

Mining = Opportunity for Indigenous Communities in Quebec

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Economic Geologist



March 2022 - slide deck

Presentation Outline

My Role:

- Share some examples of Indigenous business opportunities related to mining
- Explain mining in everyday language
- Share some insights into this unique sector

Presentation Outline:

1. Opportunities for Indigenous mining jobs, businesses and agreements in Quebec
2. Life cycle of mining related to Quebec and potential economic opportunities for indigenous communities
3. End with a few key points relevant to economic development officers related to mining

Why Explore for Minerals?

Society is increasingly dependent on minerals!

- Metals

- Copper for electrical wires,
 - Zinc to galvanize steel,
 - Gold for jewelry/electronics
 - REE for electronics

- Aluminum

- Critical for transportation

- Minerals

- Gypsum for wallboard

- Rocks

- Gravel for highways and building foundations;
 - Granite for building; Limestone to make cement.



Sealed lead acid battery



Lead chimney flashing



Why Talk About Mining Importance to Indigenous Communities?

Indigenous Peoples have long used and traded rocks, metals and minerals that are culturally important

Four reasons:

1. Jobs and contracts
 - mining is #2 employer of Indigenous people in Canada
2. Numerous agreements with Indigenous communities
 - potential for significant benefits
3. Mines are spread across Quebec and Canada
 - remote, rural and suburban locations
4. Mining sector not well known:
 - many people have never visited a mine or learned about them



Indigenous Employment in Mining (2019)

- High levels of major mine employees are Indigenous
- Direct and indirect employment exceeds 719,000 jobs in Canada. In **Quebec**, approximately **103,000 people** are employed in the mineral exploration and mining sector
- **Indigenous** people make up **12%** of Canada labour force in the mineral sector
- Many attractive jobs that build work skills
- Jobs exist in all regions of the province, including near northern communities



March 2022



Photos : Jerry Asp

PDAC Infographic

Typical Mining Jobs



Mine
Workings
Surveyor`s
helper
Miner
Driller
Heavy
Equipment
Operator
Shift

Mill/Shop
Trades
helper/
apprentice
Warehouse
assistant
janitor
Technicians
Certified
Etc.

Offices
Students
Secretarial
Admin
Engineers
Geologists
Technicians
Accountant

Camp
Janitorial
Kitchen
Cook
Admin
Repairs
Safety
Security
Etc.

Roads,
Etc.
Snow
removal
Road work
Trucking
Gravel pit
Supplies
Diesel fuel
Explosives

Over 160 different mining jobs

Goods and Services Contracts

- Mines require a wide variety of goods
 - Food, lumber, gravel, vehicles and parts, signs, pickets, ...
- Mines often contract out specific services
 - Security, environmental monitoring, snow removal, food services, accounting, road maintenance, transportation, ...
- Companies of various sizes bid on these contracts
 - Many mines prefer to contract **local** companies and recognize the value of using **Indigenous companies**

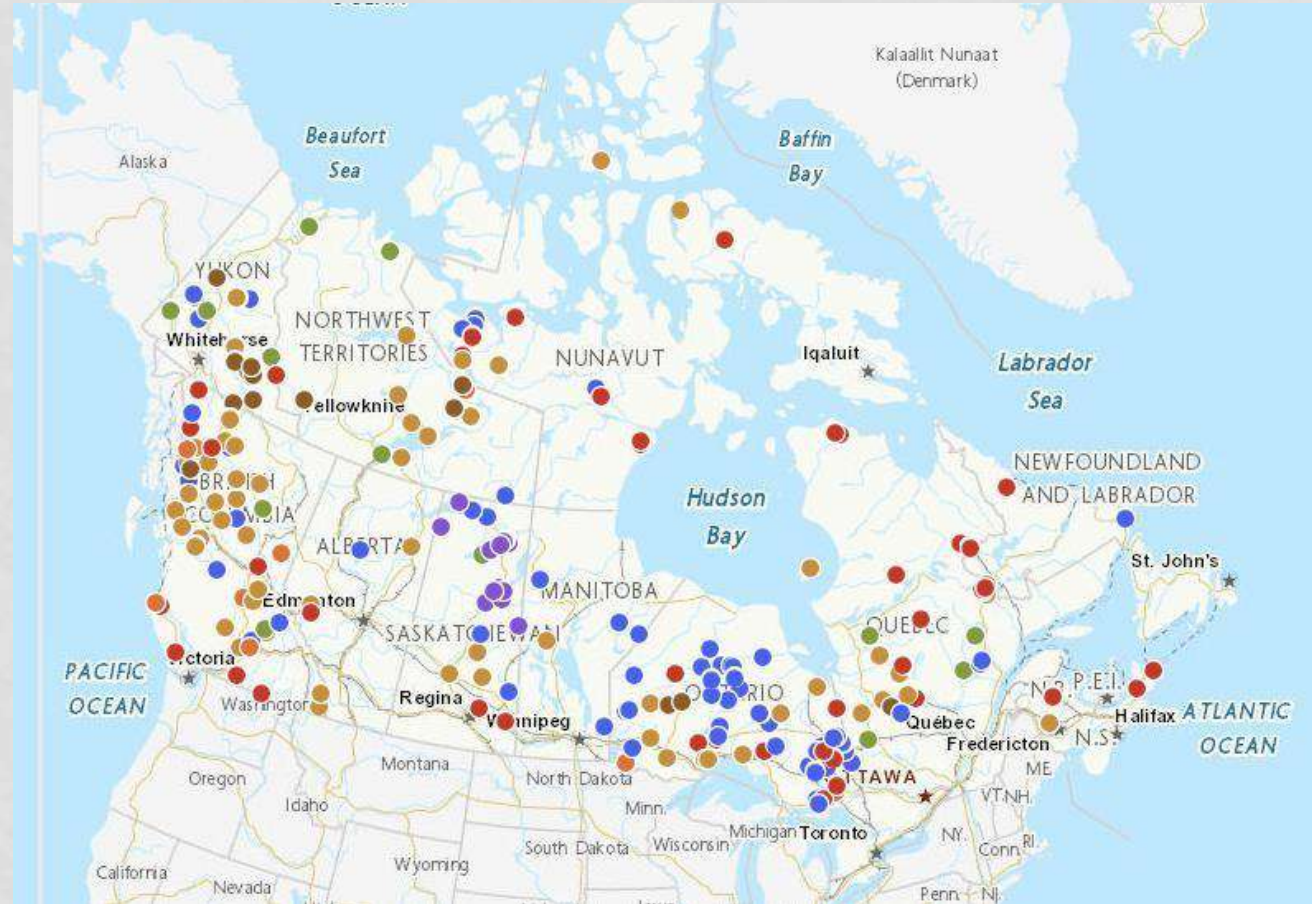
Canadian Mining Sector's Wages and Salaries (2020)

- . With Average **Weekly** Earnings by Industry at **\$2,099** in 2020, the Mining, quarrying, and oil and gas extraction sector boasts the highest wages and salaries of all industrial sectors in Canada.
<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410020401>
- . Mineral sector represents **1 in every 29 jobs** in Canada.
- . Mineral Industry is the top private sector industrial employer of **Indigenous peoples** with **12%** of the Canadian labour force.

Indigenous Community Active Mining Agreements

Active Agreements

- Impact and Benefits Agreement
- Socio- Economic Agreement
- Exploration Agreement
- Participation Agreement
- Cooperation Agreement
- Memorandum of Understanding
- Letter of Intent
- Surface Lease Agreement
- Other Agreement Type



Quebec's Capacity-Building Funding for Indigenous Communities

Funding available for **consultation** capacity, skills & job **training**, and **economic development**:

S cretariat aux affaires autochtones

[Aboriginal Initiatives Fund III: Consultation Support Fund](#)

S cretariat aux affaires autochtones

[Aboriginal Initiatives Fund III: Economic Development program](#)

Centre de formation professionnelle Val-d'Or

[National Mining Centre Programs](#)

 nergie et Ressources naturelles

[Aboriginal Mining Funds: Nunavik Mineral Exploration Fund](#)

 nergie et Ressources naturelles

[Aboriginal Mining Funds: Cree Council on Mineral Exploration](#)

Quebec

Mines & Exploration Projects



Legend:

- Producing Mines
 - Metal mines
 - Nonmetal mines
 - Coal mines
 - Oil sands mines
- Metallurgical Works
- Top 100 Exploration Projects

Exploration and deposit appraisal expenditures, by province and territory, 2019–2021

2019 Canada total **\$2.3B**

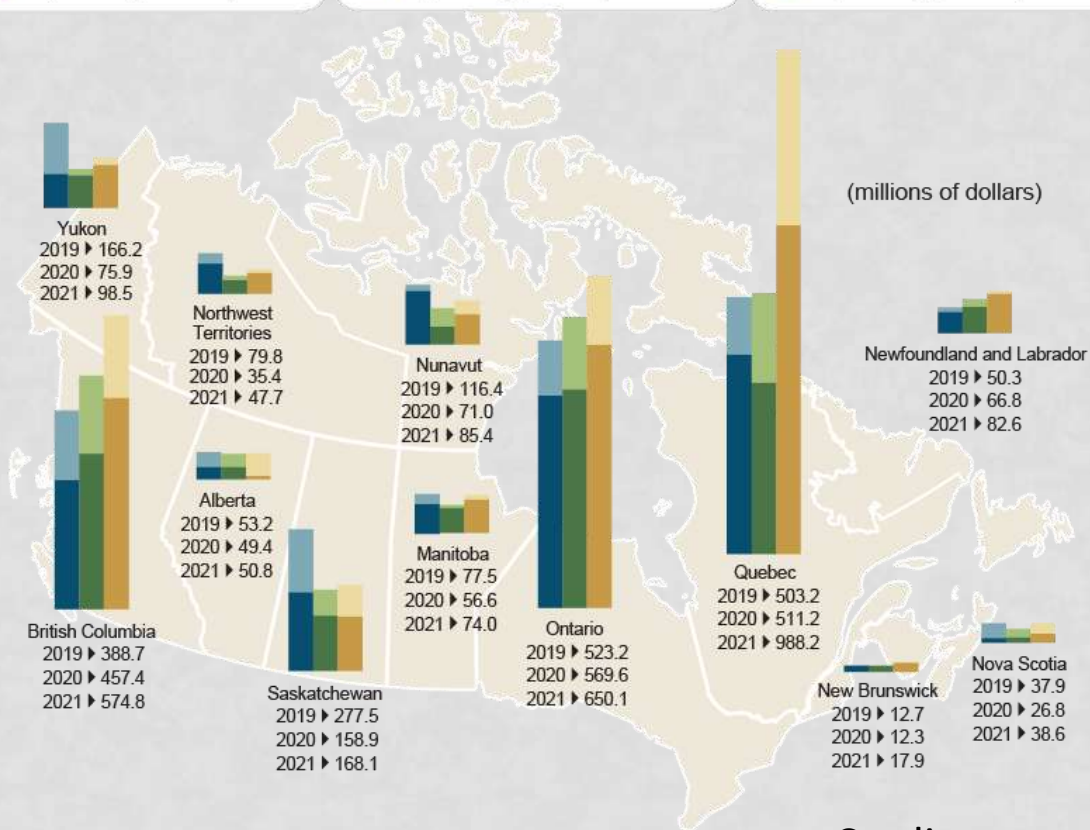
■ Exploration \$1.6B
■ Deposit appraisal \$0.7B

2020 (p) Canada total **\$2.1B**

■ Exploration \$1.5B
■ Deposit appraisal \$0.6B

2021 (si) Canada total **\$2.9B**

■ Exploration \$2.1B
■ Deposit appraisal \$0.8B



Top 10 Mineral products in Canada (2020)

| | Canada (\$) | Quebec (Ranking) |
|-------------|-------------|------------------|
| 1. Gold | 12.3B | # 1 |
| 2. Iron Ore | 5.6B | # 2 |
| 3. Coal | 4.0B | |
| 4. Copper | 3.9B | |
| 5. Potash | 3.7B | |



| | Canada (\$ 2019) | Quebec (Ranking) |
|--------------------|------------------|------------------|
| 6. Nickel | 3.0B | # 3 |
| 7. Sand/gravel | 2.3B | |
| 8. Diamonds | 2.9B | |
| 9. Stone | 2.0B | |
| 10. Platinum GM | 1.3B | # 5 |



Canada produces some **60 minerals** and metals at **200 mines** and **6,500 sand, gravel and stone quarries** a year worth nearly **\$48 billion**

coal

Benefits generated by the Quebec's mining industry (2019)

- Approximately **48 000** direct, indirect and induced **jobs**
- Annual **mining expenditures** of **\$10 billion** in 2018 distributed in all Quebec's region
- Extensive network of **3,800 suppliers** throughout Quebec
- **\$1.3 billion** paid each year to various levels of government
- **\$1.8 billion** in payroll in the mineral extraction and exploration sectors
- The mining sector contributes over **\$9 billion** to **Quebec's GDP**

Quebec Mining

- Mining not well known. Not generally taught in schools!

However,

- Quebec is a major **gold** and **iron** ore producer with substantial **nickel** production
 - **17 metal** mines and 25 metal projects
- Significant non metallic minerals production
 - 4 mines and 2 projects
- Numerous sand and gravel pits

Quebec produces **13 metallic** and **16 non metallic minerals**

Life Cycle of Mining

Prospecting & Early Exploration



Mineral Exploration

Indigenous Business Opportunities



Mine Closure & Reclamation



Mine Development



Mining

Provincial Government Role in Exploration and Mining

Quebec government Role (MENR):

- Quebec (Mining Act) administers Mining Claims & regulate exploration activities through **GESTIM Plus**, a « Mining Title Management System »

[Mining Title Management System \(GESTIM\) - Ministère de l'Énergie et des Ressources naturelles \(gouv.qc.ca\)](#)

- Generate geoscientific maps and reports to support exploration through **SIGÉOM**, a « Reference Geomining Information System »

[SIGÉOM | Système d'information géominière | Interactive map \(gouv.qc.ca\)](#)

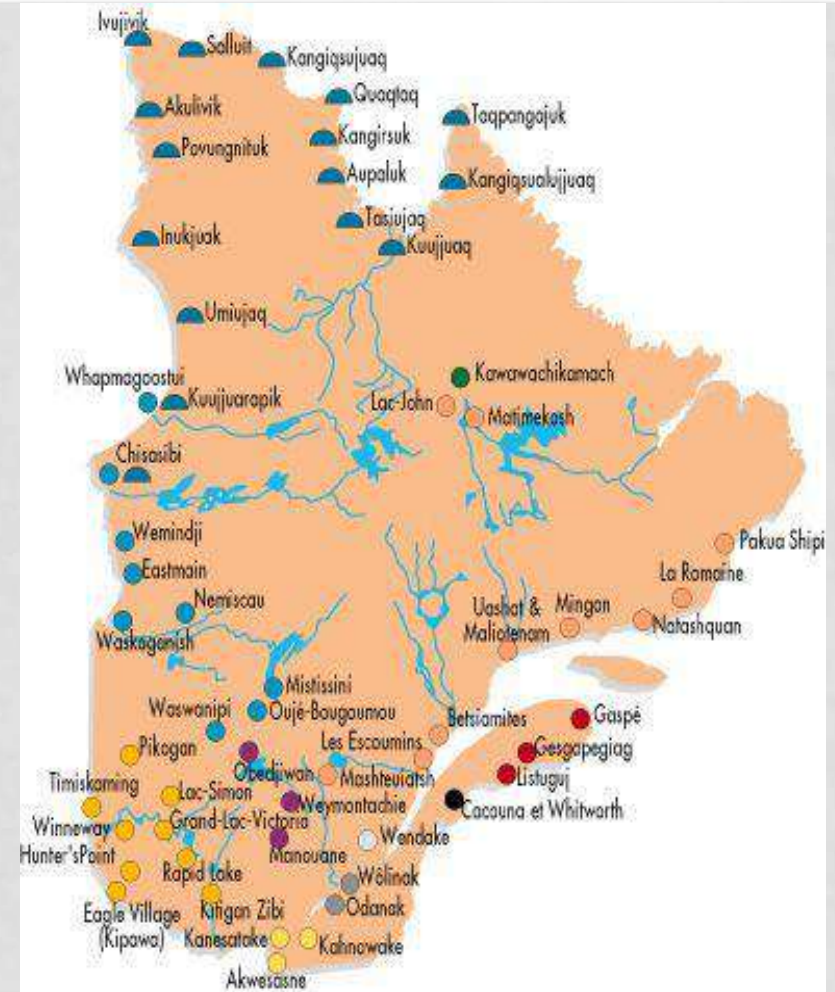
- Permit mine developments and mines
- Enforce safety regulations and assist with mine training
- Require reclamation plans and reclamation bonds for mines

Federal Government Role in Exploration and Mining

Federal government :

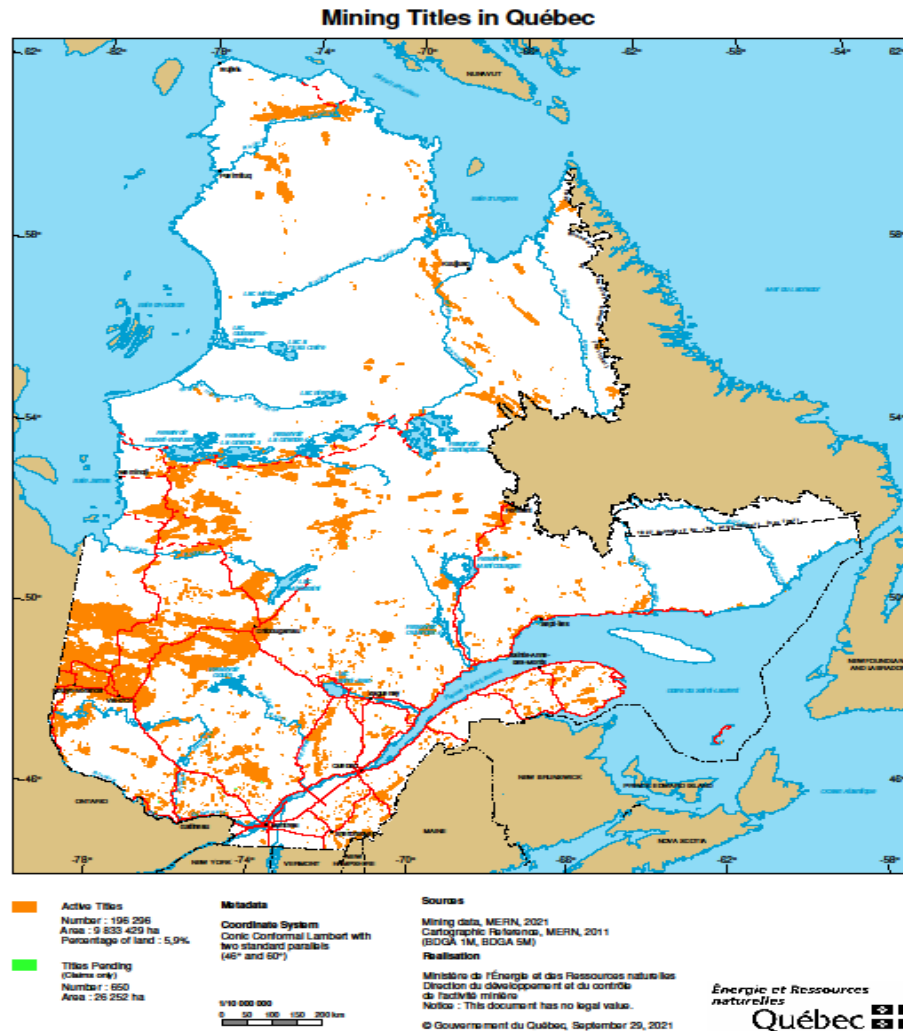
- Administer mineral rights on some **Reserves**
- Can participate in **environmental assessments** of mine proposals
- Helps administer underground exploration, mining, processing and shipping of **uranium**, management of explosives, mining taxation, navigable waters, etc.

Quebec Indian Reserves Map



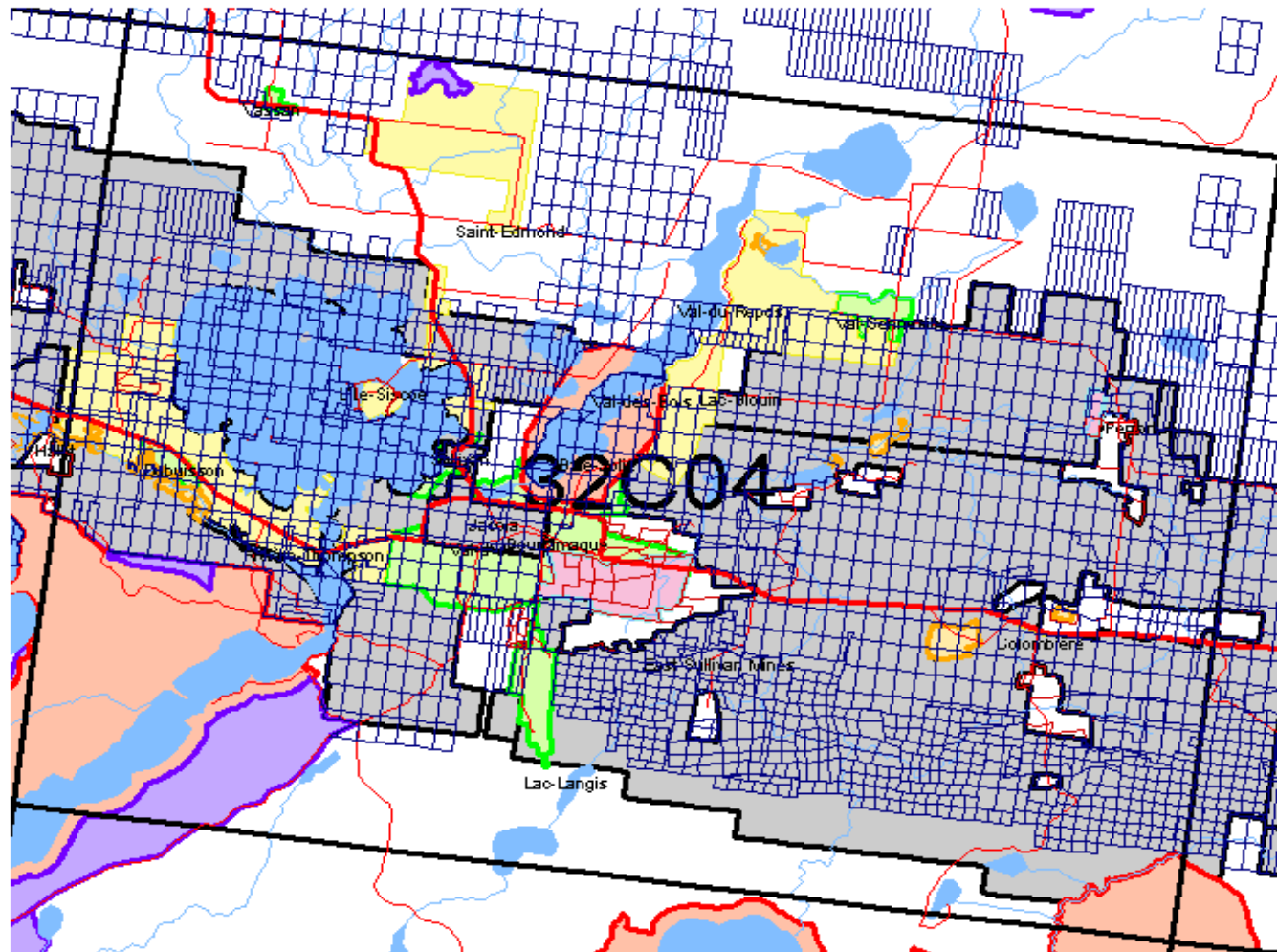
Quebec Mining Titles

Source: GESTIM/[Maps and Files of Québec Mining \(gouv.qc.ca\)](http://Maps and Files of Québec Mining (gouv.qc.ca))



Mining Claim Map

Val D'Or Area, Quebec



Restrictions on Online Claim Staking

No staking

- Parks and some special protected areas
- Temporary areas under study by government

Staking Allowed on Private Land

- More regulations apply for claims on private land
- Mineral sector companies often avoid private land

Mineral Exploration Path



**Geology/
Prospecting**



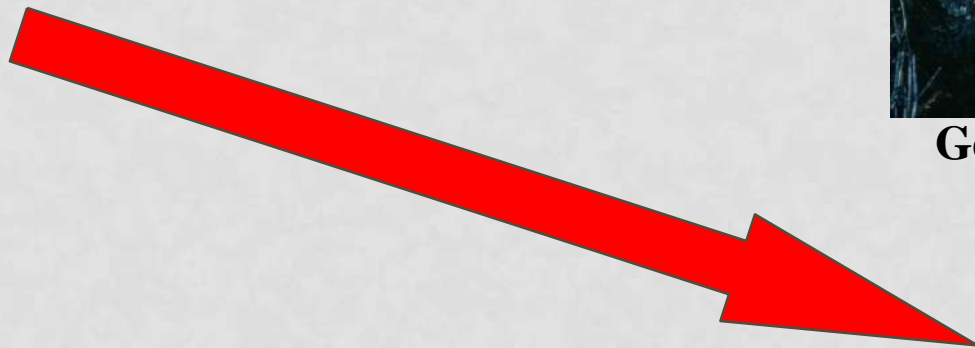
Geochemistry



Geophysics



Drilling





Early
Exploration

Prospector (a Find or an Idea)



Henry Salt, Eeyou-Istchee

- A prospector finding an **interesting rock**
- Quebec **Prospector's licence** is valid **5 years**
- Used to make discoveries of most Quebec metal and industrial mineral deposits
- . Often work alone spending own \$
- . Hike through the bush, walk new **logging roads**, follow creek beds, etc.
- . Use a geological rock hammer and gold pan
- . Collect rock and stream silt samples
- . Hope to find a property to **option** (& negotiate a **Net Smelter Return**) or **sell** to a company.



Early
Exploration

Geological Mapping, Rock Sampling

- **Office work** - reviewing previous work, reading government publications
- Geologist examination, regional traverses, sampling, visiting known mineral localities, **mapping**.



Geology:

1) **Igneous rocks:**

- a. Plutonic/Granitic;
- b. Volcanic/Basaltic (« *Greenstone belt* » with Metallic minerals potential)

2) **Sedimentary rocks:**

Sandstone, Limestone
(with Oil & gas, Potash potential)

3) **Metamorphic rocks:**

Gneiss





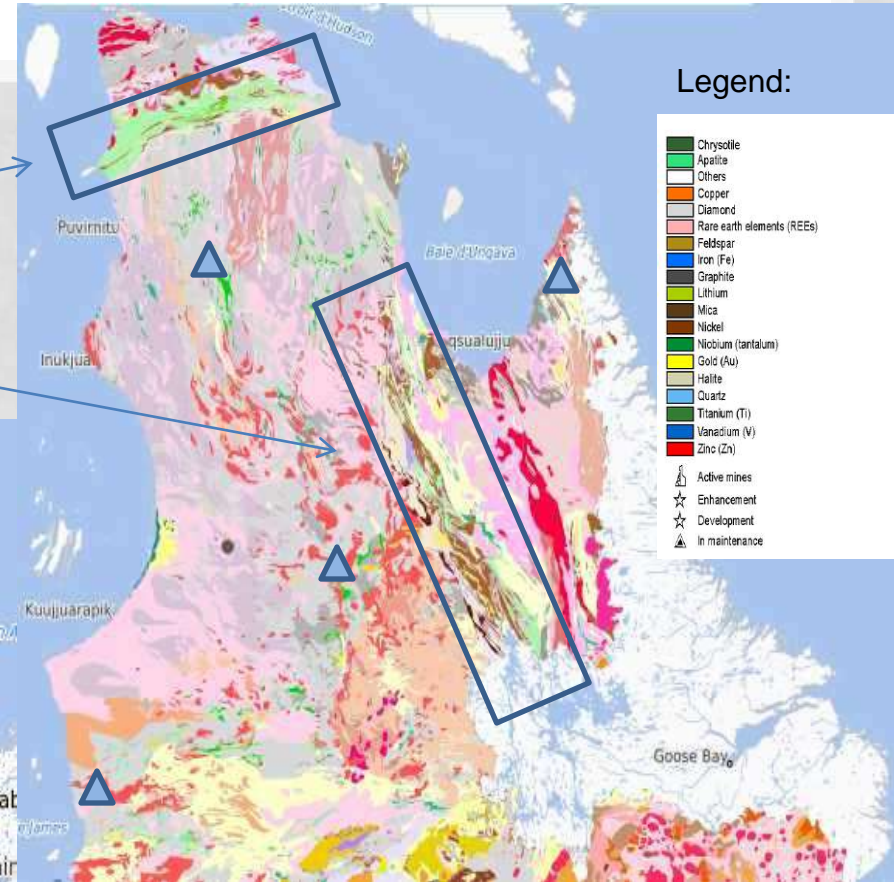
Early Exploration

Quebec Geological Map

Potential Areas:

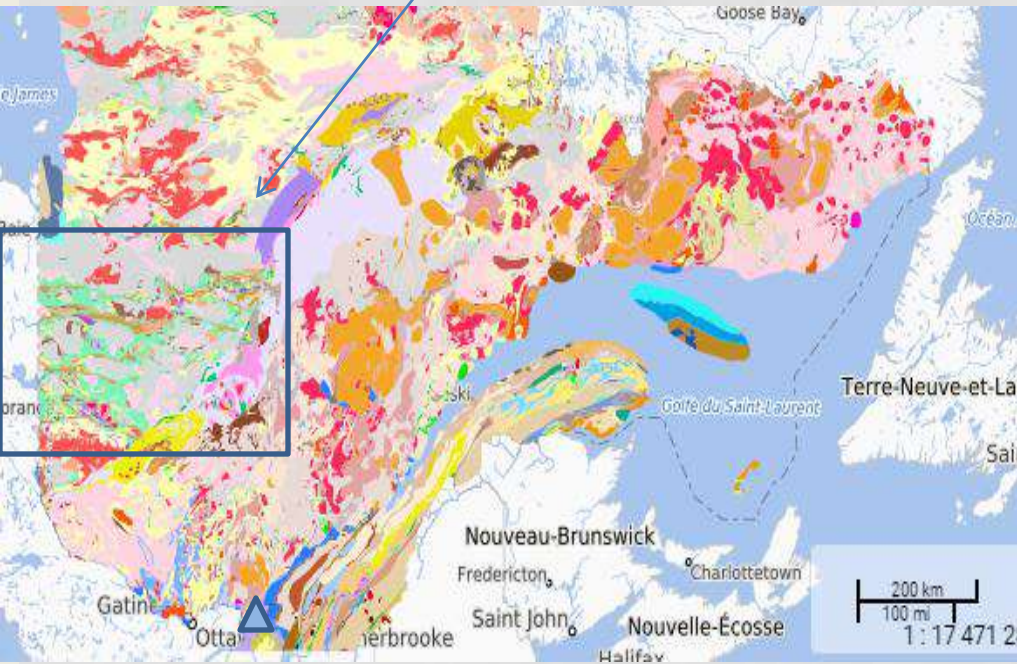
 Metallic minerals

 Diamonds



Legend:

-  Chrysotile
-  Apatite
-  Others
-  Copper
-  Diamond
-  Rare earth elements (REEs)
-  Feldspar
-  Iron (Fe)
-  Graphite
-  Lithium
-  Mica
-  Nickel
-  Niobium (tantalum)
-  Gold (Au)
-  Halite
-  Quartz
-  Titanium (Ti)
-  Vanadium (V)
-  Zinc (Zn)
-  Active mines
-  Enhancement
-  Development
-  In maintenance



Credit: <https://sigeom.mines.gouv.qc.ca>

Simplified Geology Abitibi Greenstone Belt



Legend: Mines and Projects

- Chrysotile
- Apatite
- Others
- Copper
- Diamond
- Rare earth elements (REEs)
- Feldspar
- Iron (Fe)
- Graphite
- Lithium
- Mica
- Nickel
- Niobium (tantalum)
- Gold (Au)
- Halite
- Quartz
- Titanium (Ti)
- Vanadium (V)
- Zinc (Zn)
- Active mines
- Enhancement
- Development
- In maintenance

The Abitibi is the world's largest mineral-rich greenstone geological belt.



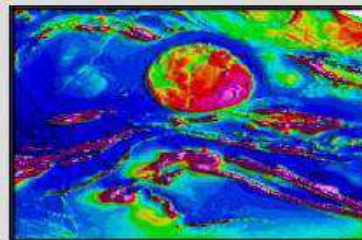
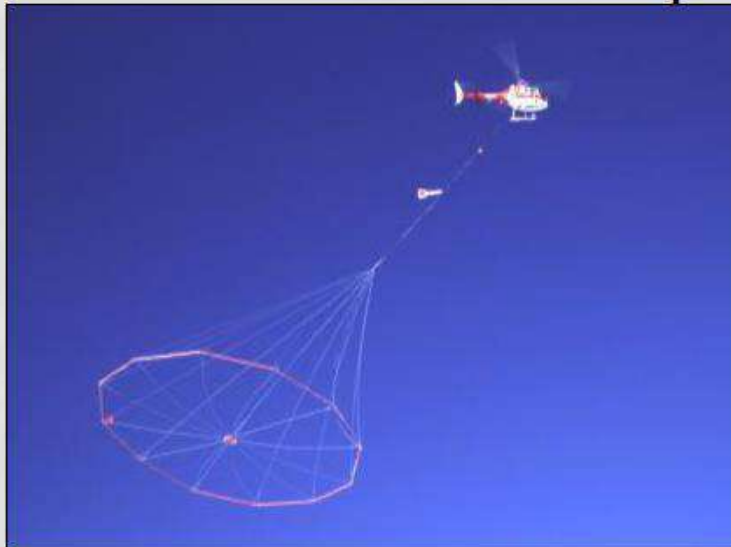
Early
Exploration

Airborne Geophysical Surveys

a. Magnetic (Mag) b. Electromagnetic (EM) c. Radiometric

- Collection of data from above or below the earth's surface using a sensing instrument to measure a characteristic like magnetism.

Airborne Geophysical Surveys

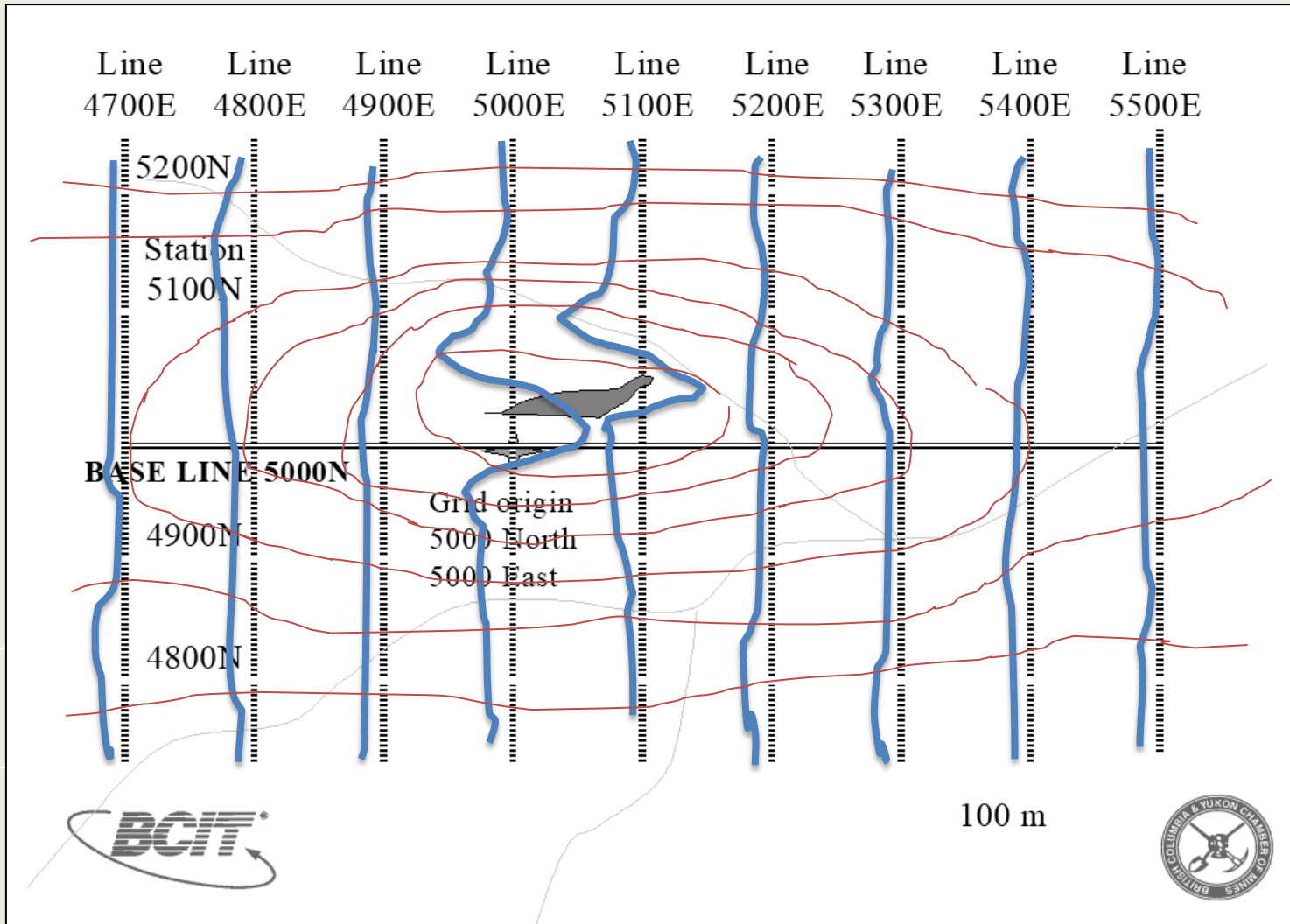




Early
Exploration

Ground Geophysics Exploration Property Grid

EM  & Mag  Surveys (“Anomaly”)



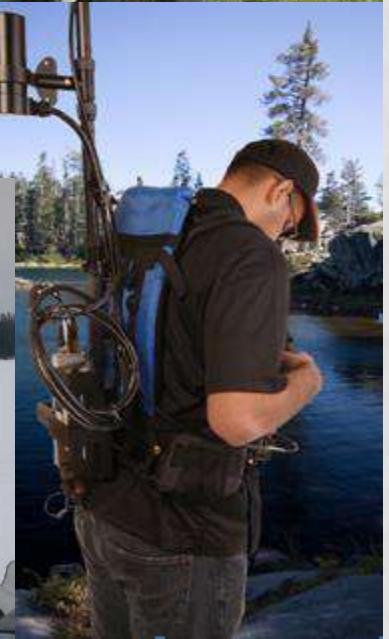


Early
Exploration

Early Exploration Jobs

Photos from Andreas Lichtblau

- Prospector
- Line Cutters
- Samplers (soil, etc.)
- Geophysical Crew
- Geologist
- Drillers
- Kitchen Helper
- Cook
- Camp Expediter
- Jack of All Trades
- Camp Set-Up





Diamond Drillers Helper Program

Early Exploration

• **“Val-D'Or Centre for Professional Development”** provides:
Diamond Drilling, Machine Operations, Mineral Processing for Ore Treatment and, Mineral Extraction Programs.

• Often, in partnership with different Colleges, and

• Funded by Canada’s Aboriginal Skills and Employment Partnership Program.





Advanced
Exploration

Drilling and drill core



Winter drilling & Removing drill core
from tube



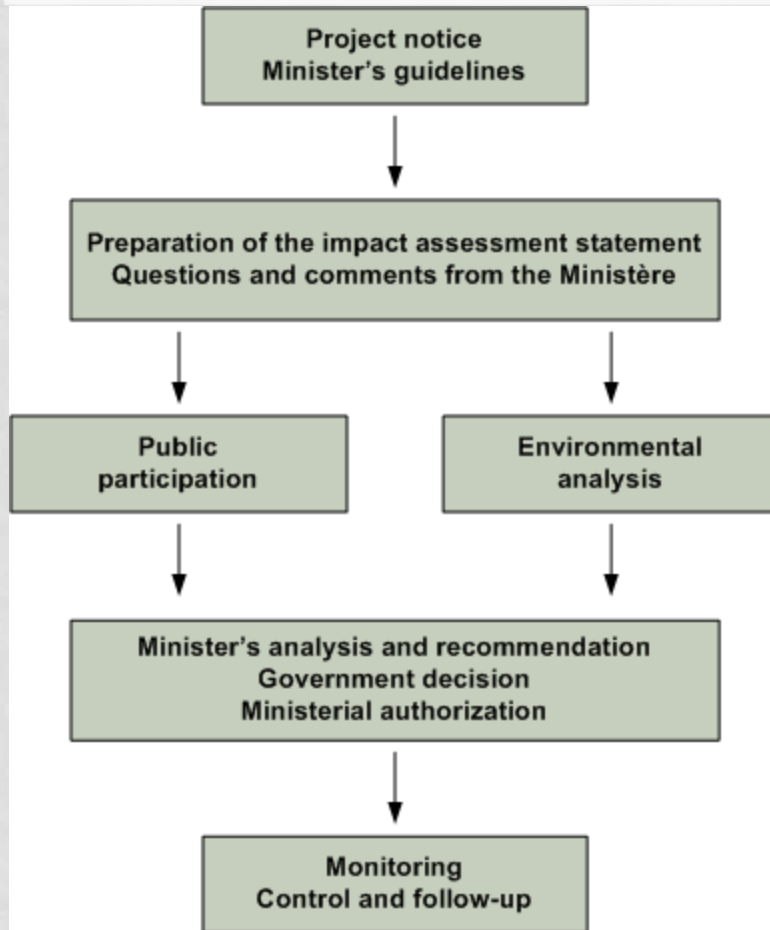
Geologist Logging (Describing) Drill Core
& Cutting of drill core





Advanced
Exploration

Environmental and Social Impacts - Quebec



- **Environmental assessment** process should begin **as soon as possible**. If project falls under both (Qu. & Fed) responsibility, usually, a single cooperative EA is carry out.
- Description of **environmental impacts and mitigation**: (Qu. EA + Fed. EA obligations under CEAA (2002) or IIA (2018) & **Responsible Authority**); **Advanced Exploration Closure Plan**
- **Guidelines** (or, PDAC's E3Plus)
- **Due diligence**; Quebec's **EIA, Public Consultation (BAPE)** & accommodation; **Baseline environmental studies**
- Opportunities for community **participation**

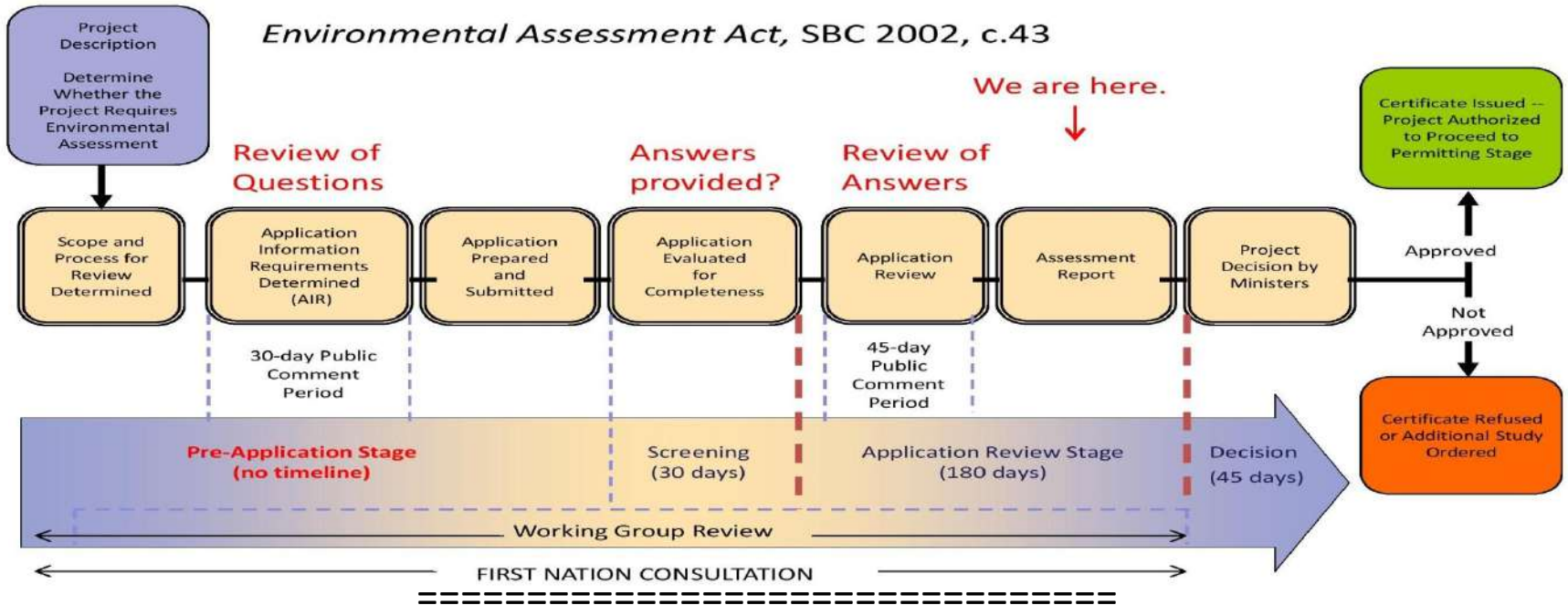
Environmental Impact Assessment (EIA) and Review process in Southern Québec



Advanced Exploration

Federal Environmental Assessment Process Chart

(Old CEAA (2002) recently replaced by IIA (2018))



New Impact Assessment Act, 2018 Process





Advanced
Exploration

James Bay and Northern Quebec Agreement/ Eeyou Istchee territory & Nunavik

Environmental Assessment South & North of the 55th parallel:

- Under the **JBNQA**, 2 Environmental **Advisory committees** were created.

a) **South:** James Bay Advisory Committee on the Environment (**JBACE**) and,

b) **North:** Kativik Environmental Advisory Committee (**KEAC**).

- Provincial **EA committees** and commissions were also created :

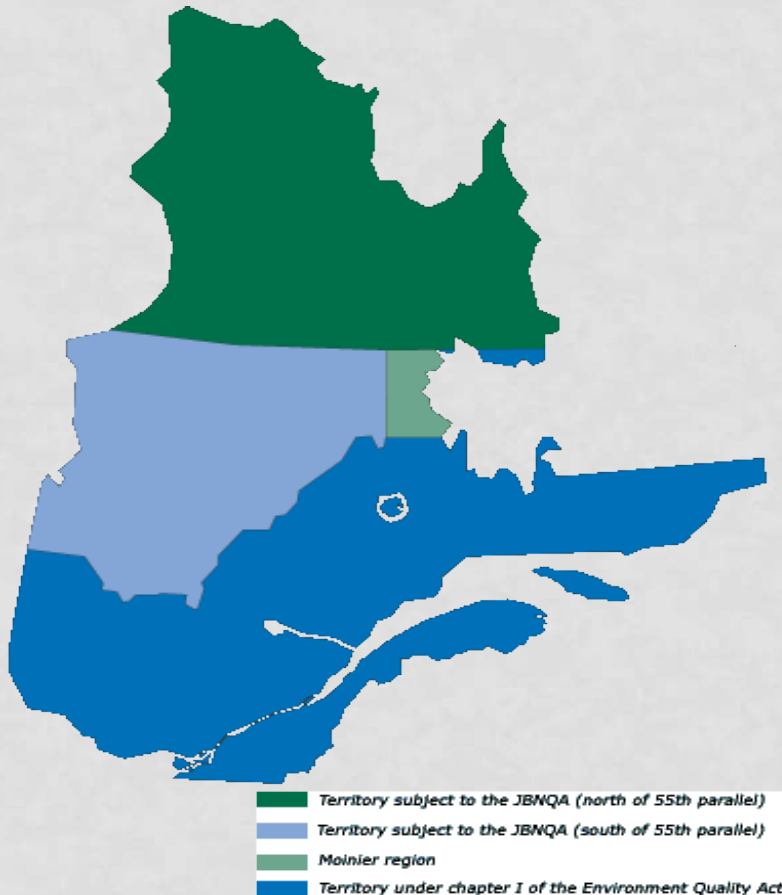
a) **South:**

1) Environmental and Social Impact Evaluating Committee (**COMEV**)

2) Environmental and Social Impact Review Committee (**COMEX**) & public consultation.

b) **North:**

1) Kativik Environmental Quality Commission (**KEQC**)





Advanced
Exploration

Exploration Camp & Environmental studies

- **Environmental sampling and monitoring start as soon as possible**
- **Major focus on studying surface water, fish and wildlife for baseline data**



Credit: Sirius Resources



Exploration

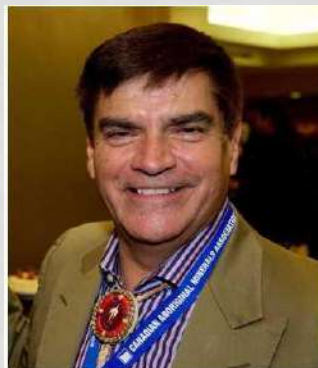
Exploration et environment: PDAC's Skookum Jim Awards



Hans Matthews, winner of the **2020 Skookum Jim Award** is an experienced geologist and member of the **Wahnapiitae First Nation** in Ontario.

As a founder and **President** of the **Canadian Aboriginal Minerals Association (CAMA)**, he has played a key role in the evolution of Indigenous communities as equal partners in the mining industry, bringing together industry and Indigenous leaders, government representatives and youth.

**Skookum Jim Award
PDAC 2020**



March 2022

Jim MacLeod was the winner of the **2014 Skookum Jim Award** for aboriginal achievement in the mineral industry and environment. President of **EnviroCree Ltd** and **JA MacLeod Exploration**.

Founder of the **Mistissini Geological Resources Centre**, MacLeod also serves on the board **Cree Mineral Exploration** and **Canadian Aboriginal Minerals Association**.

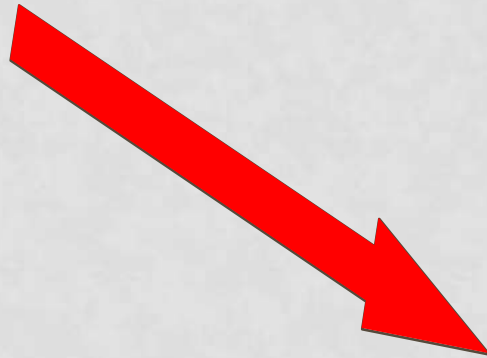


**Skookum Jim Award
PDAC 2014**

Mining Cycle

Mineral Industry Sequence

Prospecting / Early Exploration



Mineral Exploration



Mine Development



**Bulk Sampling
& Environmental Assessments**

- Government permits
- Economic feasibility studies
- Raise funds

Evaluation of Potential Value

Factors that determine if a **resource** is **economical** include:

- Type of mineral
- Market price of the minerals and metals
- Grade
- Location, accessibility, size and value of the resource
- Access to infrastructure: roads, airstrips
- Distance from markets and supply points
- Regulatory regime: taxes, royalty taxes
- Environmentally safe and socially responsible mining
- Availability of a qualified work force

Agreements between Mining Companies and Aboriginal Communities or Governments - QUEBEC

- Quebec Agreements:

1. Bloom Lake - IBA - Innu Takuaikan Uashat Mak Mani-Utenam
2. Isoukoustouc - EA - Innu Council of Pessamit
3. Lablache - EA - Innu Council of Pessamit,
4. Hopes Advance Bay - LI - Makivik Corp. (on behalf of the Inuit of Nunavik), Nunavik Landholding Corp. of Aupaluk
5. Renard - IBA - Grand Council of the Crees (Eeyou Istchee) / Cree Regional Authority, Cree Nation of Mistissini
6. Nunavik Nickel - IBA - Nunaturlik Landholding Corp. of Kangiqsujuaq, Qaqqalik Landholding Corp. of Salluit, the Northern Village of Puvirnituk, Makivik Corp.
7. Raglan - IBA - Makivik Corp., Qaqqalik Landholding Corp. of Salluit, Northern Village Corp. of Salluit, Nunaturlik Landholding Corp. of Kangiqsujuaq, Northern Village Corp. of Kangiqsujuaq
8. Troilus - IBA - Cree Nation of Mistissini
9. Windfall Lake - EA - Grand Council of the Crees (Eeyou Istchee) / Cree Regional Authority, Cree FN of Waswanipi
10. Bachelor Lake - PA - Grand Council of the Crees (Eeyou Istchee) / Cree Regional Authority, Cree FN of Waswanipi
11. Rose Tantalum-Lithium - O - Cree Nation of Eastmain, Grand Council of the Crees (Eeyou Istchee) / Cree Regional Authority
12. Eleonore - CA - Cree Nation of Wemindji, Grand Council of the Crees (Eeyou Istchee) / Cree Regional Authority
13. Lac Rocher - MOU - Cree FN of Waswanipi
14. Montviel Project - O - Grand Council of the Crees (Eeyou Istchee) / Cree Regional Authority, Cree FN of Waswanipi
15. Quebec Lithium - MOU - Abitibiwinni FN of Pikogan, Anishinabe FN of Lac-Simon.
16. Nemaska Lithium IBA - Grand Council of the Crees (Eeyou Istchee), Cree Nation Government and Nemaska.
17. IOC - PA - Innu of Uashat mak Mani-Utenam, Matimekush-Lac John and Naskapi FN.

LI = Letter of Intent; EA = Exploration Agreement; CA = Cooperation Agreement; MOU = Memorandum of Understanding;

IBA = Impact and Benefits Agreement; PA = Participation Agreement; SEA = Socio-Economic Agreement; O = Other.



Mine
Development

Whabouchi Mine Development - Chinuchi Agreement

In 2014, **Nemaska Lithium** entered into the **Chinuchi Agreement** with the **Grand Council of the Crees (Eeyou Istchee)**, the **Cree Nation Government** and the **Cree Nation of Nemaska**.



Development Site



Cree Nation of Nemaska
ᑭᑦᑲᑦ ᑕᑦᑲᑦ ᑕᑦᑲᑦ

Chinuchi Agreement establishes the framework for its relations with the community for the entire life of the **Whabouchi** mine's **development** and **operation**.



Mine
Development

Infrastructure Construction, Airstrip, Mine Demonstration Site



Drilling, blasting, crushing and Site preparation
Credit: Agregat RN – Canadian Royalties' Nunavik Nickel Mine



Airstrip construction
Credit: Agregat RN – Goldcorp's Eleonore mine



Onsite Accommodation



Credit: Nouveau Monde Graphite - Matawinie Mine's demonstration site



Mine
Development

Raglan Mine's Sivumut Project - Phases II & III

This project has been developed through a process of **public consultations** leading up to the **Environmental and Social Impact Assessment (ESIA)**

Sustainability – Raglan Mine's performance in 2020:

- . **20%** of our workforce is **Inuit**
- . **\$113M** spent on contracts awarded to **Inuit businesses**
- . Wind turbines: **12,000** tonnes of **greenhouse gases** not produced

“Work doesn't need to feel like a job when you've found your passion.” says Jimmy from Puvirnituk.
Jimmy Uqaituk, Geologist Technician at Raglan Mine



Metal Mine Marathon

Mineral Industry Sequence

Prospecting / Early Exploration

1,000 properties
staked



hundreds of mineral
exploration
properties



Mineral Exploration



Several mine
development
projects



Mine Development



Results in one or
more
metal mines

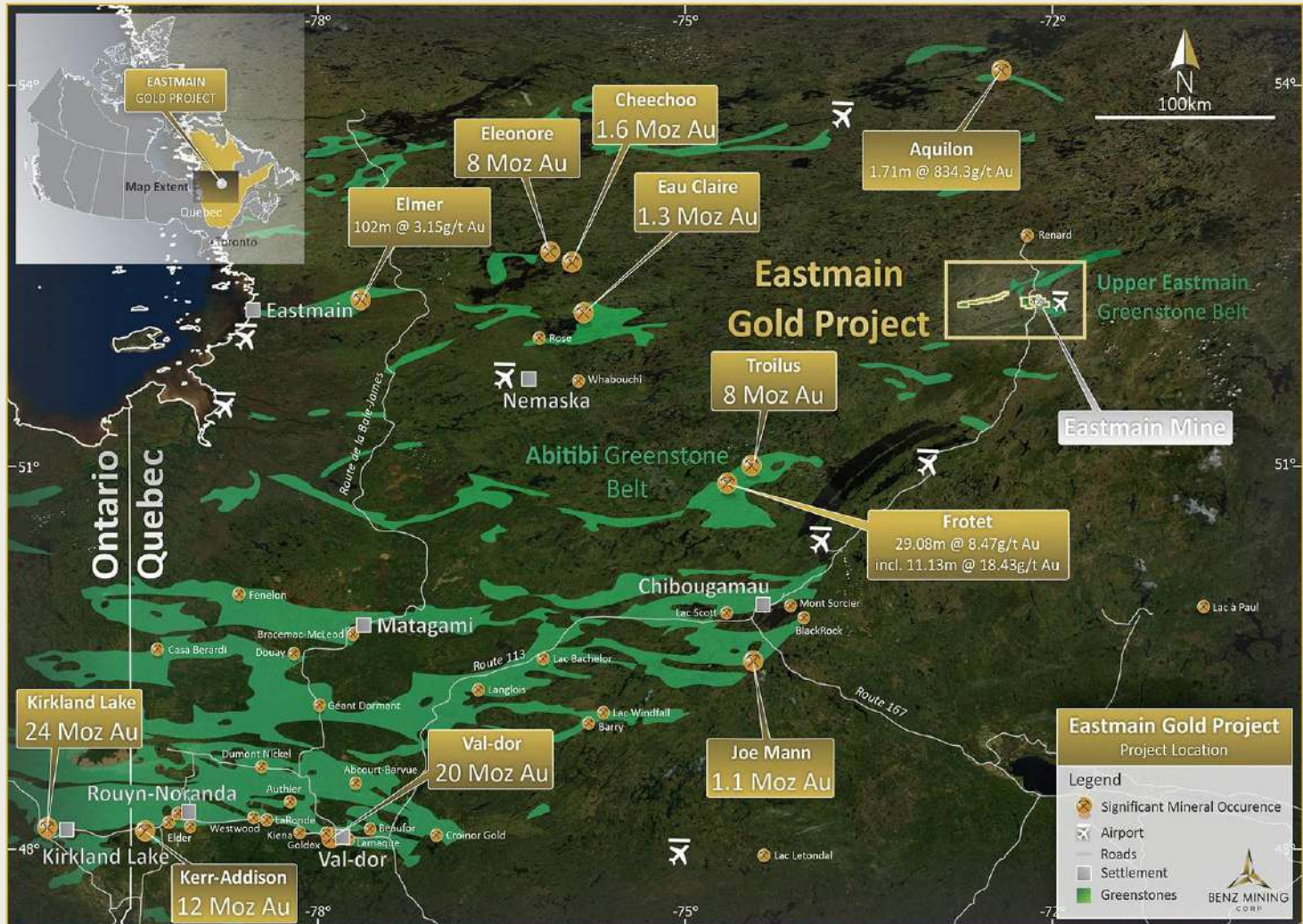


Mining



Mines & Significant Mineral Occurrences Abitibi Greenstone Belt

Mine Production



Credit: Benz Mining



Mine
Production

ArcelorMittal Mining Canada

ArcelorMittal Mining Canada G.P. (AMEM) is one of the main Canadian suppliers of **iron ore** products for the national and global steel market.

With activities in both the **mining** and **primary processing** sectors on the north shore of the **Gulf of the St. Lawrence, Quebec**.

- . Produces more than 26 million metric tons of concentrate a year from its mine in **Fire Lake** and the **Mont-Wright mining complex**.
- . Concentrate is carried by rail to **Port-Cartier** where part of it is processed at the company's **pellet plant**.
- . AMEM employs some 1,800 people.





Mine
Production

Iron Ore Company of Canada / Rio Tinto's Engagement

Iron Ore Company of Canada (IOC) / Rio Tinto and Indigenous Participation:

- . IOC is committed to **consulting** with Indigenous Peoples in the regions where they operate.
- . IOC is committed to training, education, **employment and business opportunities**.
- . IOC is engaged in a variety of ways with the following Indigenous groups in Quebec and Labrador:

- Innu of **Uashat mak Mani-Utenam's 2020 Reconciliation and Collaboration Agreement** (Quebec);
- Labrador Innu's 2014 "**Life-of-mine**" **Agreement** (Sheshatshiu and Natuashish, Labrador, as represented by Innu Nation);
- **Naskapi** Nation of Kawawachikamach (Quebec);
- **NunatuKavut** Community Council (Labrador);
- Innu of **Matimekush-Lac John's 2020 Reconciliation and Collaboration Agreement** (Quebec)

- . IOC is committed to working with Indigenous Businesses that can demonstrate **Indigenous ownership**, of **51%** or more.





Mine
Production

Tshiuetin Rail Transportation, Inc

North America's first Indigenous-owned (Innu of Uashat Mak Mani-Utenam, Matimekush-Lac John, and Naskapi Nation of Kawawachikamach) and operates railroad offering rail services (freight & passengers) between Schefferville (Québec) and Emeril Junction (Newfoundland) with trackage rights to Sept-Îles (Québec).

80 % of the company's employees are aboriginal.



Credit: Tshiuetin Rail Transportation



Mine
Production

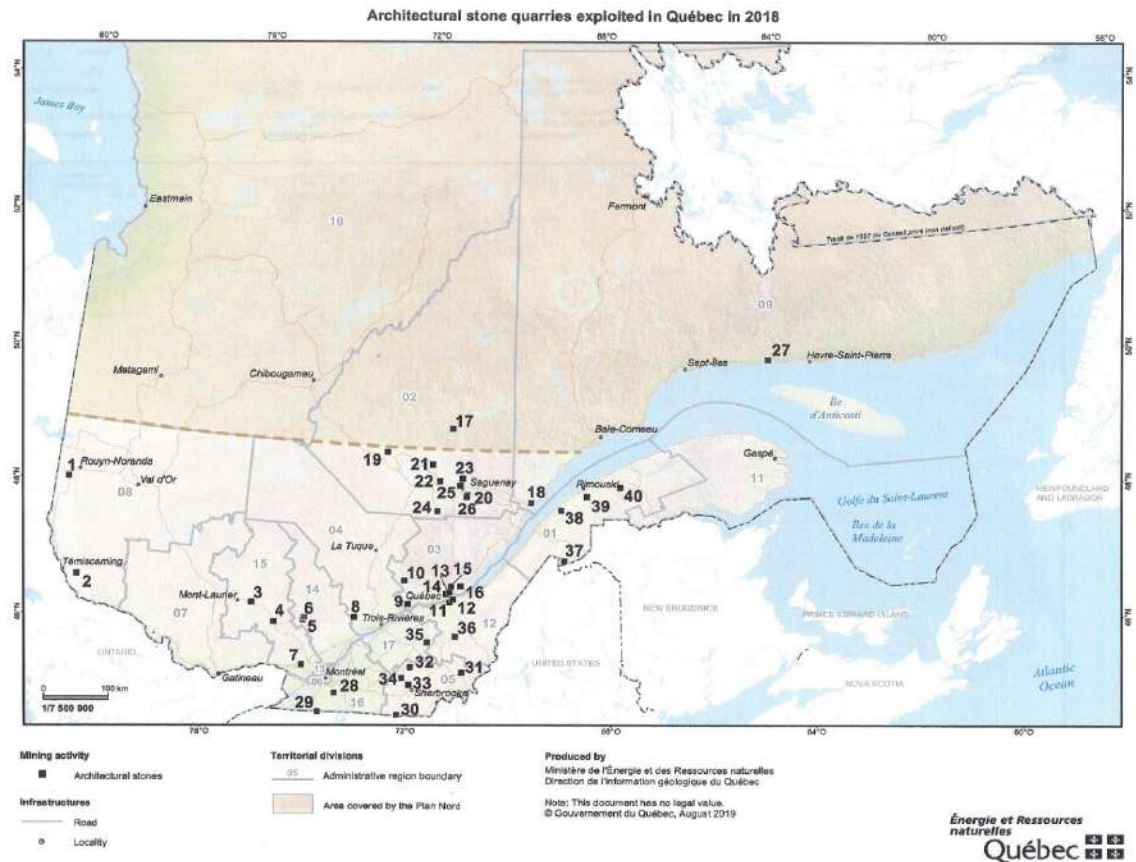
Architectural Stone Quarries - Quebec

. **Architectural stones** are rough or cut stones and include :

- 1) **Dimension stones** used in sculpture, cut-to-size panels, tiles, cut stone, curbstones, veneers, and monuments.
- 2) **Rough stones** are used to produce cobblestones, flagstones, and paving stones.

The rocks most commonly used are granite, limestone, marble, sandstone, and slate.

The **Rivière-à-Pierre (Portneuf)** is the main source of cut stones in Québec. Other sites are located in Saint-Alexis-des-Monts, Lanaudière, and Stanstead, Estrie.

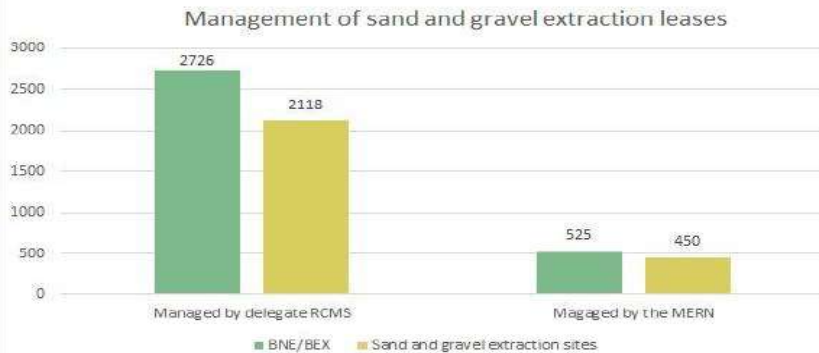
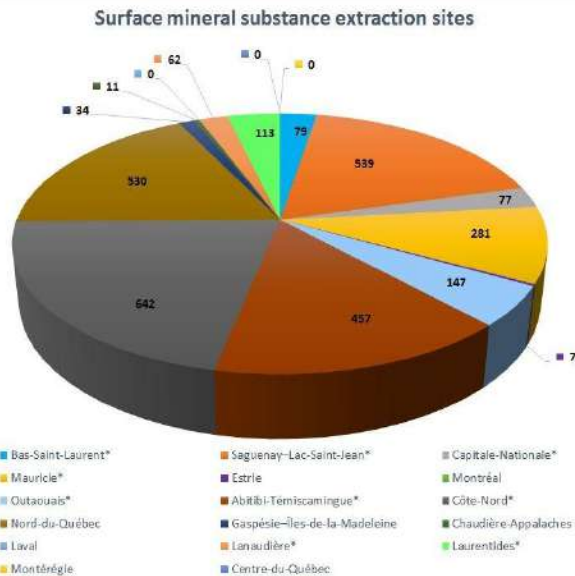




Mine
Production

Sand & Gravel Quarries Quebec

In 2018, there were **3,251 leases** to extract sand and gravel in Québec, covering 2,568 surface mineral extraction sites. In all, 2,726 (**83.9%**) of these titles were **managed by** the regional county municipalities (**RCMs**) and the other 525 (**16.1%**) were managed **by** the Ministère de l'Énergie et des Ressources naturelles (**MERN**).



Note:* Administrative regions (RCMs) to which the management of sand and gravel extraction on provincial crown lands has been delegated.

[RAM 2018 – Géologie Québec \(gouv.qc.ca\)](http://gouv.qc.ca)



Mine
Production

Peat Moss Quarry

Quebec accounts for about **25%** of Canadian production:

- **Quebec ranks first** among Canadian provinces in terms of investment spending, operating expenditures, jobs generated, GDP generated and tax revenues.
- Nearly **2,000 jobs** are generated by the peat industry and, 825 are direct jobs.

Bas-Saint-Laurent (about 40%) and **Saguenay-Lac-Saint-Jean** areas generate the greatest spinoffs.



Vacuum Harvester

Credit: Canadian Sphagnum Peat Moss Association



Mine
Production

Newmont's Éléonore Gold Mine and Wemindji First nation Agreement

2011 Opinagow Collaboration Agreement and Éléonore Gold Mine:

-A **world-class** underground mine operation (275 000 – 300 000 oz/gold/year) located on the Cree Nation of **Wemindji, Eeyou Istchee/James Bay's** traditional territory.

•According to the **Cree Trappers Association**, each hunting territory is managed by a **Tallyman** and, Éléonore infrastructures impact **3 hunting territories**.

-Governance **Tripartite committees** with decisional powers and involvement of all parties in solution finding.

-More than **\$1 billion** spent with **Cree businesses** over the last **10 years**.

-**Cree Business Volume** between **25% to 29%** each year since 2015.



- **Cree employment** at Éléonore totals **23%** (employees and contractors).

- The **Challenge: Maintaining** the strength of the **relationship** through change (people, acquisitions).



March 2022



Life Cycle of Mining

Prospecting & Early Exploration



Mine Closure & Reclamation



Indigenous Business Opportunities



Mineral Exploration



Mine Development



Mining



Mine Closure
Reclamation

Mining and Exploration Reclamation

- **Quebec legislation** regards mining as a **temporary use of the land**.
- Mine reclamation work is intended to restore the site to an **acceptable environmental standard** for **productive use**.



Peatland reclamation



Mine Closure
Reclamation

Mine Closure and Rehabilitation

• Troilus Mine (Credit: Inmet):

- Developed its final **Closure plan** with the **Cree community** and **provincial regulators**
 - **Troilus Agreement Implementation Committee**
- Helped transition workers to new employment
- Consideration given to future **hunting needs**
- Site **closed** in **2010** and, meeting all environmental and safety requirements.
- Inmet involved **Environment Canada** to help establish **biodiversity** as part of the revegetation program.
- Closure team responsible for reclamation, **maintenance**, inspection and **monitoring** the property on an **ongoing basis**.



Quebec MERN's Rehabilitation and Reclamation of Abandoned Mining Sites



Mine Closure
Reclamation

In 2017, **\$1.2 billion** were set aside for the reclamation of Quebec's **459 abandoned mining sites**.

Barvue (Zn, Ag) Open-pit & Underground Mine (Abitibi - 1952-1990)

Reclamation Work: **\$35.5 M (2016)**





Mine Closure
Reclamation

Progressive Reclamation Lamaque Mine, Val D'Or

- - **Organic approach** to mine's tailing sites progressive reclamation.
- - **Eldorado Gold Quebec** has entered into a four-year partnership with [Vallée-de-l'Or Regional County Municipality \(MRCVO\)](#) enabling **Lamaque Mine** to acquire more than 15,000 metric tons/year of **compost** for \$100,000/year.



A. Quarry of Wright Crushed Stone Company, Ltd., Hull, Que.



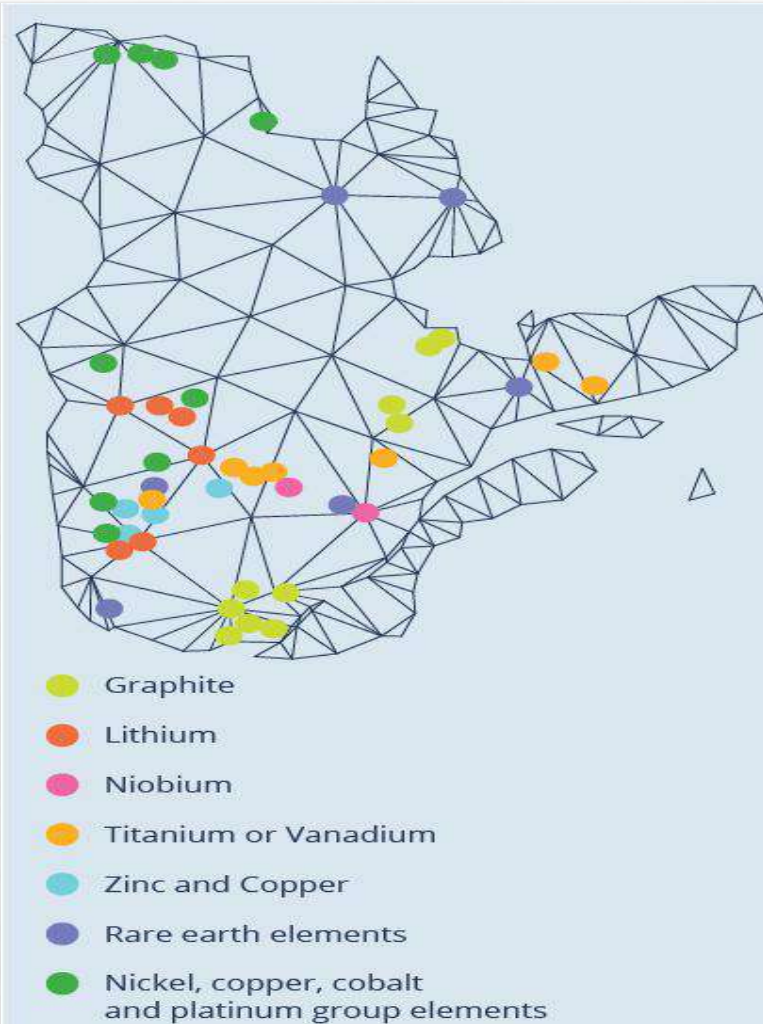
Credit: Eldorado Gold

Québec's Critical minerals for the future: Projects and Mines

Critical and strategic minerals:
(Graphite, lithium, niobium, titanium, vanadium, zinc, copper, nickel, cobalt, rare earth elements and platinum group elements)

Those minerals are mainly used in **high technology** and the **transitional energy** sectors.

\$90M Quebec's Plan for the Development of **Critical and Strategic Minerals 2020-2025**



Credit: SIGÉOM

A unique Canadian invention: Capital Pool Company Program (CPC) & TSX Venture Exchange

CPC, with its origins in **the junior mining** and oil and gas industries, this program supports earlier stage private companies to complete a **go public** transaction.

The CPC program is a **unique listing vehicle** exclusively offered by TSXV and accounted for almost **50% of new TSXV listings in the past 10 years.**

THE 2-STEP CPC PROCESS

Step 1 / *CPC Initial Public Offering*

- The CPC program introduces **investors** with financial market **experience** to **entrepreneurs** whose growth and **development-stage companies** require capital and public company management expertise.
- The CPC program enables seasoned directors and officers to form a Capital Pool Company with no assets other than cash and no commercial operations, **list it on TSX Venture Exchange**, and **raise a pool of capital.**

Step 2 / *Qualifying Transaction*

- The CPC then **uses these funds** to seek out an **investment opportunity** in a growing business.
- Once the **CPC** has acquired an **operating company**, its shares **continue trading as a regular listing** on TSX Venture Exchange.

Increased Indigenous Involvement in Mining

Shared Benefits or Ownership

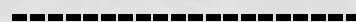
Infrastructure Co-operation

Various Agreements with Companies

Indigenous Company Contracts

Approvals for Exploration & Development

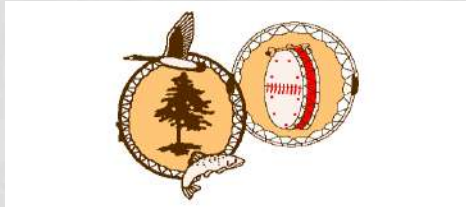
Employment



Mine Permits
> 3 - 6 years

Window of opportunity
Investment funds available

Construction
> 2 - 4 years



Exploration
and Resource
Definition
> 3 - 5 years

March 2022

Quebec's Report on Mineral Activities & Bulletin L'Info-mines



- Summarizes **exploration**, mine **development** and **mining** activities of companies
 - Published **annually** by **Quebec's MERN**
 - More descriptive and less promotional than most online info summarizing mining activities
- **Staff** of Quebec's **MERN** are a good source of **free** advice and **expertise**

Available on line