THE STATE OF MINERAL EXPLORATION AND MINING IN BRITISH COLUMBIA 2008

(This background report was prepared for the British Columbia First Nations Mining Summit in Prince George, October 7-9, 2008 and is intended to provide up-to-date background information and analysis of the mining sector in BC)

FIRST NATIONS MINING SUMMIT
PRINCE GEORGE
OCTOBER 7-9, 2008

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Context

In British Columbia, most mine exploration occurs on First Nations' lands where people still depend on traditional lifestyles. First Nations in BC and Indigenous people all over the world are asserting and exercising their rights to control development on traditional lands and territories and are calling for an end to government sanctioned land use practices that allow staking and the exploration of mines without adequate consultation with affected communities. Worldwide, First Nations people are calling for Free, Prior and Informed Consent (FPIC) for resource extraction development on their traditional territories.

The mining industry needs access to land and labour from First Nations for their projects to be viable. As Pierre Gratton, the new President and CEO (Chief Executive Officer) of the Mining Association of British Columbia said in Prince George on June 26, 2008;

> *"Sustainable Development means something a little different in our industry than in some others. Of course, mines are finite, so many scoff at the notion of "sustainable mining". But while mines are finite, the essential contribution of our industry to society clearly isn't. And our contribution to human capital through the activities of our industry is one of the most significant demonstrations of sustainability that any sector can make…I want, in 5-10 years time, for the BC mining industry to be recognized not just in Canada but around the world for its collaborative work with First Nations. Ours will be a sector with the best safety record supported by governments, welcomed by First Nations and respected by environmental organizations."*[1]

The mining industry has made specific demands of the BC and Canadian governments:

"So what does the mining industry need?

- *First off, we need a more efficient and effective permitting process, and not what one of my very distinguished mining industry colleagues calls the "Canadian long slow maybe."*
- *Secondly, we need a more productive relationship with the province's First Nations communities. A relationship based on mutually beneficial collaboration, partnerships and respect.*
- *Thirdly, we need investments by government in the infrastructure that moves our products to market, and we need to hold on to our competitive power rates to run our operations.*
- *Fourth, we need a clear commitment on the part of government and our own industry to research, education and training to ensure BC remains a leader internationally.*
- *And finally – and perhaps most important -- we need inspired leadership at the federal and provincial levels. From politicians willing to make tough decisions. Who understand the importance – and the contributions – of the mining industry."* (Michael McPhie, Mining Association of Canada-BC (MACBC), CEO, speech to the Vancouver Board of Trade, May 2006)[2]

The British Columbia Government announced its Mining Plan in 2005, which included internet claim staking, commitments about building trust for the industry with First Nations, changes to speed up environmental assessment and permitting processes, and more financial incentives for exploration.

The Honourable Kevin Krueger, then Minister of State for Energy, Mines and Petroleum Resources, said on February 8, 2008

"I am accountable for achieving the following results for 2008/09:

- *Support the continued implementation of the Asia Pacific Initiative with respect to mining in order to:*
- *Encourage investment in B.C. exploration and mining projects; and*
- *Promote business with the mining services sector (engineering, reclamation, health and safety, transportation, financial and legal consulting services).*
- *Identify opportunities for streamlining regulations and reducing regulatory overlap between various levels of government in order to reduce the regulatory burden on persons conducting mining exploration and development in B.C.*
- *Develop and commence implementation of a plan for B.C.'s aggregate industry that includes matters relating to: aiding the sustainable and responsible management of the resource; enhancing the safety of*

workers in this industry; aiding the effective and streamlined management of this industry; and enhancing opportunities for the aggregate industry.

- *Develop initiatives in order to enhance cross-ministry and cross-agency co-operation in the processes established for consultation with and accommodation of First Nations in matters that relate to mining."*[3]

Upon the recent appointment of Gordon Hogg to the Ministry, it is proposed that a "council on mines and exploration" will be set up with industry and First Nations, and a new commitment has been made to "repackage" the Northwest Transmission Line as a means to wean the North off diesel fuel[4].

Other Canadian jurisdictions have long recognized the imperative to deal respectfully with Indigenous peoples. In the Northwest Territories and in Newfoundland and Labrador, participation in regulatory approvals and requirements for Impact-Benefits Agreements has been recognized in policy and treaty provisions as a matter of course.

In July 2008, Ontario announced a wholesale reform of its mining legislation, promising to entrench requirements for early consultation and accommodation with affected First Nations, and a commitment that no projects would be approved without First Nation consent.

Mineral Tenure context

THE "TWO-ZONE SYSTEM" FOR MINING & EXPLORATION IN BC

The *Mineral Tenure Act* was amended in 2002 by Bill 54, Section 14 to legislatively confirm the long-standing government policy that all Crown Lands are open to mineral exploration and mining, except lands with legally protected status.

This means that BC has determined that all First Nations territory is open for mining, unless it is designated as a national park, ecological preserve, heritage property or an area where mining has been prohibited by an order under the *Environment and Land Use Act.*[7] Approximately 86% of BC land is open to mining. The BC government created the two-zone system to provide confidence or "certainty" to the mineral exploration industry and their investors, and to attract investment and demonstrate that B.C. is open to mineral development.

The BC government states that the Two-Zone System "will not limit treaty negotiations or settlements"; "does not displace mineral resource management provisions that may be included in treaties or other agreements with First Nations"; and does not "alter the Province's consultation obligations" [8]. However, in practical terms, the Two-Zone System legislation limits the ability of First Nations to manage their traditional territories (eg, by conducting large scale land use planning) as mineral exploration is in essence, pre-approved by the BC government. Within the current legislative system, First Nations communities have limited ability to protect ecological and culturally important areas from mineral activities in areas outside of legislatively protected lands. This system gives First Nations communities few legal ways to control the pace and scale of resource development on traditional lands.

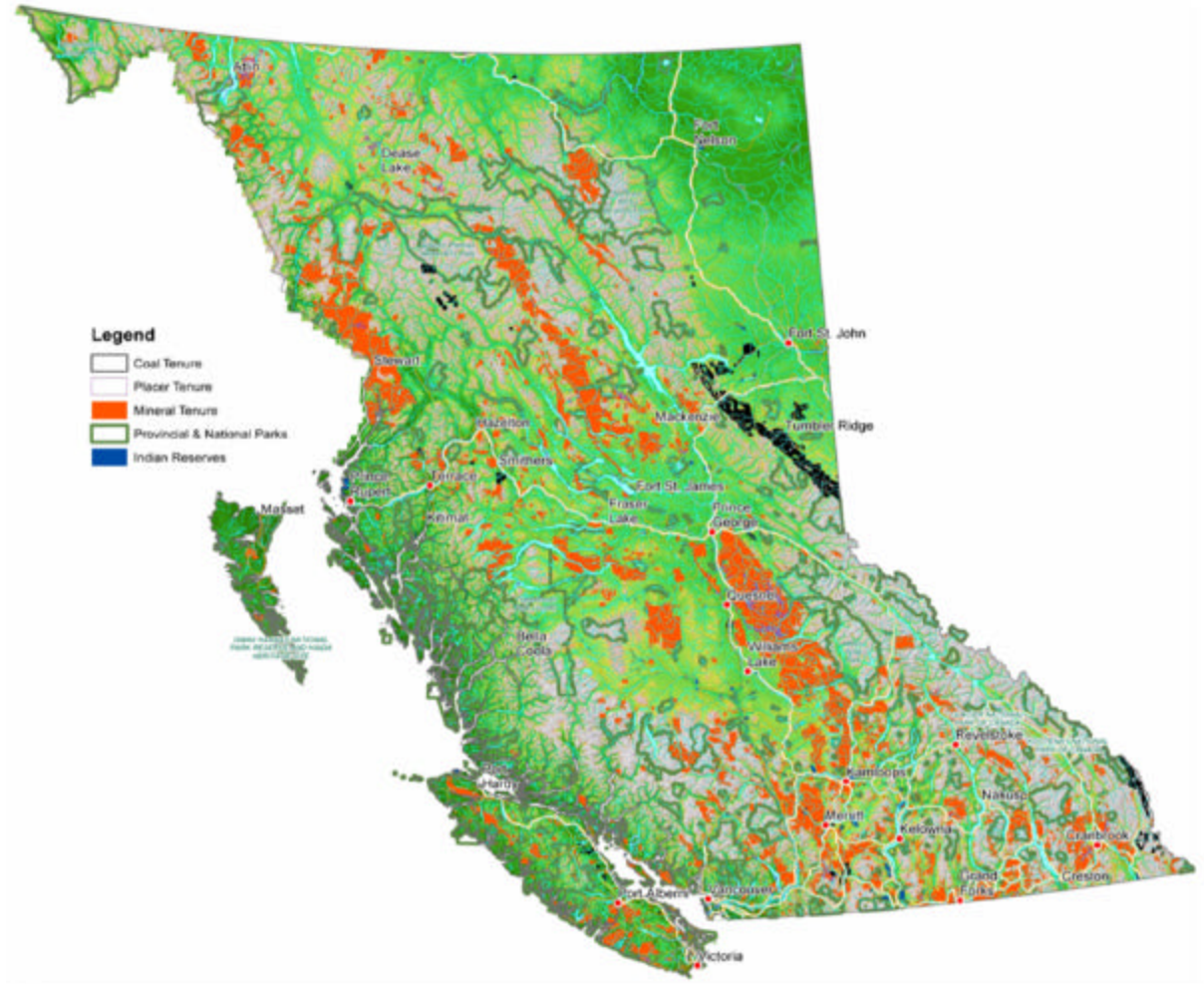
FREE ENTRY SYSTEM IN BC

The Free Entry system is the primary way of granting mineral tenures in Canada and gives mining companies the exclusive right to Crown-owned mineral substances from the surface of their claim to an unlimited extension underground. There are three primary rights associated with the law of free entry: the right of entry and access on virtually all lands; the right to locate and register a claim without consulting the Crown; and the right to acquire a mineral lease with no discretion on the part of the Crown[9].

Many First Nations in BC and across Canada are calling for an end to the Free Entry system, and want it replaced with a joint permitting or shared decision-making system with respect to granting mineral tenures. Free Entry could also be modified by making it subject to land use planning terms and conditions such as various types of land use zones or seasonal restrictions for activities.

CLAIM STAKING IN BC

In 2005, the BC Provincial government established an on-line staking system that allows individuals and mining companies to "stake" land over the internet from anywhere in the world using a credit card without ever setting



Provincial map with mineral, placer, and coal tenure overlay. http://www.em.gov.bc.ca/mining/titles/GIS/maps.htm

foot in an area. The claim can be held as long as the prospector conducts minimal on site work or pays an annual fee. The fees paid for claims are very small and do not go to local communities. A prospector can stake up to 25 cells per claim at one time. Over 85% of BC is open to claim staking, including private land and areas of unsettled Treaties. BC maintains a continuously updated map-based system of all the staked lands.

Chief Leonard Thomas, from the Nak'azdli First Nation, publicly opposed the internet staking program when it was launched, saying that the provincial government has "burdened our traditional territory with numerous third party claims without carrying through on its duty to consult and possibly accommodate us."[5]

Free Entry tenure and on-line staking have been sources of conflict particularly for claims located on the traditional territories of First Nations, near communities, and on private land. There is no requirement for the prospector to provide notice or consultation with First Nations before staking a claim.

Across Canada, many First Nations are challenging Free Entry, calling for adequate consultation and accommodation and implementation of the standard of free, prior and informed consent before a third party interest is created. In a July 23, 2008 editorial, the Toronto Star noted:

Ontario's Mining Act was passed into law in 1873 and the basic structure of the act remains unchanged. Under the act, prospectors can stake claims on Crown land, and then the prospector registers the claim, thereby earning the right to mine.

However, most crown land in Ontario is also in the traditional land base of First Nations, and so the Mining Act's outdated provisions have collided head-on with a developing jurisprudence on the duty to consult.

As it stands, the Mining Act grants rights to prospectors regardless of whether or not First Nations have been consulted, and the results have played out in Ontario's courts and in fevered protests pitting mining companies against First Nations.

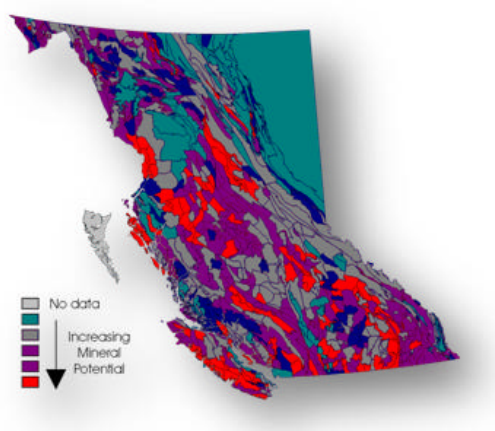
McGuinty intends to change all that by announcing the province's intention to revise the Mining Act. Because the act will affect the aboriginal and treaty rights of Ontario's First Nations, First Nations will have to be consulted.

The act will have to require early consultation with affected First Nations, and so McGuinty's announcement is, essentially, that he intends to revise the Mining Act so it complies with decisions of the nation's highest court. The decision to revise the Act is neither revolutionary nor prescient – it is simply a matter of doing what the law already requires.[6]

Geological context

British Columbia shows many promising mineral occurrences, as a result of its geological history. Ancient forests have been compressed into coal seams; seabeds formed limestone and shale; extinct volcanoes brought gold and copper to the surface; up thrusting mountains exposed valuable minerals and gems. Minerals produced in BC include coal, copper, gold, silver, molybdenum, zinc, aggregates, jade, limestone, barite and others.

However, "mineral potential" is determined based on a number of factors, which include the commodity price, the grade or quality of the deposit and costs of extracting the mineral.



Mineral Potential in BC, ranked.
http://www.empr.gov.bc.ca/mining/Geolsurv/Publications/GeoFiles/Gf1998-1/toc.htm

Economic context

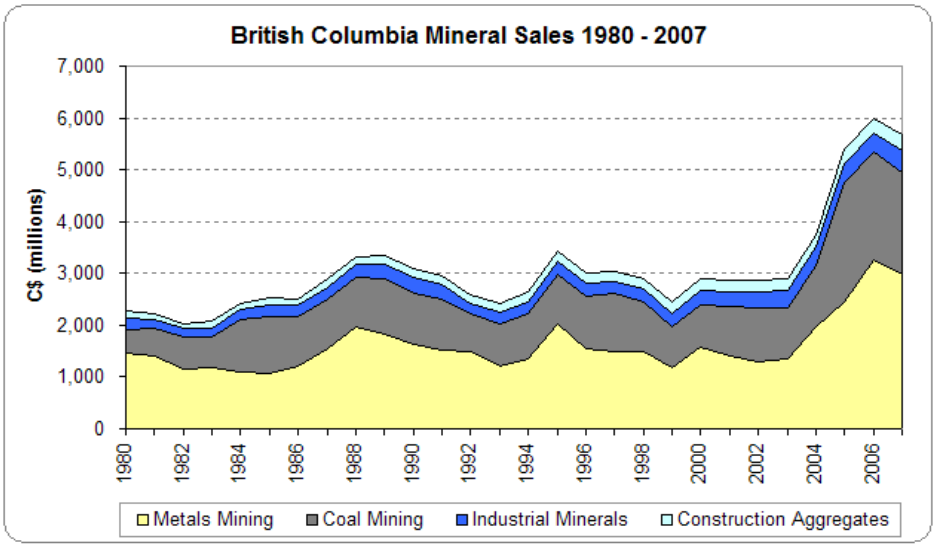
The mineral exploration and development industry has been booming since 2003, driven by demand for metals in Asia – particularly China. Mineral companies in China, India, Korea, Japan, Russia and Brazil have become significant international players, seeking metals to meet the demands of their new middle class, to modernize infrastructure and manufacture goods for export. These demands have driven investor speculation and the prices of uranium, copper, gold, and gravel have doubled and tripled since 2001. Mining is a major economic driver in Canada, at least for the short-term, providing jobs in rural communities. The mineral industry (including refining and manufacturing) contributed approximately 3.4% of the Gross Domestic Production (GDP) in 2007.[7]

Rich mineral deposits are getting harder to find in Canada because they have largely been mined out. Companies are searching in remote areas of the globe and using more sophisticated exploration techniques to find ore bodies

that are usually low grade. Companies propose using low cost mining methods, such as open pits and disposal of mine waste into lakes, to decrease their extraction, production and waste disposal costs. Mines plan to extract minerals more rapidly to take advantage of current high commodity prices, which results in shorter mine lives and less benefits to neighbouring communities. Many of the mines currently proposed in BC are low grade deposits that were considered uneconomic when commodity prices were lower.

At the same time metal prices have gone up, the costs of developing and operating mines have sky-rocketed. In the last few years the price of labour, energy, transportation, equipment, steel, and tires has greatly increased. John Chadwick, noted mining analyst, wrote on June 15, 2008: *"The cost of all inputs to mine construction has increased dramatically over these past boom years and is a growing problem in the industry worldwide. The impact is great, whatever the size of operation, but can be demoralising where mega projects are concerned."*[8] There is a serious shortage of qualified labour because the current work force is aging and many resource extraction projects are being developed at the same time. Further statistics and description of government incentives are found in Appendix A.

Mining companies need to raise increasing levels of investment capital and credit to build new mines. It has become harder to finance new mines for many reasons: the lagging US and Canadian economies have made investors more conservative, the rising value of the Canadian dollar has affected sales of raw ore and refined product to overseas markets, and conflicts over mining projects are creating uncertainty that the project will be supported by neighbouring communities. Investors are also concerned about undisclosed liabilities for accidents and reclamation of mines. In 2004, Yale professor Robert Repetto undertook ten case studies of mining disclosure looking at the requirements for hard rock mining companies listed on U.S. or Canadian stock exchanges for financial disclosure of material environmental information. Ten "financially material" environmental events that occurred to ten mining companies were reviewed to see if companies had complied with disclosure requirements. These events included "dam failures, increases in remediation liabilities, increased bonding requirements and other environmentally related changes. In all but one of the case studies, disclosures were found to be deficient, especially in the disclosure to investors of known material environmental risks and liabilities."[9]



The mineral sector is a growing part of BC's economy.
http://www.em.gov.bc.ca/mining/MiningStats/09allsalesmineco.htm

Canada's reliance on the extraction economy has generated a very high Canadian dollar relative to the US dollar. Canada imports most of the equipment needed to develop new mines, and exports most of our mining product to the United States. Every 1 cent increase in the Canadian/US exchange rate results in an estimated $50 million dollar loss to the Canadian economy[10].

Current economic conditions have generated great wealth for companies with existing mines – like Teck Cominco, Barrick, Goldcorp, and Taseko, but smaller and medium sized companies

"...mining remains a high risk, capital intensive business that requires hundreds of millions of dollars of expenditure on exploration before there is a chance of finding an economically viable deposit. Furthermore, even if a significant deposit is found, it can take anywhere from 5 to 7 years to bring it into production. This long lead time for development is the case generally anywhere the industry operates in the world and is most often as a result of increased scrutiny and insome cases controversy over new industrial development." - Michael McPhie, Mining Association of BC, May 2007

that want to open new mines–like Adanac, Redfern and NovaGold are finding it increasingly difficult.

The mining industry is not only made up of mineral exploration and mining companies, it includes a substantial financial sector. Sixty percent of Canadian exploration and mining companies are based in British Columbia, home to the world's largest concentration of exploration companies, mining professionals and consultants to the mining industry including engineers, accountants, lawyers, scientists, and management experts. In 2007, B.C. based companies raised $6 billion in equity capital for mining or about 37% of the total equity capital raised for Canadian listed exploration companies. This economic activity was carried out by 735 publicly-listed B.C. companies which account for 54% of the national total. [10] The companies are in BC because the British Columbia Securities Commission is accustomed to dealing with junior mining companies and Asian investors, and even has a special Mining Advisory Committee composed of industry representatives. The promoters, financial advisors, brokers, dealers, banks and securities regulators that benefit from this industry profit from the financial dealings of the mining industry and are strong advocates for the mineral exploration and mining industries**.**

Legal, Consultation and Accommodation context

British Columbia First Nations peoples have been exercising their authority over their traditional territory with the mining industry through negotiations, direct actions and court decisions. It is now recognized by the courts, industry and government that First Nations must be consulted, accommodated and compensated via negotiated agreements before mining can proceed in BC. Recently, mining projects that have failed to gain First Nations support (such as the Kemess North project) have failed to obtain regulatory approvals.

AMEBC writes: *"We hope that our readers recognize the clarity, force and fairness of the Supreme Court's decisions in Haida Nation and Taku River Tlingit. We also hope that our review of the line of key Supreme Court rulings on Aboriginal title and rights, going back to Calder, has illustrated the legal foundation built by the Court for the Crown's 'triple-decker' duty of consultation, accommodation and negotiation. That foundation is: Aboriginal title and rights claims forming the subject of litigation and treaty negotiations must be respected and protected by both the federal and provincial levels of government, while such litigation and treaty negotiations are pending."*[11]

Leaders of the mining industry acknowledge the growing role of First Nations, but remain uneasy about the potential impacts of increased First Nation demands on the viability of the industry MABC President Pierre Gratton noted in this regard: "*And this takes me back to the First Nations summit that will take place here in a few months. It is a summit organized by First Nations who are feeling empowered and emboldened by recent court rulings, recent actions by government, and recent successes in blocking new developments to which they were opposed. It is their show, to which we are invited. In a province defined by overlapping and competing land claims and significant regulatory uncertainty, our involvement in this event is not without risks. It is not without risks because First Nations are now questioning certain laws and mining practices that have been in place for many years and which they want reformed. It is not without risk because growing First Nation demands for participation in and sharing in resource wealth can compromise the viability of projects."*[12]

A number of First Nations governments across Canada have enacted consultation protocols seeking to control staking and exploration access to their traditional territories. The Taku River Tlingit First Nation has developed a Mining Protocol which provides for a Tlingit-led process to control access into their territory.[13] It is included in Appendix B.

In Ontario, Kitchenuhmaykoosib Inninuwug and the Ardoch Algonquins have demonstrated that the Ontario Mining Act contravenes Section 35 of Canada's constitution (in addition to their traditional law). Following months of protest in which leaders from both communities were jailed for contempt of court, the Premier of Ontario announced in July 2008 that amendments to the Ontario Mining Act will be introduced in the legislature in the fall. The legislation will enshrine First Nations consultation obligations at the early exploration stage, and require conformity with land use plans to be developed by First Nations in Ontario's Far North before mining projects will proceed.[14]

Where large land claims have been settled – Eeyou Estchee and Nunavik in Quebec, Nunatsiavut in Labrador, Nunavut, and the many First Nation Agreements in Yukon and the NWT – First Nations governments have been able to enforce consultation and often MOUs with mining companies at the exploration stage. In Labrador and Quebec, the Innu Nation have exploration protocols for their territory, and have on at least two occasions expelled exploration companies that did not respect these protocols from their land[15].

On July 17, 2008, INAC released a report by Neil McCrank which recommends that the Free Entry system of mineral tenure in the NWT be reviewed.[16]

Throughout Canada, there are Participation and/or Impact-Benefits Agreements with over 30 First Nations governments covering both advanced exploration and producing mines. A list can be found at http://www.impactandbenefit.com/IBA_Database_List.html, though the agreements themselves are almost all confidential. The confidentiality of these agreements is an issue for many First Nations, as it leaves the knowledge needed to compare agreements solely in the hands of companies, who are often involved in multiple negotiations over time with different First Nations while First Nations who are party to individual agreements are often unable to compare and contrast key provisions with their neighbours.

The research of Australian academic Ciaran O'Faircheallaigh[17] shows that most agreements provide for a direct transfer of funds and/or revenue sharing, employment quotas and training, contracts for mine supply and consultation over emerging issues. Some, such as the Ekati Agreement in the NWT include independent environmental monitoring and many First Nations governments make land-use planning or protection of heritage or ecologically sensitive sites a pre-condition for signing the agreements, In the NWT, independent monitoring agreements are not in the IBAs but are separately negotiated between governments, the companies and the affected First Nations. Kevin O'Reilly has also written extensively on the subject of these kinds of agreements [see http://www.carc.org/pubs/v25no4/index.html]

Some of the details which are publicly available concerning mining impact-benefit agreements are set out below:

Labrador Innu and Inuit / Voisey's Bay Nickel Company/Province of Newfoundland and Labrador

The Innu and Inuit of Labrador each concluded agreements with the province of Newfoundland & Labrador in 2002 in respect of the Voisey's Bay mining development. Revenue sharing payments include 5% of provincial royalties from the mine, valued at $14m to each of the Innu and Inuit in 2007.

In addition to the provincial revenue-sharing, there are direct revenue-sharing deals between the Innu and Inuit and Voisey's Bay Nickel Company and Inco Ltd (now Vale Inco). The 2007 payment from this latter deal is not public but it is known to be substantially larger than the $14m from provincial revenue-sharing.

Inuit in northern Quebec (Makivik Corp.) / Falconbridge – Raglan Agreement

This agreement is one of the earliest revenue-sharing IBAs, concluded in 1995 between Inuit communities in northern Quebec and the Falconbridge mining company. The annual payment for 2007 was $32.6m, based on a share of revenue from the Raglan mine.

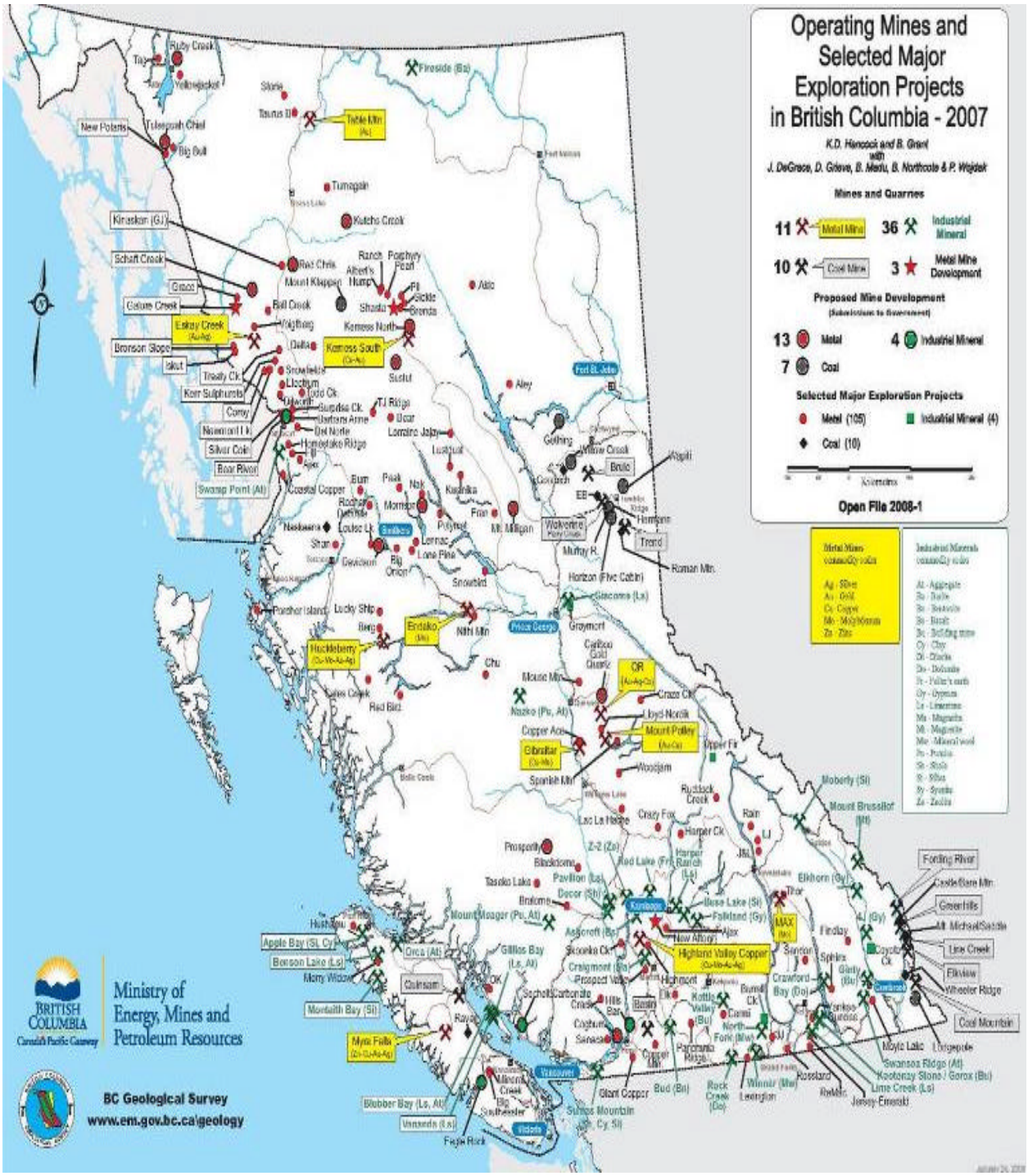
Quebec (James Bay) Cree / Province of Quebec – La Paix des Braves

This multi-dimensional agreement was concluded in 2002 between the government of Quebec and the Cree of James Bay, with the involvement of Hydro-Quebec. Revenue-sharing payments from hydro, mining and forestry within the Cree territory are $70m per year or more.

Employment context

Governments do not keep up-to-date figures of First Nations employment within the mining industry; however, there is some data available. See Appendix C for more information about First Nations employment in different sectors of the mineral industry.

- In 2001, 420 First Nations people were part of, the BC mining work force with a total of 3,840 First Nations people employed in mining across Canada.[18] The Association of Mineral Exploration in BC (AMEBC) estimates that 10% of 7071 employees in the mineral exploration sector in 2007 were First Nations citizens . Most were seasonal employees.[19]
- The Ts'kw'aylaxw First Nation has 27 community members employed full time at the Pavilion limestone quarry operating on their reserve.
- The West Moberly, Saulteau, and Tahltan First Nations and the McLeod Lake Indian Band have benefited from high levels of employment for their community members at mines located close to their reserves.[20]
- North West Tribal Treaty Nations (NWTT)[21] looked at employment of their labour force based on the Standard Industry Classification system. Based on information from 37 communities, 85 on-reserve and 50 off-reserve members were employed in mining and oil and gas extraction.
- The Tahltan negotiated for 35% of mine employees to be Tahltan at the (now-closed) Golden Bear Mine. Tahltan held about 1/3 of the positions at the Eskay Creek Mine located in their territory, and benefited from a number of contracts for trucking, road construction and mine services.
- The Ucluelet and the Hupacasath First Nations have negotiated an agreement for 50% of the employees at the Polaris Eagle Rock Mine to be First Nations members.[22]
- In 2004, at the South Kemess Mine, 28 First Nations employees came from the affected communities[23] out of 350 full-time and 125 seasonal employees, and they earned an average of $15,000 to $25,000 that year.[24] The average wage for mine workers in BC was $94,700.[25]


Operating Mines and Selected Major Exploration Projects in British Columbia - 2007
K.D. Hancock and B. Grant
with
J. DeGrace, D. Grieve, B. Madu, B. Northcote & P. Wojdak
Mines and Quarries
11 Metal Mine
36 Industrial Mineral
10 Coal Mine
3 Metal Mine Development
Proposed Mine Development
(Submission to Government)
13 Metal
4 Industrial Mineral
7 Coal
Selected Major Exploration Projects
Metal (105)
Industrial Mineral (4)
Coal (10)
Kilometres
Open File 2008-1
Ministry of Energy, Mines and Petroleum Resources
BRITISH COLUMBIA
Canada's Pacific Gateway
BC Geological Survey
www.em.gov.bc.ca/geology

Phases of mining

The general phases of mining are: Prospecting and Geoscience, Exploration, Development, Production and Closure/Reclamation.

Prospecting and geoscience
Prospecting takes place to find mineral bodies that warrant exploration. Geoscience forms the basis of this; it is scientific information relating to the earth, particularly geologic, geographic and geophysical. This information is incorporated into maps, graphs, and reports by and for prospectors. It is largely compiled and supported by the provincial and federal governments on a continual basis, through programs such as Geoscience BC (*http://www.geosciencebc.com*). Geoscience provides a better understanding of BC's land base to help promote mineral exploration in BC but is also helpful for land use planning exercises.

Exploration
Exploration companies want to find areas of high mineralization, and to delineate the boundaries of these areas. Early exploration may involve seismic or magnetic surveys with airplanes and helicopters.
Exploration field work, on the claim site includes collecting samples by trenching and drilling, cutting trees and power washing rocky areas. Exploration can bring heavy equipment and many people into the claim area by road and air. If the mineralization is promising, the company will continue on to "advanced exploration" to further define the zone of mineralization.

An example of mineral exploration in northwest BC.*(Photo: Schaft Creek project, 2007. C. Slanina)*

Advanced exploration can resemble a small mine, and typically includes an extensive drilling program (thousands of metres of drilling per season over several seasons), exploration camps (cooking, sleeping and sanitation facilities), access by air and land (airstrips, landing pads and access roads), small tunnels or test pits for bulk sampling, diesel tank farms, and perhaps even a pilot mill and with associated dumps for waste rock and other materials. Companies prefer to build roads at this phase because it is a less expensive means of bringing in heavy drilling equipment and fuel.

In BC, the exploration season is usually spring through early fall. Projects can continue for many seasons and change ownerships several times before a site is abandoned or developed into a mine. Most exploration is done by 'junior companies' - exploration companies that do not have significant income from producing mines or other businesses and are financed mainly by exploration funds raised by selling shares on the stock market[26].

Mineral exploration investment in British Columbia soared to a record level of $416 million dollars during 2007, an increase of 57% from 2006. BC accounted for 17% of Canadian mineral exploration investments during 2007, up from about 7% in 2000.[27] It takes many years to prove up an economic ore body. It is estimated that only 1 in 10,000 mineral showings develops into an operating mine[28]. A map of operating and major exploration projects in BC can be found on page9.

The BC government has created *the Mining Exploration Tax Credit Program and Exploration Investment Tax Credit* program for flow-through investors to provide additional incentives to attract risk capital to the province. When the BC and federal non-refundable tax credits are combined with the regular 100% tax deductions for mining exploration, they equal a 141% tax deduction for mining companies. This means mining companies can deduct all their costs and receive a 41% tax refund for exploration work. The BC *Mining Exploration Tax Credit* has been increased to 30% for qualified mineral exploration undertaken in prescribed Mountain Pine Beetle affected areas of the Province.[29]

The BC government requires that companies post bonds or financial assurances that are held by the province to ensure funds are available for the reclamation of exploration areas. The bonds posted for an exploration project are usually small and do not include First Nations input in the calculation. Despite posting a bond, companies do not always complete reclamation plans for their exploration project, and the reclamation activity may not be inspected for completeness by government regulators.

Exploration can and does provide employment (largely seasonal) for field work, equipment operations or contracts in nearby First Nations communities. In 2006, BC Mineral exploration had 6,470 seasonal employees, or 2,147 full time equivalents.[30]

Since 2005, members of the Tahltan and Iskut First Nations have been struggling with the pace and scale of resource development in their traditional territory, particularly mining. Inadequate consultation and concerns with development in specific areas on their lands have resulted in protests and multiple arrests of community members, particularly Elders. *(Photo: C. Slanina, 2005)*

Notices of Work done by exploration companies are sent to Band Councils when companies plan to conduct field work on the claim site. Generally, the information provided is limited. Band Councils must reply within a short time frame (usually 30 days) and consent from Band Councils is not required before the field work begins. This can lead to early tensions between exploration companies and First Nation communities.

Development

If a company thinks it has a viable deposit, the next step is to determine if and how the project can be developed from engineering and financial perspectives. The company will hire consultants to conduct a scoping study or pre-feasibility study and eventually a feasibility study. The scoping study will be general in nature and will usually only provide an unqualified estimate of the mineral resource. The feasibility study is prepared for banks and financial institutions and will usually include engineering estimates of development costs and the ore body must be analyzed to meet Securities Commission rules (reports on ore quantities and quality must be "NI43-101 compliant"), and certified by an independent qualified geologist.

Many factors affect the feasibility of a mine; infrastructure access, timing, market prices, cost of credit, fuel and equipment availability, ore grade, quality and ore body size. The company designs the mining operation including as much detail as possible, along with the costs for development. For successful mine development, timing is critical. For example, the Galore Creek deposit in northwest BC is relatively rich (estimated at approximately $5 billion dollars) but is not considered economic to mine in present circumstances because of increases in the cost of labour, construction, materials, and power.

Questions relevant to the development of a feasibility study are found in Appendix D.

> Galore Creek mine is an example of the importance of accurate feasibility studies and how different factors can significantly affect cost. The 2006 feasibility study estimated the mine would cost approximately $2 billion (Can). Nova Gold Resources Inc and its partner, Teck Cominco Ltd had another firm review the 2006 feasibility study in the spring of 2007. Rising costs for labour and materials, a longer construction schedule, and the higher Canadian dollar raised the new estimated cost to more than $5 billion, more than doubling the original estimate in one year. One area of serious cost underestimation was the tailings impoundment area. Although construction had already begun on the mine's access routes, the companies decided to stop operations to re-evaluate the project. Stopping operations and putting the project in 'hibernation' for approximately 2 years is going to cost the companies more than $70 million. Not only was this a blow to the companies, primarily Nova Gold's stock, it was a significant blow to workers, contractors and local Tahltan communities who invested years of energy into the project. Postponing the project means postponing revenue sharing benefits for the Tahltan
> *Centre for Science in Public Participation*

If development looks feasible, the company will formally enter the Environmental Assessment (EA) process by submitting terms of reference and an application. The EA process requires the company to develop very detailed project information including alternatives to the mine plan, extent of the ore body, expected mine life, benefits and impacts from the proposed project (environmental, socio-economic, cultural, cumulative) and more. The EA applications are often many hundreds of pages long. Project descriptions for BC mines are available on the EA Office website, http://www.eao.gov.bc.ca/. The EA process generally takes a few years, depending on factors such as the size and complexity of the project, the state of the economy, level of impacts and benefits, politics and First Nation's relations with the company.

Both the federal and provincial governments have a role in the EA review. If the mine will impact fish habitat, migratory birds or species at risk, requires changes to navigable waters, is transboundary, or involves radioactive ore, the *Canadian Environmental Assessment Act (CEAA*) will be triggered. Unlike the *BC EA Act*, the federal act requires an assessment of alternatives and cumulative impacts. It can also lead to a Panel Review in some cases (the appointment of an independent body to assess the mine), such as the Kemess North Mine EA. Usually the BC and Federal EAs are conducted together in a combined review.

The affected First Nations should be involved and informed well before the EA process begins. The Centre for Indigenous Environmental Research in Winnipeg (CIER) is undertaking a research project on the involvement of First Nations peoples in EAs.[31] Many First Nations have serious concerns about the EA process, especially in regard to how Traditional Knowledge relating to project impacts is addressed. As governments, many First Nations seek to be a full party in determining the scope and conduct of the review. In the Voisey's Bay EA in Labrador and the Mackenzie Valley pipeline review, First Nations were able to negotiate seats on the Joint Panel. This has never been accomplished in BC.

There are concerns with the amount of administrative and political discretion exercised during the EA, the lack of adequate funding for First Nations to be involved in the review, the scheduling of stages in the EA process which are not conducive to First Nations interests, and the lack of follow-up and enforcement of mitigation measures deferred to the permitting stage.[32] The Carrier Sekani Tribal Council website provides a discussion paper (2007) on the EA process from a First Nations perspective (http://www.cstc.bc.ca/cstc/81/envtal+assmts). The paper is included in Appendix E.

Prior to the EA, the company will conduct a significant amount of baseline field studies to understand the project area and how the mine will affect and be affected by environmental factors. Ideally, baseline studies begin early,

before any exploration is conducted, to characterize the ecology and local community before changes are created by exploration activities. During the development stage it may take years to conduct baseline studies, develop engineering designs, acquire financing and go through the EA Process. Industry estimates suggest it takes 7-10 years for a mine to go from exploration through development into production.

In order to develop a mine, the company will need to attract significant investment capital, and the junior mining company that did the exploration will likely be sold to a larger mining company. The senior company may have already optioned the shares. For example, Nova Gold and Teck Cominco share the Galore Creek project 50/50 and Terrane Minerals' Mount Milligan Project has been financially supported by Goldcorp. If a larger company is not interested, the company will have to seek capital for development, using the feasibility study, through the stock market or through a lender such as a bank.

Production

After a project has received its EA certificate and federal approval, it moves into the permitting phase. Provincially, this process is conducted by a Mine Review Committee, made up of government Ministry staff, First Nations and the company. Many permits are required including; a *Mines Act* permit for the infrastructure of the mine (Ministry of Energy, Mines and Petroleum Resources, MEMPR), fish habitat impacts from stream changes (Ministry of Environment), road use and/or construction (Ministry of Forestry), and discharge of water from the mine site into the surrounding environment (Department of Fisheries and Oceans, Ministry of Environment).

The *Haida* and *Taku* Supreme Court cases in 2004 stated "It is expected that, throughout the permitting, approval and licensing process, as well as in the development of a land use strategy, the Crown will continue to fulfill its honourable duty to consult and, if indicated, accommodate the TRTFN." There may be as many as 25 permits and/or approvals required for a mine start-up.

As of July 2008, there are 20 mining projects listed as current projects in the EA process on the Environmental Assessment Office website. (http://a100.gov.bc.ca/pub/epic/projectStatusCategoryReport.do#curr)

1	Kerr-Sulphurets-Mitchell Project	Pre-Application 2008/04/25
2	Sustut Copper Project	Pre-Application 2003/03/28
3	Prosperity Gold-Copper Project	Under Review 1995/06/30
4	Cariboo Gold Project	Under Review 2000/04/11
5	Roman Coal Mine	Pre-Application 2007/09/11
6	Giscome Quarry and Lime Project	Pre-Application 2007/04/19
7	Gething Coal Project	Pre-Application 2006/11/10
8	Mt. Milligan Gold/Copper Project (2006)	Pre-Application 2006/10/13
9	Schaft Creek Copper-Gold-Molybdenum-Silver Deposit Project	Pre-Application 2006/08/14
10	Hermann Coal Mine Project	Under Review 2006/07/06
11	Lodgepole Coal Mine	Pre-Application 2006/01/09
12	Sechelt Carbonate Project	Pre-Application 2005/11/23
13	Horizon Mine Coal Project	Pre-Application 2005/09/20
14	Kutcho Copper-Zinc-Silver-Gold Project	Pre-Application 2005/07/29
15	Bear River Gravel Project	Pre-Application 2005/03/08
16	Hills Bar Aggregate Quarrying Project	Pre-Application 2003/07/21
17	Morrison Copper/Gold Project	Pre-Application 2003/09/30
18	Mount Klappan Coal Project	Pre-Application 2004/10/08
19	Davidson Project	Pre-Application 2005/07/18
20	Cogburn Magnesium	Pre-Application 2005/03/24

Following the permitting phase, it may take 1-2 years of construction before a mine is fully operational and producing, transporting and shipping product. The life of a mine depends on how large and rich the ore body is, what the world economy is like, and how long a mine can extract the ore and produce concentrate at a profit. Most of the new planned metal mines in BC have a life of less than 20 years, although coal and aggregate operations can last much longer.[33] Appendix F shows the projected BC operations for 2008.

The ore is extracted through either open pit or underground mining. Open pit mining is the extraction method preferred by industry because it is much cheaper than underground operations.

The Kemess South Mine is an open pit copper gold mine in north central BC. (*Photo: C. Slanina, 2007)*

The operation involves

- removing the "overburden" – the soil, trees, and plants that cover the mine site,
- blasting the rock that does not have any mineral value (the "waste rock") and the ore (the mineral bearing rock),
- taking the ore to mill and waste rock to waste rock piles,
- grinding the ore into a powder,
- mixing the ore with water and re-agents to separate the target metals or minerals,
- concentrating the target metals and
- transporting the concentrate to a smelting or refining facility by truck, rail and/or ship.

In an open pit mine, this electric shovel puts ore into a haul truck. (*Photo: Sierrita Mine, AZ. C. Slanina, 2007*)

Tailings, the waste materials left over from processing, are usually piped to large tailings

impoundment areas for permanent storage. In underground mining, some waste rock (and possibly tailings) may be used as backfill in the tunnels to help maintain structural support and reduce costs, because it is expensive to haul waste rock to the surface.

Although every mine is different, here is an example of some common mine site components. *(Photo: Gibraltar Mine, BC. GoogleEarth, July 2008)*

There is also a method of removing low grade gold or copper, called heap leaching. Ore is dug from open pits, placed on a liner in huge heaps and then sprayed with cyanide solution to 'dissolve' the gold out of the ore, or with sulphuric acid to remove copper. There are only afew operations in BC that have used this method.

Aggregate and quarry operations rarely have tailings, and coal has a "wash pit" instead of a tailings pond.

Mine operation requires the excavation of aggregate "borrow pits" for gravel and limestone, large heavy equipment, explosives (often mixed on site), a power supply (power lines or diesel generators), roads, pumps, pipelines, and multiple buildings for processing. Mining is a waste management industry. Some gold mines have as little as 1 gram of gold per tonne of ore, and 3 tonnes of waste rock. The ratio of waste rock to ore is the "waste ratio" for the mine (e.g. 3:1).

New mines in general do not include the development of smelters or refineries due to the extremely high capital cost (particularly their need for power) and environmental concerns (air and water emissions) associated with them. However, there are three smelters in BC: Kitimat- the Alcan aluminium smelter; Trail - the Teck Cominco lead/zinc smelter; and Fraser Lake – the Endako molybdenum roaster. The Alcan aluminium smelter at Kitimat processes the alumina extracted from bauxite ore mined around the world, because bauxite is not found in Canada. The Alcan smelter also required the construction of a hydro dam and water reservoirs to provide power for the operations.

After the ore is ground into a fine powder, the floatation process brings the target minerals, such as copper, to the surface of the fluid in the form of bubbles. This separates the target mineral from the unvaluable materials, the tailings. The bubbles are skimmed off and dewatered to create the concentrate that will be transported from the mine site. The tailings are piped to the tailings impoundment area for permanent storage. *(Photo: Huckleberry Mine, BC. C. Slanina, 2005)*

Mining production in BC is valued at approximately $6 billion annually. There were 10 coal, 11 metal, 36 major industrial minerals quarries and mines, several placer mines, and more than 1100 aggregate pits in operation during 2007. Currently, there are over 20 mining projects seeking development and environmental approvals.[34]

Closure/Reclamation

Mines close for several reasons: because the ore eventually runs out, the metal is no longer profitable due to market price decreases or operation cost increases, the company decides it no longer wants to produce from that mine to focus on other projects, or the company goes bankrupt.

"Mining (design) for closure" is the current standard for mines recommended by United Nations and is required by law in many parts of the world. It means that the closure and reclamation of the mine should be built into the mine design and at the forefront of all decisions and actions at every phase of mining in order to reduce long term liabilities. Peter Peck, author of MINING FOR CLOSURE: POLICIES AND GUIDELINES FOR SUSTAINABLE MINING PRACTICE AND CLOSURE OF MINES, writes "*Future mines and existing mines that continue operations will need to include closure as an integral part of a project life cycle. They will need to be designed to ensure that future public health and safety are not compromised; environmental resources are not subject to physical and chemical deterioration; post-mining uses for the site are beneficial and sustainable term; adverse socio-economic impacts are minimised; and socio-economic benefits are maximised.*"[35]

In BC, "conceptual" closure plans have to be filed before the mine receives its Certificate of Environmental Compliance and "five year operational reclamation plans" are required for other permits. Affected First Nations

may be involved in every detail of the plans, and it should be updated on a regular basis. A Mine Reclamation Fund is established (by the province) and companies pay into it. The securities are credited for each owner individually. The Ministry of Energy, Mining and Petroleum Resources has established a reclamation security performance bond policy that requires that "hard" security must be in the form of (1) cash, (2) irrevocable letter or credit, or (3) a variety of guaranteed financial instruments. In addition, a performance bond provided by an insurance company is necessary such that the performance bond together with other forms of security will fully secure outstanding liabilities related to protection and reclamation of lands and watercourses affected by a mine.

With respect to recovery of public funds, the *Mines Act* requires that costs to abate a danger at a closed or abandoned mine is paid from the provincial consolidated revenue fund. They become a company debt due to the government, and form a lien and charge on the mine or mineral title in favour of the government. The *Act* further requires that no transfer of title or other dealing with the mine may take place until the debt is paid and notice of debt, registered on title, is cancelled.[36]

The province has been allowing companies to pay the bond incrementally as production increases instead of "up-front". This is a risky practice because companies are more likely to have difficulty paying into the fund as the ore body is mined out, and will have less incentive to pay than at the mine's opening. In 2007, companies invested less than $23 million in remediation bonds (Asset Retirement Obligations), less than 1% of net revenues.[37] The total ARO for all reporting mines in 2006 was shown in the Price Waterhouse Coopers survey as a liability of $435 million. The British Columbia government currently holds $260 million in reclamation funds.[38]

Many mining companies seek to transfer their assets (mine buildings, hydro system, roads) to the government as a portion of the reclamation bond, or the closure costs. However, at closure, the values of these assets have depreciated over time.[39] Further, the mine/mill infrastructure, other buildings, power lines and systems often become a hazard and a liability, instead of an asset, and have to be removed at a loss.

Abandoned Mines and Legacy Issues

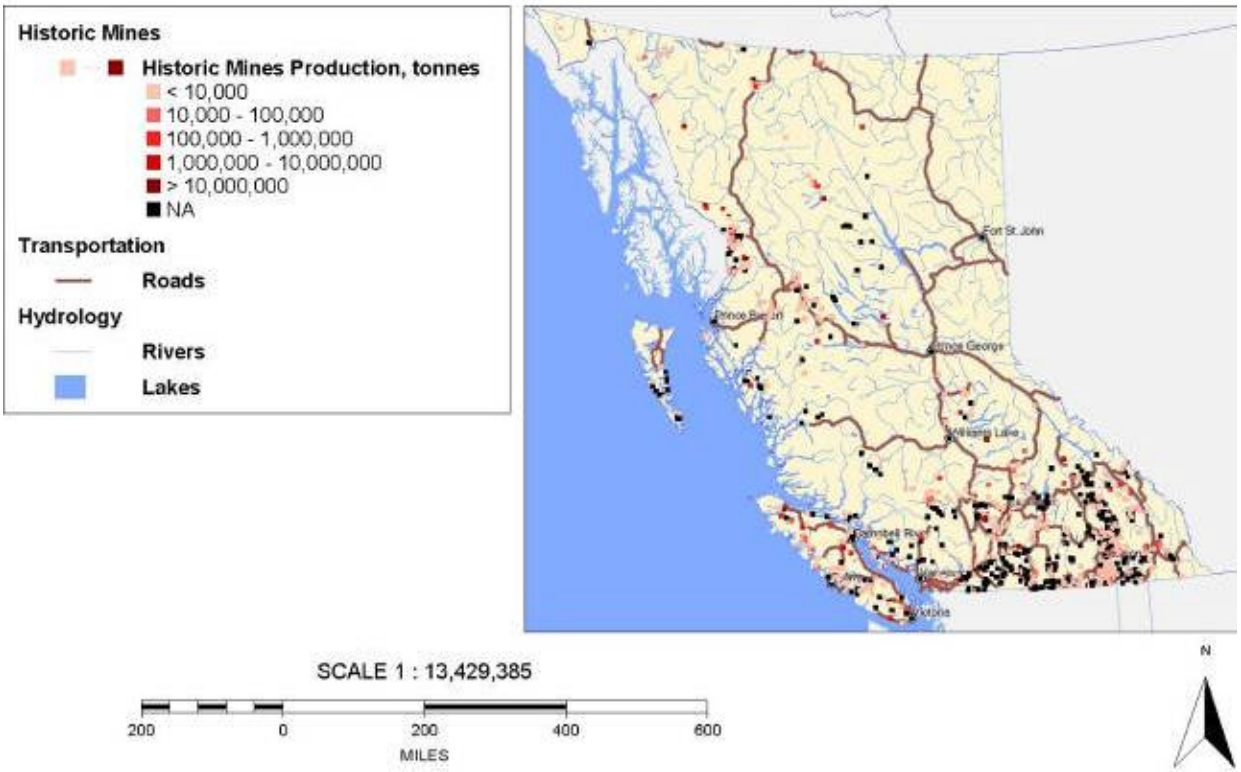
When the company cannot, or will not, pay for reclamation costs, the mine is considered "orphaned or "abandoned", and the government becomes responsible for cleaning up the mess. British Columbia has been developing their database of closed and abandoned mines – which they refer to as "historic mines" over many years. See the following maps for visual presentation of some of this data.

In 2002, estimates by the Ministry of Energy and Mines set unfunded liability at operating mines at $85 million, and the cost of clean-up at abandoned mines at $190 million.[40] A 2003 report from the Ministry of Energy and Mines, Mining Division confirms that there are 1,887 "historic" mines in BC. The report focuses on the 1171 mines that have environmental concerns and present public health and safety issues.[41]

The top ten contaminated sites in BC were identified in 2006 according to the risk they posed to human health and the environment. All ten were mine sites and recommended for immediate clean up action. These sites included the Britannia mine and the mine tailings at the Yankee Girl mine in the West Kootenays. The Britannia Mine alone will cost more than $99 million to remediate. [42]

Cominco's Pinchi mercury mine operated on Tl'azt'en and Nak'azdli territories in the 1940s and 1960s. This resulted in mercury-laden tailings being discharged into Pinchi Lake even though the communities relied on abundant fish from it. Soon unusual health problems surfaced that many locals felt was due to mercury exposure from contaminated fish. Now it is advised not to consume the fish. In 2004, a 100-metre long, 12-metre high dyke at the mine was destroyed due to an ill-planned reclamation activity by the company. This resulted in more mercury-laden waste going into the lake. Tl'azt'en Chief Thomas Alexis said the waste was "hundreds of times higher" in mercury levels than that of the lake itself, as a result of historic operations. Presently, Tl'azt'en and Nak'azdli are negotiating with Teck Cominco for the long-term clean-up and permanent closure of the mine site, along with the development of a working relationship that also includes a positive mine legacy.

The Takla First Nation has been in negotiations with the Province for the clean-up of the Bralorne Takla Mercury Mine, one of BC's top ten contaminated sites. The mine only operated for two years, 1943-4, and left a legacy of heavy metal contamination including mercury, arsenic and cadmium[43].



Historic production of mines in BC. (http://webmap.em.gov.bc.ca/mapplace/HistoricMines/HMS.mwf, July 2008)

To quote a statement from the First Nation, Chief Thomas Alexis said 'that the level of mercury-contaminated waste and debris released into the lake was hundreds of times higher than that of the lake itself, which was already contaminated by previous mercury mining undertaken by the company.' The dam was 100-metres long and 12-metres high. It had separated an emergency spill lagoon filled with mercury-laden waste-water and sentiment from the 5,500 hectare lake. But at some point late last year, an ill-fated reclamation activity directed by the company resulted in its complete collapse. What is more, the dyke itself was constructed with mercury-contaminated earthen material. 'All of that is in the lake now,' verified Chief Thomas". [44]

There are a few First Nations across Canada that are asking for reparations from the provincial and federal governments for the breach of fiduciary responsibility that has resulted in the destruction of traditional lands by existing mines. Whitefish Lake First Nation filed a lawsuit on May 13, 2008, demanding $550 billion in reparations - the share they feel they should receive for the estimated

Mt. Washington Mine
Mark Hume, Globe and Mail, April 15, 2008, Province to cap copper mine leaking toxic chemical into Tsolum River - An abandoned copper mine that for four decades has leached a toxic mix into the Tsolum River on Vancouver Island, devastating salmon, trout and steelhead stocks, may finally get turned off. British Columbia Environment Minister Barry Penner announced yesterday that the government will spend $4.5-million to cap the mine with a pliable roofing-like material. Mr. Penner said the hope is that by sealing off the mine site from water, the toxic copper leachate can be stopped and a river that once had annual runs of more than 200,000 salmon can be brought back to life. "A number of interim measures and solutions have been tried over the past 20 years. They've had some success but we know the benefits have been limited," he said. A wetland that was built in 2003 as a natural bio-filter succeeded in removing some of the copper, but it is becoming saturated with contaminants and over the next five to 10 years is expected to stop working. "A longer-term solution was needed," Mr. Penner said. He said there is no guarantee of success, but capping the mine is the best hope for saving the once productive salmon river, located in the Comox Valley near Courtenay.

$1 trillion in mineral wealth that has been and will be extracted from the Sudbury Basin since 1885. The Indian agent redrew the Robinson-Huron treaty boundaries to ensure that the mineral deposits were not within the First Nations Reserve.[45]

Environmental Impacts

Water. In Canada, the mineral sector is the fourth largest industrial user of water, following thermal power, manufacturing and agriculture.[46] Water is needed for every phase of mining and is a constant management issue. Water is pumped from open pits and underground mines to "dewater" them, to allow mining to proceed below the water table. The displaced water may come from saline aquifers, or be contaminated with heavy metals. Pumping the water from one area to another may create a "cone of depression" (area where groundwater is pumped out and not available) and/or interfere with the water table in other ways. Water bodies such as wetlands and alpine lakes function to regulate water flows and prevent flooding. This natural regulation can be disrupted by mining activity.

From background to foreground, Tahtsa Reach, tailings impoundment area, flooded pit, open pit at Huckleberry Mine, BC.
http://www.bcminerals.ca/files/bc_mine_information/000089.php

Water is used to wash ore, and in milling and refining processes. Water is used to move tailings from the mill to the tailings impoundment areas, and is frequently used as a cover for acid generating mine tailings. The mining industry describes these uses as "temporary", however, clean water goes in, and contaminated water comes out and may continue for decades or even forever. An estimated 78% of this water is discharged to freshwater bodies, with 15% transferred to tailings ponds.[47]

When water and oxygen (air) react with sulphur in rock, sulphuric acid develops and is called "acid rock drainage" or "acid mine drainage". Acid Mine Drainage (AMD) is a serious concern. Not all rock produces significant amounts of AMD, but it can be an issue with most of the geology and wet weather conditions of BC. As long as the rock is not disturbed, the sulphur remains locked in the earth and protected from exposure to water and air. Once rock is blasted into waste rock and ground into tailings, more rock surface is exposed to water and air. This increases the exposure of reactive minerals and the potential to create sulphuric acid – Acid Mine Drainage. Once started, the process is almost impossible to stop.

Tailings pumped into tailings impoundment area at Kemess South Mine. *(Photo: C. Slanina, 2007)*

Acidic water can be toxic to aquatic life and leach or pull heavy metals such as mercury, cadmium, copper and arsenic out of rock creating serious contamination concerns onsite and downstream. Other metals, like selenium, dissolve into water and are toxic to fish. The chemistry of some metals, like mercury, can change due to natural processes becoming toxic (methyl mercury). These metals can dissolve in water and become

available to wildlife, causing toxicity at high levels. A summary of mining contaminants to water is in Appendix G.

AMD is collected in ditches from waste rock piles and ground flow from the open pit at the Equity Silver Mine near Houston (closed). (Photo: C. Slanina, 2005)

Acid generating and metal leaching mine wastes need to be managed forever-literally thousands of years. Standard treatment to slow down or prevent the production of AMD is to cap the acid-generating materials with a thick cover of some kind, keep them under water, or neutralize the acidic fluid by adding amounts of lime.

The Equity Mine near Houston is an example of a treatment facility using lime to neutralize as much water as possible before discharging it off the mine site. Equity mine was operated by Placer Dome between 1980 and 1994, producing silver and lesser amounts of gold and copper from three open pits and a small underground operation. It is now the responsibility of Goldcorp. At the end of operations there were, and remain, waste rock dumps, a flooded tailings impoundment, diversion ditches, ponds, dams and treatment works. The waste water system costs roughly $1 million per year to operate, and will have to treat water for hundreds if not thousands of years.

The depth of water covers in tailings ponds have to be maintained at levels deep enough to keep the potentially acid generating material covered, or saturated. Companies regularly and frequently apply for permits to discharge water from the tailings impoundments to the "receiving environment" – the river or creek downstream. In 2005, the Cheslatta Carrier Nation opposed the application on Huckleberry mine to release up to 20 million litres of effluent water on a daily basis into the Tahtsa Reach, a part of the Nechako Reservoir. There is concern over heavy metal contamination and that the First Nation was not informed about the permit application.[48]

Most mine discharges cannot meet the province's Water Quality Objectives for water, and ask for "site specific criteria", often for toxics like selenium, cadmium or arsenic.[49] Many mines use a "mixing zone" – an area of the river downstream from the mine site where mine discharges mix with river water to dilute the contaminants in the effluent. Water Quality Objectives do not apply in the mixing zone. Mixing zones can be located in fish spawning and harvesting areas and can have harmful levels of contaminants.

In recent years, the industry has responded to AMD concerns by seeking approval to dispose of acid-generating waste rock and tailings in lakes, wetlands and creek beds to reduce exposure to air. This waste disposal method allows the companies to avoid the cost of building and maintaining tailings impoundments, water treatment facilities and waste rock disposal sites. Destroying fish habitat requires an amendment to the *Fisheries Act* Regulation (the *Metal Mining Effluent Regulation,* schedule 2). This waste disposal method is being planned for several mine projects in BC, including Mt. Milligan, Prosperity, Red Chris and Ruby Creek. It was also the plan for the proposed Kemess North expansion, but it was rejected.

Currently, the taking of fish habitat for mine waste dumps is a huge issue for First Nations and the public all across Canada and in the USA. The use of natural water bodies for tailing impoundment areas is not allowed in Quebec and New Brunswick.

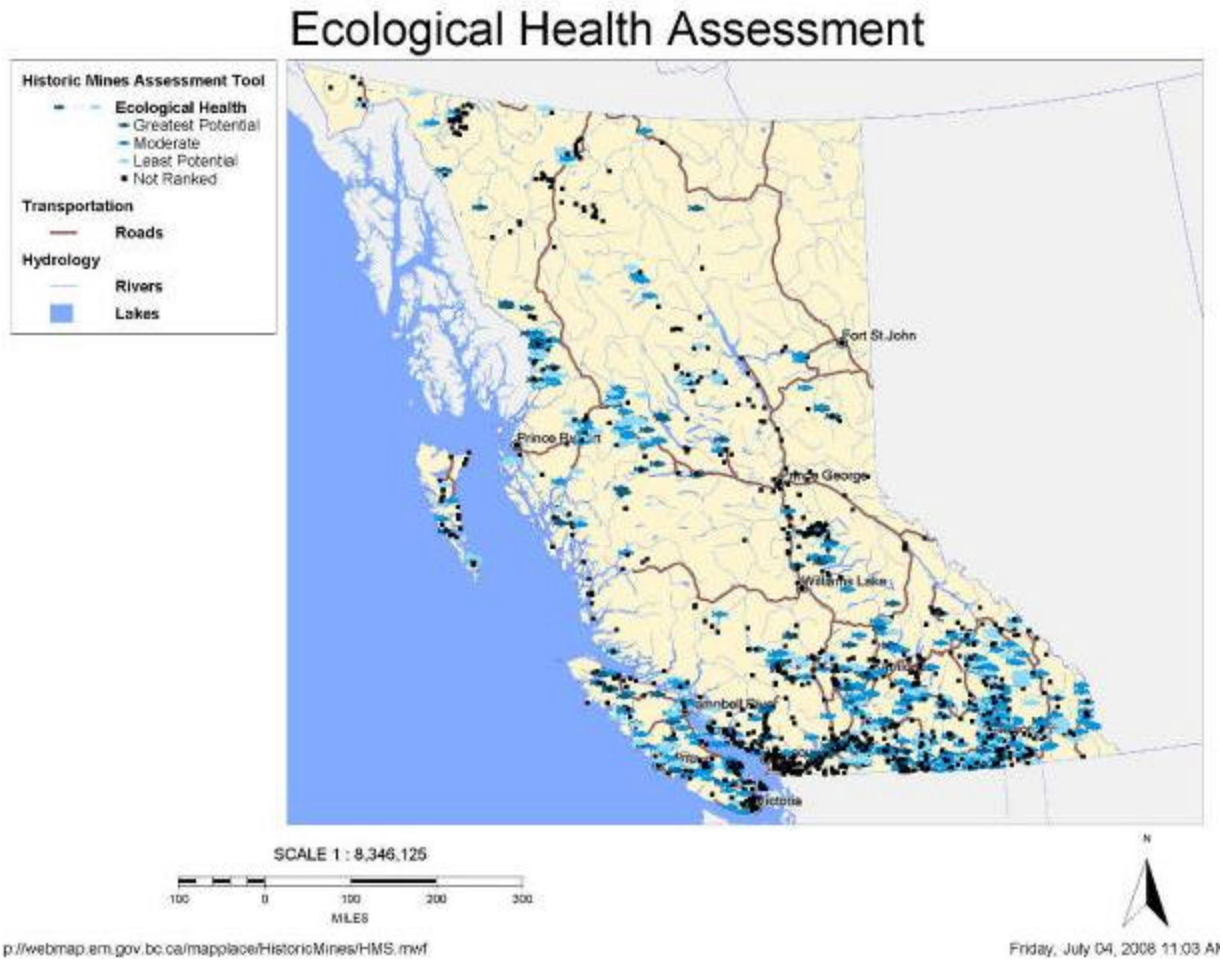
Land and Wildlife

Mining can leave a large footprint on the landscape: open pits, underground mines, borrow pits for gravel, mine buildings, roads and rail-lines, power lines, air strips, hydro dams and reservoirs, diesel farms, waste rock dumps, tailings impoundments and dams. Installing infrastructure like roads can lead to multiple uses of the land (logging, an increase of hunters from outside the area), which further increases a project's impact on the environment.

Highland Valley Copper mine footprint. http://www.bcminerals.ca/files/bc_mine_information/

For example, the Highland Valley Copper Mine (photo above) has disturbed an area of approximately 6,128 hectares (ha) with 2,259 ha of the total area being re-vegetated, equating to 37% restoration completion. [50] The tailings impoundment covers 220 ha, is 10 km long and is bounded by five rock-fill dams up to 47 meters high[51]. Mines are a permanent change to landscapes: large open pits, waste rock piles, and tailings impoundment areas have long term impacts and liabilities.

Noise and mine activity, particularly roads and hauling truck activities, can fragment and disturb the migratory and habitat use patterns of wildlife and birds. Fish habitat can be permanently altered or destroyed. Roads will create paths for predators and open the area for hunters and other users, including more development. Dust from the mine and mine roads can contaminate plants, and affect traditional harvest and wildlife use areas. Environmental impact statements for mines fill volumes describing the likely impacts on biodiversity and the landscape from mining activity. Some are informed by Traditional Knowledge; some are not.



This map shows an ecological health assessment from the Historic Mines project from the MEMPR. This is just an example of one way in which the government is attempting to compile data on all the historical and contaminated mining sites throughout BC. Details on the data can be accessed at the Historic Mines website.

Impacts on biodiversity are summed up in the following list, adapted from the Good Practice Guidance for Mining and Biodiversity, ICMM, 2006[52]:

- Extraction – land clearing, loss of habitat, introduction of plant disease, siltation of rivers
- Blasting - dust, noise, vibration, disturbance of wildlife

- Digging and hauling- dust, noise, vibration and water pollution, impacts on rivers due to changes in hydrology and water quality
- Waste dumping- clearing, water and soil pollution, Loss of habitat, sedimentation
- Acid mine drainage - toxic to fish and wildlife, damage to drinking water sources
- Processing – toxic chemical use, loss of species, fish kills, reproductive impacts
- Tailings management- land clearing, water pollution, habitat loss, sedimentation, dust storms, toxicity to migratory birds
- Air pollution- loss of habitat or species, toxicity to wildlife
- Water pollution- Loss of habitat or species, reduced water quality
- Buildings - land clearing, soil and water pollution, loss of habitat, contamination from fuel, safety liability when abandoned
- Building power lines, roads and rail- land clearing, loss or fragmentation of habitat, predator corridors, brings more development, wildlife mortality, access for other users
- Crew accommodation on site –waste generation, sewage, wildlife disturbance, increased hunting access
- Land clearing- habitat loss or fragmentation, water logging upslope and drainage shadows down-slope, predator corridors, access for other users, wildlife mortality
- Population growth- land clearing and increased hunting, fishing, stress on local and regional resources

Greenhouse gas emissions from mine development and operations come primarily from the operation of heavy vehicles, from on-site generators, and from transportation of concentrates and ores off-site. However, other significant sources of greenhouse gas emissions are smelting and refining processes, and the very high energy demanded by those processes. [53]

Cultural and Social Benefits and Impacts

Dealing with mining impacts is yet another in the in the long list of challenges First Nations have had to face throughout history In this section the term '**benefit**' is used when referring to positive issues and '**impacts**' is used when referring to negative issues. Perception and the situation of individuals or communities highly influences whether changes associated with mining projects are seen as benefits or impacts. For example, a mining boom is seen as a benefit to businesses because it can mean a boost to local economy. However, for a community with limited capacity, dealing with mining projects in addition to regular community issues can also be an impact.

The cultural and social benefits and impacts related to mining and mining exploration are diverse, complex and often dramatic. Mining exploration interest in a territory can create expectations and fear. The community may be divided over the implications of mining projects. Research has shown[54] that potential exists for a community to become divided into "haves and "have nots". In many instances, the majority of people employed and earning high salaries are those with no dependents who need the money the least. [55]

Benefits of mining activity usually have a short, but major influence on First Nation communities. Employment is the most direct benefit for community members. Increased income and training can provide a morale boost, particularly in small communities where employment options are limited. Benefits are primarily felt during the development, construction and operation stages of mining- less so during early exploration, closure and reclamation. The benefits depend on the company and size of the project. Many potential benefits associated with a mine, particularly First Nation employment and spin-off businesses, are negotiated with the proponent through an impact benefit agreement, participation agreement, or MOU.

Many modern mines are fly-in and fly-out operations, where employees work, for example, two weeks on and two weeks off. This schedule can help prevent the development of short term mining communities, such as Cassiar, that require large amounts of infrastructure and investment for a limited period of time. However, the rotational schedule can be difficult for First Nation employees to make time for family obligations or to participate in traditional practices that correlate with seasons and wildlife, versus production and shift schedules.

There are a wide variety of jobs at a mine, with varying potential for accidents or other health impacts. Mining jobs are generally well-paid, in part because of the dangers associated with the work. Although administrative or technical jobs on a mining site are very safe, the majority of mining jobs have significant safely hazards associated with the day-to-day use of heavy equipment and explosives, and there is an ever-present risk of the collapse of pit walls in open pit mining or of tunnels in underground mining. Accidents do happen despite earnest attempts to create safe work environments. Spills and equipment failure, for example, put workers and the environment at risk. The occupational health and safety risks of mining jobs will vary with the kind of material extracted (e.g. a high mercury content in ore) and exposures to the processes used (e.g. fumes from chemicals, exhaust from operation of diesel trucks in pits or tunnels, industrial noise in mills, etc).

First Nation employment objectives are typically negotiated in impact-benefits agreements prior to the commencement of a mining operation, but the national experience to date suggests that such objectives can be difficult to achieve. This happens for a variety of reasons including limited pools of working-age individuals in the First Nation community; education and training levels may limit qualification for work; and cultural conflicts on site, such as racism, lack of cultural sensitivity. These factors compound other cultural and socio-economic challenges facing First Nations. Many mining associations and companies are actively working to provide skill training and cultural awareness programs to help overcome with these challenges[56], and some operations (such as the Voisey's Bay Project in Labrador, have been successful in maintaining Aboriginal participation in excess of 50% of their workforce.[57]

Mining jobs often have good salaries. While this can benefit families' standard of living, there is some indication that additional income may exacerbate social and economic problems in some communities, such as contributing to an increase in addictions among youth.[58]

Economic benefits are not confined to the mine, but are generally spread throughout a region through spin-off businesses (such as catering services or supplying equipment to the mine), and increased spending by mine employees. Mining companies often donate infrastructure to nearby communities (community halls or swimming pools). Mining projects require infrastructure such as roads or power, which can improve economic conditions, but can also be create new problems (such as increased access for hunting by outsiders, or enabling alcohol or drugs to more readily come into the community).

Mining activity can create both anxiety and excitement in nearby communities. Remote communities are more sensitive to the influx of new people and increase in activities. Even the perception of a lot of mining activity in an area can cause changes in traditional practices because of perceived or real concerns, such as contamination of traditional foods and changes in wildlife activity and populations. The current pace and scale of mineral exploration and mining in BC is unprecedented. Many First Nations are facing several large scale resource development proposals at the same time (mining, logging, energy and hydro). The Tahltan Nation has over 15 mining exploration and development projects in EA at the same time. Each large mine has between 200-1000 employees during construction and operation. First Nations do not have the work force to fill those jobs, even if everyone in the entire community or region who wants to work was employed at the mine. Hundreds of outside workers will be brought in to fill the jobs, which will change the demographic make-up of the region significantly and for a long time.
.

Mines are large and permanent changes to landscapes that affect traditional practices, trails, camps and harvesting areas. The mine may have a relatively small physical footprint, but impacts to wildlife and plants can be extensive, due to increased use of the area by workers brought to the area by opportunities associated with the mine. This may lead to increased competition with traditional harvesters, and conflicts with community activities.

For First Nations, sacred sites are whole areas of the territory, not just artifacts and grave sites that can be fenced off. The protection of sacred landscapes, mountains, rivers and trails may conflict with land ownership and mineral tenure systems based on individual sites and private ownership of property. For example, the Kemess South Mine

site includes two archaeological sites, identified as old camp sites and part of a trail system, between the open pits and the tailings impoundment area. The mine road goes right between them. They are inaccessible to Tse Keh Nay without permission to access the area from the mine.

Mines may result in a permanent alteration of the traditional cultural use of the mine site. Some communities have opted to take direct action and/or to engage in the courts in order to prevent such cultural losses from occurring.

The administration capacity of First Nations' governments and communities are often overwhelmed by requests to review Notices of Work and engage in consultations with governments or negotiations with mining companies. It may be challenging for leadership and community members to keep up to date with multiple proposals for resource development projects. Leadership is faced with learning about the complexity of mining, permitting, negotiation and a range of other subjects very swiftly, and must spend significant resources in order to effectively engage in these processes.[59]

A challenge unique to dealing with the mining sector relates to the need for communities to plan to sustain benefits after the mine is closed. It is considered important not only to maximize the short-term benefits associated with business opportunities and employment, but also to set aside a significant share of the revenues or royalties paid in order to benefit future generations. The Northern Policy Forum sponsored by the Walter and Duncan Gordon Foundation in 2007 entitled: "Power, Revenue and Benefits - Ensuring Fairness Now and Across Generations", commissioned a number of papers to examine this issue[60]. The Inuvialuit enshrined the concept of intergenerational equity in the Inuvialuit Final Agreement, section 6.4... "Restrictions shall be placed on the Inuvialuit Regional Corporation from time to time on any financial distribution from the Inuvialuit corporations to encourage the preservation of the financial compensation for the future generations of Inuvialuit". [61] Old Crow, Yukon, has established an investment trust for most of its land claim capital that has protected the fund from short-term expenditures. "This arrangement has allowed for substantial capital growth and yet provides funding to support language, culture, education, youth and elders initiatives."[62] The Innu and Inuit in Labrador have both established trusts to preserve capital paid to them under their impact-benefits agreements with the Voisey's Bay Nickel Company for the benefit of future generations, while making funds available for community cultural and social priorities.[63]

How communities cope with closed mines and the loss of jobs varies with the plans developed before the mine closes, the kinds of reclamation plans developed, and economic diversity the community and region has developed to help buffer the drastic change from boom to bust.

Sustainability

The concept of 'sustainability' is multi-faceted, depending on one's perspective. From an industrial perspective, sustainability can be viewed in terms of sustaining the industry and its ability to make profit consistently and predictably. It may also be viewed as ensuring that the actions and decisions we make today do not take away from the options and opportunities of future generations. Sustainability can be defined as the ability of natural resources to continue in form and function over the long term despite changes from human activities. Sustainability can also be seen from the socio-cultural perspective - as a culture's ability to maintain its practices and belief system for future generations.

Many First Nations see sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (i.e. the seventh generation test). Many communities have been very clear that they want mining projects to be sustainable in all the ways they define sustainability: for future generations, for spiritual and cultural use of traditional lands, and for local economies. Some First Nations are calling for a slower development pace of one mine at a time so mineral deposits are not exploited all at once, and wealth is maintained and set aside for future generations.

Sustainability analysis can use a multi-faceted approach including the socio-cultural, ecological, and economic sustainability over the time period that the mine infrastructure will need to be maintained- from several hundreds to a thousand years to keep tailings dams in tact.

The recent Kemess North EA process provides a specific and directly applicable example of incorporating sustainability criteria into a mining project analysis incorporating cultural, spiritual and environmental criteria[64]:

1. *Environmental Stewardship* – Is the environment adequately protected through all phases of development, construction, and operation, as well as through the legacy post-closure phase?
2. *Economic Benefits and Costs* – Does the project provide net economic benefits to the people of British Columbia and Canada?
3. *Social and Cultural Benefits and Costs* – Does the Project contribute to community and social well-being of all potentially affected people? Is it compatible with their cultural interests and aspirations?
4. *Fair Distribution of Benefits and Costs* – Are the benefits and costs of development fairly distributed among potentially affected people and interests?
5. *Present versus Future Generations* – Does the Project succeed in providing economic and social benefits now without compromising the ability of future generations to benefit from the environment and natural resources in the mine site area?

A summary of the regulatory issues highlighted in this document can be found in Appendix H.

Further Resources

Environmental Assessment Office for projects application information, http://www.eao.gov.bc.ca/

Mineral Exploration and Mining, MEMPR, http://www.em.gov.bc.ca/Subwebs/mining/DEFAULT.HTM

The Ministry of Energy Mines and Petroleum Resources publishes an annual report on Mining and Mineral Exploration that provides a detailed and extensive overview. Much of the information, including the maps,is taken from this document. It is available at:
http://www.empr.gov.bc.ca/Mining/Geolsurv/Publications/expl_bc/2007/toc.htm

Historic Mines of BC, MEMPR. It provides a link to an online mapping tool for BC,
http://www.empr.gov.bc.ca/Mining/Geolsurv/Publications/OpenFiles/OF2003-03/toc.htm

Canadian Environmental Assessment Agency, http://www.ceaa.gc.ca/index_e.htm

Natural Resources Canada, Minerals, Metals and Mining, http://www.nrcan-rncan.gc.ca/com/subsuj/minmin-eng.php

NRCan Mining and Mapping tool,
http://mmsd1.mms.nrcan.gc.ca/maps/miningMap_e.asp?browser=Microsoft%20Internet%20Explorer&res=1280

Environment Canada , http://www.ec.gc.ca/default.asp?lang=En

Department of Fisheries and Oceans, http://www.dfo-mpo.gc.ca/index-eng.htm

Independent Environmental Monitoring Agency, http://www.monitoringagency.net/

Appendix A

The following Statistical Summary of mining industry economics has been prepared annually by Price Waterhouse Coopers (PWC) for the Mining Association of British Columbia. In 2007, the survey covered 19 operating metal and coal mines, one smelting operation, eight operations in the permitted or active permitting stage, six mines in the reclamation stage and six advanced exploration stage properties. It did not include junior mining companies, or industrial minerals, so the figures do not represent a total of all mining earnings.

The 2007 PWC Report states that tax expenses to all governments for 2007 were $534 million,"Direct taxes represent both federal and provincial income taxes based on taxable income, municipal property taxes, federal and provincial sales tax and a provincial mineral tax based on operating profit." Since the figure also includes deferred taxes, it does NOT represent actual taxes paid. "Direct tax payments decreased by $358 million from $648 million in 2006 to $290 million in 2007". For the companies surveyed direct taxes were 5% of net revenue.

The line entitled "payments to governments" of $ 463 million is " primarily employee income tax deductions, along with payments for Workers' Compensation, Canada Pension Plan and Employment Insurance." In 2007, the mining industry made total payments to governments of $463 million, a decrease of $336 million from the payments of $799 million made in 2006 (PWC Report page 14).

Statistical Summary

($CAD millions, except where otherwise noted)

	2007	2006	2005
Gross mining revenues	$ 6,863	$ 8,076	$ 6,285
Net revenues	5,555	6,590	4,917
Tax expenses (current and deferred)	534	691	348
Net income for year	1,215	2,348	1,841
Cash flow from operations	1,976	2,885	2,071
Industry spending	6,414	6,749	5,231
Payments to governments	463	799	617
Exploration and development expenditures	158	129	148
Capital expenditures	960	513	345
After-tax return on shareholders' investment (%)	41.6	64.8	54.1
Direct employment (number of employees)	7,415	7,345	7,071
Shipments (000's tonnes)	24,854	25,449	26,630
Dividends	635	1,057	642
New Capital Raised	1,048	408	393

REF: Price Waterhouse Coopers. Look Who's 40! Report on the Mineral Industry in British Columbia, 2007.

Mining Industry incentives from governments

There are a number of special tax credit programs available in British Columbia for exploration:

The *Mining Exploration Tax Credit Program* and *Exploration Investment Tax Credit* for flow-through investors, provide additional incentives to attract risk capital to the province. The B.C. and federal, non-refundable tax

credits, when added to the regular 100% deductions, are equivalent to a 141% exploration expense deduction for income tax purposes. The *Mining Exploration Tax Credit* has been increased to 30% for qualified mineral exploration undertaken in prescribed Mountain Pine Beetle affected areas of the Province.

In addition, there are a number of other government incentives to mining investment in British Columbia:

- Effective July 1 2008, B.C.'s corporate income tax rate will be 11 per cent, the second lowest tax rate in the country, with further reductions planned to 10 per cent by 2011.
- Since 2001, the general corporate income tax rate has been reduced by 33 per cent.
- In 2001, the Province eliminated the provincial sales tax on production machinery and equipment.
- In 2001, B.C. eliminated its corporation capital tax on non-financial corporations (http://www2.news.gov.bc.ca/news_releases_2005-2009/2008FIN0009-000645-Attachment1.htm)
- A provincial and federal accelerated capital cost allowance
- Direct transfers of $255,000 to the Mining Association of British Columbia from 2000 to 2006.
- Direct transfer of $4.1 million to the BC & Yukon Chamber of Mines, which is now known as the Association for Mineral Exploration British Columbia (AME BC).
- $25 million budget for Geoscience BC
- internet staking
- preservation of key routes (e.g., road to Golden Bear) as Resource Access roads
- port access through federal/provincial agreement
- reduced hydro rates, development of hydro infrastructure
- Water supplied at minimal cost and/or free for processing and other uses
- Support for the use of water bodies for tailings disposal
- Abandoned mine remediation (an allocation of $90 million was made in 2005)
- Companies invested less than $23 million in remediation (Asset Retirement Obligations -ARO), less than 1% of net revenues. The total ARO for all reporting mines in 2006 is shown as a liability of $435 million. The British Columbia government currently holds only $260 million in reclamation funds.

Appendix B

(TAKU RIVER TLINGIT POLICY)

Taku River Tlingit First Nation

Mining Policy

March 2007

Our Land is Our Future

Taku River Tlingit First Nation

Mining Policy

PURPOSE OF MINING POLICY

1. Taku River Tlingit First Nation (TRTFN) has developed this Mining Policy to provide greater certainty for parties interested in the extraction of mineral resources from TRTFN Traditional Territory in British Columbia (see *Schedule A* for map of the Territory).
2. TRTFN is publishing its policy because British Columbia's legislated process for disposing of surface and subsurface rights in the Territory does not address TRTFN's participation in decisions regarding mining-related activity in our territory.
3. This Mining Policy explains how TRTFN intends to deal with proposals for mining-related activity in our territory. The Policy is intended to achieve the following specific purposes:

    a. to explain the principles on which the TRTFN Government bases its own decisions respecting proposals for mining-related activities in the Territory;

    b. to describe TRTFN Government procedures for dealing with proposals for mining-related activities in the Territory;

    c. to describe TRTFN's standards and expectations for mining-related activities and proponents in the Territory; and

    d. to describe procedures that proponents may use to seek the consent and support of TRTFN Government for mining-related activities.

PRINCIPLES FOR TRTFN GOVERNMENT'S MINING-RELATED DECISIONS

4. It is the responsibility of TRTFN Government to protect TRTFN Aboriginal rights, title and interests throughout the traditional territory. TRTFN Government will therefore exercise its authority as required by its Constitution, in order to ensure that all mining activities and developments in the territory will promote the following TRTFN objectives:

    a. protect and accommodate TRTFN's Aboriginal rights, title and interests,

    b. satisfy TRTFN principles for environmental, economic, social and cultural sustainability, as described in Schedule C; and

    c. provide social and economic benefits for the TRTFN community.

5. TRTFN Government seeks to work cooperatively and engage in shared decision-making with the British Columbia and/or Federal Governments, in order to achieve those objectives in the context of specific proposals. TRTFN will seek to work with those governments in ways that are consistent with BC's New Relationship with First Nations, which is designed, among other things:

    a. "to establish processes and institutions for shared decision-making about the land and resources and for revenue and benefit sharing", recognizing that "these inherent rights flow from the First Nations' historical and sacred relationship with their territories";

    b. "to achieve First Nations' self-determination through the exercise of their aboriginal title including realizing the economic component of aboriginal title, and exercising their jurisdiction over the use of the land and resources through their own structures"; and

    c. "to ensure that lands and resources are managed in accordance with First Nations laws, knowledge and values and that resource development is carried out in a sustainable manner including the primary responsibility of preserving healthy lands, resources and ecosystems for present and future generations."

6. TRTFN Government will also consider working cooperatively with proponents who wish to enter into a relationship with TRTFN based on:

    a. recognition and respect for TRTFN Aboriginal rights, title and interests, and the responsibility of TRTFN Government to protect those; and

    b. a commitment to promote the TRTFN objectives in Section 4: to protect and accommodate TRTFN rights, title and interests, ensure environmental, economic, social and cultural sustainability, and provide social and economic benefits for the TRTFN community.

7. Such cooperative working arrangements will normally be based on one or more written agreements between TRTFN Government and a proponent, in order to promote the achievement of those objectives during the various stages of mining projects, including exploration, development, production, decommissioning, reclamation and post-closure monitoring and maintenance.

8. Agreements with proponents will normally establish working arrangements and provide for TRTFN's participation in the applicable phases of the regulatory process, including feasibility studies, project design, environmental impact assessment, accommodation negotiations, impacts and benefits agreement negotiations and final regulatory approvals.

9. After concluding the steps agreed to in cooperative working agreements, TRTFN Government will consider giving consent and support for mining-related projects in the Territory. Such consent and support will be based on TRTFN Government's decision whether the proposal, as modified by measures agreed to in the

Environmental Assessment, the Accommodation Agreement and the Impacts and Benefits Agreement would be likely to achieve the TRTFN objectives in Section 4.

PROCEDURES FOR TRTFN GOVERNMENT'S MINING-RELATED DECISIONS

Application of Policy

10. This policy is triggered when a proponent submits a written request for TRTFN's consent and support for proposed mineral exploration or development activity in the Territory, or when a Crown agency refers such a proposal to TRTFN for consultation purposes.

11. The TRTFN Government authorized representative for responding to a request or referral is the TRTFN Land & Resources Manager (see Schedule B).

12. The Land & Resources Manager shall respond in writing within a reasonable time to any request or referral, to confirm receipt and outline next steps, and shall also:

    a. make available TRTFN Government documents relating to TRTFN's goals and objectives for land and resource use generally, and mining activity specifically, in the Territory (Schedule D identifies such currently available documents); and

    b. advise parties submitting requests or referrals that TRTFN's consent and support needs to be formally obtained from TRTFN Government, and that communications for such purposes should be through the Land and Resources Manager or through other contacts which he/she may advise.

Preliminary Evaluation of Proposal

13. After receiving a request or referral, the Land & Resources Manager shall obtain the following information:

    a. details about the type of mining activity proposed;

    b. proposed date of entry and duration of occupation;

    c. general location of proposed activity demarcated on an appropriately scaled topographic map;

    d. proposed mode of access to the Territory;

    e. proposed number of people who will be on the Territory;

    f. types of impacts anticipated;

    g. regulatory approvals required;

    h. status of proposal in regulatory process;

i. any proposal for hiring or contracting of TRTFN and local people;

j. plans for terminating activity, site restoration, and exiting the Territory;

k. identification of company contact person; and

l. other project-related information that would be relevant to a TRTFN decision whether to support the project.

14. Before making a recommendation to TRTFN Government respecting a proposal for mining-related activity in the Territory, the Land & Resources Manager shall prepare a Preliminary Evaluation, to include the following:

    a. sufficient information from the proponent to properly understand the project and its potential impacts on lands and resources;

    b. location of the project site or activity area on TRTFN Government maps;

    c. a preliminary determination whether it is reasonably likely that the project would, by itself or cumulatively, have impacts on:

        i. TRTFN environmental, economic, social or cultural interests or values; or

        ii. individual Tlingit family interests or values; and

    d. a preliminary determination whether the proposal raises serious concerns, because of potential impacts described in Section 14(c) or because the proposal appears to be inconsistent with:

        i. management directions in Our Land is Our Future: Hà tlátgi hà khustìyxh sìti - Taku River Tlingit First Nation Vision & Management Direction for Land and Resources;

        ii. the sustainability principles in Schedule C; or

        iii. any other relevant policy, guidelines or land use plan issued or approved by TRTFN Government.

15. In evaluating the proposal under Section 14(c)(ii), the Land & Resources Manager shall make all reasonable effort to consult with any potentially affected TRTFN families or individuals, in order to determine whether there would be any outstanding issues if the project were to proceed, in which case the Manager should refer the proposal to TRTFN Government for a decision.

16. Where the Land and Resources Manager considers it necessary, technical advice may be obtained before completing the Preliminary Evaluation under Section 14.

17. Upon completing the Preliminary Evaluation, the Land & Resources Manager shall:

    a. issue a written response to the proponent in accordance with Section 18; or,

    b. refer the proposal to TRTFN Government for a decision.

Decisions Respecting Proposed Exploration Activity

18. Where a proposal for mineral exploration work involves the use of existing access roads, helicopter, fixed wing or walking surveys, and does not include any of the following:

    a. creation of new road access;

    b. use of heavy equipment on the ground;

    c. advanced exploration and development programs (e.g., diamond drilling, bulk sampling);

    d. significant site disturbance; or

    e. development work on established mineral claims or tenures, including Crown grants;

    and if the proposed activity does not raise serious concerns under Section 14(d), the Land & Resources Manager may issue a written Support Document to the proponent, after consulting TRTFN Government.

19. A Support Document issued under Section 18 shall:

    a. offer TRTFN support for the proposed activity or project;

    b. describe terms and conditions necessary to protect Tlingit interests; and

    c. request the proponent to sign the Support Document indicating agreement to those terms and conditions, and return a copy of the signed document to the Land & Resources Manager prior to initiating the proposed work and implementing any conditions stipulated in the document.

20. A Support Document issued by the Land and Resources Manager will constitute TRTFN consent only for the proposed exploration activity, and only if the proponent signs and returns the document.

21. Where a proposal for mineral exploration work involves one or more of the elements in Section 18(a)-(e), or raises serious concerns under Section 14(d), the Land and Resources Manager shall refer the matter to TRTFN Government.

22. TRTFN Government may support a proposal referred under Section 21 if an Exploration Agreement can be negotiated with the proponent to achieve the TRTFN objectives in Section 4.

23. In consultation with TRTFN Government, the Land and Resources Manager will attempt to negotiate an Exploration Agreement with the proponent. Where further information is required to develop terms and conditions that would promote the TRTFN Objectives in Section 4, the Land & Resources Manager may:

    a. request further information from the proponent;

    b. obtain technical advice;

    c. meet with the proponent to obtain further information or discuss terms and conditions;

d. where necessary, request follow-up studies or field investigations by the proponent, to reduce specific areas of uncertainty about the potential effects of the activity or necessary terms and conditions.

24. An Exploration Agreement shall be designed to achieve the TRTFN Objectives in Section 4, and shall normally include the following elements:

    a. the common provisions in Schedule E;

    b. terms of entry to the Territory, including the following;

        i. description of work to be undertaken;

        ii. access routes and modes for the program;

        iii. timing and duration of entry and exploration activity; and

        iv. size and location of workforce.

    c. monitoring and site inspections, including role of TRTFN in same;

    d. plans for compensation to TRTFN Government or TRTFN citizens for any disturbance or interference with Tlingit land use activities or interests that may be affected by the exploration work;

    e. environmental protection measures, including waste management;

    f. reporting requirements to TRTFN Government;

    g. terms for leaving the Territory, including closure and reclamation measures and performance security;

    h. mechanisms for negotiating the next stage of the relationship between the parties if the subsequent exploration and development work is to be undertaken by the proponent in future years;

    i. economic benefits to TRTFN community, including business and employment opportunities; and

    j. other such measures agreed by the Parties.

25. Following efforts to conclude an Exploration Agreement, TRTFN Government may decide to:

    a. not support the proposed project;

    b. support the proposed project on the basis of the terms and conditions included in the negotiated Exploration Agreement; or

    c. refer the matter to a Joint Clan Meeting for a decision.

Decisions Respecting Proposed Development Activity

26. With respect to a proposal to develop commercial mineral production in the Territory, TRTFN Government may participate in an Environmental Assessment process and negotiations for an Impacts and Benefits Agreement and Accommodation Agreement, if that participation receives support through a Joint Clan Meeting (see *Schedule B*).

27. Before agreeing to participate in an Environmental Assessment process or negotiations for an Impacts and Benefits Agreement or an Accommodation Agreement, TRTFN Government will seek to ensure that it has the necessary technical, legal and financial resources and capacity to participate effectively in the process. TRTFN Government may enter into an interim arrangement with the proponent and/or a government entity, on a without prejudice basis, for the purpose of acquiring the necessary resources and capacity.

28. TRTFN participation in an Environmental Assessment process or in negotiations for an Impacts and Benefits Agreement or an Accommodation Agreement will be without prejudice to TRTFN Government's right to refuse to give consent or support for the project if it decides that the proposal, as modified by measures agreed to in the Environmental Assessment, the Accommodation Agreement and the Impacts and Benefits Agreement, would not achieve TRTFN objectives in Section 4.

29. TRTFN Government may give its consent and support for a proposal to develop commercial mineral production in the Territory, if it decides that the proposal, as modified by measures agreed to in the Environmental Assessment process, an Accommodation Agreement and an Impacts and Benefits Agreement, would achieve the TRTFN objectives in Section 4.

30. A decision under Section 29 shall be made after:

    a. the completion of an Environmental Assessment;

    b. the negotiation of an Impacts and Benefits Agreement with the proponent; and

    c. the negotiation of an Accommodation Agreement with British Columbia and/or Canada.

31. A decision to ratify a proposed Impacts and Benefits Agreement or Accommodation Agreement shall be decided by a Joint Clan Meeting. A decision under Section 29, for TRTFN Government to give consent and support for a proposal to develop mineral production in the Territory, shall be decided by a Joint Clan Meeting.

Environmental Assessment

32. The TRTFN objectives in Section 4 will serve as the terms of reference for TRTFN's team which is participating in an Environmental Assessment process.

33. Before agreeing to participate in an Environmental Assessment under the *BC Environmental Assessment Act* and/or the *Canadian Environmental Assessment Act*, of a proposal to develop mineral production in the Territory, TRTFN Government will seek to ensure that the following conditions are met:

    a. the process for the conduct of the Environmental Assessment and TRTFN's participation in the process will be negotiated with the Crown before the process begins;

    b. a process will be negotiated to harmonize the Environmental Assessment process with the Crown's duty to consult and accommodate the interests of TRTFN in respect of the project; and

c. TRTFN Government will be adequately resourced to participate in the Environmental Assessment and harmonized process.

Impacts & Benefits Agreement

34. An Impacts & Benefits Agreement concluded by TRTFN Government and the proponent shall provide for measures within the authority of those parties, and will normally include the following:

    a. the common provisions in Schedule E;

    b. environmental protection measures, including monitoring and management programs and follow-up studies;

    c. measures to protect TRTFN land use practices and rights from project impacts;

    d. measures to support TRTFN land use practices and rights;

    e. compensation to TRTFN citizens or TRTFN Government for any disturbance or interference with Tlingit land use activities or interests that may be affected by the project;

    f. provisions for monitoring performance of the operation, conducting inspections and environmental audits as may be required;

    g. reporting requirements of the proponent to TRTFN Government;

    h. economic benefits to TRTFN community, including business and employment opportunities, community development program contributions, training and education programs, financial contributions, and any other benefits negotiated for TRTFN and its citizens;

    i. other such measures agreed by the Parties.

35. TRTFN Government may not conclude an Impacts & Benefits Agreement until the following events have occurred:

    a. the Environmental Assessment of the proposed project has been completed;

    b. TRTFN Government is engaged in negotiating an Accommodation Agreement with BC and/or Canada; and

    c. There has been ratification of the Impacts and Benefits Agreement by a Joint Clan Meeting.

Accommodation Agreement

36. An Accommodation Agreement concluded by TRTFN Government and the BC and/or Federal Governments shall provide for measures within the authority of those parties, and will normally include the following:

    a. the common provisions in Schedule E;

    b. environmental protection measures, including monitoring and management programs and follow-up studies;

c. measures to protect Tlingit land use practices and rights from project impacts;

d. measures to support TRTFN land use practices and rights;

e. provisions for monitoring performance of the operation, conducting inspections and environmental audits as may be required;

f. economic benefits to TRTFN community, including business and employment opportunities, community development program contributions, training and education programs, financial contributions, and any other socio-economic benefits negotiated for TRTFN and its citizens;

g. mechanisms for sharing revenues from resource development;

h. other such measures agreed by the Parties.

37. TRTFN Government may not conclude an Accommodation Agreement until the following events have occurred:

a. the Environmental Assessment of the proposed project has been completed;

b. TRTFN Government is engaged in negotiating an Impacts and Benefits Agreement with the proponent; and

c. There has been ratification of the Accommodation Agreement by a Joint Clan Meeting.

OPERATIONAL PRINCIPLES FOR TRTFN MINING-RELATED DECISIONS

38. TRTFN actions, participation and decisions under this policy will be based on the best available Tlingit Knowledge, other scientific information and expert opinion.

39. Proponents will normally be required to fully support TRTFN's costs for reviewing proposals and participating in the various phases of the regulatory process. TRTFN Government should not engage in processes related to a proposed project where such engagement would impose a substantial unrecoverable debt on TRTFN Government.

40. Draft agreements concluded under this policy will be legally reviewed before they are finalized or considered for ratification.

41. In making any Tlingit Knowledge or land use information available to a mining proponent and/or the Crown for their use, TRTFN Government shall seek to conclude a written agreement between the parties for the use and security of the information which provides for the following:

a. the information is acknowledged as the intellectual property of the TRTFN;

b. the method of accessing the information by the proponent is described;

c. the information will be used only for the stipulated purposes and for no other purpose, unless otherwise agreed to by TRTFN Government;

d. the information will not be distributed beyond those persons in the company who have permission to see and use the information for the specified purposes; and all electronic and hard copies will be disposed of in the manner set out in the agreement;

e. the information will not be published in any reports or maps issued by the company in a form that is not described in the agreement or otherwise not formally approved by the TRTFN Government: and

f. any costs to TRTFN Government incurred in the production or transfer of the information are recovered from the proponent.

RELATIONSHIP OF MINING POLICY TO ABORIGINAL RIGHTS

42. Except as specifically consented to in writing by TRTFN, this Policy and the procedures it defines are without prejudice, and nothing in this Policy or the procedures it provides for shall be construed so as to:

    a. abrogate or derogate from the protection provided for existing aboriginal or treaty rights of the TRTFN by the recognition and affirmation of those rights in Section 35 of the Constitution Act, 1982;

    b. abrogate or derogate from any fiduciary or other legal duty or obligation of the Crown to the TRTFN that may be derived from treaties, constitutional provisions, legislation, common law or express undertakings; or

    c. preclude or limit the right of the TRTFN to advocate before the courts any position on the existence, nature or scope of any aboriginal or treaty right of the TRTFN, or of any fiduciary or other legal duty or obligation owed by the Crown to the TRTFN.

REVIEW OF POLICY

43. TRTFN Government shall review and make any necessary changes to this Mining Policy:

    a. no later than two years from the initial ratification of the Policy; and

    b. every five years thereafter.

DEFINITIONS

44. In this Policy:

"**Accommodation Agreement"** means a government-to-government agreement between the Crown and the TRTFN which describes how the latter's interests will be accommodated in respect of any Crown land-use decision.

"**Advanced Exploration**" means any exploration or sampling work conducted on a mineral tenure (claims or leases) to discover or prove potential economic reserves.

"**Exploration Agreement**" means an agreement between a mining proponent and TRTFN as to how the proponent's mineral exploration activities may occur on the Territory with the support of the TRTFN Government.

"**Impacts & Benefits Agreement**" means a comprehensive agreement between a mining proponent and TRTFN as to how a mineral property will be put into commercial production and managed through to mine closure and reclamation.

"**Proponent**" means an individual or company who proposes to conduct physical work in relation to exploring for or developing surface and subsurface mineral resources.

"**Regional Exploration"** means mineral exploration surveys conducted in portions of the Territory, not including advanced exploration, on a mineral claim or lease.

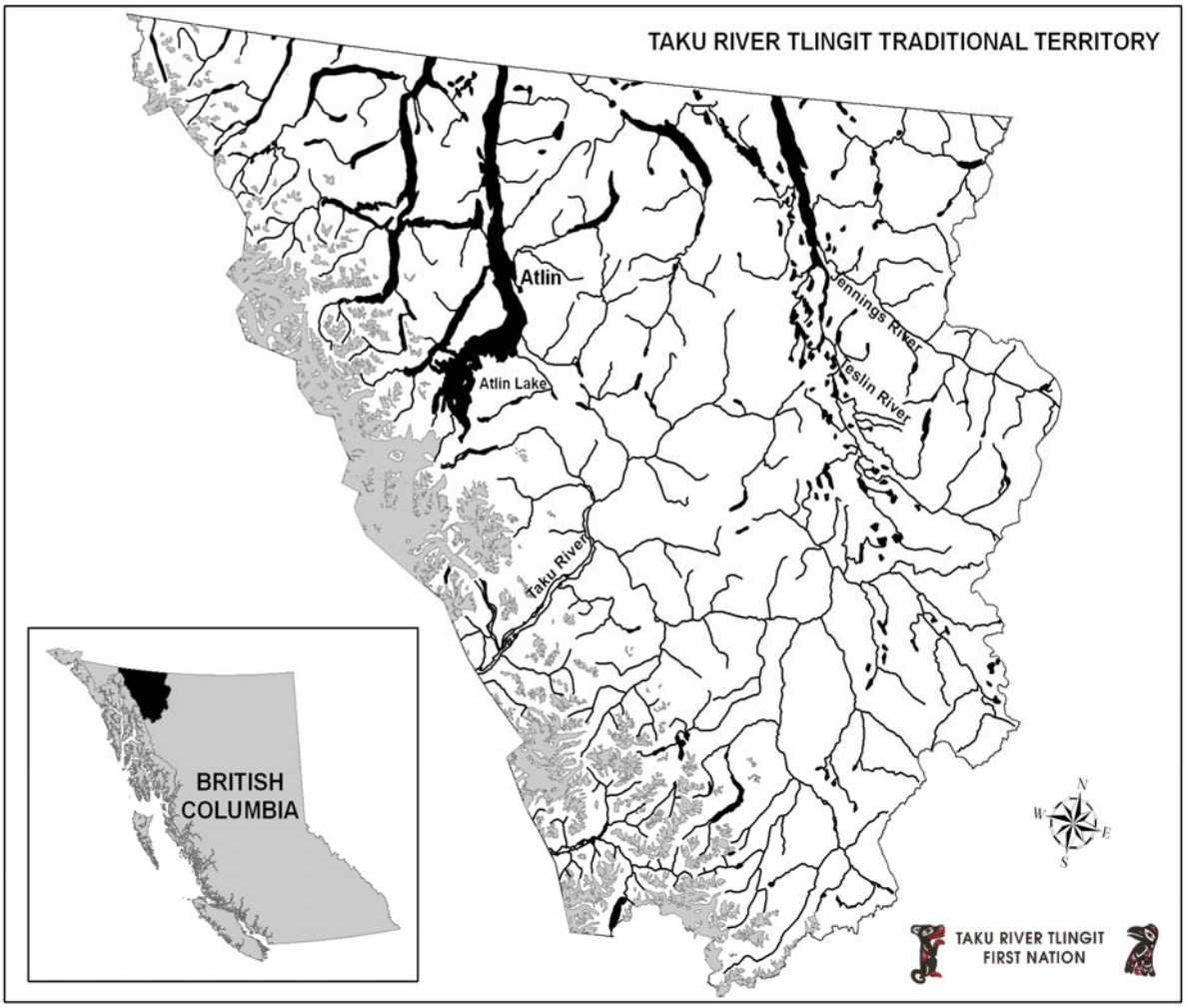
"**Tlingit Knowledge**" means knowledge held by Tlingit people about Tlingit land use and local ecosystems and environmental processes, including knowledge about plants, fish, wildlife, birds, water and other environmental values.

"**TRTFN Government**" means the TRTFN governing body, as defined by the TRTFN Constitution, which includes TRTFN political representatives (Spokesperson and Directors) responsible for achieving mandates according to Joint Clan Meetings.

"**Territory**" means the geographic area to which the Taku River Tlingit First Nation have Aboriginal Title, as shown on *Schedule A* attached.

Schedule A

MAP OF TAKU RIVER TLINGIT TRADITIONAL TERRITORY



Schedule B

ORGANIZATIONAL CHART AND DECISION MAKING FOR TRTFN

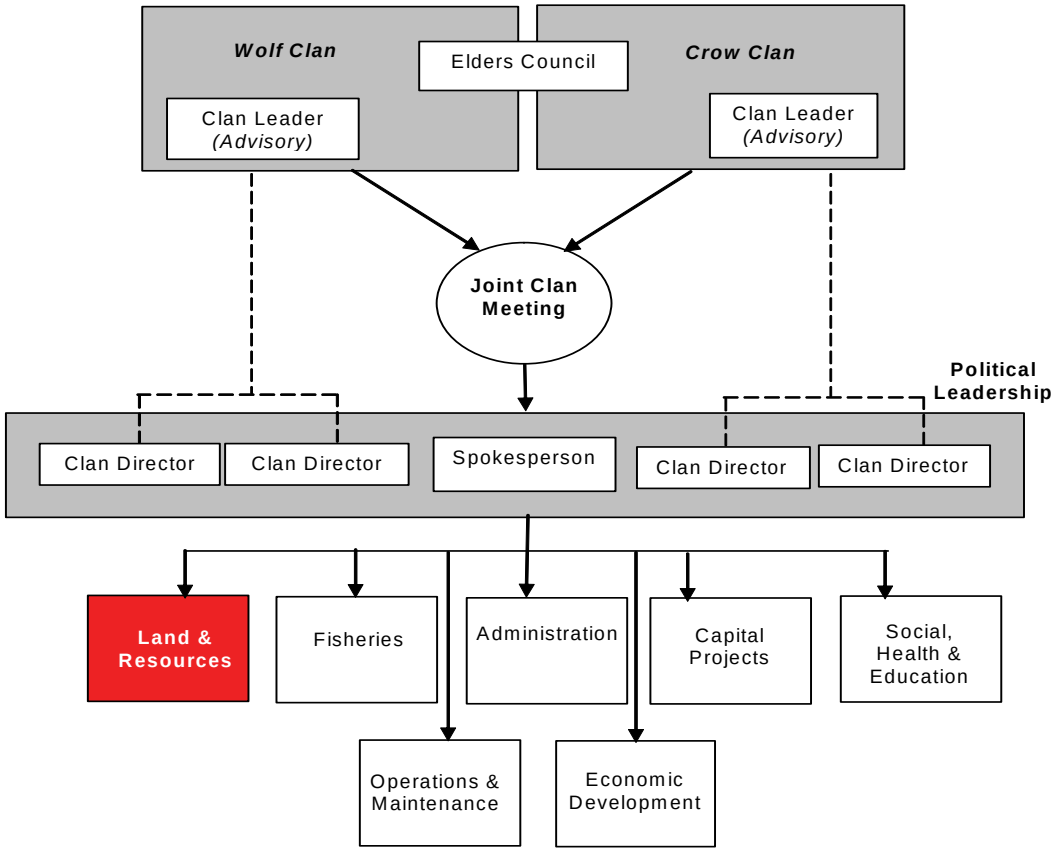


Figure 1: Organizational Chart for TRTFN

Schedule C

TLINGIT SUSTAINABILITY PRINCIPLES

Environmental Sustainability means that:

1. There is a reasonable degree of certainty that the impacts to the potentially affected ecosystem (including air, water, plants and animals) are adequately understood, and can be effectively minimized through careful design, management plans and mitigation (including closure) to a degree acceptable to the TRTFN Government. This will normally mean that there have been satisfactory Environmental Assessment and accommodation processes conducted as provided for in the *TRTFN Mining Policy.*

2. The project is consistent with any TRTFN Government land use plan, or other written land use and development policies or objectives of TRTFN Government for the affected portion of the Territory.

3. There is a management regime for the project in which TRTFN Government has an effective role with respect to the environmental protection measures that need to be implemented in order to maintain environmental quality.

4. There are written agreements as necessary to provide for the measures required for protection of Tlingit land and resources that include a role for TRTFN Government in the conduct of the environmental protection programs throughout the life of the project.

5. The pace of development in Taku River Tlingit Territory is itself sustainable, taking into account potential cumulative impacts from concurrent or consecutive developments, and providing an effective TRTFN Government role in managing the pace of development and avoiding significant cumulative impacts.

Economic Sustainability means that:

6. The project is consistent with any long-term economic development goals and strategy of TRTFN Government.

7. The project offers reasonable economic benefits and on-the-job training to TRTFN Government and community, and will produce an economic benefits legacy for the local area and community, into the future.

8. The project contributes to local economic diversity, and does not compete unfairly or undermine other TRTFN economic activity including, particularly, the Tlingit land-based economy.

9. The project will not impose any uncompensated economic losses on the TRTFN Government or the local community.

10. The scale and pacing of the project or projects is appropriate to the TRTFN population, the size and infrastructure of the community of Atlin, and the employment and other economic needs of Tlingit and other local people.

Social Sustainability means that:

11. The project provides a reasonable degree of certainty for TRTFN Government with respect to social impacts. This may require a community impact assessment process that has properly identified the adverse effects from the project on the community, and a defensible plan committed to and financed by the Crown and/or the proponent which can detect and minimize social impacts to acceptable levels.

12. The project will enhance the human capital (skills, abilities, health, and education) of the community.

13. The project will enhance the social capital (relationships between individuals, families, groups and organizations and their ability to interact positively) of the community.

Cultural Sustainability means that:

14. The project will not interfere with individual or collective rights and practices involving land-based cultural pursuits, or with the health and well being of the natural resources upon which Tlingit land-based cultural practices depend.

15. The project will not infringe or adversely impact the Aboriginal rights that support the culture of the TRTFN.

16. The project will not interfere with or create obstacles to the transmission of TRTFN land-based culture and practices from one generation to the next.

Schedule D

TRTFN DOCUMENTS RELEVANT TO LAND USE DECISIONS

1. *Our Land is Our Future: Hà tlátgi hà khustìyxh sìti - Taku River Tlingit First Nation Vision & Management Direction for Land and Resources*

2. *A Conservation Area Design for the Territory of the Taku River Tlingit First Nation*

3. *TRTFN Mining Policy*

Schedule E

COMMON PROVISIONS IN MINING-RELATED AGREEMENTS

All mining-related Agreements under this Policy will normally include provisions to address the following:

1. Preamble – describing background of the Agreement;
2. Purposes of the Agreement;
3. Description of the project and the proponent;
4. Definitions of particular terms in the Agreement;
5. Protocols for communication, information exchange, and on-going liaison between the parties;
6. Mechanisms for reviewing and/or amending the Agreement;
7. Mechanisms and funding for the implementation of the Agreement;
8. Dispute resolution process;
9. Principles to guide interpretation – including a principle that the Agreement will not be construed to affect or interpret TRTFN legal rights or Crown obligations, and will be without prejudice to future legal and negotiation positions of the parties, except as expressly agreed;
10. Term of the Agreement;
11. Termination rights and mechanisms;
12. Agreement enures to the benefit of, and is binding upon, the parties' respective heirs, executors, administrators, successors and assigns; and
13. Other such matters agreed by the Parties.

Appendix C

Employment in the Mineral Industry

The Price Waterhouse Coopers 2007 survey of the mining industry states:

"Direct employment totalled 7,415 individuals during 2007, compared with 7,345 in 2006. Salary and benefits totalled $755 million in 2007, an increase from $734 million reported in 2005 which reflects the increase in the average salary and benefits per employee from $99,900 in 2006 to $101,900 in 2007. Mining salaries and benefits remain high, reflecting the current demand for, and lack of, skilled personnel."[65]

In summary, 2006 employment in the B.C. mineral industry breaks down as follows:

- Mineral Exploration - 6,470 seasonal employees, or 2,147 full time equivalents
- Construction aggregates – 2020 employees
- Coal – 2,973 employees
- Metals sector (including smelters) - 3,271 employees
- Downstream mineral processing – an estimated 13,500 in 2004 (may include manufacturing, sales, and professional services off site)

It should be noted that the figures represent average salary, not the "mean" and do not reflect the huge variation in incomes within the industry. Tables showing employment in mineral exploration, construction aggregates, coal and metals:
http://www.em.gov.bc.ca/mining/MiningStats

Government does not keep figures of First Nations employment within these sectors. However, Natural Resources Canada reports that:

- It is estimated that across Canada First Nations workers accounted for 5.3% of the mining workforce in 2001 versus 3.6% in 1996. According to the 2001 Canadian Census, First Nations people account for 3.3% of Canada's total population.

- In 2001, there were 420 First Nations people in the mining work force in BC, and a total of 3,840 in all of Canada.[66]

An analysis published in January 2007[67] states: " The only source of labour market information on First Nations people since the 2001 Census is the Labour Force Survey, which covers only those living off-reserve in Western Canada." Unfortunately, the labour force survey lumps employment in "the resource sector", which includes forestry, fishing, and mining and oil and gas. It does indicate that First Nations employment has increased. AMEBC estimates that in 2007, 10% of the 7071 (seasonal) employees in the BC mineral exploration industry were First Nations.

Indian and Northern Affairs Canada reports that: "Current participation by First Nations people in the BC mineral exploration and mining industry is relatively limited, except for certain First Nations and specific mining operations. The Ts'kw'aylaxw First Nation, with a limestone quarry operating on their reserve, have 27 community members employed full time at the Pavilion limestone quarry. The West Moberly and Saulteau First Nations and the McLeod Lake Indian Band, with coal mines in the northeast, and the Tahltan First Nation, with a major mine in their territory, have all benefited from proximity to mines, with high levels of employment for their community members."[68]

North West Tribal Treaty Nations (NWTT) published a paper in July 2004[69], which looked at the employment of their labour force based on the Standard Industry Classification system. The research project was based on information from 37 First Nation communities. They found that 85 on-reserve and 50 off-reserve members were employed in mining and oil and gas extraction (Page 21, Table 2.3.2.)

The Tahltan were able to negotiate a deal with the (now-closed) Golden Bear Mine so that 35% of employees were Tahltan in 1997. They also held about 1/3 of positions at the Eskay Creek Mine in their territory.

The Ucluelet First Nation and the Hupacasath First Nation have negotiated an agreement for 50% of the employees at the Polaris Eagle Rock Mine to be First Nations members.

At the South Kemess Mine, it was revealed during the North Kemess Environmental Assessment process that "In 2004, out of 350 full-time and 125 seasonal employees, only 28 First Nations employees came from the affected communities[70], and they earned an average of $15,000 to $25,000 that year."[71] On the other hand, the average wage for mine workers in BC was $94,700.[72] By comparison, the five executive directors of Northgate together earned $1,401,932 in 2004 not including their stock options.[73]

A number of BC programs are in place to increase First Nations participation in the mining workforce. The industry is concerned because retiring older non-native workers and increased demand for workers will leave them with a serious employee shortfall in the next ten years. The BC Mining Job Strategy ensures support and funding for programs such as:

- B. C. Exploration and Mining Sector Labour Shortage Task Force
- First Nations Training and Employment Program, delivered by BC Institute of Technology
- The Northwest School of Exploration and Mining - Reclamation and Prospecting Program in partnership with the "Smithers Exploration Group". Funded by the province for $900,000 and $1.9 million by the Federal government
- Mining Rocks - The Career and Job Opportunities Tour
- The Mining Education Network
- The First Nations Minerals Training and Employment Program

The Jobs Strategy is seeking a total of $30 million from governments over five years to fund these programs.[74]

Appendix D

Adapted from Mining Investors: Understanding the legal structure of a mining company and identifying its management, shareholders and relationship with the financial markets, Joan Kuyek, MiningWatch Canada, November 2007, www.miningwatch.ca.

Factors affecting estimates of mineral potential

In responding to proposed mining projects, First Nations need to be able to assess the mineral potential realistically. Generally speaking, exploration companies hype the value of their findings to the extent they are allowed to, in order to encourage investment. When commodity prices are high, a lot of mining exploration is only a market play. The company is "mining investors" and not seriously interested in mining ore. Even mining investors creates problems for First Nations governments that have to deal with them. It takes time to review applications and monitor mining activities. A staking rush can cause serious and uncontrolled damage on the land (because even speculators have to show drill results to attract investors). If mining exploration leads to development, mining companies need sustained investor interest to develop their project. When a project is moving from exploration to mine development, the company will start looking for a very different kind of investor, and those investors will ask a very different set of questions.

National Instrument 43-101

In response to industry hype, the Securities Regulators have developed a policy that describes the ways in which mineral potential must be described in public company documents. The policy is called *National Instrument (NI) 43-101*, or the Canadian Institute of Metallurgy *(CIM) Definition Standards*. NI 43-101 provides standards for the classification of Mineral Resource and Mineral Reserve estimates into various categories, based on rules developed by the Canadian Institute of Metallurgy.

The category to which a resource or reserve estimate is assigned depends on the level of confidence in the general geological information available about the mineral deposit, the quality and quantity of data available on the deposit, the level of detail of the technical and economic information which has been generated about the deposit, and the interpretation of the data and information. The NI43-101 report may include a discussion of community and First Nations consultation, although this is unusual and not required.

Securities regulators take hype seriously. For example, Canarc had to issue the following in a news release on September 26, 2006, following unfounded claims about the enormous size of the mineral resource they found:

> *Since 2002, Canarc has made disclosures in certain news releases, shareholder updates, corporate presentations, website information, AIFs and MDAs* [annual information forms and management's discussion and analysis] *regarding a 1.3-million-ounce gold resource estimate for New Polaris. These disclosures were not in compliance with NI 43-101 because the estimate did not meet the definition of a historic resource, it was not disclosed according to NI 43-101 standards and it was not supported by a technical report. Canarc therefore retracts its previous statements regarding this resource estimate and restates the previous historic estimates that comply with the NI 43-101 definition of historic resources at the end of this news release.*

Commodity price

It is important to remember that mineral potential is closely tied to the price of the commodity (the metal) and the extraction costs. The *commodity price* – the sale price of most minerals extracted in Canada and around the world – is set on the London Metals Exchange (LME), and is somewhat related to supply and demand for the mineral. Coal prices are set in April each year by major coal producers. Some commodities, like uranium, are also sold under supply contracts, with prices linked to the "spot" market price. Metal commodity prices are, like other products, vulnerable to speculative bubbles, which do not reflect real demand for a product. In 2007, uranium and gold

prices were speculative, not tied to real demand. Future commodity prices used to predict mineral values over the long-term (especially for speculative commodities) are often not based on reality.

Scoping and Feasibility Studies

Companies that are serious about developing a project will undertake a scoping study (or pre-feasibility study) and then a feasibility study. The feasibility study is not usually public and typically these documents are directed at potential investors and banks. The feasibility study will provide an estimated *Internal Rate of Return* (IRR) and a *Net Present Value* (NPV). The IRR is based on the calculation of annual cash flows for a company. It is very sensitive to start-up dates, when the reclamation bond has to be paid, and the price of the metals over time.

MiningWatch Canada has undertaken a number of investor analyses of mining projects in Canada. They concluded that, in almost every case they reviewed, there were questionable assumptions and errors, which resulted in an over-estimation of cash flow and the Internal Rate of Return. Common errors in IRR calculation are:

- not providing for a reclamation bond up-front,
- assuming the project can get its permits earlier than it can,
- crediting a possible sale of mine infrastructure at closure against remediation costs,
- assuming government subsidy for power, rail and roads,
- over-estimating the long-term return on commodities (i.e., forecasting gold prices at $700 for ten years),
- under-estimating the difficulty and costs of getting equipment, materials and labour, when the demand for them is very high,
- Under-estimating smelter penalties for contaminated concentrates.

Smelter penalties

Each smelter's pricing for the concentrates or ore they buy is different, based on the process they use and the environmental standards for emissions in the jurisdiction where they operate. For example, with mercury, the smelter will have a limit for the mercury it is allowed to release from its stack. When concentrate is delivered to the smelter it is assayed. If the mercury in the concentrate is low enough to allow the smelter to meet its legislated limits for mercury, then there is little or no penalty. If the mercury is above this level, the concentrate must be pre-processed to remove the mercury and the "smelter penalty" is the cost of removal (presumably with a profit margin). There generally is no penalty if the smelter is able to sell the by-product contaminant.

Individual smelter charges are rarely disclosed because that would entail disclosing the details of the mine's concentrate. Each mining company wants to keep this price secret for competitive reasons, since it effectively discloses their margin and the buying price for their concentrate. Smelters process concentrate from different companies and so must keep the individual smelting contracts secret or none of them would deal with the smelter. If ore is poly-metallic (having many types of metals in it), some of the metals may not be a "product", but a contaminant. For example, if the price of selenium is high, zinc ore mixed with lots of selenium may be worth smelting because the selenium will become marketable commodity. However, if the price drops, then the selenium is considered a contaminant of the zinc, and the zinc smelter will impose a penalty for handling it. The same is usually true of mercury, arsenic and lead.

A template for evaluating the feasibility of a mine proposal

When investors are contemplating an investment in a new mining project, they ask a number of questions about the company that is proposing the project. The kinds of questions they ask will be determined by the kind of company and the project's stage of exploration.

These questions can help a community or First Nations government figure out what they need to know in negotiating with a mining company.

The Key Question Template

1. Credible ore body
   a. Review of drill results and estimates (How was the cut-off grade set? How extensively is the area explored?)
   b. History of exploration on the deposit. Did a large mining company walk away from it in the past? Does a credible company have an option on their project?
   c. Do the results meet all Securities Commission criteria (Are they resources or measured reserves? Was the Qualified Person truly independent/are there any problems with his/her previous work)?
   d. If this is a polymetallic mine, what will be the relationship between product streams in terms of costs, smelters, etc. (for example, if this is a zinc mine with lots of selenium, is there a market for selenium)?
   e. If the ore contains considerable contaminants will that result in serious smelter penalties or even refusals (eg. arsenic, antimony and mercury)?

2. Access to the Ore Body and the land to develop it
   a. First Nations willingness to support the project and its infrastructure; history of relationship with First Nations
   b. Existence of First Nations title or claims on the land
   c. Spiritual and cultural uses of the area
   d. Geographic barriers to access–difficulties that might be faced in terms of land for roads/rail, hydro
   e. Other political/legal barriers to access- planned protected areas or parks, a conflicting land use.

3. Management
   a. Who are the principals in the company, and what is their track record?
   b. Who are the major investors and are they committed?
   c. Are all their regulatory filings transparent, clearly reflecting all risks?
   d. Have there been many management changes?
   e. What other project(s) are the company committed to? What impact could they have on this mining project?

4. Energy
   a. How much power will the project require?
   b. What is the source(s) of that power? How much will it cost? Are prices likely to remain affordable?
   c. Are there huge infrastructure costs to develop the power source?
   d. Will they need separate regulatory approvals?

5. Transportation
   a. What are the plans for transportation infrastructure (rail, roads, port development, etc.)?
   b. Will they be transporting dangerous chemicals?
   c. Will they need separate regulatory approvals?
   d. Are prices realistic and affordable? Are they volatile?
   e. Are there potentials for costly accidents, disruptions (avalanche, earthquake, hurricane, flooding, etc.)?

6. Water
   a. How much water do they need? Where will it come from?
   b. Is the water source reliable? Is it contested?
   c. What (if anything) will it cost?
   d. Will water be contaminated? How will the costs of treatment be covered? How long will they need to treat the water?
   e. What hydrological impacts will the project have? How will it affect groundwater/ aquifers?
   f. Will the project affect fish habitat? Aquatic ecosystems?

7. Labour

a. What are their labour needs: skilled and unskilled? At construction operation and closure?
b. Where will the labour supply come from? Is this realistic given other mining developments around the country?
c. What is the First Nation interest in the jobs/contracts? What about training, timing, etc.?
d. Where will workers from outside stay? Are the costs of transporting them properly estimated?
e. Labour history in area (strikes, dissatisfaction, laws, etc.)

8. Market
   a. Where will the ore be processed? Is there a need to transport ore to different smelters and refineries (zinc, copper, gold)?
   b. Is the anticipated market price correct/likely to go up or down? Review of market price history for the commodity?
   c. What competition can they expect for their product- nationally, internationally?
   d. What penalties will there be for contaminants?
   e. Can they get it to market (see transportation section)?

9. Regulatory Approvals and Permits
   a. Provincial and federal permits required
   b. Is the project transboundary? What are the implications of this?
   c. Requirements for closure and reclamation approvals and bonding
   d. Anticipated delays and blockages to getting permits: valued wilderness area, area of First Nation heritage interest, competition with commercial fishery, hunters, endangered species, public opposition
   e. Areas of regulatory uncertainty- changes to federal or provincial legislation, political uncertainty (e.g. *Metal Mining Effluent Regulations*)

10. Unfunded liabilities
    a. Accident potential - earthquakes, avalanches, flood events, experimental technologies
    b. Emergency plans - are they realistic?
    c. Closure and reclamation bonding requirements- state of regulatory enforcement, political environment, long-term liability

11. Competitive rate of return
    a. Given the above, analysis of company's claims on IRR
    b. What prices are the IRR based on?
    c. What is the rate of currency exchange/fluctuation used for the feasibility study? (most studies are based on US/Canadian exchange rates that are out-dated)
    d. How does the company expect to finance development? Can they access the money for development?

Appendix E

Carrier Sekani Tribal Council - 2007
First Nations Perspectives on the BC Environmental Assessment Process for Discussion Purposes

1. First Nations have no Decision Making authority in the process or the result
First Nations in the present EAO process are mere 'stakeholders'. They have no power or authority over the design of the process, or the ultimate decision. The Minister makes the final decision as to approval without any further recourse to the First Nation. The purpose of the process is to enable the Minister to weigh the larger 'public interest' against both environmental harm and First Nations interests. First Nations interests may not be fairly served in that process.

No matter how much they are 'consulted' in the design, First Nations feel powerless in the process. It is the EAO who draft all documents with legal power, and all interim and final reports. It remains the Minister who has complete power under s. 14 to determine the scope of the assessment and procedures. A proper process that recognized the existing legal interests of the First Nation, and the separate legal and jurisdictional status would have a true 'joint' role for First Nations in process-design, and in final report and other decision-making processes.

2. The Decision-Making Criteria under the EAO legislation does not include any mandatory First Nations criteria
As currently written the Minister (or ministers) has the decision-making authority following environmental assessment pursuant to s. 17(3). That discretion is completely unfettered by statute. The Minister(s) has no specific statutory responsibility to protect First Nations interests, or even to weigh those interests in doing so. The legislation does not refer to First Nations interests as an aspect of the decision but provides only that the ministers "*may consider any other matters that they consider relevant to the public interest in making their decision*" [Emphasis added]. Although an obligation to First Nations can be inferred from the common-law *Haida* principles to be an aspect of the public interest, the Minister can meet that duty under the statute simply by paying lip-service to having considered it in the context of the economic development opportunity. In any event, the statute is discretionary.

Where the minister considers that the larger public interest is contrary to the interests of the First Nation (e.g. where 'economic development' is a factor), such unfettered discretion means that even a project openly harmful to First Nations can be approved without any recourse. There is no appeal mechanism provided, and the absence of statutory criteria referencing First Nations interests means that any judicial review on that ground becomes very difficult. Further, the presumed purpose of the EAO investigation is 'environmental' (although the Minister's discretion even for this purpose appears undirected). The investigation of First Nations interests remains a side-issue, and not part of the main focus of the legislation.

3. The 2002 amendments to the BC *Environmental Assessment Act* removed a legislated role for First Nations from the process.
In 2002 the *BCEAA* was repealed and re-enacted in a manner that appear to be a deliberate attempt to limit duties to First Nations. Even though the former legislation was also deficient in the manners described herein, the 2002 version removed almost all provisions that referenced a separate role for First Nations in the EA review process and more meaningful consideration of impacts of a project on First Nations communities.

The pre-2002 legislation required that representatives of any First Nation whose traditional territory included the site of the project or was in the vicinity of the project, be members of a "Project Committee" struck for the purpose of providing the EAO with advice and recommendations during the review (s. 9(2)). Further, a stated purpose of the legislation was to provide for the thorough, timely and integrated assessment of the environmental, economic, social, **cultural**, **heritage** and health effects of reviewable projects. Similarly, the definition of "effect" also included cultural and heritage effects. The project approval application was required to include information, distribution activities and consultation activities undertaken by the proponent with a First

Nation and a summary of the First Nation's response and of the issues identified and any program of information distribution or consultation proposed by the proponent with a First Nation during the next stages of project planning and review (s. 7(2)).

None of these requirements is contained in the current Act. There are no legislated requirements regarding a First Nations role in the EA process or a requirement that First Nations interests be considered. There is no definition of "effect" or requirements regarding what impacts must be considered in an assessment of a project. All decisions regarding scope, procedure and method of assessment are at the discretion of the EAO.

The new act weakened the role of First Nations in the EA process. It ignored (or worse, avoided) court decisions of the day that supported the requirements of the pre-2002 legislation for First Nations involvement and confirmed the there was an obligation on the government to consult and accommodate infringements of unproven aboriginal rights and title caused by permitting decisions of the government. Symbolically, if not in practice, these changes caused First Nations to feel that their role in the EA process and the issues we raise were not important to the EAO.

Although the current EA staff may attempt to design processes that replicate some of these former obligations, the fact that such involvement has been removed from the legislation, and become discretionary only, remains negative.

4. The EAO does not measure impacts of a project from an Aboriginal perspective.
As noted above, *BCEAA* does not require that an environmental assessment consider impacts on Aboriginal rights and title or cultural heritage. However, even when these impacts are considered in an environmental assessment conducted by the EAO they are not considered from an *Aboriginal* perspective. The EAO measures impacts in a linear and scientific manner. Impacts of a project on Aboriginal rights and title or cultural and spiritual activities or an Aboriginal "way of life" cannot be measured using the same method as biophysical or socioeconomic impacts. Only an Aboriginal group affected by a proposed project can measure how a project will impact its cultural heritage and determine if the impacts on its cultural heritage are too great to allow a project to proceed.

One way Aboriginal people can measure impacts of a project on cultural heritage is by way of *Indigenous Knowledge*. Indigenous Knowledge has been employed by Aboriginal Elders and leaders for thousands of years to ensure the impact of activities on the lands and waters within their lands is sustainable for generations to come. Indigenous knowledge has been defined in several different ways, but the definitions usually incorporate the following descriptors:

- Locally bound, indigenous to a specific area.
- Culture- and context-specific.
- Non-formal knowledge.
- Orally transmitted, and generally not documented.
- Dynamic and adaptive.
- Holistic in nature.
- Closely related to survival and subsistence for many people worldwide.[1]

Indigenous Knowledge can be utilized to measure, from a local, community perspective, the potential impacts of a project on the biophysical, cultural and socio-economic environment. The holistic nature of indigenous knowledge means that these interrelated impacts can be considered together as opposed to individually. Although EAO policies suggest proponents may include indigenous or "traditional" knowledge in their impact assessment, in practice, the measurement of "significant adverse environmental effects" is non-Aboriginal in perspective, traditional and science-based.

[1] United Nations Educational, Scientific and Cultural Organization, Best Practices on Indigenous Knowledge (http://www.unesco.org/most/bpindi.htm#_ftn3)

First Nations communities should have the opportunity to use Indigenous Knowledge to assist with a decision of whether or not residual impacts of a proposed project on a First Nation's cultural heritage are too significant for a project to proceed.

5. The Executive Director has no authority to accommodate infringements of Aboriginal and treaty rights and Aboriginal title.

At common law, the provincial government has a legal responsibility to consult with First Nations regarding how its actions and decisions might infringe Aboriginal and treaty rights and Aboriginal title protected by section 35 of the *Constitution Act*. Where an infringement may occur the government must accommodate the infringement in order to reconcile the Aboriginal interest with the non-Aboriginal interest. The courts have stated that the "honour of the Crown" is at stake in the governments' dealings with Aboriginal people.

The EAO is given discretion and authority to determine the scope, procedures and methods for a review of a project and make recommendations to the appropriate cabinet Minister as to whether or not the project should be approved, approved with conditions or rejected. However, the EAO does not have authority to negotiate on behalf of the province with respect to accommodation of infringement of Aboriginal rights and title.

Accommodation of infringements of Aboriginal rights and title typically include compensating a First Nation by way of a transfer of land, natural resources or cash or resource revenue sharing. The EAO has no statutory mandate or budget to make such commitments on behalf of the Province. Such commitments require the involvement of senior civil servants and Cabinet Ministers. In any event, in practice, the EAO states that the infringements of Aboriginal rights and title are "beyond the scope" of a proponents EA.

Thus, the EAO remains unable to deal with accommodation but the EAO is deemed by the Province to be its agent with First Nations in undertaking the duty of 'consultation'. Consultation and accommodation cannot be separated in such a manner. This cannot give rise to the 'good faith negotiation' required by the Court in *Haida* and other decisions.

6. Resources and funding inequities leave First Nations disadvantaged.

Proponents have significant resources to participate in the EAO process, to do studies and to pay consultants. Proponents will recoup their investment when the project is approved. The EAO has a substantial provincial budget, and all staff participating do so on a salaried basis. Funding for EAO budgets comes from tax revenues arising from economic development, and is returned when the project is approved.

First Nations are expected to fund their own participation, reliant on minimal hand-outs from proponents or very limited funds from EAO. Often this means voluntary participation or participation by staff with limited training. The salaried staff within First Nations responsible for consultation (where such positions exist) are expected to assess and process a large volume of referrals that range significantly in size, scope and comprehensiveness of environmental review. Where capacity funding is available, the binding agreements are designed to meet the needs of the proponent and the Province – not the First Nations. Proponents and the EAO are therefore able to use (and do use) the limited funds handed out to attach conditions to participation that are unreasonable and sometimes in conflict with the legal interests of the First Nation.

The ability to participate fully in EAO processes on a fair or equal basis would require access to extensive funding, equal to the EAO and proponents. The current EAO structure has no such budgetary mechanism.

7. The Working Group format of review is not conducive to a productive discussion of infringements of Aboriginal rights and title.

Unlike the previous legislation, *BCEAA* does not require that any specific review process be followed by the EAO or that an EA application contain specific information. The process is entirely at the discretion of the Executive Director of the EAO. Nevertheless, the EAO's policy appears to be to create a "Working Group" of stakeholders similar in structure and purpose to the previous "Project Committee". However, these committees are not a practical or appropriate place for infringements of Aboriginal rights and title to be determined, analysed and

accommodated.

The Working Group is a table of representatives of provincial, federal or local government agencies and departments whose mandate is to review a proponents EA application with respect to biophysical impacts of the project and possible mitigation measures. The table is made up of "technical" not "political" representatives of government. Discussions regarding accommodation of infringements of Aboriginal rights and title are too specialized, complex and lengthy for this type of forum. Discussion of First Nations issues often require all of the time set aside for a Working Group meeting. The impacts of a reviewable project on Aboriginal rights and title have significant legal and political implications for First Nations. These discussions need to be led by senior representatives of a First Nation and the provincial government whose obligation it is to consult with First Nations about impacts of a project on Aboriginal rights and title and accommodate First Nations for those impacts.

Further, this process attempts to artificially separate larger considerations of Aboriginal rights and title, and accommodation for general infringement, from specific environmental impacts infringements. Such distinctions usually cannot be drawn, and end up substantially devaluing the more important aspects of loss of Aboriginal title lands and rights in favour of a focus on individual site-specific issues.

The Working Group format for reviewing an EA application may be appropriate if infringements of Aboriginal rights and title were accommodated prior to a project undergoing an EA review. Once that occurs First Nations could better participate in the EAO "Working Groups" because the "political" and "legal" issue of Aboriginal rights and title would be dealt with and the group could focus on the "technical" impacts of a project.

8. The independence of the EAO may be compromised by political interests.
As noted above there is no legislated requirements with respect to the scope, procedures or methods for conducting an EA review by the EAO.[2] *BCEAA* no longer contains a list of objective purposes of an assessment as was found in the pre-2002 legislation. These principles helped to guide the purpose of an EA review process and assisted in keeping the process objective and independent. Formerly, section 2 stated that the purposes of the Act included:

- promoting sustainability by protecting the environment and fostering a sound economy and social well-being,
- providing for the thorough, timely and integrated assessment of the environmental, economic, social, cultural, heritage and health effects of reviewable projects,
- preventing or mitigating adverse effects of reviewable projects, and
- providing an open, accountable and **neutrally administered** process for the assessment of reviewable projects.

These purposes were removed from the legislation in 2002 and replaced with statutory requirements and policies that permitted assessments that could be directly influenced by political will. The level of discretion *BCEAA* now provides to the EAO leaves considerable room for political interference in the EA review process.

BCEAA now requires that the assessment of the potential effects of a reviewable project must "take into account and reflect government policy identified for the Executive Director, during the course of the assessment, by a government agency or organization responsible for the identified policy area" (s. 11(3)). The EAO's policy document titled "Brief Description of the BC Environmental Assessment Process" describes the EA process as a political decision. It states "The Act provides for a strategic-level evaluation of projects, which concentrates on the

[2] The Public Policy Consultation Regulation provides "general policies" on public consultation, public notice, access to information and public comment periods. However, none of these policies are mandatory. Under the regulation the EAO need only "take into account" the "general policies" set out in the regulation and ensure that they are "reflected in the assessment."

significant issues that need to be addressed as a basis for a political approval-in-principle decision."[3] The result of an EA process should not be a "political approval in principle". It should be a rigorous identification of potential impacts of a project, and a determination of how those impacts can be mitigated and a decision on whether or not the project under review should proceed in light of the impacts and mitigation measures identified.

Together, these aspects of the EA process mean that the EAO cannot be an unbiased arbiter of an EA application. Government policies regarding economic development are not usually consistent with environmental protection. As a result, the EAO may take into account short-term economic targets of the government over long-term sustainability and environmental protection when exercising its broad discretion in the EA process. This does not provide an objective assessment of impacts of a reviewable project.

9. BC EAO has never rejected a project since its inception in 1995.
Since 1995, approximately 65 projects have been approved and certified by the BC Environmental Assessment Office (EAO). No project has ever been rejected. The EA review process has become a process for mitigation of environmental impacts only. It is presumed by the proponent, stakeholders and government agencies participating in the review, and now more commonly by the public, that projects being reviewed will proceed. This puts the credibility of the environmental assessment process in BC in question. The adverse environmental impacts of SOME of these projects simply MUST be too great to permit their development.

The Reviewable Project Regulation under the *BC Environmental Assessment Act* (*BCEAA*) sets standards and thresholds that if met require the EAO to make a decision whether or not to undertake an environmental assessment. The standards and thresholds are such that the projects reviewed by the EAO are usually relatively "large" projects such as mines, hydroelectric and other large energy projects, tourism/ski resort development, and transportation projects, which often have the biggest impacts on the environment. This makes the fact that the EAO has never rejected a project even more significant.

First Nations governments are accountable to the members of their community of both current and future generations. Their members demand that their governments only support sustainable development and activities in their territories. This requires that proposed activities undergo a rigorous assessment of environmental and cultural impacts. If, after measures to mitigate impacts are considered, the residual adverse impacts of a project are significant, a project should be rejected. Rejection of some projects is a strong indicator that an assessment process works.

It is sometimes claimed by EAO that an alternative to rejection of specific projects is a process where further information is required, leading some projects to fall out of assessment through delay or inactivity. Such delay does not necessarily favour First Nations. Where timelines are extended, on-going resources are required for First Nations. If the project is neither outright cancelled, nor proceeding as originally planned, First Nations are left with uncertainty as to the level of resources suitable to commit to the ongoing planning for the review process.

10. The EA review process in BC is focused on ensuring proper "process", rather than "substance" of the EA.
As noted above, *BCEAA* does not contain any mandatory requirements for what information must be contained in an EA application. This is at the discretion of the EAO and has been the subject of guidelines published by the EAO. The legislation no longer includes objective purposes such as providing "a thorough… assessment" of a reviewable project. As a result, participants in the EA process find that the substance of the actual EA application is not as important to the EAO as ensuring that the proponent has simply completed the requirements of a review within the legislated time lines.

The EAO tends not to second guess the methodology, rigour or results of the EA application and baseline studies conducted by the proponent. Often too much of a proponents time, energy and money is spent on preparing the baseline studies, inventories and data collection that government departments no longer have the budget to

[3] 3 http://www.eao.gov.bc.ca/publicat/MOU-Wash_st-EAO_2004/brief-description-ea-process-10-29-03.pdf

undertake. Not enough time is spent on actual impact analysis. By the time the review of the EA application has been completed, proponents argue that they do not have the time or money to respond to comments about inadequate EA methodology and the EAO will not require substantive changes to the application.

11. Cumulative Effects Assessment does not address Aboriginal rights and title.
Cumulative effects are typically defined "as the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions."

When a CEA is undertaken by a proponent in the BC environmental assessment process (through the *Canadian Environmental Assessment Agency*), CEA "best practices" are not often applied by the EAO. For example, proponents are permitted by the EAO to use an inappropriately large study area for the CEA in order to conclude that the incremental impact of their project is insignificant when compared to similar impacts within the study area. Often proponents are only required by the EAO to consider the "incremental" impacts of their project as opposed to the impacts of their project together with other impacts.

A CEA for a project is an important aspect of an environmental assessment for First Nations. First Nation communities have witnessed the incremental degradation of their lands, resources and waters as a result of non-Aboriginal uses. A CEA should measure the impacts of a current project on Aboriginal rights and title interests, taking into account the impacts on those interests back to the time of contact with non-Aboriginal people. However, the EAO will permit CEAs that only consider impacts from the past 20, 30 or 50 years. Moreover, for First Nations who are currently engaged in treaty negotiations, the question becomes- based on existing and future development impacts, *to what extent is the exercise of Aboriginal rights still possible?*

12. The time limits in the EA process are too restrictive to allow for government and First Nations to negotiate accommodation of infringements of Aboriginal rights and title.
By regulation under *BCEAA* the EAO has 180 days to review a proponents EA application to determine if it contains the information required under the Terms of Reference, complete an assessment report on the application and refer the application and assessment report to the appropriate Cabinet Minister or Ministers. A typical review under the previous legislation would have taken two years. For several reasons, the current length of review is not adequate for most First Nations communities:

- First Nations are overwhelmed with referral letters and other forms of preliminary "consultation" attempts by government and third parties on a variety of land and resource projects within FN territories. The shear volume of referral letters and the lack of technical capacity within many First Nations to quickly evaluate which projects are likely to have significant impacts and which are not, can mean First Nations delay in getting engaged in a project under review by the EAO even though the impacts may be significant.
- Many First Nation communities must rely on third party consultants to provide technical and legal advice in relation to an EA review. This means First Nations require extra time to review documents and respond to the EAO within the EAO's timeframes.
- First Nations need to educate and consult with their membership before they can make a decision on whether or not the adverse impacts of a project under review are acceptable to us. This means First Nations require extra time to review documents and respond to the EAO within the EAO's timeframes.
- It can take at least 180 days and often much longer for a First Nation to understand how a project under review might impact Aboriginal rights and title. The negotiation of an Impact and Benefits Agreement or an Accommodation Agreement to accommodate infringements of Aboriginal rights and title can take equally as long.

In conclusion, First Nations need an environmental assessment process that:

- Is lead by an independent, politically neutral and unbiased agency;
- Is conducted jointly with First Nation governments;
- Considers impacts of the project on Aboriginal cultural heritage and Aboriginal rights and title;

- Utilizes science-based and indigenous knowledge to measure the significance of impacts of a project;
- Is community based and community driven (i.e. assesses impacts that are of concern to the Aboriginal community impacted by the project and t akes place within a timeline that is reasonable for engaging, educating and obtaining feedback with an Aboriginal community);
- Is more concerned with the rigour of the assessment than with the process of assessment;
- Provides effective and equal funding;
- Ensures there is adequate time and an appropriate forum for negotiation of accommodation of infringements of Aboriginal rights and title; and
- Delays a final decision until accommodation of infringements of Aboriginal rights and title has taken place.

Appendix F [75]

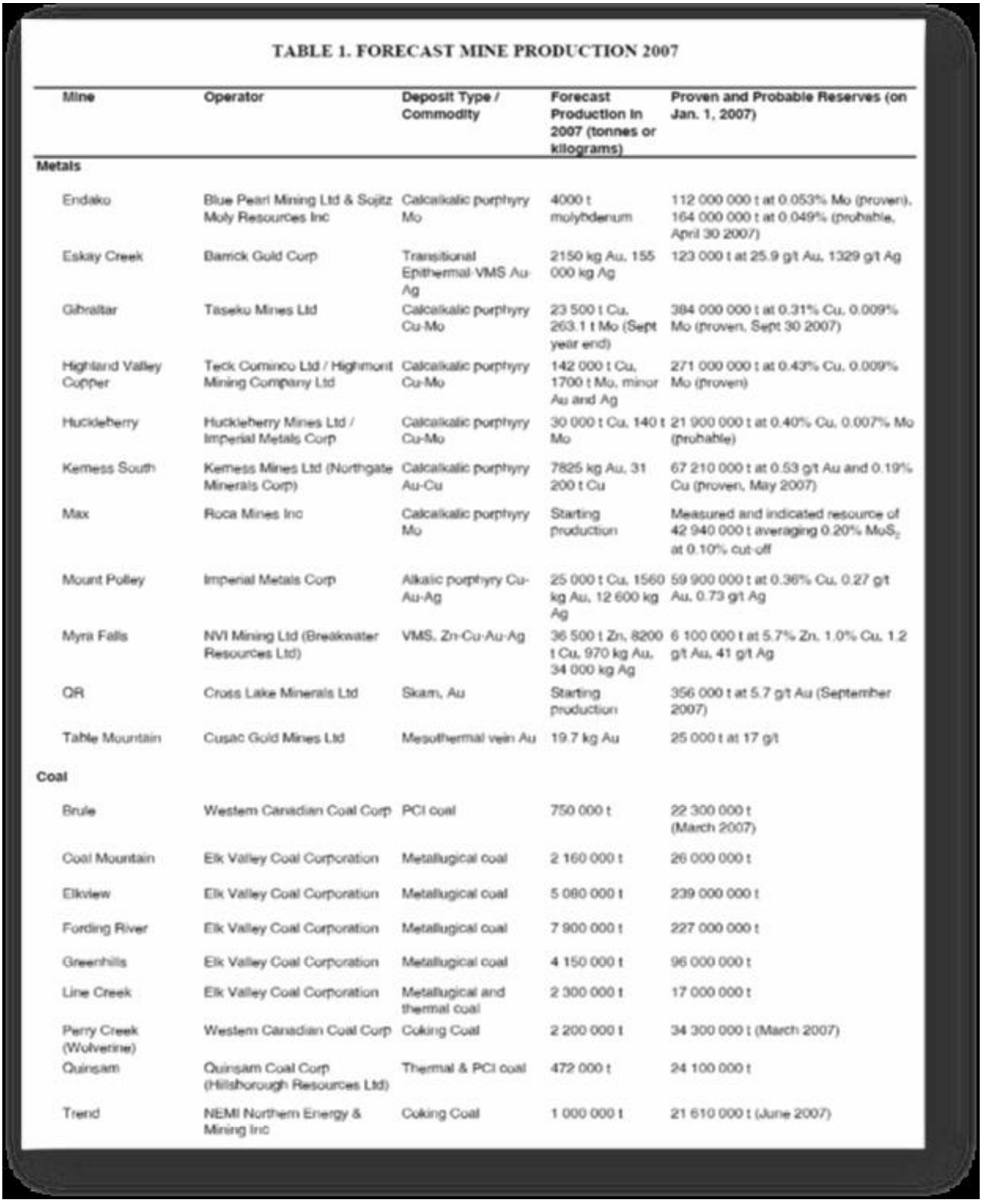


TABLE 1. FORECAST MINE PRODUCTION 2007

Mine	Operator	Deposit Type / Commodity	Forecast Production in 2007 (tonnes or kilograms)	Proven and Probable Reserves (on Jan. 1, 2007)
Metals				
Endako	Blue Pearl Mining Ltd & Sojitz Moly Resources Inc	Calcalkalic porphyry Mo	4000 t molybdenum	112 000 000 t at 0.053% Mo (proven), 164 000 000 t at 0.049% (probable, April 30 2007)
Eskay Creek	Barrick Gold Corp	Transitional Epithermal-VMS Au-Ag	2150 kg Au, 155 000 kg Ag	123 000 t at 25.9 g/t Au, 1329 g/t Ag
Gibraltar	Taseko Mines Ltd	Calcalkalic porphyry Cu-Mo	23 500 t Cu, 263.1 t Mo (Sept year end)	384 000 000 t at 0.31% Cu, 0.009% Mo (proven, Sept 30 2007)
Highland Valley Copper	Teck Cominco Ltd / Highmont Mining Company Ltd	Calcalkalic porphyry Cu-Mo	142 000 t Cu, 1700 t Mo, minor Au and Ag	271 000 000 t at 0.43% Cu, 0.009% Mo (proven)
Huckleberry	Huckleberry Mines Ltd / Imperial Metals Corp	Calcalkalic porphyry Cu-Mo	30 000 t Cu, 140 t Mo	21 900 000 t at 0.40% Cu, 0.007% Mo (probable)
Kemess South	Kemess Mines Ltd (Northgate Minerals Corp)	Calcalkalic porphyry Au-Cu	7825 kg Au, 31 200 t Cu	67 210 000 t at 0.53 g/t Au and 0.19% Cu (proven, May 2007)
Max	Roca Mines Inc	Calcalkalic porphyry Mo	Starting production	Measured and indicated resource of 42 940 000 t averaging 0.20% MoS_2 at 0.10% cut-off
Mount Polley	Imperial Metals Corp	Alkalic porphyry Cu-Au-Ag	25 000 t Cu, 1560 kg Au, 12 600 kg Ag	59 900 000 t at 0.36% Cu, 0.27 g/t Au, 0.73 g/t Ag
Myra Falls	NVI Mining Ltd (Breakwater Resources Ltd)	VMS, Zn-Cu-Au-Ag	36 500 t Zn, 8200 t Cu, 970 kg Au, 34 000 kg Ag	6 100 000 t at 5.7% Zn, 1.0% Cu, 1.2 g/t Au, 41 g/t Ag
QR	Cross Lake Minerals Ltd	Skarn, Au	Starting production	356 000 t at 5.7 g/t Au (September 2007)
Table Mountain	Cusac Gold Mines Ltd	Mesothermal vein Au	19.7 kg Au	25 000 t at 17 g/t
Coal				
Brule	Western Canadian Coal Corp	PCI coal	750 000 t	22 300 000 t (March 2007)
Coal Mountain	Elk Valley Coal Corporation	Metallugical coal	2 160 000 t	26 000 000 t
Elkview	Elk Valley Coal Corporation	Metallugical coal	5 080 000 t	239 000 000 t
Fording River	Elk Valley Coal Corporation	Metallugical coal	7 900 000 t	227 000 000 t
Greenhills	Elk Valley Coal Corporation	Metallugical coal	4 150 000 t	96 000 000 t
Line Creek	Elk Valley Coal Corporation	Metallugical and thermal coal	2 300 000 t	17 000 000 t
Perry Creek (Wolverine)	Western Canadian Coal Corp	Coking Coal	2 200 000 t	34 300 000 t (March 2007)
Quinsam	Quinsam Coal Corp (Hillsborough Resources Ltd)	Thermal & PCI coal	472 000 t	24 100 000 t
Trend	NEMI Northern Energy & Mining Inc	Coking Coal	1 000 000 t	21 610 000 t (June 2007)

Mine	Operator	Deposit Type / Commodity	Mine	Operator	Deposit Type / Commodity
Industrial Minerals					
4J	Georgia-Pacific Canada Inc	Gypsum	Kettle Valley quarries	Kettle Valley Stone Company	Ashlar, flagstone, thin veneer
Apple Bay	Electra Gold Ltd	Geyserite	Lime Creek	Imasco Minerals Inc	Limestone
Ashcroft	IG Machine and Fiber Ltd (IKO Industries Ltd)	Basalt roofing granules	Moberly	HCA Mountain Minerals (Moberly) Ltd	Silica sandstone
Benson Lake	Imasco Minerals Inc	Limestone	Monteith Bay	Lehigh Northwest Cement Ltd	Geyserite
Blubber Bay	Ash Grove Cement Corp	Limestone aggregate, dolomitic lst	Mount Brussilof	Baymag Inc	Magnesite
Bud	Absorbent Products Ltd.	Bentonite	Mount Meager	Great Pacific Pumice Inc	Pumice
Buse Lake	Lafarge Canada Inc	Volcanic ash (alumina-silica)	Nazko	Lightweight Advanced Volcanic Aggregates	Lava rock
Craigmont	Craigmont Mines Joint Venture	Magnetite tailings	North Fork	Roxul (West) Inc	Syenite (mineral wool)
Crawford Bay	Imasco Minerals Inc	Dolomite	Pavilion	Graymont Western Canada Inc	Limestone
Decor	Pacific Bentonite Ltd	Burnt shale (alumina and landscape rock)	Red Lake	Absorbent Products Ltd	Diatomaceous earth, leonardite
Elkhorn	Certain Teed Gypsum Canada Inc	Gypsum	Rock Creek	Mighty White Dolomite Ltd	Dolomite
Falkland	Lafarge Canada Inc	Gypsum	Sumas Mountain	Clayburn Industries Ltd and cement manufacturer partners	Clay, shale and sandstone
Fireside	Fireside Minerals Inc	Barite	Swansea Ridge	Canadian Pacific Railway	Diorite (mineral wool)
Gillies Bay	Texada Quarrying Ltd (Lafarge Canada Inc)	Limestone, aggregate	Vananda	Imperial Limestone Company Ltd	Limestone
Giscome	Pacific Lime Products Ltd	Basalt (railroad ballast)	Winner	Roxul (West) Inc	Diorite (mineral wool)
Harper Ranch	Lafarge Canada Inc	Limestone	Z-2	Industrial Minerals Processors	Zeolite
K2	K2 Stone Inc	Flagstone, wall stone, thin veneer	Zeotech Bromley Ck	Heemskirk Canada Ltd	Zeolite

Appendix G

From the Environmental Scan Working Document, April 2007

Table 2: Summary of contaminants which may occur in waste water from mining operations, and the types of facilities at which these contaminants may occur.

Contaminant	Types of Facilities at which Contaminant may Occur
Suspended solids	May occur in waste water from virtually all types of mining activities.
Ammonia	May occur in waste water from operations that use ammonia-based explosives.
Metals	May occur in waste water from a wide range of mine types, but particularly waste water from metal mining facilities. The types of metals present are dependant on the geological characteristics of the rock and soil materials at the mine site.
High salinity	May occur in waste water, particularly for salt and potash mines, and also at sites where water from mine dewatering is saline.
Radioactive elements	May occur in waste water from uranium mining and milling, and occasionally from other types of mines.
Acidic wastewater	May occur at mines where sulphide minerals such as pyrite are present in the rock, particularly metal mines and some coal mines. Acidic drainage results from the oxidation of sulphide minerals.
Alkaline wastewater	May occur in waste water from some ore separation processes, since these processes are often most effective under alkaline conditions, and chemical reagents may be used to raise the pH of the process solution.
Chemical reagents	Chemical reagents or the byproducts of the breakdown of these reagents may occur in waste water from ore separation processes.
Hydrocarbons	May occur in waste water from oil sands facilities and in runoff from vehicle maintenance areas and fuel storage and transfer areas at other types of mines. May also occur as a result of spills and other accidental releases.

Appendix H

Summary of Regulatory issues Emerging from this document:

- Mineral tenure: First Nations control over mineral staking- end the Free Entry system
- Environmental Assessment: current EA system operates under administrative and political discretion unevenly applied; lack of respect for and incorporation of Traditional Knowledge; deadlines set for government and company convenience; inadequate funding for FNs; inadequate cumulative effects assessment; no representation of FN on panel reviews; too many environmental impacts deferred to mitigation measures at the permitting stage; little follow-up or enforcement
- Permitting: site specific water quality objectives; use of mixing zones to control pollution; conversion of natural water bodies to Tailing Impoundment Areas
- Monitoring and Compliance: need for resources so that FNs can handle monitoring and compliance themselves and/or provincial resources to enforce mitigation measures and other environmental controls
- Closure and Remediation: require adequate reclamation bonding up front; detailed reclamation plans before permitting; adequate inspection and monitoring
- Abandoned mines: industry funded reclamation and perpetual care of abandoned mines; detailed information for FNs of abandoned mines on traditional territory; permit-blocking for bad actors
- Economic Benefits and Revenue sharing

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