Aboriginal People and Mining in Nunavut, Nunavik and Northern Labrador

Prepared for the Royal Commission on Aboriginal Peoples
by Jon Pierce and Robert Hornal
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Executive Summary

This paper examines the historical experience of Aboriginal people in Nunavut, Nunavik and Northern Labrador with mineral exploration and mining. The participation rate of Aboriginals is examined as are the various strategies that have been used to increase participation. Consideration is given to the future prospects for mining in Northern Canada and for increased Aboriginal participation. Some suggestions are then advanced for improving the future participation of Aboriginals in mineral resource development.

The purpose of this study, as contracted by the Royal Commission on Aboriginal Peoples, is to Aassemble and assess the state of knowledge about the intersection of the mining industry and aboriginal societies in Northern Canada.@ The term ANorth@ as used in this paper encompasses Nunavut, Nunavik (Northern Quebec) and the area of Labrador inhabited by Inuit and Innu. More explicitly the study involves Aa survey of existing literature on the topic@ and includes

- an historical review of the mining industry in the North with attention to the involvement of and impact on aboriginal peoples;
- a discussion of the role of the mining industry in the Canadian economy;
- consideration of various analytical perspectives on the above; and
- an identification of key problems and opportunities facing aboriginal peoples in this sector.

This study is therefore limited in its analysis not only spatially in terms of geography, but also in the scope. Some matters that would appear to be of critical importance, especially to someone with a limited knowledge or experience of the area, have not been subjected to intensive analysis. For example, a detailed discussion of the environmental consequences of mining in the North has not been undertaken in this study. At present there are only

three mines operating in the study region and these are among the most modern and tightly regulated mines in Canada. This is perhaps worth a detailed technical examination in itself, but there is little evidence, of which the authors are aware, that these mines have seriously impaired the environment of so a vast region as to significantly impact the lives of Aboriginal residents or wildlife populations. Of course, any impacts of mining in the North are worth investigation; the body of research concerning the operations of the mineral industry, and the consequent regulation by government is very limited.

Statistics and research are most readily available for the Northwest Territories (NWT). Little is available for Nunavik or Labrador. Hence this paper relies on NWT statistics which have been used as indicators of what exists across the study area.

Chapter I contains a historical review of mining in this vast area of Canada. It traces the search for and extraction of minerals from early Inuit use of native copper, to Hearne's expedition to the Coppermine River, through the early modern era of exploration and development in the 1950's when the first Northern mines were opened at Schefferville and at Rankin Inlet. Although the analysis considers all mines that have operated in the geographic area covered by this study, emphasis is given to examining the development of the currently operating mines: Nanisivik, Polaris and Lupin.

Chapter II examines Aboriginal participation in mining first from a historical perspective starting with the opening of the Schefferville mines. The Aboriginal employment experiences with the mines at Rankin Inlet, Cullaton Lake, Polaris, Nanisivik and Lupin are then analyzed.

Some lessons are drawn from the analysis. When a mine is opened near an existing Aboriginal community, to preserve the community traditions, it is preferable not to increase the size of the existing community by introducing southern workers. Access between an existing "traditional" community and a mining community should not be unrestricted; controls are necessary, for example, to minimize the impacts of drugs and alcohol. While there are problems with rotational work schemes, they should be favoured over schemes that include the creation of new town sites.

Chapter III examines the economic importance of mining to Aboriginal people in Northern Canada illustrated, in part, through the use of quantitative

data. The importance of maintaining or further developing a "mixed" or "dual" economy is discussed, with a particular focus on how the "two" economies have become entwined, with the wage economy providing necessary cash inputs to enable the more traditional harvesting activities. Broader social trends are considered: a high birth rate, increasing population, and low rate of job creation by the public sector have led at least some Aboriginal people to focus on mining as an economic answer through the provision of jobs and increased self-sufficiency. Several key obstacles to greater Aboriginal participation in the mineral sector are discussed, such as the lack of appropriate training and the separation from family and community. The success and failure of attempts to address these problems are analyzed. Adequate research into the effectiveness of rotational employment schemes does not currently exist. It would appear from available evidence that such schemes do encourage Aboriginal employment but the exact determinants of this are speculative.

Chapter IV examines the future prospects for mineral development in Nunavut, Nunavik and Northern Labrador. The relationship of mining in Nunavut, Nunavik and Northern Labrador to the Canadian and International economies and the ensuing constraints and opportunities caused by this relationship is discussed. Current proposals to open new mines (Cogema at Kiggavik, Metall at Izok Lake, and Falconbridge at the Raglan deposit) are discussed as is the future of diamond exploration. The associated infrastructure development (transportation, power, etc.) is also examined in a cursory fashion. The discussion is then focused on the prospects for increased future Aboriginal participation in the mineral sector particularly in the light of recent and future land claim settlements.

Chapter V summarizes the risks of depending on mineral developments alone and makes suggestions as to how future developments can be more acceptable and beneficial to the Aboriginal people of the North.

While some can conclude from this history that the mining industry does not offer permanent and reliable answers to the need for employment by Aboriginals in the Canadian North, it is argued that even if this is so, there is a need for just about any employment, business or training opportunities in the North.

A non-renewable resource-based economy is subject to wild cycles that can be temporal or spatial: a mine that is viable today may not be tomorrow given changes in international commodity prices; a prospective mine that looks viable in Canada today, may fall behind another prospect in Chile tomorrow due to the changing international political and economic climate. While this is true, it does not follow that resource development is unwelcome as a result. Just about any employment opportunities are now welcome in the North.

In this light, there are things that can be done to make mineral development more acceptable to Northern Aboriginal peoples, both in terms of reducing negative impacts and in concentrating the benefits. To list a few suggestions:

1. There is still room for the development of better and more formal methods of involving communities in industry and government planning and review processes. These processes should be organized on the basis of co-operation rather than confrontation.

2. There is a need for more education and training, and more appropriate education and training.

3. Government and industry should continue to increase the attention given to studying Aboriginal participation in the mineral sector.

Chapter I

History

Introduction

Inuit and miners have mingled since Europeans first arrived in Northern Canada. The Europeans were searching for the gold and spices of the East and were prepared to take what they could find along the way. Over the centuries the type and degree of contact varied. At first both groups were strangers to each other and watched each other carefully. A period of learning followed while the white man learned survival skills from the Inuit and the Inuit learned prospecting and technological skills from the Europeans. It has been only in the latter part of this century that both groups have shared their skills to produce minerals in great quantity. The transfer of technology and community knowledge is continuing and will continue at an accelerated pace into the twenty-first century.

Inuit Use of Minerals Before the Arrival of Europeans

The Arctic environment is one of the most challenging for sustaining human life. While wildlife is abundant, other resources are not as plentiful. The absence of forests or agricultural land has had significant influences on the pattern of human settlement, even determining influences. However the Inuit have proved, through many centuries, that human settlement is possible in the severe Arctic environment through emphasis on resources that are readily available.

The Inuit collected, traded and used native copper, pyrite, galena, chert, quartz and various kinds of soapstone, carving stone or pipestone long before contact with Europeans. Soapstone was used for cooking pots, oil lamps, beads and tobacco pipes (Gibbins 1982). Copper was hammered into knives and ornaments as it could be shaped without being heated (Crowe 1974). The native copper deposits in the Coppermine River, Barry Island, Bathurst Inlet and Victoria Island areas, and the galena deposit at Galena Point are common knowledge to today's geologists, but these are also deposits that were well known historically to the Inuit and exploited by them (Gibbins 1982).

Contact with the Early Explorers, 1576-1800

The first recorded instance of mining by Europeans above the tree line was an unsuccessful endeavor by Martin Frobisher. In 1576 Frobisher discovered what he believed to be gold bearing "black rock" on Kodlunarn Island and on the mainland of Baffin Island in Frobisher Bay, southeast of present day Iqaluit. Between 1576 and 1578 Frobisher and his men worked at several mines in the area (Gibbins 1982). The Countess of Sussex Mine was one of the largest, accounting for some 400 tonnes or 30% of the ore he sent back to Britain. It is believed that the mine was situated on mainland Baffin, about 10 km WNW of Kodlunarn Island which was Frobisher's centre of operations (Hogarth 1986). Unfortunately for Frobisher, the ore proved to be worthless containing only >fool's gold'. On Frobisher's first voyage back to England he took an Inuk with him (Gibbins 1982).

In 1737 the Hudson's Bay Company sent Captain James Napper from Fort Prince of Wales to follow up information from Inuit of possible mineral resources in the Rankin Inlet area. The ship was turned back by difficult sailing conditions and Napper died during the trip back south to the Churchill River (Williamson 1974).

By 1762, the Hudson's Bay Company had regained its appetite for exploration and William Christopher and Moses Norton were sent by ship to the Baker Lake area to search for furs, the Northwest Passage and minerals, particularly copper (NWT Chamber of Mines 1991). They found no minerals.

Another early attempt by the Hudson's Bay Company to find copper ended in tragedy for the Inuit. In 1771 a Chipewayan chief, Matonabee, guided Samuel Hearne to a copper showing at Coppermine Mountain near the mouth of the Coppermine River. The showing proved to be of little

commercial interest to the Company, but Matonabee and his men, at the urging of an older chief, killed a band of Inuit camped nearby (Crowe 1974). ABloody Falls@ was the name given to the site, a name that persists today.

Early Mineral Exploration and Production, 1800-1950

A century later, the industrial revolution had developed a world hungry for other minerals: coal was in great demand as the fuel of choice; graphite and mica were also used heavily. The Nares Expedition of 1875 to 1876 discovered and mined soft coal (lignite) for their local use on northern Ellesmere Island at Watercourse Valley. Similarly, the Greely Expedition of 1881 to 1883 discovered and mined coal at Lake Hazen (Gibbins 1982).

Lieut. William Mentzer of the US Navy opened a mica and graphite mine at Niante Harbour on Cumberland Sound on Baffin Island in 1875 from which, the next year, a small amount of sheet mica was exported. The mine was later visited by Dr. Ludwig Lumlien, who was in charge of scientific collections for the Smithsonian Institution during the Howgate Arctic Expedition of 1877-78 (Hogarth 1986). A total of 14.5 tonnes of mica, graphite and other industrial minerals, worth $120,000, were mined from this location and others in the Cumberland Sound area (Gibbins 1982; EMPR 1990).

Both the early whalers and the Hudson's Bay Company traders mined mica at several locations on south Baffin Island in the vicinity of Lake Harbour from the middle of the last century until the 1930's (Davison 1959; Hogarth 1975, 1986).

The Hudson's Bay Company mined graphite from 1917 to 1919 from a deposit near Pleasant Inlet on the South Baffin coast (Hogarth 1975).

Gold, of course, was always an object of search. In 1901, Mr. Janes, a mate traveling with Captain Bernier, discovered what he took to be gold in the area of Pond Inlet. A prospecting flurry followed but Janes like Martin Frobisher was in error. What did exist in the area was coal at Salmon River which was mined for local use from 1925 to 1963 (DIAND 1983a) and a high grade iron formation in the vicinity of Mary River. These latter deposits provided some employment for Pond Inlet residents when they were staked by Murray Watts and explored from 1962 to 1970 by Baffinland Iron Ltd.

Sub-bituminous coal was also mined for local use in the Western Arctic from two sources near Aklavik from the 1930s to 1950 (DIAND 1983a) and lignite was mined at two sources near Paulatuk from 1936 to 1955 (DIAND 1983a).

In the mid 1920's prospecting with aircraft began in the Arctic. Prior to this time the areas investigated were limited to those accessible by canoe or within a few miles of the seacoast. At first pilots worked out of mining towns such as Timmins and Yellowknife but later, when fuel began to be cached from ships, they could use any Northern settlement as a base. Very quickly, vast new areas of the Northern Canadian Shield became accessible to prospectors. In fact, this early exploration had influences on Inuit settlement patterns. For example, the original Bathurst Inlet settlement grew up around a mining exploration camp established in 1929 and supported by aircraft (Heming 1986).

In 1928, prospectors working for the Nipissing Mining Co. took out gold worth $1800 (87 ounces or 2.7 kg) from a rich, but small showing at Term Point on the Whale Cove Peninsula on the west coast of Hudson Bay (Gibbins 1982).

Exploration and Production Since 1950

During the past 40 years exploration has taken place throughout the Canadian barrenlands as the search for various minerals ebbed and waned. In the 1950's and again in the 1970's uranium was the glamour mineral and a number of discoveries were made in Labrador and in the Baker Lake area of the Northwest Territories. In the late 1960's there was a staking rush in the Coppermine area as the copper deposits sought by Hearne again became of interest. The iron deposits of Baffin Island and the Melville Peninsula were examined during the 1960's and early 1970's and continue to interest the mineral industry as new transportation alternatives become available. The Ungava Peninsula has been explored for nickel and platinum since the late 1950's. Gold exploration has been continuous since the early 1970's when the price of gold in Canada (and other countries) was allowed to float. Exploration efforts peaked in the 1986 to 1988 period when many companies were financing their operations in the North through the use of Aflow through@ funds, funds generated through a generous tax rebate incentive

program of the federal government. Base metal exploration has taken place in the Arctic Islands, in the greenstone belts north of Yellowknife and southwest of Rankin Inlet, in Northern Quebec and in Labrador. During the past five years the search for diamonds has resulted in the staking of vast tracks of land on the mainland of the Northwest Territories as well as in the Arctic Islands.

Figure 1
Summary of Characteristics of Mines in Nunavut, Nunavik and Northern Labrador

Mine	Type of Mine	Fly-in/ Fly-out Operation?	Main Mineral(s)
Schefferville	Open-pit	No	Iron
North Rankin	Underground	No	Nickel
Nanisivik	Underground	Mixed	Zinc, Lead
Asbestos Hill Mine	Open-pit	Yes	Asbestos
Hope Bay Mine	Underground	Summer Only	Silver
Polaris	Underground	Yes	Zinc, Lead
Lupin	Underground	Yes	Gold
Cullaton	Underground	Yes	Gold
Nain	Quarry	No	Anorthosite and labradorite

Since 1950 six mines have operated north of the tree line in the Northwest Territories: the North Rankin Nickel Mine, the Nanisivik Mine, the Hope Bay Mine, the Polaris Mine, the Cullaton Lake Mine and the Lupin Mine. One mine has operated north of the tree line in Northern Quebec, the Asbestos Hill Mine, and a number of iron mines have operated in the Labrador City-Schefferville corridor. One mine (a quarry) has recently been developed in the vicinity of Nain, Labrador. Each of these mines has had a significant impact on the Aboriginal people living in the vicinity of the mine. A brief history of each of these mines is given below. The mines are discussed in the order of their development.

Schefferville, Quebec, Labrador City and Wabush, Labrador, 1954 - Present

Although Schefferville and its southern neighbours, Labrador City and Wabush, are not in the barrens, the development of the huge open pit iron mines in the 1950's and 60's taught the mineral industry many of the skills necessary to operate in the Arctic. The Iron Ore Company of Canada's Schefferville mine project began production in 1954. It is located some 1150 km northeast of Montreal and some 375 km due south of Ungava Bay. Labrador City and Wabush are 200 km to the south of Schefferville. The iron concentrate is shipped from Sept-Îles, some 600 km to the south of Schefferville.

The iron deposits of the Labrador Trough were discovered by Dr. A.P. Low in the 1890's (Reid 1969) but were left untouched until 1929 when the area was again visited by prospectors. The great depression of the 1930s briefly interrupted further exploration.

In the late 1930's a concession for 49,000 sq km (19,000 sq miles) was granted by the British Foreign Office (Newfoundland was under a Commission of Government from 1929 until confederation with Canada in 1949) to a consortium which became the Labrador Mining and Exploration Co. (1936) and eventually the Iron Ore Company of Canada (1949). This company spent over $250,000,000 developing a railroad, loading docks at Sept-Îles, a townsite at Schefferville, airstrips, a milling plant and communications facilities. The company developed a second townsite at Labrador City in 1962 to service their Carol Mine. A competitor, Wabush

Mines Ltd., began production from their Wabush operation some 6 km south of Labrador City in 1965.

The Schefferville operations were shut down in 1983 but Labrador City and Wabush mines continue in production. In 1992 17.4 million tonnes of pellets and concentrates were shipped by these two mines, and the two companies employed 2,170 people in Labrador during that year (Dept. of Mines and Energy 1993).

North Rankin Nickel Mine, Rankin Inlet, NWT, 1957 - 1962

The North Rankin Nickel Mine was the first modern underground mine North of the tree line (Williamson 1974). The property was discovered in 1928 on the south shore of Prairie Bay by the Cyril Knight Prospecting Company Limited, but did not become a mine until 1957. The Korean War helped raise the price of nickel making it economical for the new owner, North Rankin Nickel Mines Ltd., to transport the concentrated ore the long distance to the Sherritt Gordon nickel refinery at Fort Saskatchewan, Alberta (Miller 1981; Williamson 1974).

The mine closed in 1962 after five years in operation.

Asbestos Hill Mine, Northern Ungava, Quebec, 1972 - 1983

The Asbestos Hill deposit was discovered in 1957 by Murray Watts, a modern day prospector who, with his pilot, traveled extensively in Northern lands prospecting new areas by airplane (Taylor 1982). The deposit is located 1,800 km north of Montreal and approximately 30 km south of Deception Bay, Ungava in Northern Quebec. The construction of the port and mine site was done by unionized labour, one of the first times unionized workers had been used in the remote North (Thurner 1976). The mine operated from 1972 to 1983 as a wholly owned subsidiary of the Asbestos

Corp. Ltd. The product was shipped by road to a port at Deception Bay and, during an 80 day period each summer, the entire year's production was shipped to Germany for processing.

Asbestos Hill was the first "fly-in" operation with a rotational employment scheme of 90 days in followed by 14 days out. The work force was approximately 400 (Luciani 1976). Nine Rankin Inlet men went to work on the preliminary development of the Asbestos Hill deposit after the closure of the North Rankin Nickel Mine but returned to Rankin Inlet when that development work ceased (Williamson 1974).

Hope Bay Mine, Elu Inlet, NWT, 1973 - 1975

A small silver deposit was discovered in 1965 by the Roberts Bay Mining Company at Hope Bay on Elu Inlet 725 km northeast of Yellowknife and 150 km southwest of Cambridge Bay. Between 1973 and 1975 Hope Bay Mines Ltd. shipped 3,400,000 g of silver from the property from ore mined during the summer months (Laporte et al 1978).

Nanisivik Mine, North Baffin Island, NWT, 1976 - Present

Lead and zinc were discovered at Strathcona Sound by A. English, a prospector who accompanied Bernier's 1910 expedition to the Arctic Islands (Brophy 1983). Little was done with this discovery until a Geological Survey of Canada's report on the area (Blackadar 1956) attracted the attention of some geologists working for Texas Gulf Inc. who investigated the area in 1957 and staked 15 claims.

Work done by Texas Gulf between 1958 and 1969 identified a potential orebody. The property was acquired under option in 1972 by Mineral Resources International Ltd. who, in 1974, successfully negotiated the financing to put the property into production. Financing came from Metallgesellschaft A.G., Billiton B.V., the federal government and

Canadian banks (Brophy 1983). One of the conditions of the federal government paying $16.3 million toward the mine's infrastructure was that the company employ Aboriginal people.

The life of the mine has been extended a number a times as a result of successful exploration programs. In 1991, over 700,000 t of ore was milled resulting in 55,200 t of zinc and 2,200 t of lead concentrates and 17,230 kg of silver (Brophy 1993).

The location of the mine has provided improved services to Arctic Bay, an Inuit community which is connected to Nanisivik by an 30 km road. These services include higher quality medical care, improved telephone communications, dock facilities and improved air transportation. Businesses in Arctic Bay use the Nanisivik dock which allows them earlier (July) and more frequent (three times/season) delivery compared to the annual resupply sea-lift which existed before the coming of the mine (DIAND 1983b).

Polaris Mine, Little Cornwallis Island, NWT, 1981 - Present

In 1960, geologists mapping oil permits for Bankeno Mines Ltd. discovered galena and sphalerite on Little Cornwallis Island, an island located 100 km northwest of the community of Resolute and 1,700 km northeast of Yellowknife. Between 1961 and 1963, Bankeno drilled and staked ground covering the suspected deposit. The claims were optioned to Cominco Ltd. in 1964, and geological mapping, surface diamond drilling, geophysical surveying and geochemical surveying were carried out between 1964 and 1972. These surveys identified the main Polaris orebody.

Underground exploration began in 1972, delineated the orebody and led to feasibility studies in 1979, which in turn led to a decision to proceed to production. Unlike Nanisivik, this mine was constructed without government investment (DIAND 1983b). The first ore was milled in November of 1981 (Brophy 1985). A number of innovative features were used to construct the mine buildings. The mill and offices were built in

southern Canada and transported to the site on a barge which was then submersed on a prepared foundation. The mill is designed to be portable so that after the mine is closed the mill can be moved to a new site.

A fly-in/fly-out operation, the Polaris mine produced in 1991 130,300 t of zinc and 31,200 t of lead which was shipped to European smelters by the M.V. Arctic, a specially designed, ice-strengthened Canadian ship (Brophy 1993).

Lupin Mine, Contwoyto Lake, NWT, 1982 - Present

In 1960, Canadian Nickel Limited, the exploration arm of the International Nickel Company (INCO), discovered and staked a gold showing on the west shore of Contwoyto Lake some 400 km north-northeast of Yellowknife. The showing and the surrounding area were extensively investigated by the company from 1962 to 1964 and a deposit containing 1.2 million tonnes of ore containing 17.14 g/t of gold was delineated.

The property was optioned by Echo Bay Mines in 1979 and purchased subject to royalty agreements in 1980. Mine development in 1981 and 1982 led to the start of production in 1982 (Brophy 1985).

The mine was designed to be built, supplied and resupplied by air (Storey and Shrimpton 1988). Though most of the freight required during the development of the mine was shipped to the site by large aircraft from Yellowknife, the bulk of freight is now trucked from Yellowknife to the site on a winter road open from late January to early April of each year.

Lupin is the largest gold mine in the Northwest Territories producing 6,745 kg of gold in 1991 (Energy, Mines and Petroleum Resources, 1992).

Cullaton Lake Mine, Cullaton Lake, NWT, 1981-1985

In 1961 gold-bearing boulders were discovered by prospectors working for Selco Exploration Company Ltd. in the vicinity of Cullaton Lake 230 km west of Arviat and 840 km east-southeast of Yellowknife. Geological mapping, geophysical and geochemical surveys, trenching and diamond drilling followed during the 1962 to 1964 period. Additional work was done in 1972 and 1973, an airstrip and road were constructed in the 1974-1975 period and, in 1976, a permanent camp was built and a decline was driven into the most prospective zone.

In 1980 the partners in the joint venture (O'Brien Gold Mines Ltd. Consolidated Durham Mines and Resources Ltd., Royex-Sturgex Mining Ltd. and Selco Mining Corp. Ltd.) formed Cullaton Lake Gold Mines Ltd. to develop and operate a mine. Surface facilities were completed during 1980 and 1981 and production began in the fall of 1981. The mine shut down in 1985 as the price of gold had declined to the point that operations were no longer economic (Ellis 1987).

Torngaitujaganniavingit Quarry, Nain, Labrador, 1992 - Present

In 1992 the Torngaitujaganniavingit Corp., a subsidiary of the Labrador Inuit Development Corp. shipped 160 t (29 m^3) of large blocks of anorthosite and labradorite to Italy for further processing. The stone is being marketed in Europe under the trade name "Reflect Blue" and is receiving a premium price (Department of Mines and Energy, 1993). In 1992, 16 people were employed on a part-time and full-time basis on this project.

Chapter II

Aboriginal Participation in Mining in Northern Canada

Introduction

Aboriginal people, almost exclusively Inuit except for those involved in the Schefferville mine operation, have participated in mining development in Northern Canada for some years. From working on exploration crews to working underground, Aboriginal people have become an important part of the mining work force. This chapter examines in some detail the experience of Aboriginal people with mining operations, current and past, in Northern Canada.

Schefferville - Iron Ore Company of Canada

Few accounts discuss Aboriginal involvement in the exploration for minerals in the Labrador trench. However, one account mentions the contribution of Mathieu Andre, a Montagnais[1] from Sept-Îles, who brought out rock samples in 1937 from Sawyer Lake and gave them to a government geologist. This led to the discovery of a large iron ore deposit. Compensation for this contribution was subsequently denied by the Iron Ore Company of Canada (Vakil 1983; Hilton 1967).

As the Iron Ore Company of Canada (IOC) was making the final preparations in 1953 and 1954 to start production at Schefferville, the federal government decided that the resource development might offer a solution to a pressing problem it had with a group of Naskapi Indians.

In 1950 a group of Naskapi Indians had moved from Fort MacKenzie, just 160 miles north of Schefferville, further north to Fort Chimo on Ungava Bay. The move was motivated by the closure of the Hudson's Bay Company post

[1]The Naskapi Indians and the Montagnais are branches of the same First Nation and call themselves Innu. The older descriptive terms are used here because of the wish to preserve clarity while portraying the different experiences of the two branches.

caused by a sharp decline in international fur prices. By 1954 their living conditions had deteriorated to a desperate state and food was in short supply. Federal officials encouraged them to move south to a new location 64 km north of Schefferville to take advantage of potential employment in the mine and to lower administration costs. In 1956, approximately 175 Naskapi arrived at the proposed site at Lake Wakuack but discovered that no preparations had been made for their arrival (Hess 1986; Vakil 1983; Hilton 1967).

They moved on to a site at Lake John, near Schefferville where, for the first year, they continued to live in desperate circumstances: children did not attend school; accommodation was in tents; food rations were provided but even then there were shortages. The federal government finally provided housing but it was unserviced and remained overcrowded and of poor quality. It was not until 1972 that the Naskapi village was moved closer to Schefferville to enable the provision of basic municipal services.

In 1957, approximately 500 Montagnais from the Sept-Îles area moved north to Schefferville, apparently attracted by the employment opportunities with the IOC and the proximity of the Indian Agency established with the Naskapi move. The Agency initially refused to provide housing (Hilton 1967) to these people because they belonged to other Montagnais reserves.

By 1967 the population was 282 Naskapi and 422 Montagnais (Hilton 1967). The social life of the Indian community was complicated by the mixture of two Aboriginal peoples with different traditions. Montagnais had participated fully in the fur trade, trapping and harvesting in the Northern hinterland while living, for the most part, on the Gulf of St. Lawrence. The Naskapi, whose traditional lands were much further to the North, were less involved in the fur trade, and the harvesting of caribou was their mainstay (Vakil 1983). The two dialects were similar and in the early years the majority of both groups remained unilingual, a fact that probably decreased the chances of participation in the IOC work force. However when they spoke another language, the Montagnais spoke French while the Naskapi spoke English. The Montagnais were, for the most part, Roman Catholic while the Naskapi were Protestant (Hilton 1967). These differences came from their different historical experiences with European settlers. By 1975, a few Montagnais remained at Lake John but most had moved to the newer town site and lived intermingled with the Naskapi (Vakil 1983; Hilton 1967).

Employment for the Montagnais began during Schefferville's exploration stage from 1936 -1945. It increased with railroad construction, although this employment experience was not always positive (see Vakil 1983, p. 137). For the Naskapi and Montagnais at Schefferville, employment increased again with the construction of the Schefferville town site and the construction of their own housing in the late 1950's. Few Aboriginals, however, worked for IOC during this period. The first collective agreement between the union and IOC effectively prevented Aboriginal participation in the permanent work force by restricting employment to those having at least nine years of formal education, a qualification few, if any, of the Naskapi or Montagnais could meet. Until 1966, they could only work for 65 calendar working-days before being laid off. The 65 days marked the end of the probationary period after which an employee would gain permanent status.

From 1966 to 1973 Aboriginals could become permanent employees on a separate special seniority list to the collective agreement but could only work as "journeymen" (Vakil 1983). One study, completed in 1968, suggests that the special seniority list was put in place to protect union jobs and prevent the entry of Aboriginals into the permanent work force (Freyman and Armstrong 1969). By 1973 they were still allowed to participate in only six of the seventeen salary levels. Protection and opportunity given to other workers through the collective agreement did not apply to those workers on the special list: they could be fired without justification; and they could not gain seniority or take training courses. Forty-six Montagnais workers in Sept-Îles were fired by the IOC in 1975 for going on strike to protest the discriminatory employment practices. They had demanded access to training in their own language. These workers were later reinstated and their demands were included in a revised collective agreement (Vakil 1983).

Studies do not exist that examine the history of the employment of Montagnais and Naskapi by the IOC at Schefferville. The company, like a number of other mining companies, has not kept discrete records of Aboriginal employees, for a variety of reasons including human rights legislation. It would appear, however, that the IOC was the main employer of Aboriginals from 1966 to 1978 (Vakil, 1983) when the implementation of the James Bay and Northeastern Quebec Agreement changed things significantly for the Naskapi and they once again relocated and began to build a new community, Kawawachikamuch.

Unemployment and under-employment remained at high levels. When the

lay-offs began in 1981, 63% of the Naskapi work force (those of working age) were unemployed: 82% of women and 44% of men (Hess 1986; Vakil 1983).

Participation in the IOC work force at Schefferville by Naskapi and Montagnais was never particularly high, perhaps averaging 50 jobs a year, and that, in a single resource town with a Native population approaching 1,000. On the other hand, the IOC was the primary source of wage employment for the Aboriginal community providing over 50% of the permanent jobs until at least 1978.

It would seem evident, that until at least the late 1970's, IOC only saw Natives as "a convenient pool of unskilled labour," and the fact that this attitude persisted for so long was due, at least in part, to "ineffective measures from the public side" (Freyman and Armstrong 1968).

North Rankin Nickel Mine

Relations between the North Rankin Nickel Mine and Inuit of the Keewatin region were more positive. During the summers of 1952, 1953, and 1954, while Rankin Inlet Nickel Mines Ltd. was delineating the deposit, Inuit men were hired as labourers, bulldozer and truck operators, electricians' helpers and, seasonally, a few were hired as prospectors' helpers and boatmen. When the mine owners had difficulty in bringing the mine into production, partially due to problems encountered in attracting a work force from the south to such a remote location, a consultant, J.A. Easton, suggested that they hire more local people who were used to working in Arctic conditions. An Inuit foreman was sent into the communities of Coral Harbour, Repulse Bay, Chesterfield Inlet, Baker Lake and Eskimo Point to recruit workers (Williamson 1974).

The Inuit workers usually started out as surface labourers but were encouraged to advance to work in the mill or underground. By 1961 almost 100 Inuit were working in all phases of the mine including some as diamond drillers. This represented between 60 and 70 per cent of the total work force (Williamson 1979). "Indeed they were found in every operation in the mine except the drawing office, the assay lab, and the accounting office. Heavy equipment operating and indeed almost all of the surface work was done by Eskimos, the chief plumber and pipe fitter was Eskimo, and usually lone

white men supervised Eskimo crews in the areas of mechanics and repair, electrical work, the power house and the boiler house" (Williamson 1979).

Williamson (1979) also wrote that, "In all of these realms of employment the nickel mine, with its original consultant as the mine manager, continued its policy of rotation whereby there were always more men trained in any specific skill in the local labour pool than there were jobs available. The personality and policies of J.A. Easton were vital in the whole story of this operation. Nothing was held against an Eskimo employee who wished to step out of his regular job for a time to return to hunting or indeed to return to his home settlement."

The Company received some financial assistance from the Department of Northern Affairs to run a vocational training program between 1960 and 1962. Six Inuit became diamond drillers as a result of the program (Williamson 1974). No other record of formal training has been found.

The experience of the North Rankin Nickel Mine demonstrated to mining and government officials that while the Inuit encountered some problems of adaptation to industrial work discipline and to settlement, in general, the experiment was successful. However, when the mine closed after five years, there was no replacement employment available locally (Hobart 1982). Some Inuit workers, wanting to continue working in a mine, traveled to Asbestos Hill, Thompson and Yellowknife in search of work.

While the experience of this mine proved that there are potential benefits when Northern labour is utilized, the project was short-term and no consideration was given to the long-term impacts on Inuit culture or Inuit society or the environment. Government, over the years, has incurred many expenses dealing with the aftermath (Gibson 1975). The federal government is now proceeding, at significant cost, to cover the tailings left by the mine.

Nanisivik Mine

In 1957, when prospecting work commenced around the future site of Nanisivik, local Inuit from Arctic Bay were employed as seasonal labourers for approximately three months during the summer. Inuit were paid $6.00 a day, as compared to geology students working in the Arctic for the government who at that time made $8.00 a day, and the geologist-in-charge was well-satisfied with the work performance of hunter-trappers with but

minimal English language ability or industrial work experience (Bissett 1968).

In later years, five Inuit were regularly employed at $15.00 per day during the summer and others were employed as needed at $11.00 per day. Their period of employment lasted from three to four months depending on exploration program commitments. The Inuit would move to a camp located two miles from the deposit. In addition to wages, they received substantial amounts of food. The estimated total annual Inuit income from employment on the mining property amounted to $5,000 per year during the late 1960's. In the winter of 1967-1968, one Inuk was employed on a retainer at $125.00 a month to take sea-ice thickness measurements in Strathcona Sound (Bissett 1968).

As exploration moved toward actual mine development Mineral Resources International (MRI), by now the main shareholder, negotiated a socio-economic agreement with the federal government. Known as the Master Agreement, it set out a plan with the following goals:

- 60% of the work force was to be composed of Northern residents within three years of production, "if humanely possible";
- work schedules were to be developed that were compatible with traditional pursuits;
- written instructions were to be translated into Inuktitut;
- Inuit would have representation on an Employment and Training Committee;
- the mine would have a minimum of 12 apprentices at any one time;
- and cross-cultural orientation courses were to be conducted for southern-hired workers (Wojciechowski 1982; Hobart 1982).

The negotiation of this agreement was aided by the government's willingness to provide an airport, a wharf and connecting roads in return for the socio-economic agreement and an equity position in the company (Wojciechowski 1982).

The main players in the early planning of the Nanisivik development were industry and government. There was little to no involvement from the general public, or, more significantly, from the nearby communities or from Inuit organizations.

During the feasibility planning stage, two alternatives were investigated for the town site, either moving the entire community of Arctic Bay to the mine site (government still did that sort of thing in those days), or building what would become, in essence, a new town site. Arctic Bay residents, despite their exclusion from this planning process, wrote to the consulting company, Watts Griffis and McOuat (WGM), expressing their objections to both proposals. The first proposal was rejected out of hand, for the mine site is on a bare, wind-swept mountain, while Arctic Bay lies in a sheltered bay on the coast surrounded by spectacular mountains and near to wildlife.

Arctic Bay residents were particularly concerned that the WGM's proposal would take people out of the community and suggested that Inuit workers at the mine site live in Arctic Bay.

In 1973 two meetings were held by government and company officials with the Arctic Bay Council, but apparently the two sides were unable to reach enough mutual understanding of each party's interests, desires, and needs to be able to reach compromises or resolve issues. No further planning process leading to the town site selection included Arctic Bay representation and, indeed, the community apparently did not receive a full copy of WGM's final report until long after the decision was made, and agreed to by government, that the second alternative would be the one that would proceed. Wojciechowski maintains that a similar lack of consultation applied to the other important matters such as to road and wharf construction (both projects impacted Arctic Bay directly) and to discussion of employment opportunities for the region as a whole (Wojciechowski 1982).

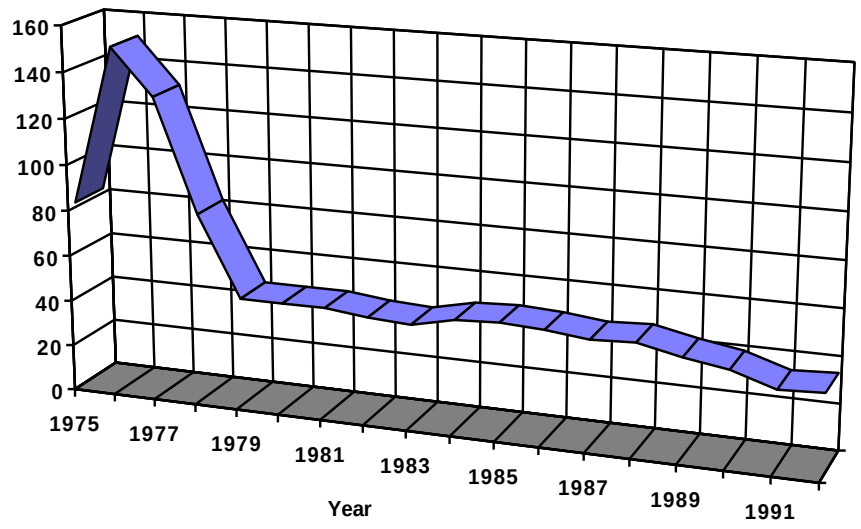
In spite of the lack of Inuit involvement in the planning that preceded development, it is apparent that the negative consequences feared by some did not, for the most part, materialize and the experience for Arctic Bay and for the entire Baffin region has largely been a happy one (Baffin Regional Inuit Association 1980). Arctic Bay has prospered, on the one hand, because of the injection of cash income into the community and the provision of some spin-off business opportunities, while on the other, it has been able to remain largely a "traditional" Inuit community.

Inuit workers were employed from the beginning of the construction phase at the mine site. They have developed a reputation for excellent work performance which was most notable in the maintenance shop and in the mine. The mine maintenance supervisor reported that the Inuit in his shop took better care of their tools and that their mechanical aptitude was superior to that of the average southerner. His only point of criticism was that many Northerners needed academic up-grading, particularly in mathematics (Hobart 1979).

Similarly, the mine foreman was extravagant in his praise of the ten Inuit in his twenty-four-man underground crew. He gave as his judgment, based on twenty-four years of experience, that Inuit were better miners and took better care of their equipment than southerners. They also achieved higher marks in first aid training (Hobart 1979).

During the construction phase of Nanisivik, the company wanted to establish a three month rotational scheme for workers but remained flexible for Inuit workers. Inuit felt this term was too long and eventually government officials negotiated a six week rotation in 1975. During this phase, Inuit comprised 20 to 70% of the work force. Short-term work was very attractive to Inuit (Hobart 1982). During production, Nanisivik has operated on a 13 week rotation and the option of a six week rotation for Inuit has remained in place (Hobart 1982). However since the mine went into operation, Inuit employment dropped and has remained fairly consistently in the 20% range (Figure 2).

Figure 2
Number of Inuit Employees at Nanisivik Mine
1975 - 1982



Sources: Hobart, 1982; Nanisivik Mines Ltd. unpublished data.

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There have been a number of reasons cited for the drop in Aboriginal participation in the workforce. In the early planning stages, government and company planners over-estimated the number of Inuit workers available from the nearest communities of Arctic Bay and Pond Inlet. At the time of mine development there was very little unemployment in those communities due to wage employment with Panarctic Oil Ltd., a company engaged in oil and gas exploration in the Arctic Islands, and a healthy harvesting economy (this was before the collapse of the sealing industry).

MRI has also encountered difficulties finding potential Inuit workers with adequate education levels and appropriate training. To reduce this difficulty, the company has put in place, at different times, programs to enhance Inuit participation in the work force including programs to identify areas of work interest and to increase skill levels (Wojciechowski 1982; Hobart 1982). These programs have only been partially successful. For example, language problems have been encountered with instructional materials as some technical concepts do not translate into Inuktitut. At the most, these programs have succeeded in maintaining a steady rate of participation, but have been unable to generate an increase.

In 1990, only 13 of the 35 supervisory/technical positions in the work force of 200 were staffed by persons with any post-secondary education. This would imply that high school graduation should be sufficient to obtain the "best" jobs at the mine. However, most Inuit are unable to meet basic qualification. Only 17% of NWT Aboriginals have a high school diploma or better as compared to the Canadian average of 54% (SIWGMI 1990).

Problems have been recognized or thought to exist due to the rotational scheme of employment. The separation of Inuit workers from families causes tensions within the family, understandable in any context, but increased by the close-knit and extended nature of traditional Inuit family structure. Women in particular do not like men being away, and many would prefer to live at the mine site in order to keep the family together. While not well documented, shortages of meat may have occurred because of absences of men, many of them hunters (Wenzel 1983). In 1975 workers from Arctic Bay reported lower personal harvests and wives reported food shortages. However, Hobart (1982) noted that during the years of high rotational employment of workers from Arctic Bay, Igloolik and Coppermine (the latter with Gulf Oil Co. Ltd.) there was an increase in the fur harvest. This has been interpreted as an indicator that the country food supply to the overall

community was not adversely affected.

Over the past fifteen years, there would not seem to have been any substantial improvement in the adaptation of Inuit to long-term work at Nanisivik. On the one hand, Inuit in Coppermine have expressed more satisfaction with Gulf's shorter rotational scheme (two weeks on, two weeks off) than with that of Nanisivik which leads to the conclusion that to attract more Inuit as employees the rotation scheme at Nanisivik should be shortened (Hobart 1979, 1982). On the other hand, Inuit working at the mine site appear to favour the longer rotation scheme. Over 75% of the Inuit workers in 1975 chose to work the longer 13 week or 26 week rotations. (Wojciechowski 1982)

Increased drug and alcohol abuse and gambling occasioned by the increased availability of cash have also been referred to as a disincentive to employment, but again this is not well documented. Gambling has contrarily been seen not as a social evil but as a method of income redistribution! Inuit men would prefer full time jobs in their community to rotation work at the mine, but jobs are not plentiful (Wenzel 1983; Hobart 1979, 1982).

During the initial four year period of operations at Nanisivik, three general characteristics of Inuit employment were noted: the very wide area of recruitment, by 1978 Inuit workers had come from 23 out of a possible 28 Inuit communities; the high proportion of single workers; and the high proportion of young workers.

Hobart (1982) notes several other interesting characteristics of Inuit employment. Not only did the proportion of Inuit workers not increase during this period, but also the duration of employment, the term that they worked, did not increase. Workers from the nearest communities had the longest duration of employment although the numbers of employees from these communities declined from 1975 to 1978. In general Inuit employees with the longest employment duration at Nanisivik were from nearby communities, had higher job classifications and were married with children.

The job turnover rates at Nanisivik during this period were consistent for Northern resource projects: 106% for Inuit male workers, 63% for southern male workers. As discussed above, the long rotation and close family ties have been given as reasons for the higher Inuit turn over rate (Hobart 1982). The turnover rate had not changed significantly a decade later. By November

1989, Nanisivik had employed 670 Northerners, an average of 51 a year, at a 100% per year turnover rate (SIWGMI 1990).

One case study of the participation of Inuit from Clyde River working at the Nanisivik mine from 1975 to 1978, makes a distinction between the younger, less mature and the older, mature workers. Those in the first category, not known as hunters, were looking for occupational training, income support for their families, or even release from boredom (Wenzel 1983). They liked the work activity, the money they could earn, and the opportunities for training and advancement. Some enjoyed life at the mine site (Hobart 1982).

Those in the second category gave as their main reasons for seeking work at Nanisivik the poor state of wage employment in Clyde River and the need for cash to purchase snowmobiles, boats, etc. The study was able to ascertain that the bulk of the income available to this group was indeed spent on outboard engines, freighter canoes, snowmobiles, rifles, ammunition, etc. Further, these items were not just for the personal use of the worker, but were often transferred in one way or another to someone else in the community (Wenzel 1983). There is a general realization that resource harvesting needs cash inputs, "work for money, hunt and trap for food" (Hobart 1982). In Arctic Bay in 1978, total employment income from Nanisivik was almost $200,000 which was, by comparison, three times the fur harvest earnings (which were still healthy) and nine times the arts and crafts earnings. Both the Inuit and the Hudson's Bay store managers agreed that the largest amount of this income was spent on resource harvesting equipment like snowmobiles and boats (Hobart 1982).

There are some lessons to be learned from the history of the establishment of the Nanisivik town site and mine. If the objective is to preserve a "traditional" community, it is preferable not to increase the size of the existing community by introducing southern workers. Access between an existing "traditional" community and a mining community should not be unrestricted; controls are necessary, for example, to minimize the impacts of drugs and alcohol. While there are problems with rotational work schemes, they should be favoured over schemes that include the creation of new town sites.

Polaris Mine

In the late 1970's, when plans were being developed to open the Polaris mine on Little Cornwallis Island, there was pressure from both the federal and

territorial governments on Cominco to build a town site in association with the mine. Cominco did not think this to be a good idea but could not convince the two governments. The company ended the debate by bringing two representatives from each of the eight nearest Inuit communities to the proposed mine site and asking them if the location was suitable for the establishment of another community. After much discussion the Inuit representatives decided that it was not suitable, thereby settling the matter (R. Douglas in DIAND 1987).

The employment strategy put in place for the Polaris Mine was significantly different than that of Nanisivik. By the late 1970's everybody was in general agreement that quotas did not work. Instead, an employment training program was jointly developed by the Government of the Northwest Territories and Cominco that forecast the potential for seventy-two positions for Inuit employees when the mine began production. As the current number of Inuit employees falls far short of this figure, it is arguable whether or not this strategy, as with the quota strategy, has been completely successful. In 1987 there were 26 Native employees, in 1992 the level, at 25, remains constant and represents 9.4% of the work force (Storey and Shrimpton 1989; GNWT unpublished data).

Cominco and the Government of the Northwest Territories signed a memorandum of understanding concerning Native employment before Polaris was put into production. The main terms of the agreement included provisions to allow for shorter rotations for Inuit workers, the implementation of a joint pre-operation training program, a Northern hiring preference, a joint monitoring program for Native employment, and enhanced communications with Inuit communities and organizations.

Cominco understood that resource companies in the North have a pressing requirement to recruit sufficient skilled labour but also have a severe problem with turnover. The strategy Cominco tried to implement was to have enough skilled staff to operate the mine and to train unskilled local labour with the objective of developing over time a more permanent skilled work force. The training program had some success. As of 1985, 50 Northerners had enrolled in the training program, 48 of whom were Native and 25 of whom were then still employed. (Cominco, 1985)

Unlike Nanisivik, Polaris was designed to be a complete, fly-in/fly-out operation. Like the other rotational Northern mines, workers are drawn from

across Canada. The rotational scheme is quite flexible, with varying length rotations available depending on the individual needs of the worker. Initially native workers at Polaris had the option of working a 42 day in / 28 day out rotation instead of the 63 day in / 21 day out rotation used by others. This was an attempt to provide Inuit workers with the opportunity to engage in a modern industrial economy, while at the same time leaving sufficient time for traditional hunting, fishing and family activities. However, in 1987 none of the Inuit workers at Polaris were working this rotation (Storey and Shrimpton 1988).

Cullaton Lake Mine

The development of the Cullaton Lake Mine in the early 1980's presented Northern Aboriginals with a new type of opportunity. For the first time Inuit emerged as equity participants in a mining operation. Nunasi Corporation, using a $20 million bank line of credit, financed the mine, in part, and a made a profit of $3.5 million as a result (Nunasi Corp. 1984). Nunasi also had an employment contract with the company to supply labour to the minesite. This resulted in an initial high level of Inuit participation in the work force. When Nunasi withdrew from equity participation by selling its shares, the employment contract was cancelled, and the Inuit participation rate fell dramatically.

Lupin Mine

The Lupin Gold Mine is situated in the barrens 400 km northeast of Yellowknife and 350 km southeast of Coppermine. The mine opened in 1982 as a fly-in/fly-out operation with the workforce drawn from Yellowknife and southern Canada and the Inuit communities of Coppermine and Cambridge Bay. It was developed and continues to operate without government assistance.

In 1981 before the mine opened, the owners, Echo Bay Mines Ltd. (EBM), entered into a socio-economic agreement-in-principle with the Government of the Northwest Territories to provide employment and training for Aboriginal people. A second agreement was negotiated in 1984 but was never implemented. It is now considered unnecessary as the number of Inuit employed at the mine has continued to grow from approximately 7% when

production began to 13% of the present workforce. In 1992 between 30 and 36 workers came from Coppermine and 8 came from Cambridge Bay (SIWGMI 1992; GNWT, unpublished data).

Several reasons account for Lupin's success in recruiting and retaining Aboriginal workers. Echo Bay Mines Ltd. had a policy and a commitment to hire Inuit workers and took a proactive approach to accomplish this. Company managers were experienced Northern mine operators, with some understanding of Aboriginal lifestyle. Coppermine was the nearest community to the mine site and many Inuit workers from Coppermine had previous industrial work experience gained from the oil and gas exploration activity that took place during the 1970's and early 1980's. EBM followed the example of the oil companies and hired Inuit employment coordinators in both communities. The company also initiated direct discussions with hamlet councils, hunters and trappers associations and Inuit regional organizations which led to increased mutual understanding and fostered a spirit of cooperation.

Originally the work rotational scheme was 28 days in and 14 days out. In 1986 workers voted to change the rotation to 14 days in and 14 days out (Storey and Shrimpton 1989). It is thought that the shorter rotation contributes to Inuit well-being and also allows better opportunity for hunting and food replenishment, and contributes to a low turnover rate. In 1987 the company reported that Lupin had a 10 to 12% turnover rate, and a rate for entry level jobs of only 1 to 2% (Doug Willy in DIAND 1987). The worker with the most seniority at the mine is an Inuk from Coppermine (SIWGMI 1992).

As well as the economic benefits to individual workers and their families the community of Coppermine has benefited from the Echo Bay operation. Approximately $1 million from the wages earned by workers is injected into the local economy each year and because the workforce is stable this income is a dependable and reliable source of wealth.

Chapter III

Economic Importance of Mining

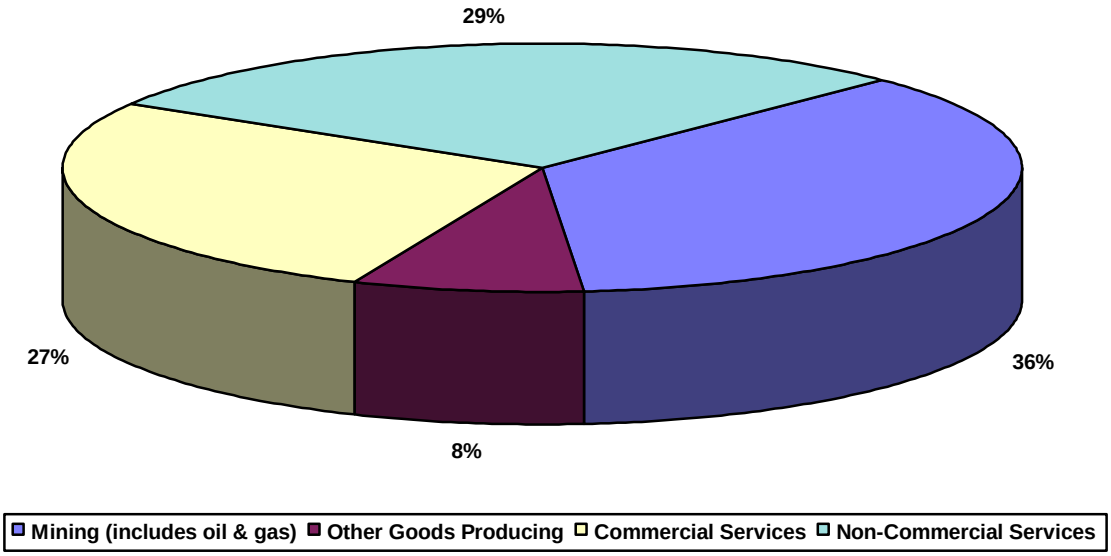
Importance of Mining to Canada and the North

The viability of any mine in Northern Canada depends to a large extent on international markets and international commodity prices. Transportation and labour costs are very high in the North compared with other locations. Low commodity prices can cause a mine to close or not to open at all. These factors underlie one important characteristic to Northern mining, that is its instability.

The production of minerals in the North forms a significant part of the mineral industry in Canada and, as such, is of importance to the Canadian economy as a whole. This importance is clearly illustrated when the examples of lead/zinc and gold production are considered. Polaris and Nanisivik, the two lead/zinc producers in the Northwest Territories, produced 317,298 t of zinc with a value of $611.4 million in 1990; this represented 25% of the total zinc production in Canada. Gold produced in the Northwest Territories in 1990 accounted for almost 10% of the total Canadian production with one mine, Lupin, producing nearly half of the total production of 15,400 kg. Overall, the NWT produced 5.9% of all metallic minerals in Canada.

While the importance of mining to the Canadian economy is significant, its importance to the Northern economy is profound. Currently, mining accounts for a large proportion of the NWT economy. Figure 3 demonstrates that mining accounts for almost 36% of the NWT Gross Domestic Product. 81% of the mineral production is metals, 16% fuels and 3% aggregates. (EMPR, 1990)

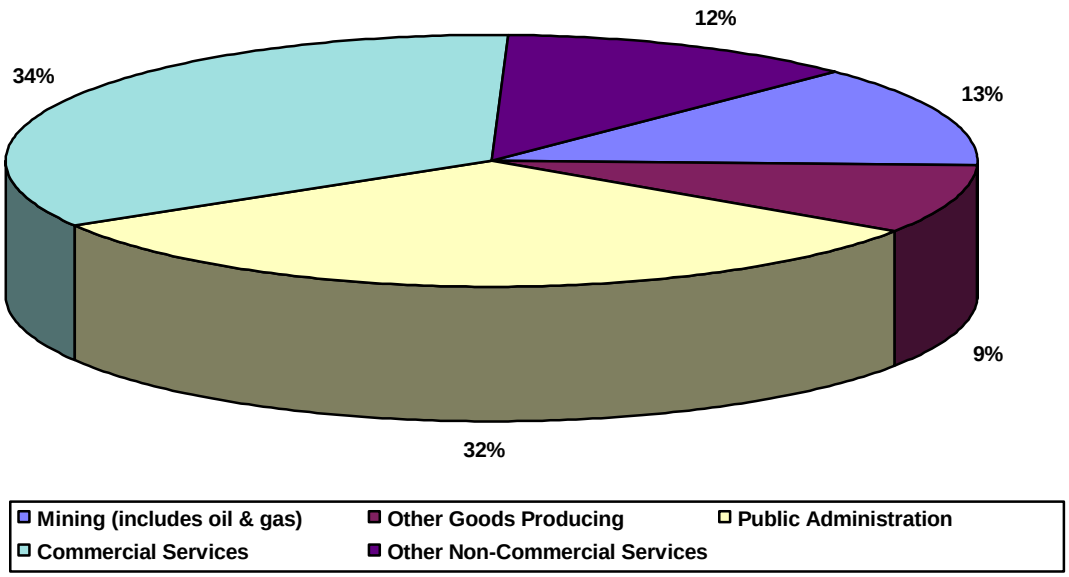
Figure 3
GDP at Factor Cost by Industry in 1989 (NWY)



Source: Bureau of Statistics, GNWT from EMPR 1990.

Mining ranks third as an economic sector in the NWT in providing jobs. In 1989, overall there were 2,200 jobs in the mineral sector which comprised about 13% of the labour force (Figure 4). The mining work force is increasingly being recruited in the North: in 1989, 60% of these jobs were held by Northerners of whom 12% were natives. The mining industry paid $123 million in salaries in 1989 (EMPR, 1990).

Figure 4
Salary and Wages By Sector 1989 (NWT)



Source: Bureau of Statistics, GNWT from EMPR, 1990.

As important as mining is to the overall Northern economy, its influence is spatially concentrated in the Slave geological province near Yellowknife with two remote lead/zinc producers in the high Arctic. As mentioned elsewhere, Northern Quebec and Northern Labrador have between them but one quarry operation.

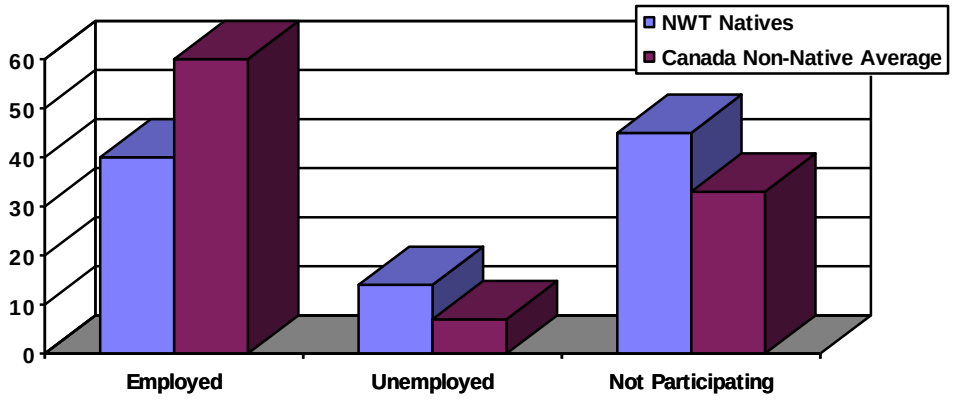
Importance of Mining to Aboriginal People

Wage labour as support for harvesting activities

Traditionally, the culture, kinship relations and economic activity of the Inuit were inseparably intertwined. The early contact with fur traders and missionaries not only did not change this, but perhaps even reinforced traditional patterns. All of this began to change during the 1950s with the settlement of Inuit in communities, and the increased access to health, social and education services, and modern technology particularly as applied to housing and the equipment used for harvesting, such as snowmobiles, boats and outboard motors. While the services provided by government, including housing, have been heavily subsidized, hunters face the cost of securing modern harvesting equipment on their own.

While harvesting activities provide an important source of food for Inuit, and provide a significant offset to the cost of importing food from the south, it is one sector with few cash inputs or outputs. Hunters do not receive much in the way of cash for the meat and fish they provide. Since hunting for food for family and community is not a income-producing activity, "cash inputs" from other sources have been necessary to support harvesting activities.

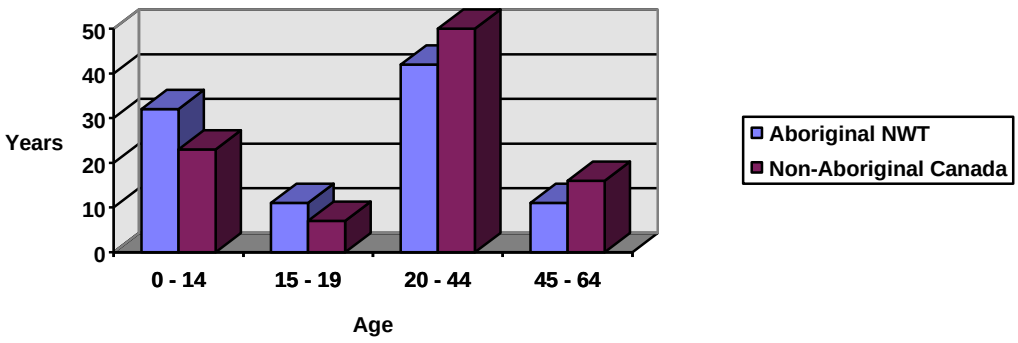
Figure 5
NWT Native and Canadian Non-Native Employment Rates



Source: Statistics Canada, 1986 Census Data in SIW GMI 1990.

Cash income for most communities has come from three sources: income from renewable resource activities (trapping, fishing, arts and crafts); transfer payments; and local wage employment. With time the importance of trapping as a source of income has all but disappeared in the Arctic, caused in the main by the collapse of the world market for seal skins. At the same time, the demand for Inuit arts and crafts has stabilized or decreased. While local wage employment has increased as government has provided more services and better housing, unemployment levels remain very high compared to the Canadian average (Figure 5). New employment opportunities in the "welfare state" would appear to be limited in the future with the one major exception of the establishment of a Nunavut Territorial Government. Transfer payments, particularly social welfare payments, have ballooned with the rapidly growing population, the majority of which is now under eighteen years of age. Aboriginal peoples in the North, particularly the Inuit, are a very young population with a very high birth rate. Figure 6 shows the comparison with the Canadian average. Note that over one half of the Aboriginal population is under the age of 19. This will lead in the next two decades to increased demands for the creation of more jobs.

Figure 6
Population Distribution:
NWT Aboriginal and Canadian Non-Aboriginal



Source: Statistics Canada, 1986 Census Data in SIW GMI 1990.

While it seems increasingly evident that traditional harvesting activities are supported by, or are, in fact, dependent on wage labour because of the need for cash to secure the modern tools necessary to support subsistence activities, (Wenzel 1983; see Gourdeau, 1973 for similar observations concerning the impacts of rotational employment with Panarctic on Arctic Bay and Pond Inlet) it is also evident that many more jobs will be required in the future and that these jobs can not come just from the public sector.

Obstacles to increased Aboriginal participation in the mining industry

In a survey conducted by the Sub-committee of the Intergovernmental Working Group on the Mineral Industry (SIWGMI), mining companies and Aboriginals alike gave as the main barriers to increased participation in mining operations the lack of experience, education and training, and the lack of desire to work in a mine. The second is understandable, not everybody wants to work in a mine. But the first is worthy of some consideration.

Northern Aboriginals have a significantly lower level of education than the Canadian average (Figure 7). The problem is even more acute, for very few individuals with post-secondary training have been enrolled in mathematics or science courses, the types of programs that would provide a necessary background to a career in the mineral industry. Three reasons have been given for this: the lack of appropriately trained teachers; Aboriginals participating in the constitutional talks and land claim negotiations have gained profile in Aboriginal communities and have become role models for the youth; and the difficulty faced by people raised in Aboriginal cultures of adjusting to the often foreign concepts of western mathematics and science (Johnson 1993).

Figure 7

Level of Education of

Northern Aboriginals and Non-Aboriginal Canadians

Level of Education	Northern Aboriginals (percent)	Non-Aboriginal Canadians (percent)
Less than grade 9	53.9	17.5
Secondary school certificate	3.3	12.9
Trades certificate	1.7	3.1
Non-university post-secondary certificate	7.7	14.6
University degree	0.5	9.7

Source: Johnson 1993 (from 1986 Canadian Census data)

Other factors would appear to influence the Aboriginal employment rate. Analysis of the survey on Aboriginal participation in mining by the Sub-committee of the Intergovernmental Working Group on the Mineral Industry revealed four themes:

1. Companies that have entered into socio-economic agreements are most likely to have a higher Aboriginal participation rate.

2. Aboriginals consistently state the need for better communications by the mining companies.

3. It is likely that remote mines, those with fly-in/fly-out rotational schemes of employment, will achieve higher levels of Aboriginal participation in

the workforce than those that are located near or in existing communities. The rotations allow for traditional pursuits like hunting to be maintained, something that is more difficult with the 40 hour/week schedule of the townsite mine.

4. Many Aboriginals acknowledge a lack of desire to work at a minesite, but go on to express a desire to develop business ventures to service the mining operation.

It is perhaps worthwhile to elaborate on the final two points.

Rotational Employment Schemes

In Canada as a whole, mines with a rotational commuting work force have a significantly higher proportion of Aboriginal workers, as compared to others, averaging in the range of 19% of the workforce. Because these mines are, for the most part, in remote locations, it is much more likely that the available work force will not only include a higher number of natives, but that recruitment and training agreements will have been negotiated between mining companies, government and Aboriginal organizations. (Storey, 1989).

Rotation length would seem to have a direct affect on the turnover rate of employees. Figures collected by Storey and Shrimpton (1989) show that the rate for the oldest operation, Nanisivik, with the longest rotation is 80% for the overall workforce, Polaris is around 25% and Lupin is the lowest at 13 to 14%. Nationally, the length of rotations has become shorter over time. The shorter rotations at Lupin appear to allow an Aboriginal employee sufficient time to return home, hunt for food, and otherwise participate in family and community life before returning to work.

With every proposed rotational scheme concerns have been initially voiced that employment demands from the mining operation will result in the most qualified individuals, the community leadership, being absent for long periods that might be detrimental to community operations (Graham 1982). In practise, this does not seem to have been a problem and it is likely that shorter rotations reduce that potential even further.

Adequate research into the effectiveness of rotational employment schemes does not currently exist. It would appear from available evidence that such schemes do

encourage Aboriginal employment but the exact determinants of this are speculative.

Secondary Business Ventures

The growth of secondary, or spin-off business ventures connected with mines has not been of significance in the study area. Secondary business opportunities that may be available to local residents are likely to be constrained by the nature of the transportation system servicing a mine. Mines serviced by ground transportation tend to purchase more local services, while mines serviced by air or sea purchase fewer services. In 1986, only 7% of the total of purchases by Polaris were from the Northwest Territories compared to 25% for Lupin which is resupplied, for the most part, by winter road from Yellowknife. (Storey and Shrimpton, 1989) Of more importance has been the various supply, support and expediting ventures connected with mineral exploration. One of the benefits of such operations is that they are not specific to the mining industry, and can support a wide range of endeavors including tourist operations.

Chapter IV

Future Prospects

Introduction

This Chapter is divided into two sections. The first will consider the future prospects for mineral development within the geographic bounds of the study. This analysis is based on the current level of knowledge and is, of course, subject to change in the future as geologists and others further develop the information base. The second section briefly discusses the various avenues that Aboriginal people might follow in the future, based on the precedents of the past, that would lead to increased participation in the mineral sector.

Prospects for Future Mineral Development

The potential for future mineral developments in all areas surveyed by the study appears bright. Figure 8 provides a brief description of the known mineral deposits which have the potential for future development given appropriate metal prices and infrastructure.

Three mine development proposals are at various stages of the approval cycle.

Minnova Inc., now 100% owned by Metall Mining Corp. submitted in 1992 a proposal for the development of the Izok Lake deposit to federal and territorial officials, including the NWT Water Board, and to the Kitikmeot Inuit Association for review. If approvals can be obtained, the company plans to be in production by 1996 producing 400,000 tonnes of zinc and lead concentrate which will be transported by winter road to a port site to be built near Coppermine for pickup by ice-strengthened ore carriers during the July to October period. The NWT Regional Environmental Review Committee began to review the project in 1993. The Kitikmeot Inuit Association is negotiating with the company for an Inuit Impact Benefits Agreement as is required under the recently approved land claims agreement. Metall is currently re-evaluating the feasibility of the project.

In 1988, Urangesellschaft Canada Ltd. sought approval for development of the Kiggavik uranium deposit some 75 km west of Baker Lake. The federal government with the support of the Government of the Northwest Territories referred the project to a Federal Environmental Assessment Panel which held scoping hearings, reviewed the company's Environmental Impact Statement and in 1990 issued a request for additional information. In view of this, and faced with significant opposition from Inuit in the Keewatin, the company requested a postponement in the process in order to collect and to prepare this additional information.

In Northern Quebec, Falconbridge has been exploring and developing its Raglan nickel deposits since 1957. The deposits range in size from 50,000 tonnes to over a million tonnes each (MER, 1993). The deposits lie some 40 km south of the port of Deception Bay, the same port that was developed for the Asbestos Hill Mine. During the 1988-93 period the company and Bechtel Engineering Ltd. conducted a full scale feasibility study which could lead to a production decision (Northern Miner, November 1992). The feasibility study includes environmental studies and a study of the sociological impact on the Inuit population. It is planned to fly in native workers from Kangiqsujuaq (60 km away) and Salluit (130 km away) (Scales, 1992).

Each of these projects lie in close proximity to other mineral properties capable of being developed. The provision of transportation infrastructure for these projects will encourage other property holders to conduct their own feasibility studies.

Another element in the current development equation is the diamond exploration which has spread northward from the Lac de Gras area (outside of the TFN claim area), where the original discovery of diamond-bearing kimberlites was made, north to the coast of Coronation Gulf and beyond to Somerset and Baffin Islands and east to Dubawnt Lake. Decisions made by the companies holding claims in the Lac de Gras area will impact on the amount of exploration and development that takes place in Nunavut during the next few years.

Figure 8
Known Mineral Deposits in Labrador, North of Latitude 54E in Quebec and above the Tree Line in the Northwest Territories that have the Potential for Development

Deposit	Location	Reserves (millions of tonnes)	Grade	Source*
Arcadia	Coronation Gulf Coast	.78	gold 6.2 g/t	DIAND, 1993
Butterfly	25 km SE of Lupin Mine	.13	gold 14.2 g/t	DIAND, 1993
George Lake	Hackett River area	3.1	gold 9.9 g/t	NM150393
Ulu	90 km S of Cornation Gulf	>1.0	gold 18 g/t	NWTCM, 1993
Third Portage	100 km N of Baker Lake	1	gold 5.4 g/t	NM100593 p16
Discovery	25 km N of Rankin Inlet	.9	gold 8.2 g/t	NM100593 p16
Turquetil	200 km SW of Rankin Inlet	0.5	gold 5.2 g/t	NM100593 p16
Wreck Lake	SW of Coppermine	4.16	copper 2.96% silver 8.59 g/t	DIAND, 1993 DIAND, 1983a p34
June	SW of Coppermine	1	copper 2.5%	DIAND, 1993
Lac Retty	75 km NE of Schefferville	1.36	copper 1.5% nickel .67%	MER, 1993
Island	245 km NW of Schefferville	1.09	copper 2.02% nickel .45%	MER, 1993
Soucy	75 km NW of Kuujjuaq	5.44	copper 1.34% zinc 1.87% gold 1.61 g/t silver 18.52 g/t	MER, 1993
St. Pierre	85 km NW of Kuujjuaq	3.65	copper 1.34% zinc 1.87% gold 1.46 g/t silver 16.8 g/t	MER, 1993
Hopes Advance	140 km NW of Kuujjuaq	20 5.1	copper .59% nickel .16% copper .76% nickel .26%	MER, 1993
Carl 7	Coppermine area	.12	copper 2%	DIAND, 1993
Coronation (MGB)	Coppermine area	.13	copper 2.89%	DIAND, 1993
Dick Vein	Coppermine area	.09	copper 8.78%	DIAND, 1993
South Burnt Creek	SSW of Coppermine	.02	copper 9.1%	DIAND, 1993
Lac Redcliff	140 km SW of Kuujjuaq	.97	copper 2.09% nickel .51%	MER, 1993

Figure 8 (cont.)

Deposit	Location	Reserves (millions of tonnes)	Grade	Source*
Eclipse	Little Cornwallis Island	1.4	lead 12.4% zinc 2.18%	DIAND, 1983a p31
Gondor	60 km east of Izok Lake	7.3	zinc 4.8% copper 0.2% silver 46 g/t	NM091291 CMH92 p240
Boylen	75 km SW of Kuujjuaq	1.06	zinc 6.86% lead 1.03% copper .70% gold 1.02 g/t silver 54.52 g/t	MER, 1993
A Zone	Hackett River Area	3.63 to 4.5	zinc 8.5%% lead 1.4% copper 0.25% silver 240 g/t gold 1.7 g/t	DIAND, 1983a p32
Boot Lake	Hackett River Area	4.5	zinc 4.97% lead 0.99% copper 0.29% silver 201 g/t gold 0.5% g/t	DIAND, 1983a p32
Cleaver Zone	Hackett River Area	3.63	zinc 7.07% lead 1.04% copper 0.46%	DIAND, 1983a p32
Unnamed Zone	Hackett River Area	3.63	zinc 1.08% lead 0.84% copper 0.48% silver 33.3 g/t	DIAND, 1983a p32
Heninga Lake	150 km NW of Arviat	5.44	zinc 9.0% copper 1.3% silver 68.6 g/t gold 1 g/t	DIAND, 1993 DIAND, 1983a p32
High Lake D Zone	50 km S of Coronation Gulf	4.9	zinc 4.2% copper 2.5% silver 29.6 g/t	Aber, 1993
High Lake AB Zone	50 km S of Coronation Gulf	3.2	copper 5.5% zinc 1.1%	Aber, 1993 DIAND, 1983a p32
Hood River #10	80 km N of Izok Lake	1.2	zinc 4.4% copper 4.1% silver 27 g/t gold 0.7 g/t	CMH92 p240
Hood River #41	80 km N of Izok Lake	0.9	zinc 3.2% copper 1.4% silver 12 g/t	CMH92 p240

Figure 8 (cont.)

Deposit	Location	Reserves (millions of tonnes)	Grade	Source*
Hood River #41A	80 km N of Izok Lake	1.1	zinc 3.3% copper 2.4% silver 16 g/t	CMH92 p240
Izok Lake	265 km S of Coppermine	12.3 probable, plus 1.3 possible	zinc 14.6% copper 2.5% lead 1.6% silver 77.7 g/t	NM100593 p1
Musk	120 km S of Bathurst Inlet	0.34	zinc 10.0% lead 1.4% copper 1.2% silver 343 g/t	DIAND, 1993
Yava	100 km SW of Bathurst Inlet	1 - 2	zinc 3% lead 0.5% copper 0.5% silver 102.8 g/t gold 2.0 g/t	DIAND, 1993
Raglan	40 km S of Deception Bay	18.5	nickel 3.13% copper 0.88%	CMH92 p144 NM021192 p1
Delta	90 km S of Deception Bay	1.02	nickel 2.62% copper 1.11%	MER, 1993
Expo Ungava	500 km SE of Deception Bay	3.69	nickel .96% copper 1.04%	MER, 1993
Ferguson Lake	225 km W of Rankin Inlet	7.3	copper 0.8% nickel 0.7%	DIAND, 1993 DIAND, 1983a p34
Muskox	90 km S of Coppermine	4.54	chromium 15.3% copper 0.25% nickel 0.15% minor platinum and palladium	DIAND, 1993 DIAND, 1983a p34
Strand Fiord area Glacier Fiord area & East Axel Heiberg	Axel Heiberg Island	5000 4000 537	lignite sub-bituminous high volatile bituminous coal	Smith, 1989
Bylot Island and Eclipse Trough	Baffin Island	5 200	sub-bituminous high volatile bituminous coal	Smith, 1989
Banks Island	Banks Island	>5000	sub-bituminous coal	Smith, 1989
Ellesmere Island	Ellesmere Island	20500 11014 4810 (Six deposits)	lignite sub-bituminous high volatile bituminous coal	Smith, 1989
Labrador Trough	From Ungava Bay south to Wabush	>5000 (many deposits)	iron 25 - 55%	MER, 1993

Figure 8 (cont.)

Deposit	Location	Reserves (millions of tonnes)	Grade	Source*
Haig Inlet	Belcher Islands area	907	iron 27%	DIAND, 1983a p36
Innetalling Island	Belcher Islands area	816	iron 32%	DIAND, 1983a p36
Borealis East	Melville Peninsula	1100	iron 23-24%	DIAND, 1983a p36
Borealis West	Melville Peninsula	3200	iron 32-38%	DIAND, 1983a p37
Great Whale A	70 km E of Kuujjuarapik	538.1	iron 36.7%	MER, 1993
Chorkbak Inlet	SE Baffin Island	350	iron 20%	DIAND, 1983a p37
Eqe Bay	SW coast Baffin Island	360	iron 32-45%	DIAND, 1983a p37
Ice	90 km W of Arviat	400	iron 29-40%	DIAND, 1983a p37
Maltby Lake	Foxe Peninsula Baffin Island	200	iron 34%	DIAND, 1983a p37
Mary River	mid North Baffin Island	260 500	iron 68% plus iron 30%	DIAND, 1983a p37
Nastapoka Islands	E of Belcher Islands	400	iron 30%	DIAND, 1983a p37
Kiggavik	75 km W of Baker Lake	2.99	0.61% uranium oxide	DIAND, 1993 DIAND, 1983a p38
Kitts-Michelin	15 km W of Makkovik	unknown	total contained uranium oxide 24,000,000 lbs	CMH 83
Strange Lake, Labrador	125 km W of Nain	unknown	rare earths yttrium zirconium	NM120390

Sources:

*** Source can be found in Selected Sources**

CMH - Canadian Mines Handbook
DIAND - Department of Indian Affairs and Northern Development
MER - Ministère de l'Énergie et des Ressources (secteur mines)
NM - The Northern Miner
NWTCM - Northwest Territories Chamber of Mines
Smith - Coal Resources of Canada, 1989

Future Prospects for Aboriginal Participation in Mining Development

As discussed in Chapter III there are a number of constraints on increased Aboriginal participation in future mineral development. However, there are also opportunities. Some people who are familiar with the industry in the North have informally suggested that the three operating mines may at present employ almost all of the Inuit who aspire to a mining career. There are other ways Aboriginals might participate in this economic sector:

1. Aboriginals, as mentioned, can participate and benefit as direct employees of mining operations. Short-term, rotational schemes seem to be the most attractive and successful for Inuit.

2. Aboriginals can participate through the service industry. The supply and resupply of goods and services to the mineral exploration and development industry not only offers good opportunities, but is probably less risky and more stable than direct involvement in a single operation. An enhanced local service industry has the additional benefit on improving services to local communities. Opportunities exist in the service sector for both employment and ownership. For example, there are a growing number of expediting companies servicing exploration companies.

3. Aboriginals can enter into joint ventures with mining companies to explore and/or develop mineral properties. The investment arms of the Aboriginal organizations are now being funded through federal economic development assistance and, where appropriate, by funds coming from the settlement of land claims. The best recent example of this type of involvement is that of the Cullaton Lake experience described above.

4. Aboriginal people can benefit through the implementation of socio-economic agreements with mining companies. For example, the Nunavut land claim agreement includes provisions requiring the negotiation of Inuit Impact and Benefit Agreements.

5. In some areas, Aboriginals can participate as owners of the resource, receiving royalties and other benefits from development of their land. For example, Inuit of Nunavut have received title to 355,968 square kilometres of land in the Central Arctic, 37,941 square kilometres of which includes title to the subsurface rights. The land with subsurface rights was selected by the Inuit very carefully with the major goal of maximizing mineral potential. Nunavut Tunngavik Inc. is now developing policies in consultation with the mining industry as to how these lands should be explored and developed.

In short, there are an increasing number of avenues for Aboriginals to take that would lead to increased involvement in the mineral industry.

Chapter V

Conclusion

Some can conclude from this history that the mining industry does not offer permanent and reliable answers to the need for employment by Aboriginals in the Canadian North. "It appears that non-renewable resource development is a very poor solution for Inuit economic difficulties. It is recommended that this be regarded as but one minor alternative for a small proportion of the native population...massive programs attempting to draw Inuit into the energy and mineral extraction industries are unwise given the short-run nature of these developments and associated, negative, social impacts." (Mann, 1975; see also Hess, 1986; Vakil, 1983)

It is agreed that a non-renewable resource-based economy is subject to wild cycles that can be temporal or spatial: a mine that is viable today may not be tomorrow given changes in international commodity prices; a prospective mine that looks viable in Canada today, may fall behind another prospect in Chile tomorrow due to the changing international political and economic climate. While this is true, it does not follow that resource development is unwelcome as a result. Just about any employment opportunities are now welcome in the North. It should also be pointed out that the renewable resource based economy of the old North, the North of the fur trade, was also subject to wild fluctuations and that the support presently extended to Aboriginals in the North by the state really began in earnest with the collapse of fur prices in 1949-50. This has been repeated, more recently, with the collapse of the sealing industry in the early 1980's.

We do not wish to repeat some of the suggestions that come from the analysis in previous chapters, but a few general comments are perhaps in order:

1.There is still room for the development of better and more formal methods of involving communities in industry and government planning and review processes. (See comments from a decade ago in Graham, 1982) These processes should be organized on the basis of co-operation rather than confrontation.

2.There is a need for more education and training, and more appropriate education and training. This will likely be a constant need, but one that continually requires emphasis.

3.Government and industry should continue to increase the attention given to studying Aboriginal participation in the mineral sector. The authors noted that there has been relatively little attention devoted to this subject in the last decade.

There is little that anybody in the North can do about international commodity markets. Mining ventures in the North will remain tied to the whims of international finance. What is important is to make the most of the opportunities when they arise and to restrict the risk as far as possible.

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