



Infrastructure & Its Implications on Mining, Communities & Northern Development

Presentation to Infrastructure Committee
Tom Hoefler, June 11, 2012

Thank you very much for the kind invitation to participate today.

I do hope the presentation is informative and give you a mining industry perspective on infrastructure. And how it is critical to our industry in the North and our ability to provide significant contributions to communities and to northern development.

Who is the Chamber of Mines?

- Non-profit industry association formed in 1967
- Leading champion for responsible mineral development in NWT and Nunavut
- Represents members with interest in a strong northern minerals industry: mining & exploration, service & supply, consultants, Aboriginal corporations, individuals
- Two small offices: Yellowknife, NT & Iqaluit, NU



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I won't dwell on the next two slides, which are intended to give a little context to who the Chamber of Mines is, but we are the mining industry association for the NWT and Nunavut.

I'll leave the details for you to read later.

The NWT and Nunavut Chamber of Mines is an industry association created in 1967 to advocate for the minerals industry in northern Canada.

Originally, this was for the single Northwest Territories, but we have rebranded to accommodate the creation of Nunavut in 1999.

Just recently, we opened a new office in Iqaluit, Nunavut to help focus attention on a territory that is growing very much into its own entity.

Our Strategic Focus

- **Regulatory and Land Access:** Regulatory reform, Protected areas, caribou
- **Aboriginal Affairs and Engagement:** Improve relationship between industry and communities, develop a process of engagement
- **Infrastructure:** Promote development of roads, ports, hydro, and other projects that will support a future mineral economy
- **Communication:** Promote mining, increase public and government support for the mineral industry
- **Membership:** Serve and support our members



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The Chamber is an advocate for responsible mineral development. We promote clarity and consistency in the regulatory environment.

Our strategic focus is in 5 areas.

- 1) **Infrastructure:** Develop new roads, hydro, ports, and other infrastructure to help build the northern economy and promote new mining projects.
- 2) **Regulatory and land access:** Look at ways to improve the regulatory system to attract mineral investment back into the NWT
- 3) **Aboriginal Relations & Engagement:** Work with communities and aboriginal leaders to identify and promote the benefits of mineral activities.
- 4) **Communications:** promote the good things about mining to increase support. We also organize the largest conference in the north, the annual Geoscience Forum in Yellowknife.
- 5) **Serve and grow our membership.**

Your questions

- *Q: What are the current community needs in the North and how can they be addressed?*
 - A: Socio-economic opportunities; mining can provide
- *Q: How can infrastructure investments support the emerging northern economy?*
 - A: By supporting the north's economic advantage: mining
- *What are the emerging infrastructure issues regarding climate change in the North?*



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These are the 3 broad questions sent to me before attending, and I've provided some quick answers here that essentially say that community needs are socio economic opportunities and our industry is and can provide them.

Our economic advantage and strength is mining. Our investments in infrastructure for mining are definitely supporting the northern economy. But we could use help with some of this.

I'll touch on the climate change issue near the end of the presentation.

Premise

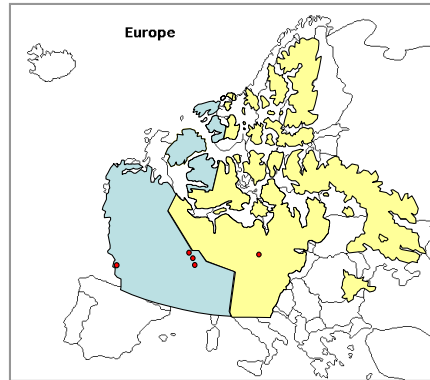
- Mining is the North's economic advantage
- Mining is creating significant community benefits
- Infrastructure is critical for mining success and regional development
- Providing infrastructure to support mining will help communities



The logic argument that I wish to present today is the following:

The North: an Infrastructure Perspective

- 1/3 of Canada
- Less than 75k residents
- Arctic conditions & climate
- Virtually undeveloped with little infrastructure
- High costs
- Least mapped region of Canada
- Most heavily subsidized region of Canada
- Economic options & community opportunities are needed
- Non-renewable resources are the economic advantage



Area of NWT + Nunavut = Norway, Sweden, Finland, Denmark, France, Germany, Poland, Spain, Portugal, Italy combined.



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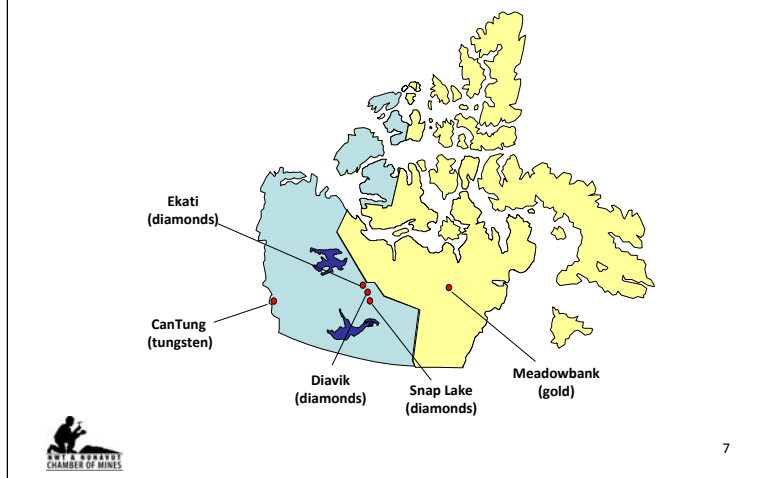
Let me focus on two things here: the map to give you a sense of perspective on size and what the lack of infrastructure means: you can see by the map that we are about the size of Europe, but without the significant infrastructure investment. The 5 little dots in that map are the operating mines in the NWT and Nunavut. The Government of the NWT has already covered much of the northern perspective in the first few bullets.

But let me highlight the last 4 bullets: The least mapped region of Canada geologically, most heavily subsidized region of Canada and receives the largest per capita transfer payments and grants to support their economies.

We have much fewer economic options, eg, forestry, fishing, farming, manufacturing, BUT, our large size and geological diversity makes non-renewable resources our economic advantage.

Thus my focus today on infrastructure for our minerals industry and how it will help the north and Canada.

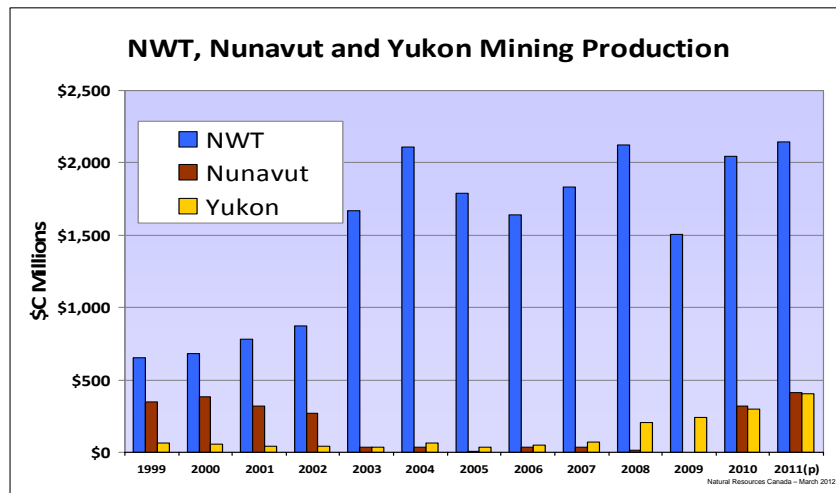
5 Northern Mines Contribute to Communities



Just to remind you, here are the 5 mine locations again a little easier to see in this map.

Predominantly diamonds in the NWT with also a tungsten mine; and a single gold mine in Nunavut.

Value of Mineral Production, 2011(p)



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From these 5 mine locations, this is the value that is produced. (I have put the Yukon in here too for comparison)

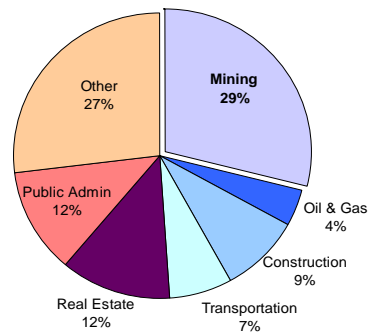
In the NWT, the value of production is significantly higher, outpacing both Nunavut and the Yukon, at approximately \$2 billion annually. The vast majority of this is from diamond production.

In Nunavut, the mining industry is just resurfacing again after its previous mines (gold, silver, zinc, lead, diamonds) closed. With the projects that Nunavut has before it, it has very good opportunity to grow to the size of the NWT's production or even more.

Largest private sector contributor

- Mining's direct contribution exceeds all other private sectors
- Mining also contributes to other sectors, eg, real estate, transportation and construction.
- Nunavut's one mine is already contributing ~ 15% of GDP

NWT GDP (2009)



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It is for this reason – of course based in solid geology and backed by supportive government regulations and policies and programs – that our industry has become the major private sector contributor to both the NWT and Nunavut economies.

In the NWT, our industry directly contributes about 30% of the Gross Domestic Product. With its indirect contributions through transportation, construction and real estate, some believe its contribution to the GDP may be closer to 50%.

In Nunavut, the Meadowbank mine in its first partial year of operations, combined with exploration investment, contributed approximately 15% of that territory's GDP.

A game changer: community benefits 1998 - 2010

| DIAMOND MINE | Northern Aboriginal | Total Northern | TOTAL (North + South) |
|--------------|---------------------|----------------|--------------------------|
|--------------|---------------------|----------------|--------------------------|

| WORKFORCE (in person years) | | | | | |
|-----------------------------|--------------|------------|---------------|------------|---------------|
| EKATI | 5,068 | 27% | 10,001 | 54% | 18,630 |
| Diavik | 3,031 | 26% | 6,146 | 52% | 11,734 |
| Snap Lake | 612 | 15% | 1,253 | 31% | 4,007 |
| TOTAL | 8,711 | 25% | 17,400 | 51% | 34,371 |

| PURCHASES (\$C million) | | | | | |
|-------------------------|-----------------|------------|-----------------|------------|------------------|
| EKATI | \$1,332 | 25% | \$3,973 | 75% | \$5,303 |
| Diavik | \$1,985 | 41% | \$3,527 | 73% | \$4,861 |
| Snap Lake | \$677 | 44% | \$1,078 | 70% | \$1,537 |
| TOTAL | \$3,994M | 34% | \$8,578M | 73% | \$11,701M |

- Community Benefits are a game changer
- Mining is the largest employer of Aboriginal people
- Nunavut's only gold mine is already creating similar local benefits.



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Let's start to translate that into community benefits.

Mining today in the north is a real game changer. The benefits to communities have been unprecedented.

This slide shows the benefits of the diamond mines in the NWT.

I want to take your attention to the circled figures.

Never before in the history of the North have so many Aboriginal people found work in the mining industry. And never before has there been such an investment in Aboriginal business.

While not shown here, Nunavut's gold mine is creating similar percentages of benefits in Nunavut.

Again, let me reiterate that this huge amount of business, particularly with Aboriginal business in the north is unprecedented.

Let me show a bit more detail in the next slide.

Huge Aboriginal business growth (a sample)

- Diamonds helped create many new Aboriginal companies

- Ekati Services
- I&D Management Services Ltd.
- Tli Cho Logistics
- Tli Cho Landtran
- Tli Cho Cement
- Tli Cho Air
- Denesoline Western Explosives
- Metcon
- Tli Cho Explosives
- Kete Whii Ltd.
- Kete Whii Procon
- Sodexo Alliance
- Exploration Medical Services
- Kitikmeot Cementation
- Lac De Gras Constructors
- Nishi Khon SNC Lavalin Inc.
- North Slave Logistics
- Nuna Logistics
- SecureCheck
- Lac De Gras Constructors
- Nishi Khon / SNC Lavalin Inc.
- A.T.B. Construction
- Bouwa Whee
- Det'on Cho DNX
- Det'on Cho Earth Energy
- Det'on Cho Foraco
- Det'on Cho Hazco
- Det'on Cho Nahanni Construction
- Det'on Cho New North
- Det'on Cho NUNA
- Det'on Cho Pure Earth Elements Environmental Solutions
- Det'on Cho Scarlet Security
- Det'on Cho Stantec
- Det'on Cho Training and Conference Centre
- Det'on Cho Logistics
- Det'on Cho Medic North
- Det'on Cho Mining Supplies
- DICAN / ADG
- Kete Whii / Ledcor
- Kete Whii / Procon
- Trinity Helicopters
- Akaitcho Helicopters
- Dene-Emco Ltd.
- Denesoline/Aboriginal Engineering Ltd.
- Denesoline/Air Tindi Joint Venture
- Denesoline/Arcan Constructio
- Denesoline/De Beers Labour Contract
- Denesoline/Discovery Mining Services – Logistics Expediting
- Denesoline/Deton Cho/Procon
- Denesoline/Deton Cho/Ledcor
- Denesoline/Dyno Nobel
- Denesoline/ESS Compass
- Denesoline/McCaw Drilling and Blasting
- Denesoline/Nuna Logistics
- Denesoline/Tli Cho Logistics
- Lutsel K'e Air Services

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In the last 15 years we have seen an explosion of Aboriginal businesses from probably a handful in 1995 to a list larger than this.

On the business side, our mines have rallied to help create a whole new Aboriginal business sector supplying the mining industry, competitively and safely. Today, the Tli Cho group of companies by themselves are a business empire worth \$120 million annually.

And they are just one such Aboriginal corporation taking advantage of mining opportunities.

I could show you more statistics on how the economy has changed because of mining and would refer you to the Diamonds Report we produced about 4 years ago now for a sampling.

I hope you understand just how significant the community benefits are today from mining.

So let me now shift to infrastructure and how it relates to mining success.

Every mine has critical infrastructure

- Transportation
 - Roads
 - Railway
 - Marine ports
 - Airstrips
- Power
- Communications
- Note: some differences in transportation needs occur with mines that produce large volumes of commodities, eg: base metals, iron vs gold in a suitcase.



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Mines are small industrial communities with on site workforces that can approach 1,000 workers.

They are industrial sites, and thus have need for infrastructure like this.

There are some infrastructure differences that relate to the volume of commodities produced. You can appreciate that diamonds can virtually be transported to market in a briefcase, while iron requires things like road, railways and ships.

Past mines have brought Infrastructure

- **Infrastructure**
 - Highways (to Yellowknife, Pine Point/Ft. Resolution)
 - Roads (to Meadowbank in NU)
 - Railway (to Hay River and Pine Point)
 - Ports (at Nanisivik and Polaris)
 - All 3 NWT hydro-electric facilities
 - Ice road technology
 - Microwave communications



Because mining is a large, capital intensive industry, it has the ability to make great contributions in the form of infrastructure, which form a lasting benefit to the country.

Mining has contributed valuable and long lasting infrastructure that includes the NWT's only railway, all of its hydropower facilities, and all weather roads.

It has provided ports and roads in Nunavut, and the longest private road to its only gold mine.

In addition, the industry has provided many enhancements to life in northern communities. Examples include contributions to leisure and recreation facilities, the establishment of scholarships and training programs, and sponsorships and donations to a variety of worthy causes.

Some of this infrastructure can directly help communities, for example hydropower in NWT services communities too; as does the railway.

Mines provide other community infrastructure



Yellowknife's "Shorty Brown" Arena



Bailey House Men's Transition Home



Territorial Dementia Facility



Wekweti Community Centre

Mines also contribute to another kind of infrastructure, municipal, and these are examples of some of the partnership contributions mines have made in the NWT.

Poor northern infrastructure has cost implications for mining

- No power lines
 - Requires other options, eg, diesel, wind, LNG
- No all-season roads
 - Requires winter roads, on land or on ice
 - Requires airstrips
 - Requires annual purchase of inventory
 - Requires storage facilities for that inventory



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Poor northern infrastructure has cost implications for mining. If we don't have powerlines, we need to find alternatives. Same can be said when we don't have all season road access.

Let me provide some visual examples.

Typical northern mine site – Diavik diamonds



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This is the Diavik mine's plant site. It is very much a community unto itself. Workers fly in to work on 2 week rotations. Like most of our mines, this mine is off grid and there are no powerlines in the region.

As a result, you will notice the 2 diesel power plants, which provide a total 40MW of capacity.

Note also the 108 million litres of diesel fuel tank storage to help fuel the electrical plants. If there was all-season road access, the mine wouldn't have to pay to construct storage facilities, and pay to buy a year's worth of inventory to store on site.

Also note the additional storage buildings to help house some of the mine's other annual inventory of supplies. These all add costs that mines in southern Canada on grid and on all-season transportation infrastructure don't have to face.

Seasonal Winter (Ice) Roads Add Costs

- Annual construction costs the mines about \$15-20 million
- 400 km to Ekati – 75% of the road is over lake ice
- 2 month window with weather & ice condition interruptions
- Critical link for entire year's fuel & consumables
- Climate dependent – record 11,000 loads (333,000 tonnes) in 2007; climate issue in 2006 (178,000 tonnes)
- Creates a trucking demand spike in Canada



Because there is no all-season public road infrastructure, the 3 diamond mines in the NWT construct this lifeline annually, at their own cost.

This is phenomenal ingenuity, that at its height supported 11,000 truck loads. But it adds a cost premium for the mines to construct. And, climate change puts this road at risk.

**Some mines require ice capable cargo ships.
Adds extra costs**



Ice breaking cargo ship, MV Arctic built in 1978 still serves the mining industry



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Operating in the Arctic requires different infrastructure than down south. This is the MV Arctic constructed in 1978 to serve the Nanisivik and Polaris mines in the high Arctic regions of Nunavut.

These were base metal mines that produced high tonnage of zinc and lead mineral concentrate that needed to be shipped to overseas markets.

Given the Arctic location, the mines needed ice capable cargo ship infrastructure like this to get their product to market. The Baffinland Iron Mine being proposed will have to supply its own fleet of ships similar to this (but larger), at their own cost.

Seasonal access means product storage

- Seasonal storage and shipping of product reduces cash flow.
- Adds costs



Concentrate storage facility, Nanisivik Mine, NU



Concentrate storage facility, Polaris Mine, NU

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These are pictures from those two base metal mines in Nunavut – Polaris and Nanisivik. What you are seeing here are very large storage buildings for the mineral concentrate they produce.

Because there was only seasonal access to these remote Arctic regions, the mines had to store their product all winter in these huge buildings, and then come summer when the ice was weak and melted, ship the concentrate to markets in a short 4 month window. During this time too, they shipped in the annual year's inventory of fuel and other supplies.

This is another challenge we face, and explains why mining in the north costs more.

Annual resupply adds costs

- Purchase and storage of entire year's inventory of fuel and supplies
- Adds costs



Meadowbank mine resupply – Baker Lake, NU

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To re-emphasize this issue of annual resupply of mines adding costs, here are images from Nunavut's only gold mine, Meadowbank during sealift.

Here the tugs bring in the entire year's supply of fuel and other materials for storage on site.

The lack of public infrastructure for this adds costs.

Meadowbank mine's all season road is the longest road in Nunavut – adds costs



\$50 million road from Meadowbank gold mine to Baker Lake, NU

From that resupply by boat to a Baker Lake port, the Meadowbank mine then trucks freight and fuel to the mine over this 102 km long all-season road.

This is the longest road in Nunavut. Also built by the mine, at their cost.

Off grid requires generating on-site power



5 x 4.4MW power, Diavik diamond mine, NWT

Because our mines are all off-grid, they must generate their own electricity.

Diavik has two facilities like this one, for a total of 40MW capacity. All of our mines have similar facilities.

While they run these very efficiently, diesel power is still expensive and adds further costs to mining in the North.

Mine airstrips & camps

- Remote sites require airstrips and camps to support mobile workforce. Adds costs.



Airstrip and camp at Meadowbank gold mine, NU

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And of course, because our mines are remote and not located in towns, companies must fly workers in on work rotations. This requires major airstrips to handle a variety of aircraft like the Boeing 737 shown here at one of our other mine sites. In addition, we house and feed workers. Some mines have 1,000 beds on site.

This all adds costs.

Infrastructure hurdles to success

- Infrastructure brings significant costs, and thus can be the hurdle to successful mine development

| Nunavut projects stymied in past by infrastructure hurdle | | |
|--|-----------------------------------|------------------------|
| Project Name (Operator) | Commodity | Discovery dates |
| High Lake (MMG) | Copper, zinc, silver, gold | 1956 |
| Mary River (Baffinland) | Iron | 1962 |
| Hackett (Xstrata) | Zinc, lead, copper, silver | 1969 |
| Izok (MMG) | Zinc, copper, lead, silver | 1974 |

- Mining of these deposits has been challenged by the cost of transportation as they produce bulk commodities.
- If located in south close to infrastructure, deposits would have been mined long ago.
- We are hopeful that today's commodity markets will support their development.



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The remote location and lack of infrastructure has been a hurdle to developing a number of very rich deposits in the North.

Here are 4 examples. Note they are all mines that produce high volume product, be it zinc, copper and lead concentrate or iron ore.

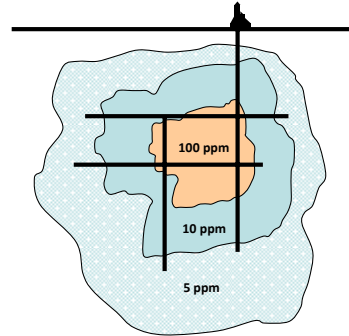
Note the oldest was discovered 55 years ago, and the youngest 37 years ago.

If these mines were located in southern Canada closer to cheap infrastructure like in Ontario or Quebec, they would have been mined long ago.

These projects are being revisited for possible production again today. The high commodity markets may finally allow them to overcome the infrastructure cost hurdles to finally become mines.

Mineral Deposits Are Complex

- Irregular, complex shapes
- Mineral concentration varies
- Only the parts that are economic to be mined can be called “ore”
- An ore body shrinks and grows dependent on commodity price vs costs



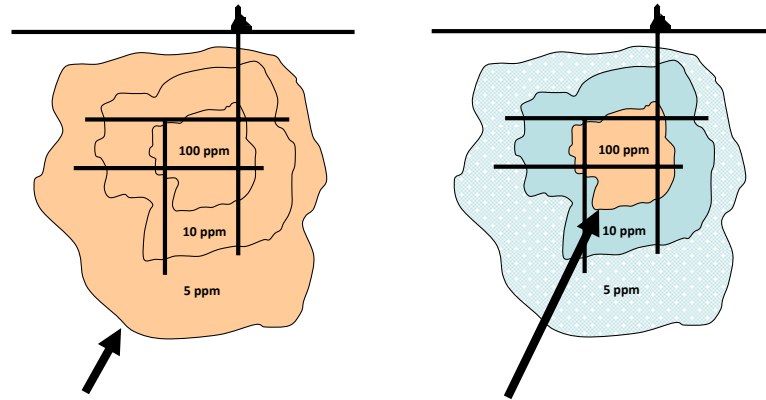
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I thought I might take a moment to explain a little about geology to explain how infrastructure costs affect economics.

Mineral deposits are not simple nor are they homogeneous. Rather, they can be portrayed like this: with areas of varying richness (eg, 100 parts per million or ppm of gold, varying to zones with less, eg, 10 ppm, or 5 ppm or less).

The key geological concept here is that the rock that is economic to mine is called “ore”.

Ore in Ontario is NOT ore in the North



- In Ontario, ore body is larger because costs are lower. Mine life can be longer.



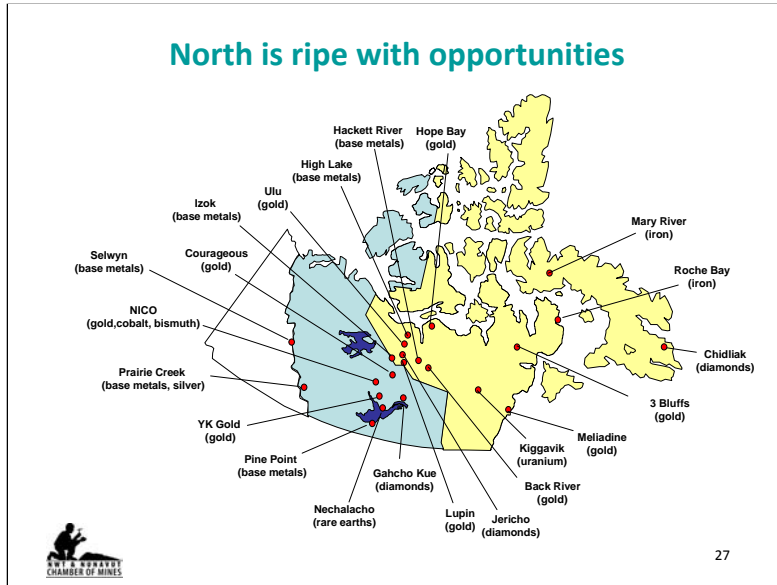
- In the North, ore body is smaller because costs are higher. Mine life can be shorter, with less benefits.

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The upshot of that is that if you take the very same mineral deposit and move it (conceptually of course!) into Ontario and into Nunavut, the valuable rock or "ore" in each will be different size.

Because of the higher costs of mining and infrastructure in Nunavut, the amount of ore is actually smaller.

Conclusion? If we can reduce costs in Nunavut by helping provide infrastructure, we can create more ore. Or we can cross our fingers and hope that China will continue to drive the commodity prices up. The first we have control over, the second we don't.

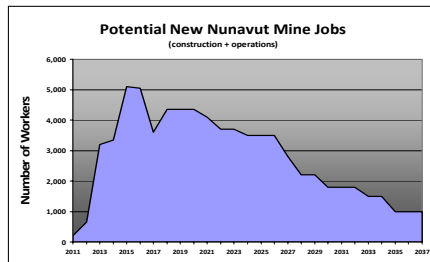


Because of the growth in demand in China, India and other places, we have witnessed a huge growth in the commodity prices.

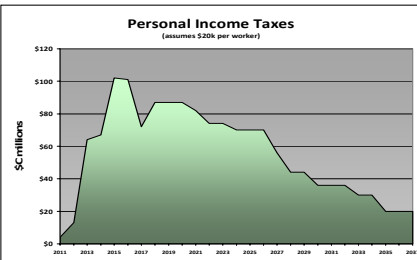
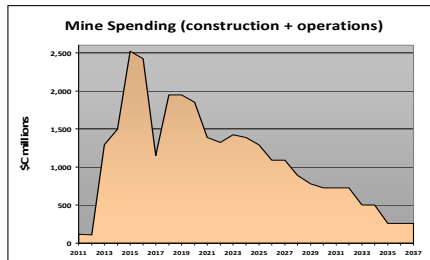
This has led to an exploration and mining boom globally.

As a result, there are a number of projects being proposed in the NWT and Nunavut, shown here.

Projects offer significant potential for community and government benefits



- Training & jobs
- Business capacity and expenditures
- Government benefits
 - New revenues plus social assistance savings



Note: Combined estimates from Jericho, Izok/High Lake, Lupin, Hackett, Back River, Baffinland, Meliadine, Kiggavik projects.

IMPORTANT PROVISIO: Data is subject to change as projects evolve.

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These projects – translated into jobs, business, and taxes – hold the potential to create very significant benefits to communities and to governments.

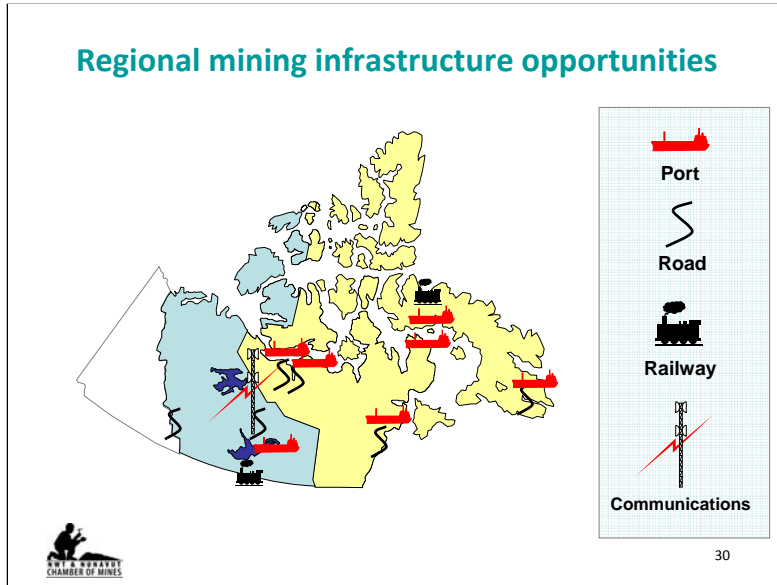
This analysis was done by the Chamber of Mines from information provided by the companies that are advancing the projects. In this slide, we have shown only the Nunavut benefits. We also have done the same for the NWT.

Specific Mining Project Infrastructure Needs

| INFRASTRUCTURE | Road: All-year | Road: Winter | Power | Port | Rail | Ships | Comm's |
|----------------------------|-------------------|-----------------|-------|------|------|-------|--------|
| NWT PROJECTS | | | | | | | |
| Ekati mine (diamonds) | | | | | | | |
| Diavik mine (diamonds) | | | | | | | |
| Snap Lake mine (diamonds) | | | | | | | |
| Gahcho Kue (diamonds) | | | | | | | |
| Seabridge (gold) | | | | | | | |
| Tyhee (gold) | | | | | | | |
| Nechalacho (rare earths) | | | | | | | |
| Pine Point (base metal) | | | | | | | |
| Cantung mine (base metal) | | | | | | | |
| Fortune (base metal) | | | | | | | |
| Canadian Zinc (base metal) | | | | | | | |
| NUNAVUT PROJECTS | | | | | | | |
| Meadowbank mine (gold) | | | | | | | |
| Meliadine (gold) | | | | | | | |
| Hackett River base metal) | | | | | | | |
| Izok Lake (base metal) | | | | | | | |
| High Lake (base metal) | | | | | | | |
| Roche Bay (iron) | | | | | | | |
| Back River (gold) | | | | | | | |
| Lupin & ULU (gold) | | | | | | | |
| Jericho Mine (diamonds) | | | | | | | |
| Kiggavik (uranium) | | | | | | | |
| Mary River (iron) | | | | | | | |

In this chart, we've tried to capture all of the variety of infrastructure that each of the proposed advanced projects requires.

You can see a daunting mix of all-weather and winter roads, power, ports in some instances, a railway in another, and big marine shipping needs. All mines will need communications infrastructure.



On a map, you can see the areas of the north where that infrastructure is needed. There are opportunities for infrastructure development for mining in all regions of North.

In some areas, mines will add capacity to existing shipping, eg, Rankin Inlet; in others, it will be new capacity.

Other jurisdictions help directly with infrastructure

- Renard diamond project, Quebec
 - Initial 268 km. road construction cost of \$332m will be funded by Québec. Company will contribute \$44m amortized over 10 years
 - Separate feasibility study on a 165km 161kV powerline connecting Renard to the generating station is ongoing
- Mt. Klappan coal project, BC
 - Already road access to the property
 - BC Government is extending the power grid into the project area
 - Railway right-of-way and subgrade cuts through property
- Adds to investment competitiveness



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Governments do invest in infrastructure in other countries and provinces, to help attract mining investment. Here are I will mention just two examples.

The first is from Quebec.

The second is from BC.

Without this kind of government investment in the North, it's harder for us to compete.

Some current work on northern infrastructure

- Northern Transportations Systems Assessment released by Transport Canada
- Airport upgrades at Rankin Inlet and Cambridge Bay
- Port study for Rankin Inlet
- LNG research between Advanced Exploration and NU Government
- Wind power trials at Diavik mine
- NU – Manitoba road study
- Hybrid Air Vehicle (aka dirigible) technology



We are aware of some investment and work on infrastructure planning, including these. Some are government, some are industry.

More work is needed

- Assistance with infrastructure to date is appreciated, but we need more help to be competitive and grow our industry and its benefits.
- Mining infrastructure needs are generally known but will be further identified through feasibility studies & environmental reviews underway.
- The current commodity prices provide a window of opportunity. Act now.
- Seek creative solutions to help industry with infrastructure needs, eg:
 - Prioritization plan – assist projects that will generate quickest and biggest returns to then reinvest in less profitable infrastructure.
 - Government provide direct investment in industry infrastructure
 - Identify & create infrastructure tax incentives
 - Identify opportunities for partnerships including P3
 - Look for symbiosis between projects, with public and Aboriginal governments, military, research facilities, etc.



Clearly, more work is needed on infrastructure in our huge, and under-serviced north. Here are some thoughts.

Conclusion

- Mining is the North's economic advantage
- Mining is creating significant community benefits
- Infrastructure is critical for mining success and regional development
- Providing infrastructure to support mining will help communities



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Let me conclude with the premise that I opened with.

- Mining is the North's economic advantage
- Mining is creating significant community benefits
- Infrastructure is critical for mining success and regional development
- Providing infrastructure to support mining will help communities

Our industry would be more successful at creating community benefits with the benefit of regional infrastructure that helped us reduce our cost of business.

Why it matters



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At the end of the day, these are some of the reasons why mining (and infrastructure that helps it advance) matters.

It matters because we can make a difference in communities. We have made major inroads into jobs and business opportunities, but we need more development to handle northern population growth, to replace closing mines, etc.

And of course we need it to raise revenues to pay down our deficit.

Climate change

- *Q: What are the emerging infrastructure issues regarding climate change in the North?*
 - Seasonal winter roads are at risk
 - Construction in changing permafrost environment may become more expensive
 - Marine transportation could be less difficult with thinning sea ice



Finally, let me address that final question you had on climate change. These are some of the risks that we see.