are diligently integrated to generate a potential mineral opportunity concept which can be considered intangible **Intellectual Property**.

Confidentiality is still the only protection for intangible Intellectual Property.

This is Ojibway Traditional Knowledge based on Nanabijou's Silver Islet revelation and cautionary story (re-shared by Charlie Angus in *"Cobalt, Cradle of the Demon Metals, Birth of a Mining Superpower"*)

Meaningful Indigenous consultation by new project proponents is difficult due to their unprotected Intellectual Property at this early stage but it is widely encouraged.

Early meaningful consultation is a project's first key turning point

. This includes consultation from nation-with-nation to community-with-company

Nunavut has a clear commitment to mineral development opportunity**…with expectations**

Pre-Exploration / Project Generation: Stage 1/10

CIRNAC's Mining Recorders Office currently administers recorded claims on Crown Land through the online Nunavut Map Selection portal.

NTI administers Inuit mineral rights held for 2% of Nunavut.

Mineral tenure acquisition is a project's second key turning point.

There were 3076 recorded and leased claims and 3 mines in Nunavut in January 2024; (1,025 claims per mine)

REGULATIONS / EXPECTATIONS

- In the past 30 years, increased regulatory requirements have been applied to the mining industry on every front.

- Nunavut legislation requires qualified geoscientists (P.Geo) and engineers (P.Eng) to be licensed with the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG), **the regulators of these professionals** for their work on stages of the mining cycle for which they are responsible.

- Professional practice guidelines for Indigenous consultation and technical work are provided by government and industry-affiliated organizations. (Appendix B)

Pre-Exploration / Project Generation: Stage 1/10

Mineral tenure (claims), the Intellectual Property, a reasonable exploration action plan and a clear understanding of project risk mitigation are needed for project financing, optioning or sale.

Prospectors and junior companies may self-finance their own prospecting activity to try to advance the project.

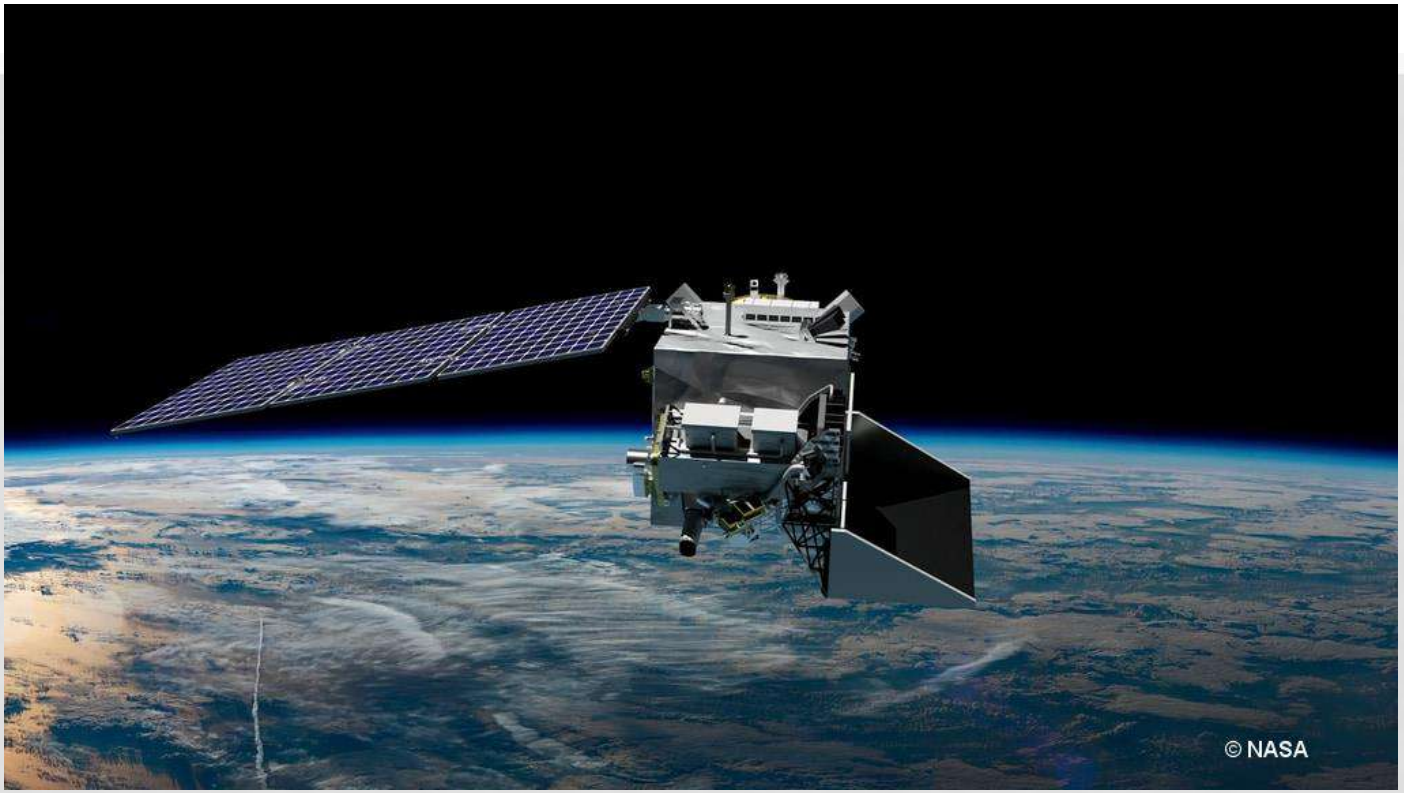
Initial financing is a project's third key turning point.

Security regulators may require a NI43-101 technical report.

Early Exploration: Stage 2/10

- Early exploration work generally requires an exploration action plan used to obtain field work permits from the Nunavut Government.
- The goal is to get an indication of a mineral deposit discovery through integrated surveys that define reasonable targets for exploration drill testing.
- Environmental impacts are expected to be minimal and short term with project management using qualified professionals.

Passive Remote Sensing



NASA launched **PACE** on **February 8, 2024** into a **polar** orbit with full VIS-NIR hyperspectral capability at 1 kilometre spatial resolution. Airborne hyperspectral systems can “map” with less than 5 metre resolution **under ideal conditions**

.

Historical data archives provide material for progressive environmental monitoring.

Airborne Geophysical Surveys

- Geophysical Survey – the collection of data from above or below the earth's surface using a sensing instrument to measure a characteristic like magnetism

Passive: hyperspectral, magnetic and gravity surveys

Active: LIDAR and EM surveys

Early Exploration

Collect Rock and Sediment Samples to Identify Drill Target Areas

Ground geophysical surveys are recommended targeting definition methods

SCIENCE-BASED TARGETS ARE PRIORITIZED FOR TESTING WITH DRILLING

Geologists describe the cored rock noting features and selecting samples for analysis.

Geophysical surveys down the drill hole can allow geophysicists to refine targets.

Discovery: Stage 3/10

A **maiden drill hole discovery** is one that encounters a region's typical ore grade mineralization over mineable true widths.

Drilling continues in the advanced exploration stage to **build** a mineral deposit resource around the maiden drill hole discovery.

Around the world, after more than a century of discoveries and mine developments, over the past 50 years, the rate of **discoveries that resulted in mines have steadily declined** due to several factors.

Nunavut is one of the last places globally where exploration potential is truly still at the "very early days" or "frontier" stage.

A mineral deposit resource that merits consideration for development is a project's fourth key turning point.

Advanced Exploration: Stage 4/10

Drilling programs and advanced geophysical, geochemical and metallurgical studies are **focused on resource definition, evaluation and validation**.

Environmental baseline studies continue.

Most Nunavut drill programs **progress quickly** to the advanced exploration stage because of the high quality targets.

Feasibility: Stage 5/10

All technical resource and mine planning data is integrated with financial data to obtain a estimated return on investment for the project.

Development decisions are a project's fifth key turning point.

This marks the **end to exploration stages 2 to 5** and the **start of development stages 6 to 9**.

Mine Development

Mine Lease, Construction, Infrastructure: Stage 6/10

More Extensive Environmental Assessments

Bulk Sampling

Feasibility
Funding
Permitting

Justify Mine

Prepare for Mining

Production: Stage 7/10

The production stage is the main revenue-generating stage related to mineral resource development.

Nunavut has 3 active **producing mines** at the end of 2023

2 gold (Agnico Eagle)

1 iron (Baffinland)

B2Gold is mining 2 gold deposits on the Goose Project now

Producing mining operations **may not be** profitable due to adverse events and economic conditions.

Closure: Stage 8/10

The closure decision is a project's sixth key turning point.

Exploration, development and mining projects may pause and go on "care and maintenance" to weather adverse conditions.

(Agnico Eagle's Doris gold mine in their Hope Bay Project)

Mine closure plans were developed/approved in Stage 6.

Companies, communities and government can refine the closure plan to accommodate change including cooperating to avoid closure.

Reclamation: Stage 9/10

Environmental impact minimization and reclamation applies to all mining stages from early exploration to mine closure for any activities that disturb the land.

Reclamation plans are included as part of permit applications.

Inspections, on-going reclamation, and compliance reporting are now common day-to-day procedures.

Sometimes the mine operator goes out of business before reclamation is complete.

Jericho Diamond Mine
Operated 2006-2008

The Jericho Project was assessed by the NIRB from 2000-2004 then Project Certificate No.002 was issued to Tahera Corporation Limited then amended to Shear Diamonds Nunavut Corp. in 2011 after Tahera filed for creditor protection in 2008. In 2008, CIRNAC assumed control of the mine until 2010 then assumed control again from 2014 to present. CIRNAC conducted remediation and stabilization activities at the site in 2017 and 2018 and the site is currently under surveillance and monitoring by CIRNAC.

The site remains subject to the conditions of Project Certificate No. 002 assigned to Shear and to another legal action.

Jericho infrastructure is part of KIA's Grays Bay Road and Port Infrastructure Project

Kimberlite "bluestone" is evident in the pit and stockpile.

Repurposed Land Usage: Stage 10/10

Community consultations before modern mine construction are used to plan how the land will be repurposed after mining.

Repurposed land use decisions by the Public are a project's seventh key turning point.

Historical mining sites can remain a public concern because they did not have closure, reclamation and repurposing plans.

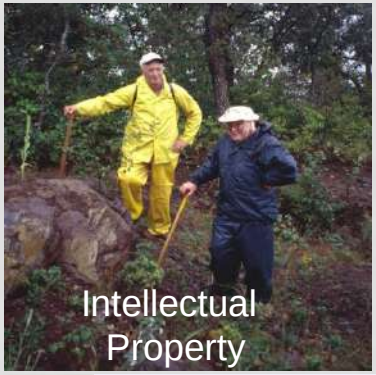
Federal government bears responsibility for rehabilitation.

Interactive Break Check

Any “hands-up” or questions?

Life Cycle of Metal Mining

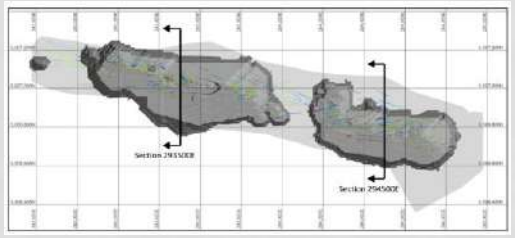
“Early Exploration”
(Pre-Exploration, Research, Prospecting)



“Exploration”

D I S C O V E R Y

Indigenous Business Opportunities



Development

F E A S I B I L I T Y

Reclamation

Wide Variety Of Mineral Exploration and Development Jobs

Mine Workings

Surveyor`s helper

Miner

Driller

Heavy Equipment Operator

Shift Foreman

Etc.

Mill/Shop

Trades helper/ apprentice

Warehouse assistant

janitor

Technicians

Certified trades

Etc.

Offices

Students

Assistants

Administration

Engineers

Geologists

Technicians

Accountant

Etc.

Camp

Janitorial

Kitchen

Cook

Admin

Repairs

Safety

Security

Etc.

Roads, Etc.

Snow removal

Road work

Trucking

Gravel pit Supplies

Diesel fuel

Explosives

Etc.

Over 160 different mining jobs

Opportunities

EDO's can recognize opportunity through awareness of:

Nunavut's mineral industry
Community capacity and resources
Community consultations in progress
Community consent and agreements
Mineral projects in and adjacent their community
Aggregate potential and unstaked mineral potential
Local project's key turning points and anticipating needs

Know that industry professionals are willing to fully engage with Indigenous partners, businesses and individuals in exploring and developing mineral opportunities.

Canadian Economic Opportunity

Generational Economic Opportunity

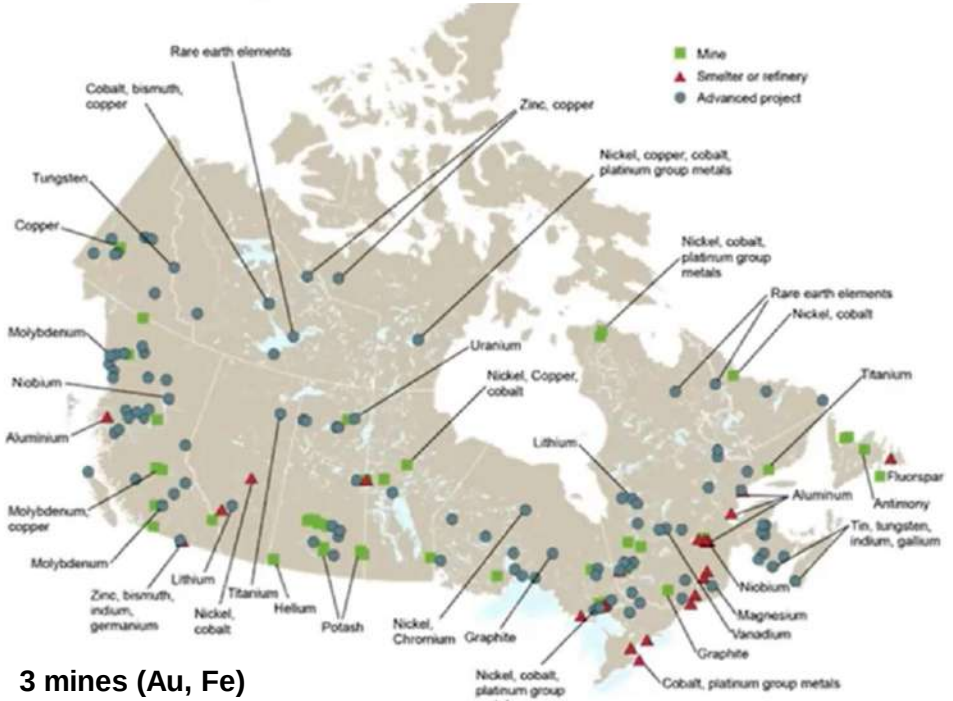
Leveraging Canada's advantages:

- ✓ World-class mineral resource wealth
- ✓ Longstanding mining expertise
- ✓ Extensive technology and manufacturing capabilities
- ✓ Abundant clean energy resources
- ✓ Strong environmental, social and governance (ESG) credentials

Domestic critical minerals can fuel Canadian manufacturing, **employment opportunities**, reduce import dependency, and build economic security.

Focus on 6 priority minerals to develop full Canadian value chains – **from mines to manufacturing** – including recycling waste and end-of-life products

Critical mineral deposits and processing facilities



- ➢ **3 mines (Au, Fe)**
- ➢ **3 advanced projects (Au, diamonds)**
- ➢ **Exploration projects also include critical minerals**

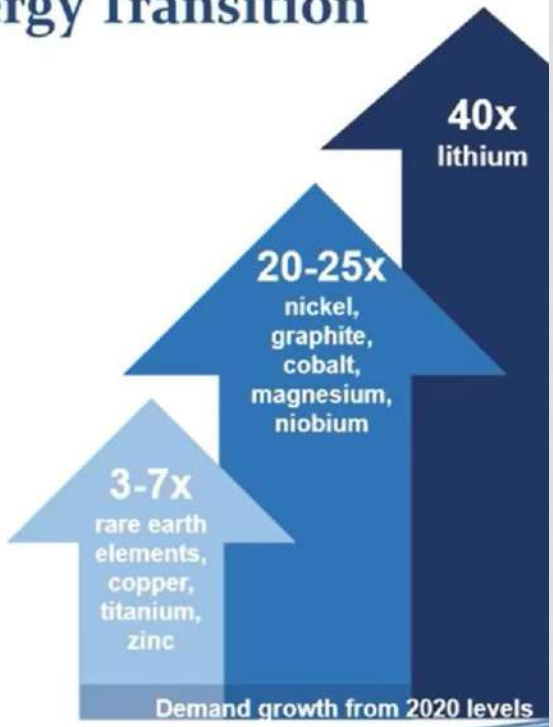
Natural Resources Canada | Ressources naturelles Canada

Canada

Critical Minerals
Changing to Low Carbon Energy

Critical Minerals Essential to Clean Energy Transition

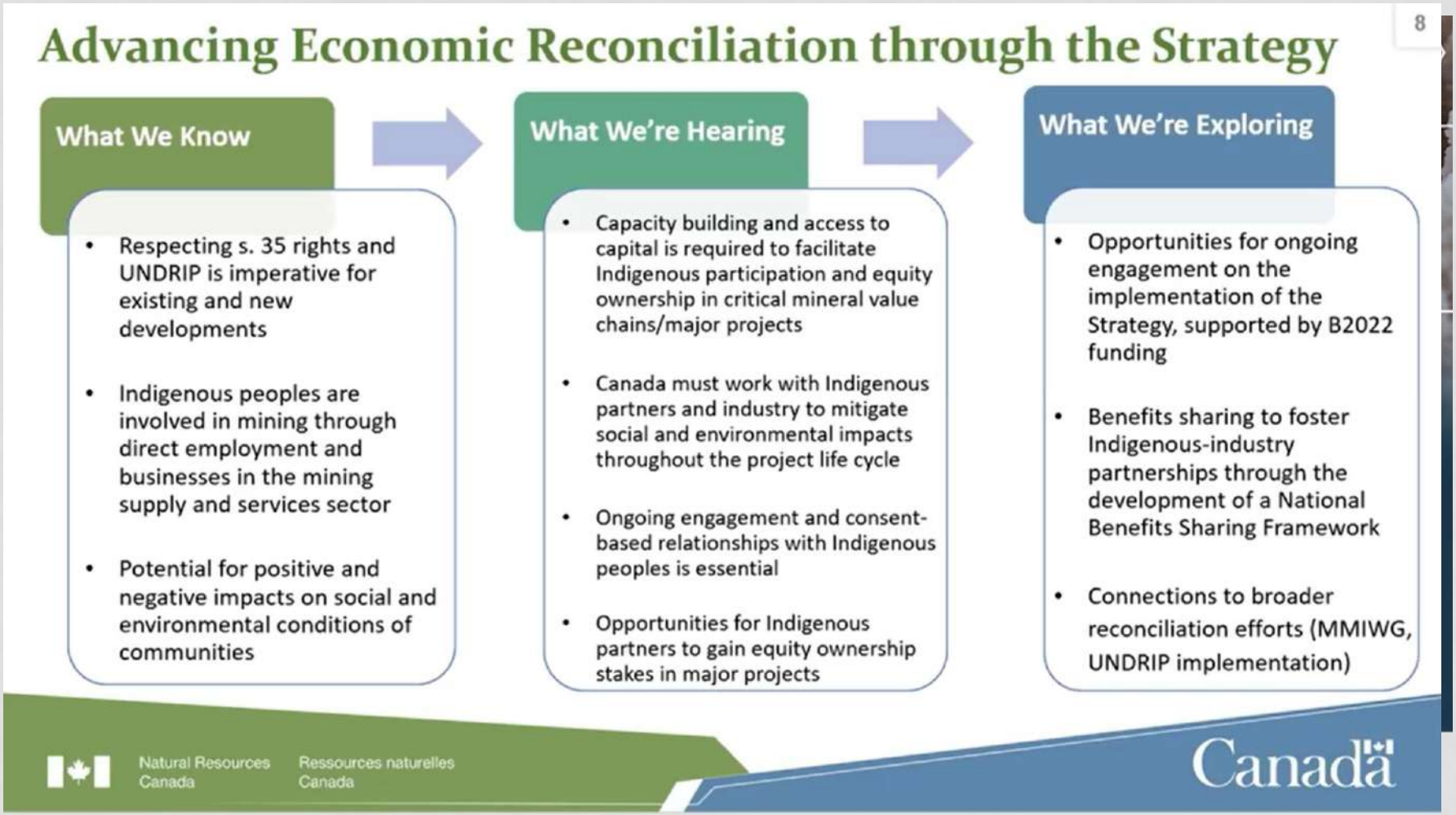
- **There is no energy transition without critical minerals**
- **Energy security** has become synonymous with critical minerals security
- **Reaching the Paris Agreement goals** mean quadrupling mineral supply requirements for clean energy technologies by 2040.
- Global **demand forecasts significantly outpace mineral supply** and investment
- **If demand is not met**, we cannot produce the technologies to transition our energy systems and meet climate goals



Natural Resources Canada | Ressources naturelles Canada

Canada

Connection to Indigenous Peoples



Watch Out For Next Opportunity!
Indigenous Natural Resource Partnerships

- Canadian government program launched Nov 2022.
- $80 million for projects that:
  - Increase the capacity of Indigenous communities to participate in and benefit from economic development opportunities in the natural resource sectors
  - Increase the investment and/or collaboration between Indigenous Peoples and other natural resource development stakeholders
- Applications closed March 2023. Watch for next round.

Indigenous Natural Resource Partnerships (canada.ca)

FINAL BREAK FOR QUESTIONS OR COMMENTS

Thank you.

Appendix A:
REFERENCES INDEXED BY SLIDE NUMBER

Included separately on the Cando Website

Home - Cando (edo.ca)

Watch or download other mining webinars from the Cando website for examples of Indigenous companies or partnerships related to mining.

Appendix B: Additional Resource Material

Included separately on the Cando Website

Home - Cando (edo.ca)

Watch or download other mining webinars from the Cando website for examples of Indigenous companies or partnerships related to mining.