

# 12<sup>th</sup> National Lands Managers Gathering

CELEBRATING 23 YEARS!

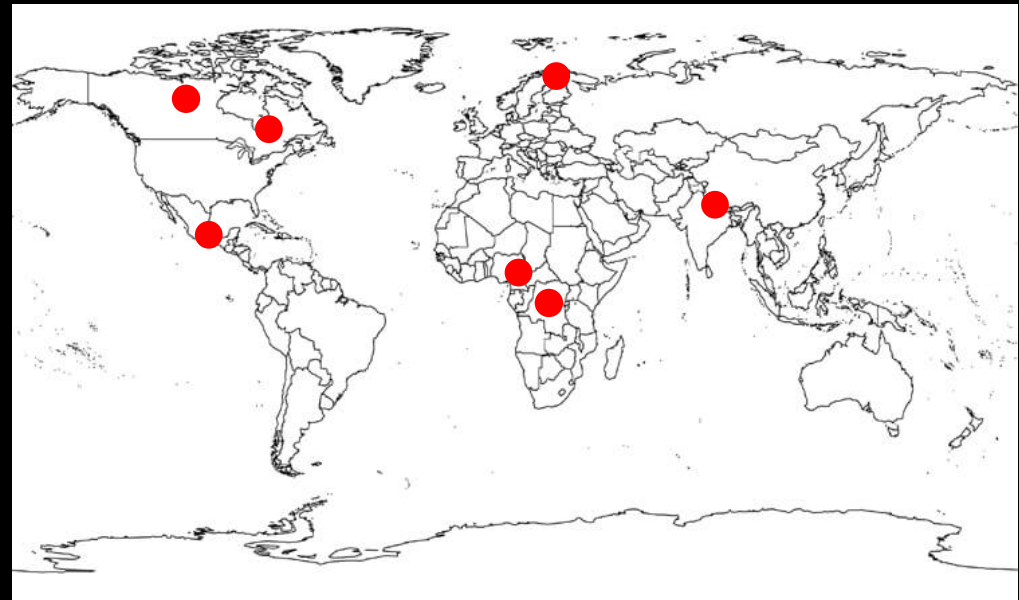


## Natural Resource Management

Hugo Asselin, Ph.D.

## • Forest ecologist

- BSc – Sherbrooke U.
- MSc – Montreal U.
- PhD – Laval U.
- Postdoc – UQAT



## • Professor – UQAT

- Human and Social Development (2007-2016)
- Canada Research Chair in Aboriginal Forestry (2008-2018)
- Indigenous Studies (2016-)
- Desjardins Chair in Development of Small Communities (2020-)

## • Research interests

- Land and resource governance
- Extractive industries (forestry, mining)
- Wildfires
- Medicinal and edible plants
- Cultural keystone species (plants and animals)





# Natural Resources Toolkit

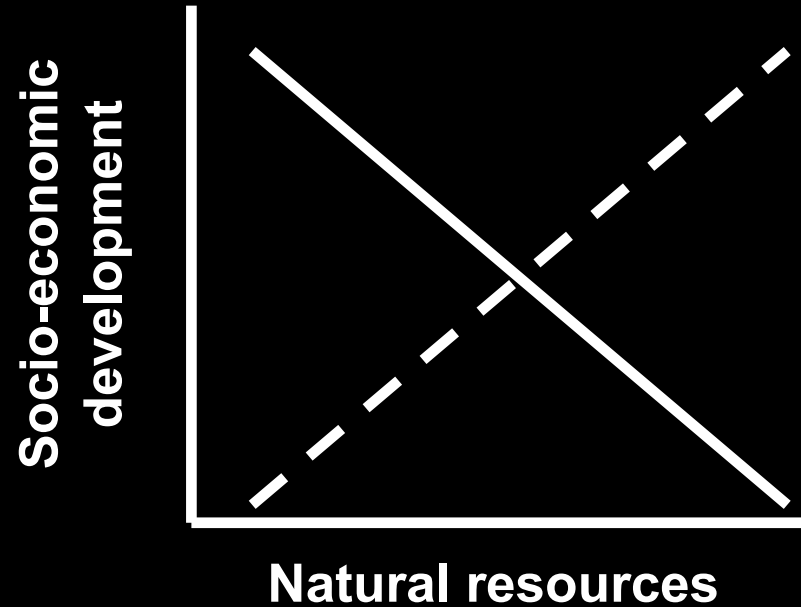


**Version 2**

January 2023

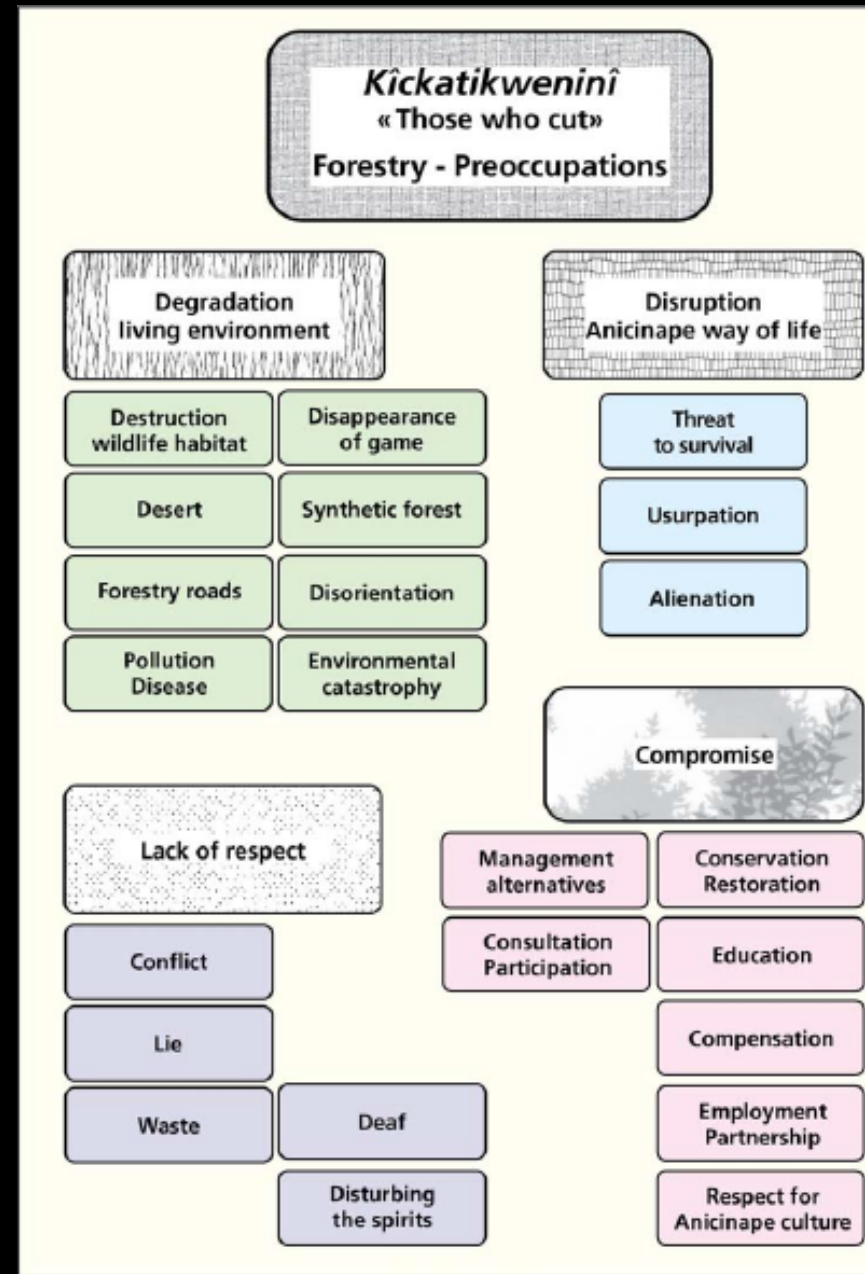
1. Overview
2. Natural Resources
3. Forestry
4. Wildlife
5. Energy
6. Mining
7. Water
8. Cumulative impacts

# The resource curse

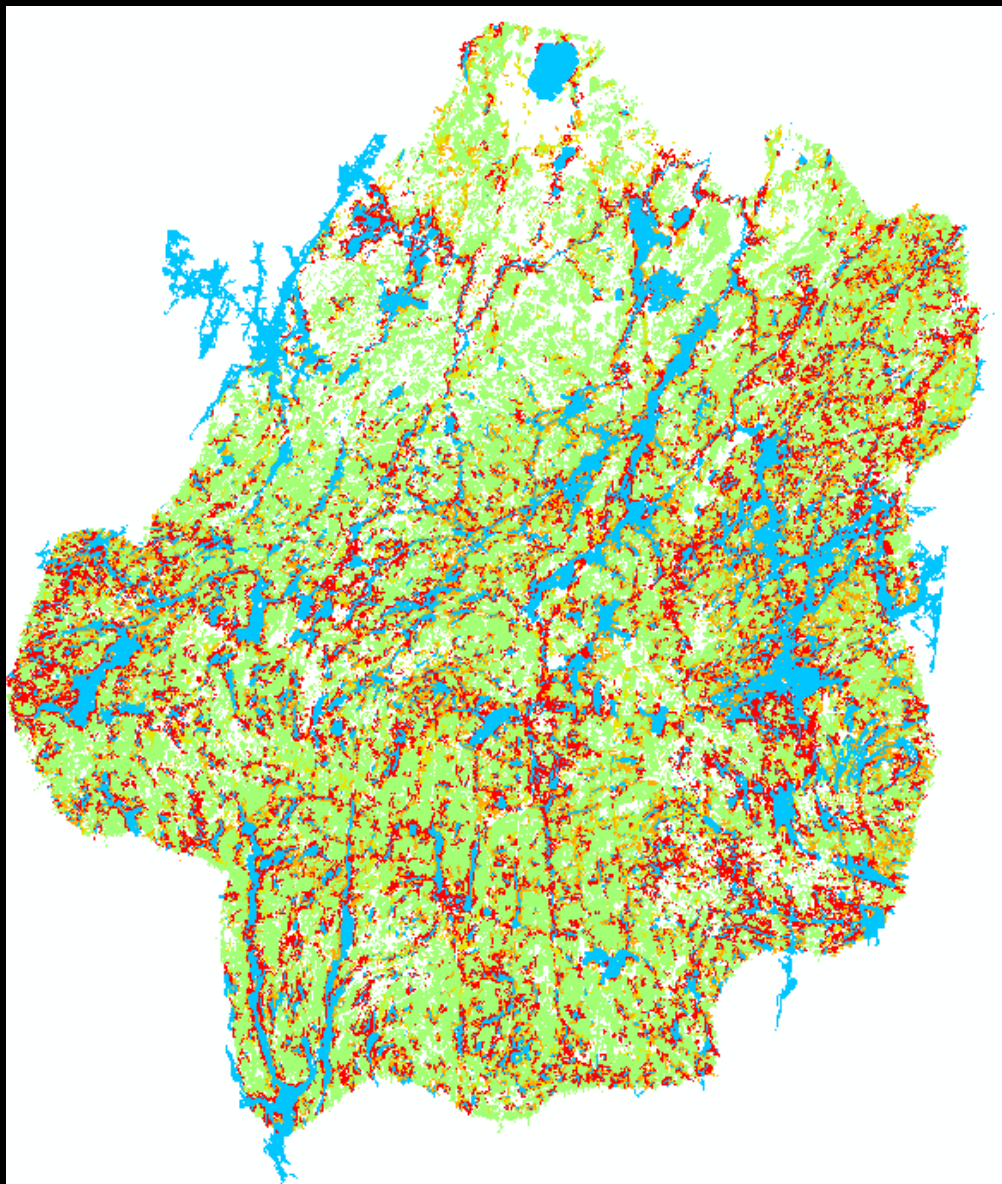


# The Kitcisakik case

- > 60 % of the land harvested since 1970
- Up to 10 active forestry companies
- Up to 400 000 m<sup>3</sup> harvested annually
- ~5000 km of forest roads (~1 km/km<sup>2</sup>)
- Lack of data about land and land use
- Unsatisfactory consultation process







Potential for Indigenous interest (4 classes)

Weak (65%) ←

Fair (7%)

Good (12%)

High (16%)

Excluding sites regenerating following disturbance and unproductive sites (ex. wetlands and rock outcrops)

Taking Indigenous interests into account =  
only 4-10% reduction of the annual allowable cut

# Ecosystem-based forest management

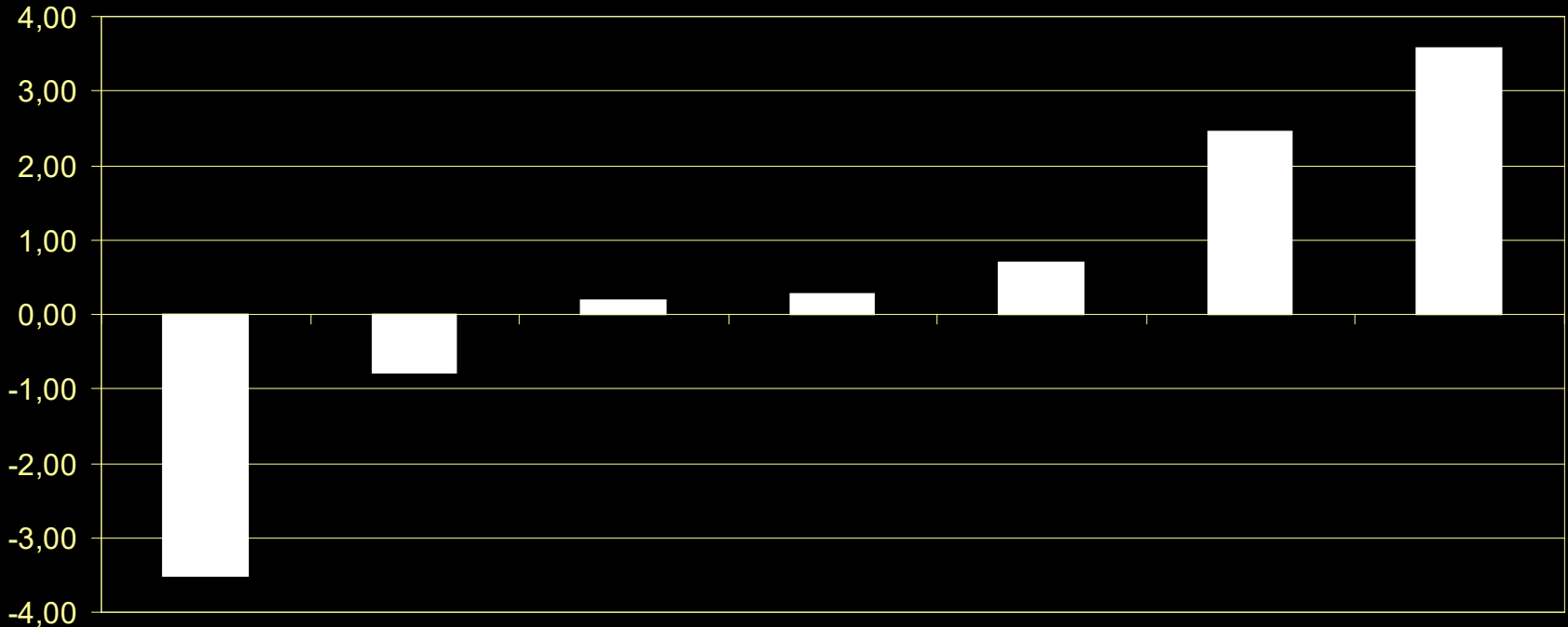
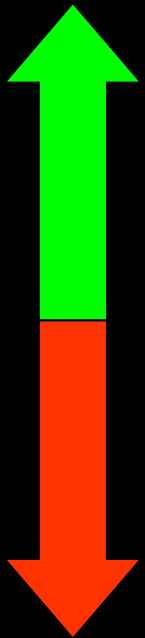
## Positive

- Lots of residual forest
- Grouped cut blocks
- Varied cuts and forest ages
- Maintains mature forests
- Lower access to the land
- Better wildlife habitat
- Less fragmented forests
- More similar to nature
- Preserves jobs
- More opportunities for activities
- “They won’t come back soon”

## Negative

- Cut blocks too large
- Not all cuts are good
- Poorer wildlife habitat
- Doesn’t imitate nature for real
- “They might come back soon”
- Deciduous encroachment
- “It’s still logging, you know...”

# Social acceptability (Pikogan)



CPRS

CPRS 25  
tiges/ha

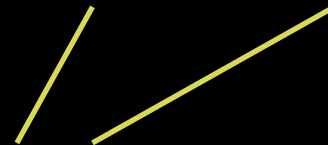
Bouquets  
feuillus

Bouquets  
résineux

Mini bouquets

CPE

Forêt intacte



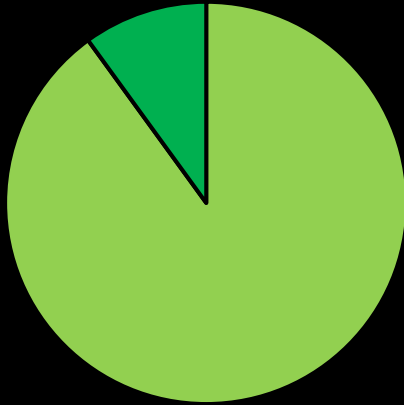
Clearcut

Partial cuts

Intact forest

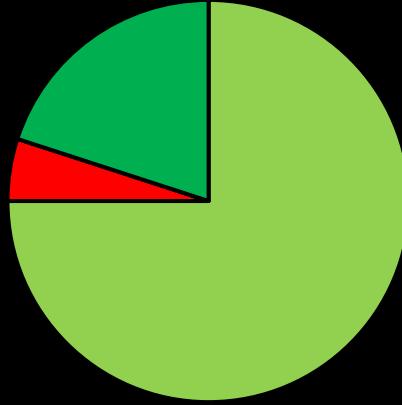


# TRIAD



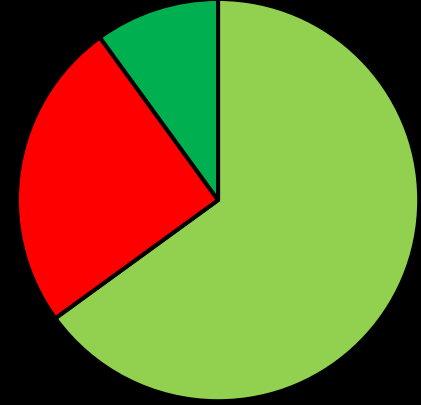
**Without intensification**

- 2 affectations :
- Extensive forestry
  - Protected areas



**With intensification  
(in principle)**

- 3 affectations (TRIAD):
- Extensive forestry (-)
  - Intensive forestry (+)
  - Protected areas (++)



**With intensification  
(in reality - QC)**

- 3 affectations (TRIAD):
- Extensive forestry (--)
  - Intensive forestry (+++)
  - Protected areas (+)

# Is forest certification delivering on Indigenous issues?

- 86% of FSC certifications (in Quebec and Ontario) led to at least 1 condition relating to Indigenous rights (most minor).
- The 2 most common issues were the management plan and protection of cultural sites.
- All conditions were resolved within the allotted time.
- Tendency for auditors to accept partial conformance.
- FSC certification is pushing forest managers to make progress on several fronts, but through 'continual improvement' rather than strict conformance.

## Canada's biggest logger loses eco-certification

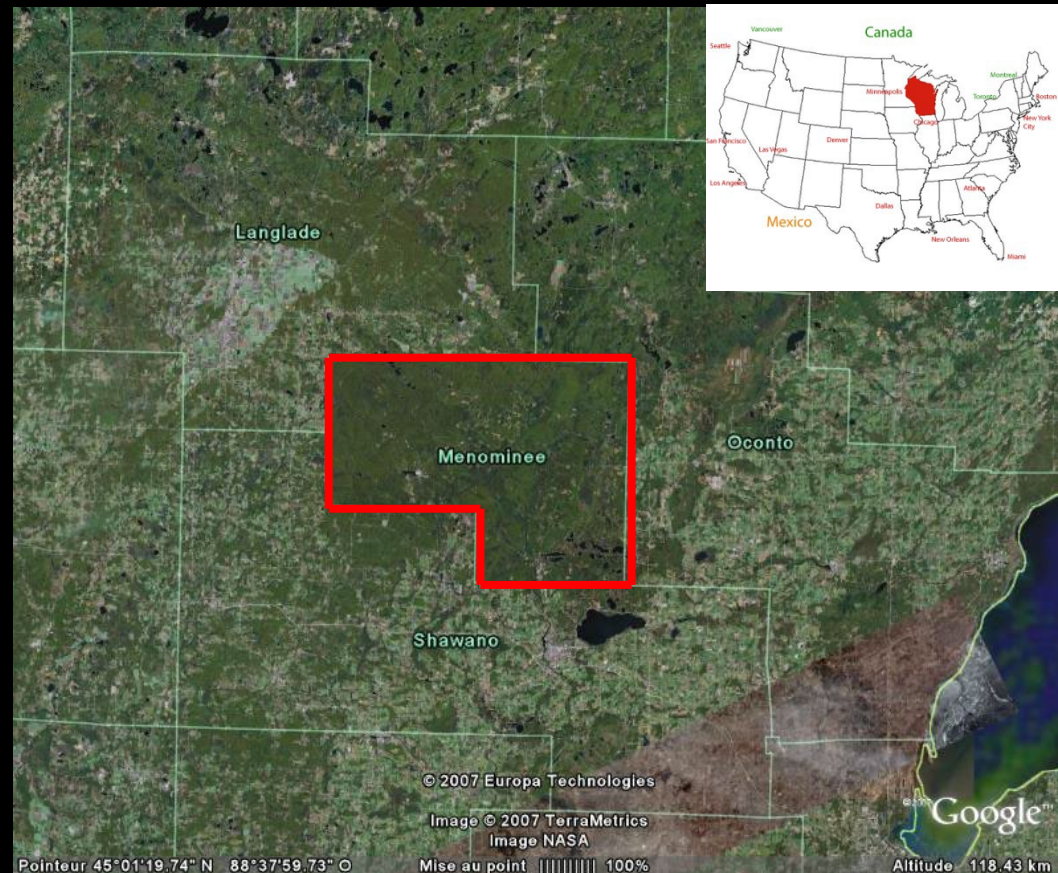
by Jeremy Hance on 17 December 2013

Resolute Forest Products, the largest industrial logging company in Canada, suffered a major setback this week when the Forest Stewardship Council (FSC) revoked three certifications for the forestry giant. According to Greenpeace, the company lost its certification in Quebec and Ontario due to several problems, including a lack of consent from the Crees nations and failure to safeguard high priority conservation areas.



# Menominee Tribal Enterprises (Wisconsin)

- Indigenous management since 1908
- Selective cuts
- Quality over quantity
- Maintain cover
- Multiple-resource
- Traditional knowledge
- Long-term monitoring
- The mill adjusts to the forest rather than the opposite

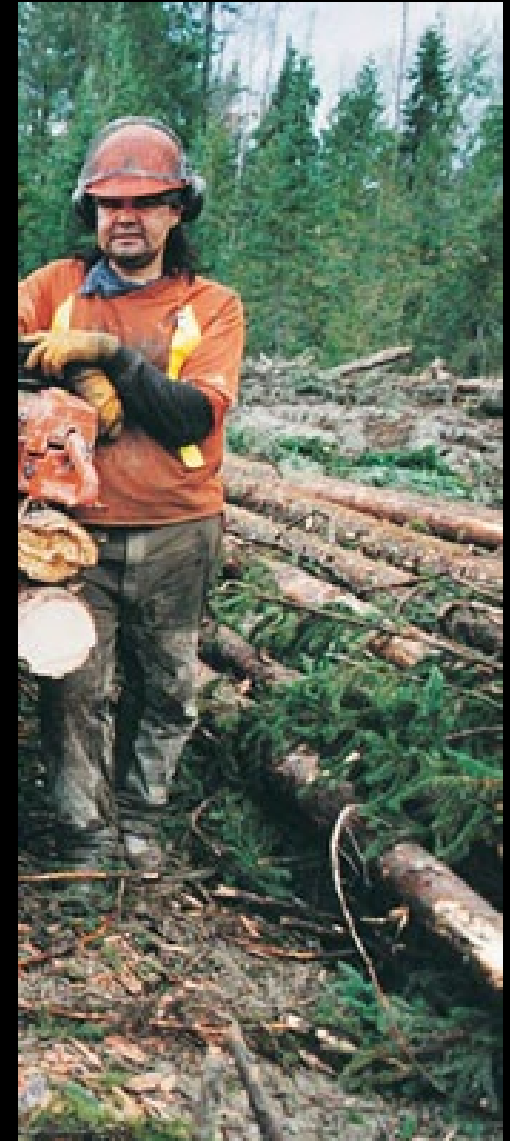


*Start with the rising sun and work toward the setting sun, but take only the mature trees, the sick trees, and the trees that have fallen. When you reach the end of the reservation, turn and cut from the setting sun to the rising sun, and the trees will last forever. (Menominee elder)*


# Indigenous forest tenures in Canada

9.1% of total tenures (2019)

1. Northwest Territories (100.0% of 0.2 M m<sup>3</sup>)
2. Saskatchewan (28.7% of 8.4 M m<sup>3</sup>)
3. Ontario (17.1% of **30.7 M m<sup>3</sup>**)
4. British Columbia (12.2% of **71.5 M m<sup>3</sup>**)
5. Newfoundland & Labrador (8.5% of 2.5 M m<sup>3</sup>)
6. Alberta (3.1% of **33.9 M m<sup>3</sup>**)
7. New Brunswick (2.8% of 9.1 M m<sup>3</sup>)
8. Québec (2.6% of **46.9 M m<sup>3</sup>**)
9. Manitoba (2.4% of 2.5 M m<sup>3</sup>)
10. Nova Scotia (0.0% of 5.8 M m<sup>3</sup>)
11. Prince Edward Island (0.0% of 0.5 M m<sup>3</sup>)
12. Yukon (0.0% of 0.2 M m<sup>3</sup>)















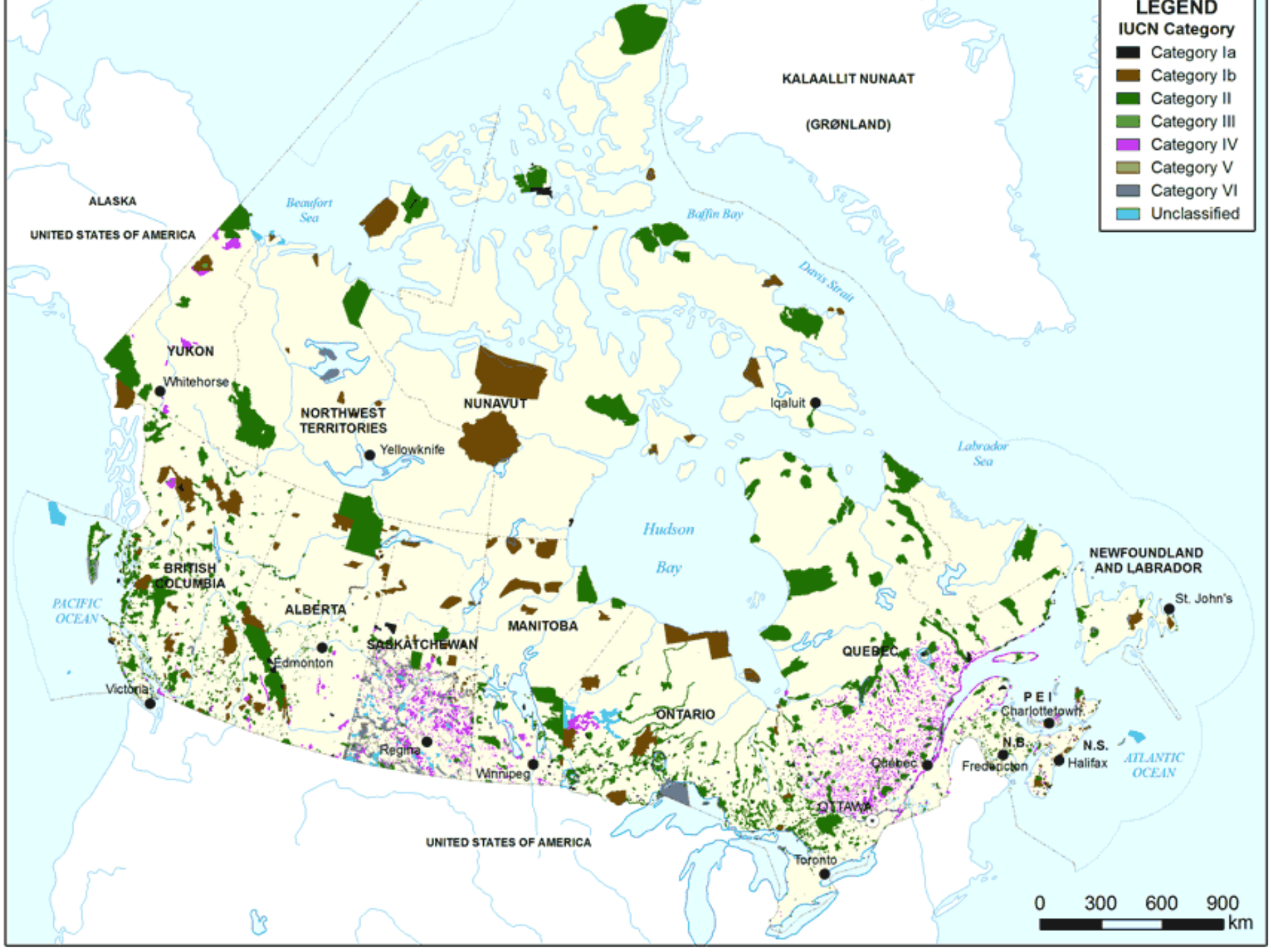
# Paix des Braves (Crees, Québec)

- Traplines as territorial reference units
  - Trappers' participation in planning
  - 25 % particular manag. to protect wildlife habitats
  - 1 % integral protection 
  - Maintain forest cover
    - 30% > 7 m
    - Mosaic cut
    - Max. 100 ha cut block size
    - Adjust cuts considering % area disturbed
    - Protect tall regeneration
  - Protection of riparian areas
    - 20 m buffer zones
    - Rivers > 5 m: 200 m buffer on one shore
    - Preserve landscape esthetics (lakes > 5 km<sup>2</sup>)
  - Road network planning
    - Limit interconnections between traplines
    - Limit construction of access points to water bodies
- camps;
  - cultural sites;
  - graveyards;
  - berry harvesting sites;
  - archaeological sites;
  - extension of buffer areas;
  - portages;
  - bear dens;
  - waterfowl nesting sites;
  - drinking water sources;
  - etc.



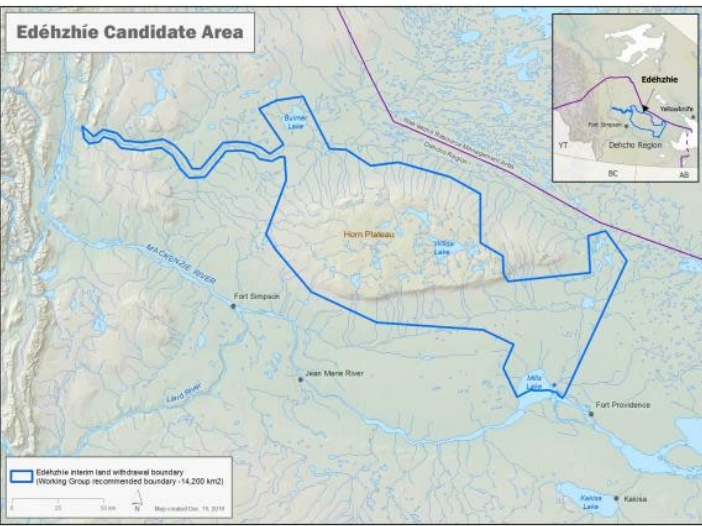
# Protected areas

|                | Better  |     | Worse   |                   |
|----------------|---|-----|---|-------------------|
| Large          |    | (1) |    | Small             |
| One large      |    | (2) |    | Several small     |
| Near           |    | (3) |    | Far               |
| Grouped        |    | (4) |    | Linear            |
| With corridors |  | (5) |  | Without corridors |
| Round          |  | (6) |  | Irregular         |



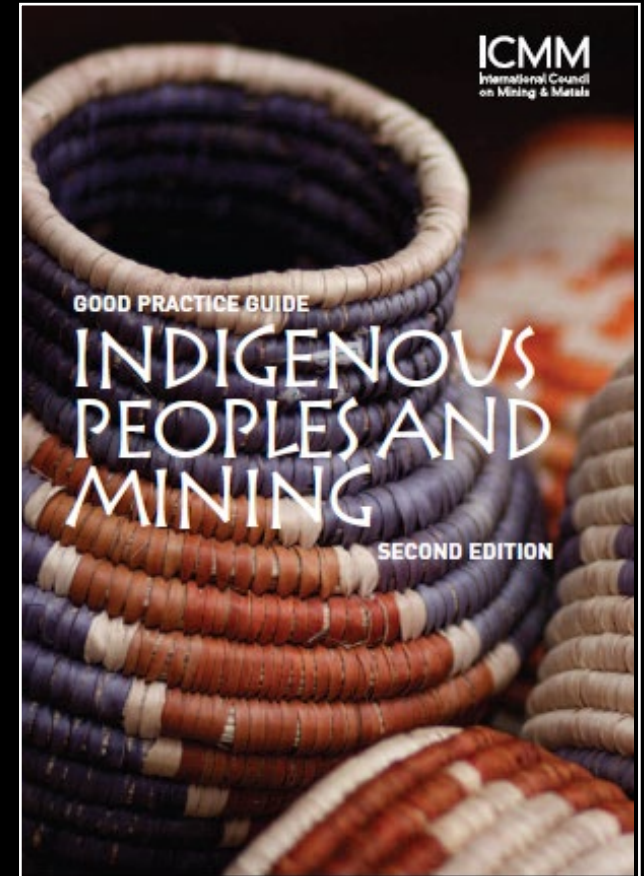
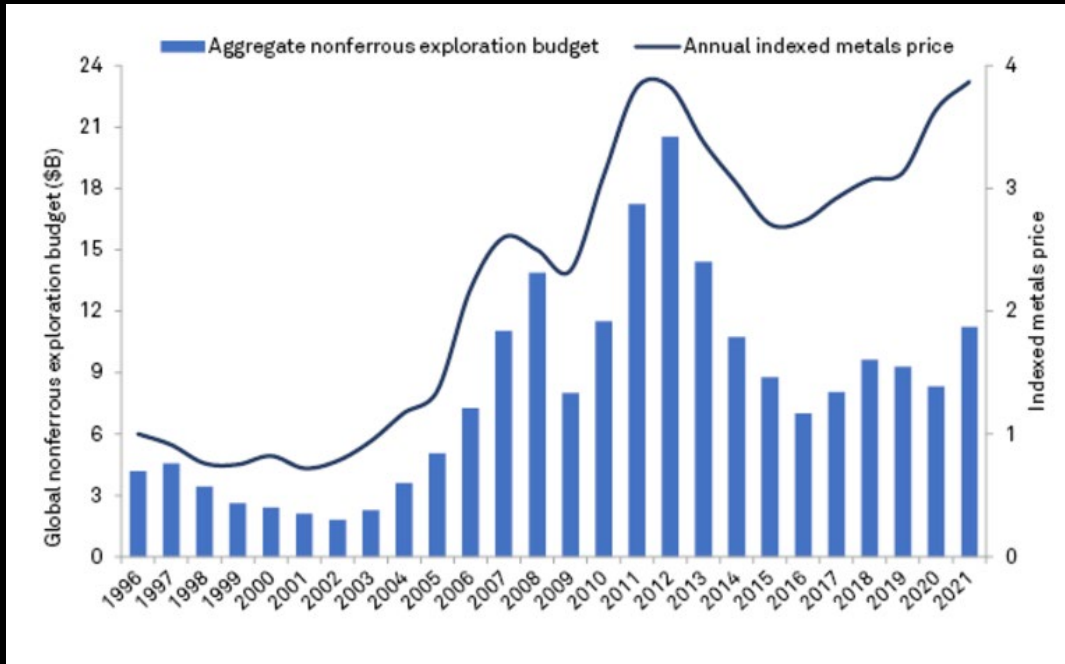


# Edézhíe Indigenous Protected Area





# Mining



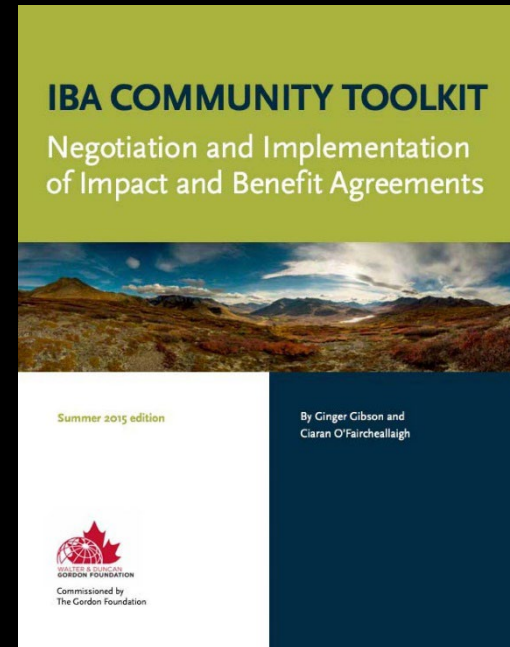
# Why do some communities resist mining and others do not?

|                  | Hinders of resistance   | Mixed effects  | Drivers of resistance  |
|------------------|---|--|--|
| <b>Project</b>   |   | <ul style="list-style-type: none"> <li>- Geography</li> <li>- Resource type</li> <li>- Remoteness</li> </ul>                       | <ul style="list-style-type: none"> <li>- Socio-environmental impacts</li> <li>- Displacement</li> </ul>  |
| <b>Community</b> | <ul style="list-style-type: none"> <li>- Political marginalisation</li> <li>- Dependency</li> </ul> | <ul style="list-style-type: none"> <li>- Attachment to place</li> <li>- Economic marginalisation</li> <li>- Alliance(s)</li> </ul> | <ul style="list-style-type: none"> <li>- Distrust</li> <li>- Lack of participation</li> </ul>  |
| <b>Company</b>   |   | <ul style="list-style-type: none"> <li>- Corporate Social Responsibility</li> <li>- Corporate-driven participation</li> </ul>      | <ul style="list-style-type: none"> <li>- Compensation</li> </ul>   |
| <b>State</b>     |   | <ul style="list-style-type: none"> <li>- State-driven participation</li> </ul>   | <ul style="list-style-type: none"> <li>- Pro-industry State</li> <li>- Inadequate planning</li> <li>- Criminalisation</li> <li>- Corruption</li> </ul> |



# Impact and Benefit Agreements (IBAs)

- Negotiated by companies (and their lawyers) and Indigenous leaders: risk of disconnection from the interests of community members.
- Often confidential
  - Protection from possible cuts in governmental subsidies
  - Competition between communities
- Sometimes signed too early (before impact studies)
- No guidelines regarding contents
- Possibility of major changes in circumstances not considered
- No measures planned for premature closure
- Lack of follow-up and few (if any) consequences if not respected
- Not all forms of benefit distribution are as good



# Indigenous jobs in the mining industry

- 23% Indigenous employees with treaty/agreement vs. < 1% without
  - Critical mass phenomenon
- Management's commitment is key + capacity of supervisors
- Liaison officer (between company and community)
- Insertion measures (ex. cultural center, traditional activities)
- Diversity training (both to Indigenous and non-Indigenous workers)
- Mentoring + internal progression systems



# Ginoogaming First Nation

- In 2021, the community applied for an injunction to stop mineral exploration and protect a sacred area within their traditional territory.
- The president of an exploration company said:  
“In the 40 years I've been here, no one ever told us that where we were working on our claims was a sacred area (...) If the injunction is granted, we won't be able to do any work on the property until their court case (treaty land entitlement) is resolved. But the problem is (it) can take years, even decades to be resolved.”
- The government says the community did not reply to its 4 letters sent before granting the exploration permit.
- The community says it's been asking the government to protect this area for years.



# Taku River Tlingit

- Reclamation work needed at the site of former Tulsequah Chief Mine (1951-1957)
- Site located next to Tulsequah river: acid drainage + heavy metals = contamination of salmon habitat
- Estimated reclamation cost = 48.7 M\$ + 1 M\$/yr for monitoring and maintenance
- Owner went bankrupt
- “Polluter pays” does not apply to bankrupt past owners, apparently.
- For all of BC, according to an industry estimate, the cost of restoring all abandoned mines would be more than 3.5B\$. Most – if not all – of it will need to be paid by the government.



# Raglan mine (Québec)

- Nickel, since 1997
- Promised 20 % Indigenous employment rate
  - “impossible” to meet (never reached more than 17 %)
- No Inuit in a management position
- High turnover rate
- Lack of training opportunities
- Work schedule
- Paralysed economy
- Royalties
  - 4.5% of profits after recuperation of initial investment
  - About 100 M\$ in 20 years
  - Salluit : individuals
  - Kangiqsujaq : community





# Red Dog mine (Alaska)

- Zn-Pb, since 1989-(2031).
- Aboriginal title.
- Co-management: Teck Alaska & NANA Regional Corporation Inc. (Iñupiat of NW Alaska).
- Participation in decision-making.
- > 50% Indigenous employees.
- 50% of profits once initial capital expenditures are recovered.
  - 5% increase every 5 years.
  - Reached 40% in 2022
  - 2017-18-19-20-21-22 : 324-252-231-175-255-353 M\$
- Some critiques:
  - Health, water quality, fish and wildlife habitat, vegetation.



# Wildlife



# Energy – access

« Off grid » Indigenous communities in Canada: **170 (>25%)**

- Some are remote
- Some are close to production/transport infrastructures

## Diesel and fuel oil generators

- Comfort, reliability, jobs
- Expensive → dependence on subsidies
- Limited quantity → obstacle to development
- External control
- Spill risk
- Greenhouse gases
- Health issues
- Noise





# Athabasca Chipewyan First Nation

- Fight against tar sand exploitation
- On “vital” land
- Inadequate consultation
- Illnesses (cancers)
- Water pollution
- Lowering of the water level
- Impacts on caribou habitat



# James Bay



- Loss of control over land and resources
  - For the benefit of Cree leaders, governments and companies
  - Increased impact of other disturbances
    - forestry, mines, roads, non-Indigenous hunters
- Loss of resources (environmental degradation)
- Loss of knowledge/practices
  - *“They’re destroying our classroom!”*
  - Landmarks and time on the land



# First Nation veto on coal mine

- Agreement between NWP Coal Canada and the Yaq̓it ʔa·knuq̓i'it (YQT), also known as the Tobacco Plains Indian Band.
- Will give the First Nation the power to act as a “regulator and reviewer” of the company's proposed \$400-million Crown Mountain coal mine near Elkford, BC (which will produce coking coal for steel production).
- For the mine to proceed, the project will not only need federal and provincial approval, but also the YQT's permission.
- “Yes, it's scary, but we're brave enough to say we think we can earn your 'yes,' and we're going to work with you to get that 'yes.’” says Dave Baines, director of project development with NWP.



# Cedar LNG

- Proposed floating liquefied natural gas (FLNG) facility in Kitimat (BC), within the traditional territory of the Haisla Nation.
- Partnership between the Haisla Nation (control) and the Pembina Pipeline Corporation.
- Support from neighboring First Nations.
- 500 jobs during construction, 100 afterwards.



# Mesgi'g Ugju's'n – “Great winds”

- Partnership (50-50) between Innergex and 3 Mi'kmaq communities
- Start of operations : 2016
- 47 wind turbines
- 150 MW
- Annual production = 30,000 houses
- Benefits : 200 M\$ over 20 years (= 1585\$ / person / year)
- Jobs : Construction (110/850) / Maintenance (4/10)



# Ouje-Bougoumou

- 200 houses and 15 public buildings
- Community heating system using sawmill residues
- Reduced pollution (-35% NO<sub>x</sub>)
- Reduced GHG emissions
- Construction : 2.27 M\$
- Total operating cost : 10.46\$/Mw
  - 4.6 X cheaper than heating oil
- Profits used to construct new houses





# Wiigwaasaatig Energy Inc.

- Property of AurCrest, a mining company whose CEO is Indigenous
- Partnership with Cat Lake First Nation
- Solar energy: 40 MW project
  - Equals the energy need of 6650 houses
- Community controls 51% of the project and will have the opportunity to buy the remaining 49% once construction costs (assumed by the company) are recovered
- “Renewable energy is a potential solution to two of the mining industry’s biggest challenges in remote areas: energy production and participation of Indigenous communities”



Christopher Angecone

# Wataynikaneyap Power

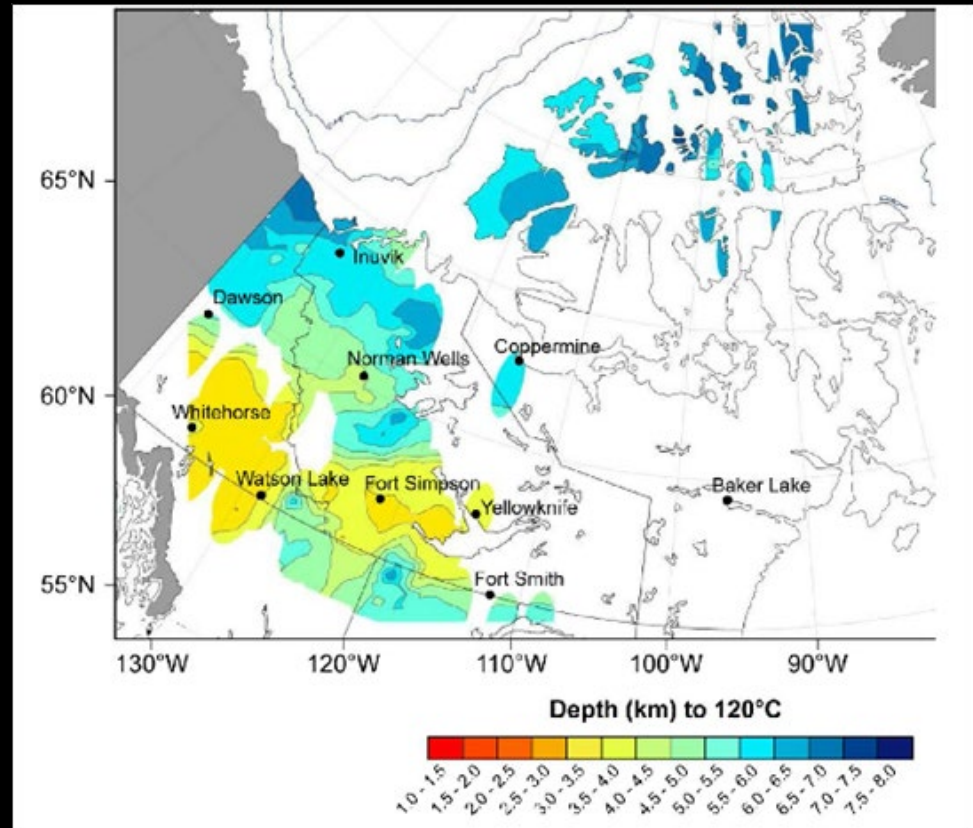
- Electrical transmission company, co-owned by 24 Indigenous communities in northern Ontario (51%), FortisOntario Inc. and Renewable Energy Systems Canada Inc.
- 1.35 B\$ contract with Ontario government to construct a 1800 km transmission line to join 17 communities and mining projects
- Reduced dependence on diesel
- Reduced pollution
- Job creation

Margaret Kenequanash, CEO of Wataynikaneyap Power, chosen as a “2022 Changemaker” by The Globe and Mail



# Geothermal heating at Nahanni Butte, NWT

- Gonezu Energy has been working with the Nahʔą Dehé Dene since 2020, with support from the Dehcho First Nations.
- Decommissioned oil wells show high geothermal potential.



# Long-term water advisories

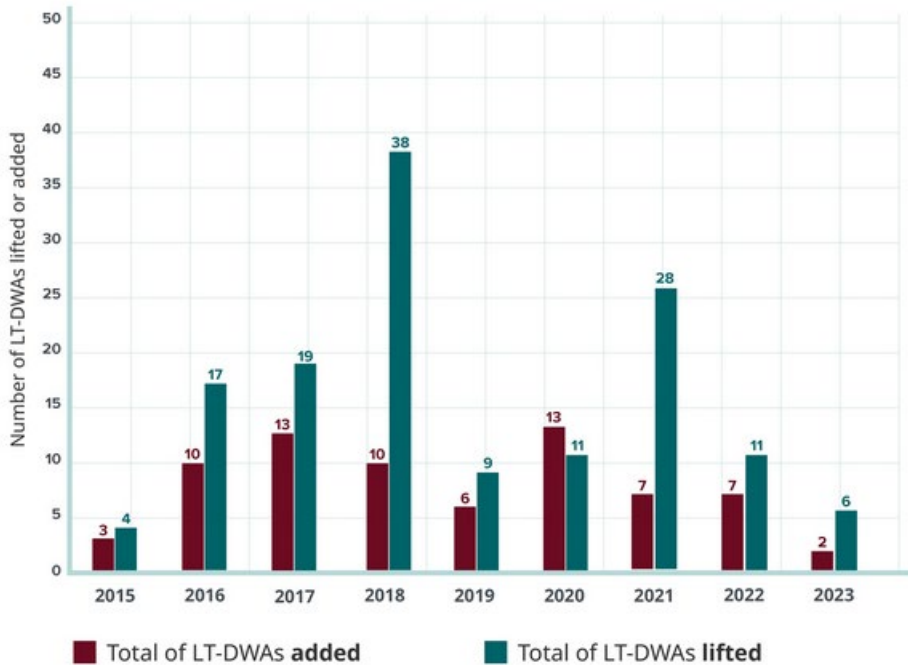
Updated August 21, 2023



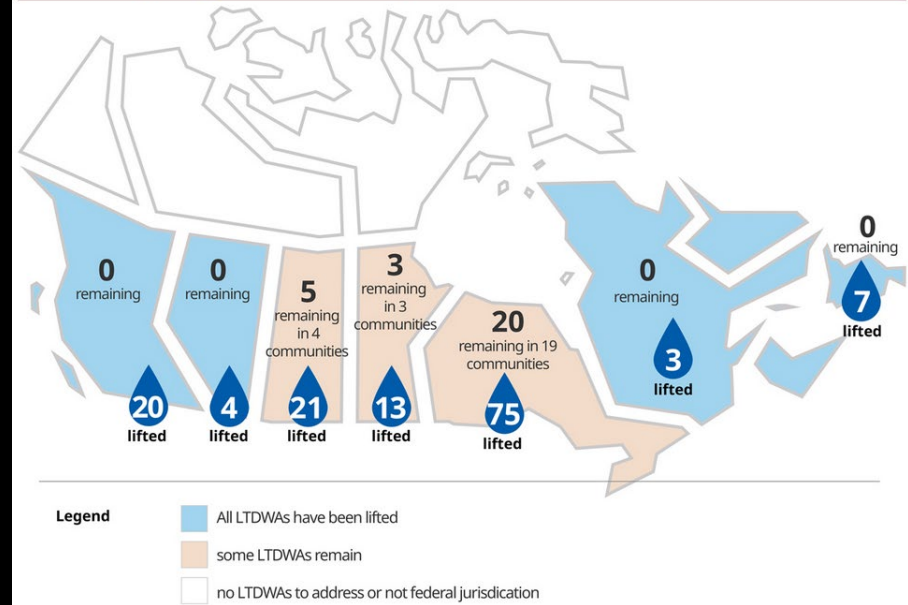
**143**

long-term drinking water advisories **lifted** since November 2015

**28** long-term drinking water advisories **in effect in 26** communities



## Remaining long-term drinking water advisories



Percentage of FN water systems with significant risk to quality and safety:

2001: 75%

2011: >50%

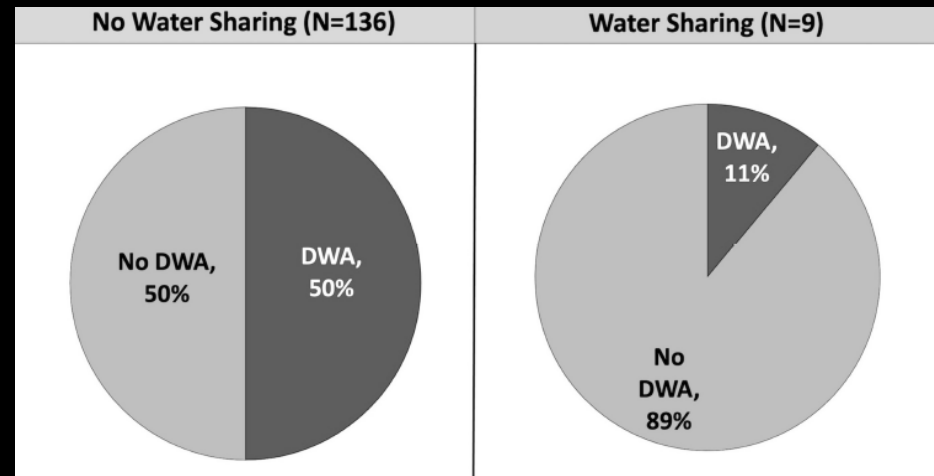
2014: 43%

2021: 43%



# Water sharing agreements

- An institutional arrangement whereby a water system in one jurisdiction (the donor) supplies drinking water to a water system in another jurisdiction (the recipient).
- The majority of WSAs in Ontario occur between municipalities, with only 10% of First Nation communities having a water system supplied through a WSA.
- Many independently supplied First Nation communities (some with poor drinking water conditions) are close to potential municipal WSA donors.



# Nestlé vs Six Nations

- Nestlé has been extracting 3.6 million litres of water daily from the Six Nation's traditional territory for years (+ other wells in Canada).
  - Meanwhile, > 11,000 FN people had no access to clean tap water.
  - The province was being paid 503.71\$ per million litres that Nestlé extracted, whereas First Nations were getting nothing.
  - **QC = 70\$    BC = 2.25\$    Italy = 2,000\$    Denmark = 10,000\$**
- 
- The extraction has dried up wetlands and depleted the local populations of salmon, trout, pike and walleye.
  - In 2021, Nestlé sold its operations to One Rock Capital Partners for 4.3 B\$
  - The problem remains.



# Water pollution sources

- Industrial development (forestry, mining, refineries, smelters...)
- Flooding (natural or reservoirs created by dams: mercury)
- Road construction/maintenance
- Agriculture (fertilizers, pesticides, erosion, livestock)
- Wildlife (beaver)
- Landfill and dumpsites
- Septic and sewage systems
- Cisterns



# Mercury pollution

## Asubpeeschoseewagong Grassy Narrows

- Pollution (dioxins, furans, sulfur, caustic soda, etc.) started in 1913 with the opening of a pulp and paper mill in Dryden, Ontario.
- Between 1962 and 1970, **10 tons of mercury** were discharged into the Wabigoon River by Dryden Chemicals Ltd.
- A 250 km stretch of river was polluted, from Dryden to lake Winnipeg.
- Because mercury bioaccumulates, 90% of the population still suffers from mercury poisoning (neurological problems such as cognitive delays, seizures, numbness in fingers/toes).
- Others experience psychological stress of seeing friends and family stricken with these problems.





# Mercury pollution

## Asubpeeschoseewagong Grassy Narrows

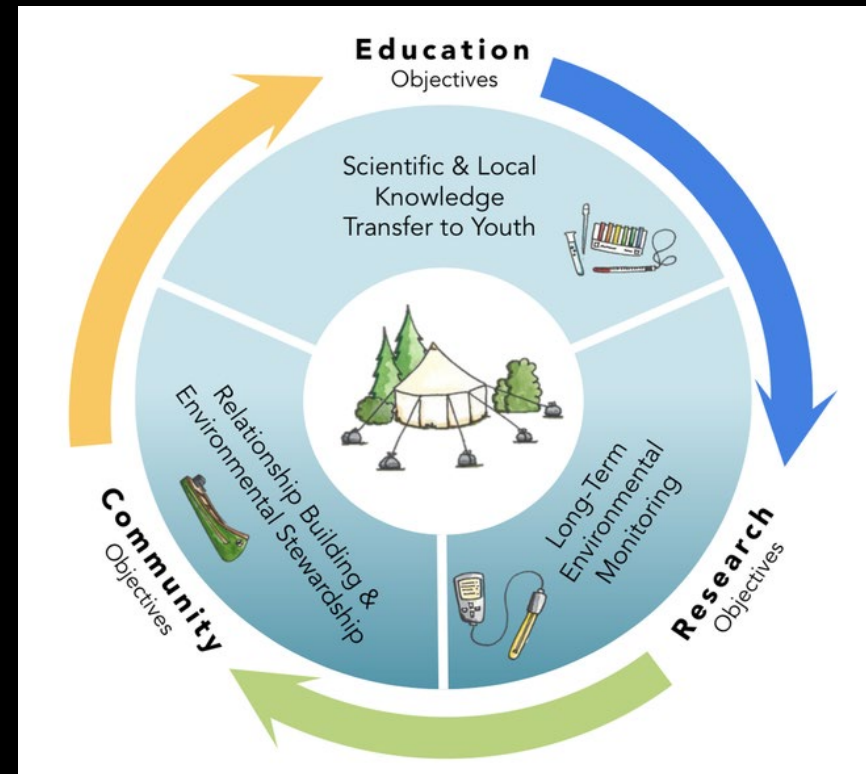
- Mercury Disability Board established in 1986, although government and companies always denied poisoning.
- 75% of claims to the Board are denied.
- People being compensated receive very little (ex. 250\$/month)



- In 2017, Ontario announced up to \$85 million to clean up the mercury contamination.
  - But remediation is complicated because stirring the sediments could release more mercury into the water.
- In 2020, the federal government signed a \$19.5 million agreement with Grassy Narrows to build a mercury care home.

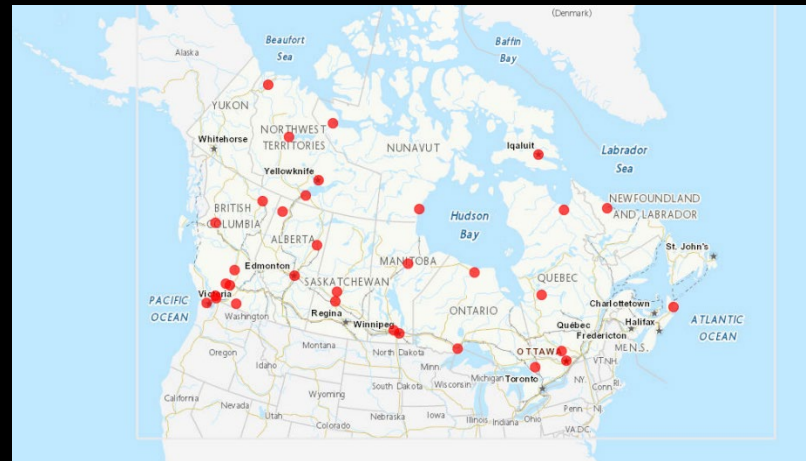
# Imalirijiit (Those who study water)

- Community-based environmental monitoring of the George River watershed (Nunavik, Québec, Canada).
- Partnership between local organizations in Kangiqsualujjuaq and university-based researchers.
- Concerns over a rare earth elements mining project.
- Collection of baseline (reference) data.
- Science Land Camp program involving youth, Elders, local experts and researchers.



# Indigenous Guardians

- Program allowing communities to manage ancestral lands according to traditional laws and values.
- Guardians conduct ecological monitoring, maintenance of cultural sites, protection of sensitive areas and species.
- Play a key role in the creation of land use plans.
- Favor intergenerational knowledge transfer.
- About 60 teams in Canada.
- More than 100 teams in Australia
  - 1\$ invested in the program generates 3\$
  - More jobs, less social and health problems
  - Better biodiversity conservation





ÉTUDES AUTOCHTONES

**MICROPROGRAMME DE 1<sup>er</sup> CYCLE EN GESTION TERRITORIALE EN  
CONTEXTE AUTOCHTONE**

SOA1601 - Lien autochtone au territoire

*Link to the land*

SOA1602 - Savoirs territoriaux autochtones

*Indigenous land knowledge*

SOA1603 - Cadre réglementaire et juridique de la gestion territoriale

*Regulatory and legal framework in land management*

SOA1604 - Exploitation forestière en contexte autochtone

*Forestry*

SOA1605 - Exploitation minière en contexte autochtone

*Mining*

SOA1606 - Exploitation énergétique en contexte autochtone

*Energy*

**Certificate**

=

**Microprogram**

+

**Mapping**

+

**Tourism**

+

**2 electives**