

Industry PROFILE



An integrated approach to nurturing industry development and NWT Wealth

MINING AND MINERAL EXPLORATION

The mineral sector generates significant wealth for the Northwest Territories (NWT). The sector produces export goods and creates direct jobs as well as jobs in the service and construction sectors. The potential of the mineral sector remains largely untapped as only a small portion of the NWT's vast potential has been developed.

AN OVERVIEW

Mineral exploration provides job and business opportunities to both large and small NWT communities alike.

Mining activity in the NWT is characterized by the following:

- Significant northern employment with relatively high wages, at minimal cost to Government;
- A technologically advanced industry - mining skills can be applied in other sectors of the NWT economy;
- A capital intensive industry;
- An industry that occupies and uses as little land as practically possible.

Two distinct sectors comprise the mineral industry. Mineral exploration consists of prospecting, exploration, and development of a mineral property or deposit, including all associated services. Exploration activities are small scale and, as a result of regulatory constraints, are generally environmentally benign.

Exploration activity provides significant direct employment (albeit seasonal), and is a critical growth factor in many service and retail sector businesses (e.g., aircraft, trucking, food, accommodation).



As mineral exploration proceeds, activity becomes increasingly more focussed and, if successful, may lead to the establishment of a mine at a specific location. The mining sector includes producing mines plus the services and support they require. Mining provides direct and indirect jobs and revenues to governments, such as royalties and taxes.

The two sectors are interdependent. Factors that adversely affect mineral exploration will lead, in the future, to reduced mineral production. Increased mineral production attracts mineral investment and increased exploration. Both sectors affect other economic sectors such as construction and retail sales.

Over the past 75 years, the history and development of the NWT has been closely tied to and driven by its mineral industry. Before the arrival of the European explorers and traders, aboriginal peoples mined soapstone and copper to make into tools and to trade. Since the discovery in the

1930's of uranium at Great Bear Lake, followed by economic concentrations of gold in the Yellowknife area, mining has been the driving force behind the development of the NWT. Much of the infrastructure in the NWT, including the Mackenzie Highway, the Hay River railway, the Taltson and Bluefish power dams, and numerous airfields are a result of mineral production activity. This infrastructure has led and will continue to lead to additional mineral exploration and production.

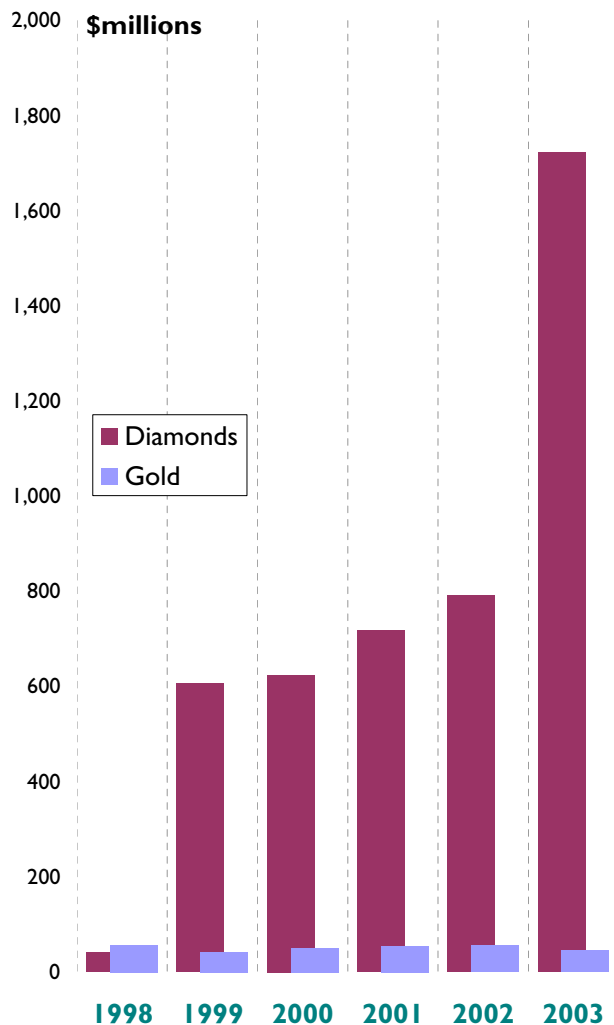
The discovery of diamonds in the Lac De Gras area in 1991 led to the largest staking rush in Canadian history. Since then, several of the world's largest mining companies, including BHP, RT and De Beers, have become actively involved in diamond exploration and mining in the NWT.



Source: Diavik Mines

THE NWT MINERAL INDUSTRY TODAY

The value of mineral shipments from NWT mines in 2003 was \$1.77 billion, up \$920 million from 2002 (due to the start up of operations at Diavik Diamond Mine). At the end of 2003, there were three operating mines in the NWT, namely Giant gold mine and Ekati and Diavik diamond mines. The De Beer's Snap Lake diamond mine is scheduled to begin production in 2007. Since operations began at Ekati in 1998, diamonds have become the most important mineral commodity produced in the NWT (refer graph below).



Mining Facts

The Northwest Territories experienced economic growth of 10.6% on a constant dollar basis in 2003, which was by far the highest growth rate in Canada.

The largest industry in the Northwest Territories in 2003 was mining, oil and gas extraction at \$1,381.2 million, or approximately 42% of total GDP, with the diamond sub-sector accounting for \$1,164.1 million or 35% of total GDP.

Northerners fill more than 75% of all full-time positions in mining, with some 37% being aboriginal.

In 2003 the average annual income in mining was \$68,600. The NWT average for all jobs at that time was just under \$35,000. Significant additional employment is created in the service and small business sectors supporting the mines.

Exploration and prospecting activities provide an opportunity for northern residents to participate in the mining industry. Many of these jobs are seasonal and "on the land", thus providing opportunities to combine wage earning with traditional activities.

Mineral exploration activity in the NWT increased steadily since the initial discovery of diamondiferous kimberlite in 1991 but has since returned to historical levels. Over the 2001 to 2003 period, annual exploration expenditures in the NWT dropped from \$87 million to \$50 million. However, expenditures in 2004 are expected (reference Natural Resources Canada) to increase to \$110 million, due mainly to deposit appraisal expenditures at De Beers' Snap Lake and Gahcho Kué projects. With respect to Snap Lake, significant expenditures in 2004 on a pre-production trial mining program will push the NWT into third place in terms of exploration expenditures country-wide after Ontario and Quebec.

Most of these exploration dollars will be spent in the NWT making the activity of critical importance to the Territories' economy.

Exploration is currently focused on diamonds although more attention is being paid to gold and interest in base metals remains steady. Some data collected by industry while exploring for a particular commodity are released to the public

three years after submission; this is a regulatory requirement of the federal government to retain ownership rights to the mineral claim. This data form part of the geoscience knowledge base for the NWT and will be used to support future exploration for a wide range of commodities.

In the past, exploration in the NWT has tended to focus on the Slave Structural Province, north of Yellowknife. However, companies are now exploring in many other areas of the NWT, particularly in the Sahtu, on central Victoria Island, and in the Southern Cordillera. However, large areas have been geologically mapped only at compilation or regional scale. Much of this work was done more than 25 years ago and lacks the advantages of modern technology and concepts. It is estimated that only 4% of the land area has been mapped at a scale required by the exploration industry.

Mineral Investment Intentions in \$millions

EXPLORATION AND DEPOSIT APPRAISAL EXPENDITURES, ¹ BY PROVINCE AND TERRITORY, 2001-2004								
Province / Territory	2001		2002		2003 ^a		2004 ^b	
	(\$ millions)	(%)	(\$ millions)	(%)	(\$ millions)	(%)	(\$ millions)	(%)
Newfoundland and Labrador	28.4	5.5	44.2	7.7	21	3.3	30.9	3.9
Nova Scotia	2.8	0.5	3.4	0.6	6.6	1	11.3	1.4
New Brunswick	9.5	1.8	3.2	0.6	2.4	0.4	18.8	2.4
Quebec	102.9	20.1	111.2	19.4	150	23.4	164.2	20.7
Ontario	113.6	22.2	139	24.2	190.8	29.8	201.9	25.4
Manitoba	28.7	5.6	29.8	5.2	25.9	4	30.2	3.8
Saskatchewan	37.5	7.3	41.4	7.2	42.4	6.6	51	6.4
Alberta	4.5	0.9	5.6	1	4.8	0.7	5.1	0.6
British Columbia	29.1	5.7	39.2	6.8	49.9	7.8	54.2	6.8
Yukon Territory	7.8	1.5	7.8	1.4	12.3	1.9	19.4	2.4
Northwest Territories	86.6	16.9	72.7	12.7	49.8	7.8	110.4	13.9
Nunavut	61.3	12	75.9	13.2	85.4	13.3	97.8	12.3
Total	512.9	100	573.4	100	641.3	100	795.2	100

Development Expenditures.
a Preliminary estimates
b Spending intentions
Notes: Numbers may not add to totals due to rounding. Exploration and deposit appraisal activities include only the search for and appraisal of deposits and do not include work for extensions of known reserves.

As a result, large areas have received only cursory grassroots prospecting by industry. The initial diamond discovery focused the attention of the world's exploration industry on the NWT. Since then, interest in diamond exploration in Canada has expanded to Nunavut, Ontario, Quebec and Saskatchewan. Considering the vast mineral potential of the NWT, the possibility of finding further economic diamond, gold and base metal deposits remains excellent.

Exploration consists of two types: advanced exploration on known deposits that are progressing towards development (advanced drilling, bulk sampling etc.) and basic exploration or grassroots exploration, which involves prospecting and searching for new deposits.

Since 2000, annual expenditures on advanced and grassroots exploration in the NWT have been similar, varying from \$20 to \$50 million for each category. However, expenditures in 2004 for advanced exploration are expected to total \$81 million (due, as indicated previously, to deposit

appraisal expenditures at the Snap Lake and Gahcho Kué projects) while grassroots expenditures will remain at historical levels.

Ekati and Diavik diamond mines currently source a significant proportion of their purchases from the NWT. For example, in 2002 BHP Billiton Diamonds Inc. spent over \$416 million to support operations at Ekati, with 85.4% of that amount spent at northern businesses and 34.7% spent at northern Aboriginal businesses. Northern purchases by exploration companies have also been increasing over the past years. The growth in the small business and service sectors is an indication of how effective this is increasing Northern benefits.

Mine Rescue - Dan Westman



REVENUES

Exploration expenditures provide some indication of the revenues generated by the exploration industry. Fees associated with management of subsurface resources under the federal Canada Mining Regulations generate revenues for the federal government. The revenues may be underestimated as they do not include all transactions (e.g., deposits collected that may ultimately be forfeited to the government).

Royalties for mineral production are set by the federal Canada Mining Regulations, and collected by the federal government. The royalties are profit-based and therefore sensitive to operating costs and commodity prices. The high profit margins experienced by diamond mining operations in the NWT mean that the operations will generate significant royalty streams for government over their life times. For example, royalties from Ekati, Diavik and Snap Lake are expected to total nearly \$1 billion. Income taxes from the three operations, both federal and territorial are expected to exceed \$2 billion over the same period.

The regulations under which the mineral industry operates in the NWT are set by and controlled by the Federal Government. Many of the issues that the mineral industry in the NWT faces are under the jurisdiction of the federal government. The GNWT continues to work with the federal government, representing the northern mineral industry to DIAND to ensure the federal government recognizes and addresses the issues and concerns that affect our economy. Furthermore, the NWT is currently moving towards devolution, which will eventually lead to the Government of the NWT assuming the role of landlord in respect of non-renewable resource development in the Territory.

GLOBAL AND NATIONAL TRENDS

The NWT is competing for exploration and investment dollars with jurisdictions in Canada and countries around the world. In 2002, 20% of the approximately \$3 billion spent on exploration worldwide was spent in Canada. Around 2.5% of the \$3 billion was spent in the NWT. Canada is now the world's favourite destination for large company exploration capital. For example, the Metals Economics Group reports that in 2002 Canada overtook Australia for the first time in eight years as the most active mine exploration country in the world.

According to Natural Resources Canada, there are more mineral exploration companies based in Canada than anywhere else in the world. In 2002, the total value of exploration carried out by the larger Canadian-based companies in Canada and elsewhere was \$670 million. This was down by 12% from the almost \$760 million budgeted in 2001. Nevertheless, these Canadian companies accounted for the dominant share, by far, of all worldwide mineral exploration activity.



Pine Point Open Pit Mine - Dan Westman

INGREDIENTS FOR SUCCESS

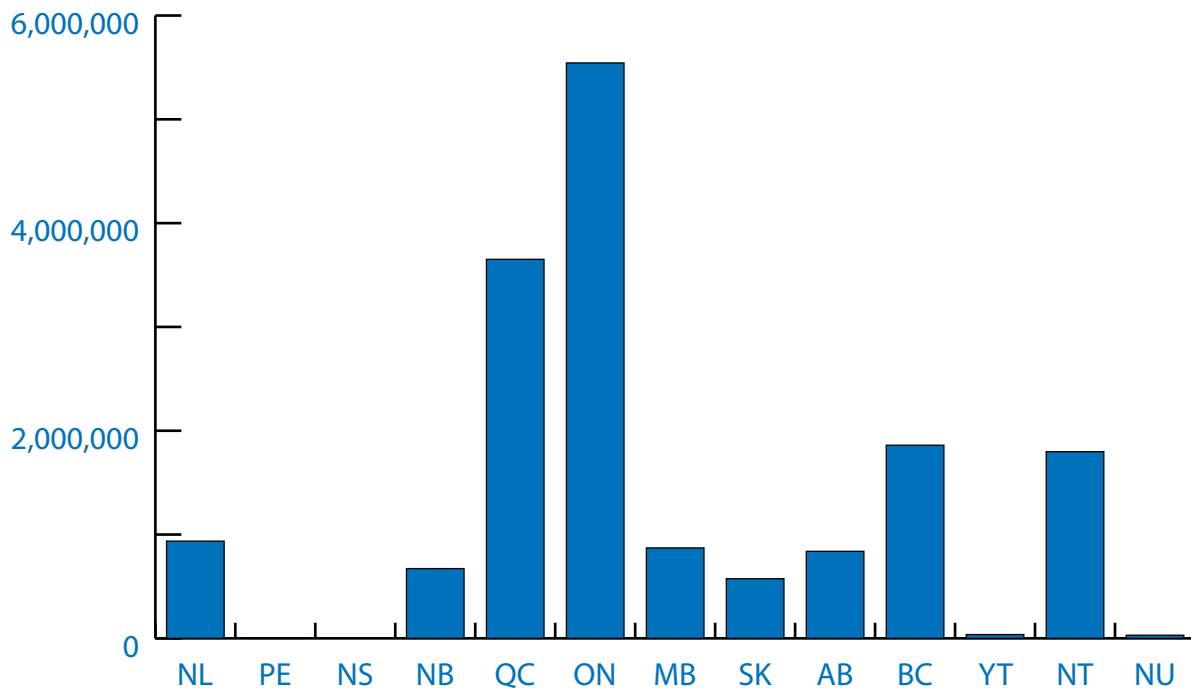
The mineral industry has been, and will continue to be, one of the driving forces behind the NWT economy. It provides direct jobs both in exploration and at operating mines. Mining and exploration activity affect every region of the NWT. Mineral exploration and mining have been the primary source of the growth in the small business and service sectors over the past 10 years, providing numerous direct and indirect business and employment opportunities. There is excellent potential for increased small business development in association with the mineral industry in the NWT as the further mines are brought on stream and exploration activity continues.

NATURAL RESOURCES

There are known deposits of diamonds, gold, silver, tungsten, lead and zinc across the NWT. The geology of the NWT, however, is poorly known and the prospectivity of the territory remains extremely high.

On March 15, 1999 the Department of Resources, Wildlife and Economic Development (RWED) of the GNWT, the Geological Survey of Canada (GSC) and the Department of Indian Affairs and Northern Development (DIAND) signed a Memorandum of Agreement on Government Geoscience Program Coordination in the NWT. Under this agreement, a number of areas of cooperation were defined, including the support of a common geoscience office. This office is known as the C.S. Lord Northern Geoscience Centre. Through the Centre, RWED, DIAND and the GSC conduct geoscience in the NWT.

Chart of NWT in Canada Mineral Production - 2003 - In \$'000 (Natural Resources Canada)



The Centre has 18 staff, seven of whom are RWED employees. The Centre runs programs related to both mining and petroleum geoscience, and provides public access to DIAND's assessment report, diamond drill core, and sample collections. Scientific programs at the C.S. Lord Centre for 2004 include a geological mapping project at Wecho River, diamond studies, two large compilation projects and an aeromagnetic survey being undertaken as preparation for future fieldwork.

Financial support to C.S. Lord Centre in 2003/04 was split approximately 20/80 between RWED and DIAND.

Geological mapping is the single most cost-effective incentive that government can provide to encourage mineral industry activity. Geological mapping is not only an incentive for mineral exploration, it is an important part of any land-use planning process. Mineral resource information forms a critical part

of the database that must be used in any land-use planning process, whether for parks or other protected areas. The approach and data used in any land-use planning process is of significant interest to exploration companies and a consideration when they calculate the risk of an exploration decision.

While the fact that the NWT is under-explored is an advantage when compared to southern Canadian jurisdictions and the USA, the lack of geological data is a constraint on exploration. The lack of data substantially increases the risk that companies take when they explore for minerals in the NWT. The C.S. Lord Northern Geoscience Centre is currently engaged in geological mapping exercises although without more extensive geological data, the true extent of the NWT's resources will remain unknown.

HUMAN RESOURCE DEVELOPMENT

A wide spectrum of direct and indirect jobs are associated with the mineral industry. The level of training ranges from none or minimal for general labourers, to apprenticeships and trades certificates, to advanced university degrees. Mining operations require skilled personnel from various disciplines, including miners, heavy equipment operators, technicians, engineers, welders, clerks, and cooks. Mineral exploration activity also requires similarly diverse personnel but is heavily reliant on skilled professional geoscientists.

The percentage of northerners employed at northern mines has increased significantly over the past several years. For example, northern employment at Ekati and Diavik in 2003, excluding contractors, totaled almost 1,200 full-time positions. The percentage of aboriginal employment is similarly impressive. In 2003, aboriginal employment on Ekati and Diavik, excluding contractors, totaled almost 600 full-time positions. Employment at Snap Lake during the construction phase in 2005 and 2006 and once the project comes on stream in 2007 will provide still further employment opportunities to NWT residents.

Ekati and Diavik diamond mines provide training and apprenticeship programs to current and potential mine employees. Courses have been developed in association with the northern colleges to provide necessary training. Impact Benefit Agreements and Socio-Economic Agreements with operating mines provide a means to improve both training and employment by focusing on addressing training needs and ensuring the company is aware of the available labour force and is committed to hiring locally. Advancing current and planned mineral projects to production is necessary to ensure the number of jobs available in NWT mining operations remains steady or increases in the coming decades. Mining and mineral exploration

activity requires the services of other sectors, which produces additional spin-off jobs. Transportation services such as trucking and airline companies benefit, as do construction firms and catering businesses.

While producing mines provide a substantial number of jobs in specific locations, mineral exploration can provide jobs in a variety of locations across the NWT. Mineral exploration is currently underway in many areas of the NWT with the focus on diamonds and gold. In addition, exploration contributes to the GDP by employing northerners and supporting the service sector.

Prospector training and support programs (grubstake contributions) have been underway for several years. The GNWT runs prospector training courses that are offered to communities across the NWT. Graduates of the courses have developed into self-employed prospectors as well as seasonal employees of mineral exploration companies.



Mine Worker Source: DIAVIK

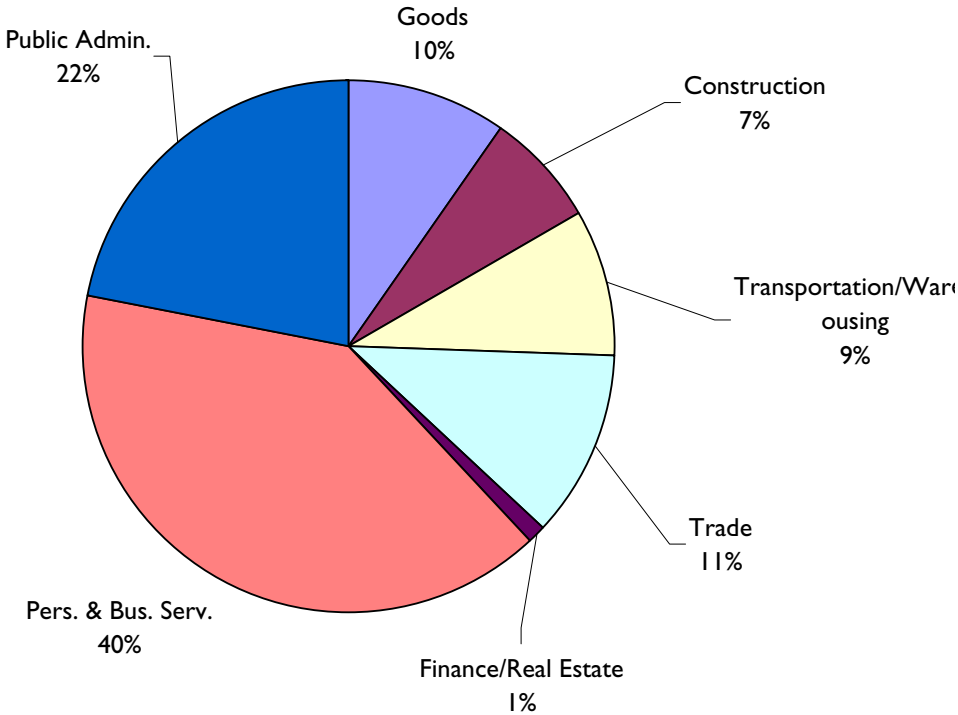
CAPITAL AND INVESTMENT

Neither exploration nor production in this sector requires direct government investment. The source of the investment capital for much of the exploration activity is private investors through the stock markets and other financial instruments.

The main factors that will stimulate continued interest from stock market investors are the regulatory and tax regimes, the political environment and knowledge of the region, in terms of geological information and general operating environment.

Initially, exploration activity is usually undertaken by prospectors or junior mining companies. Generally, only once a deposit has been identified that could be developed will a major company be interested in investing in the property. Private capital is also attracted to businesses servicing exploration activities. The growth of the service sector and the jobs directly in exploration will only continue as long as the industry's exploration efforts are rewarded. When a deposit is proven economic, the company must be able to proceed to development along a structured permitting process, free from time delays and interference. If successful exploration does not lead to development, exploration investment will shift from the NWT to other jurisdictions in Canada and around the world. Mineral investment funding leaves a jurisdiction very quickly but often takes a long time to return.

Estimated Jobs by Industry (% of total) - 2003



Data from GNWT Bureau of Statistics

PUBLIC INFRASTRUCTURE

Much of the existing public infrastructure in the NWT, from power dams to roads, railways and airstrips, was developed as a result of mineral development activities. Roads, ports, and railways are especially important for base metal mines because they produce an extensive volume of concentrate that must be transported to a smelter for refining.

There are numerous deposits in the NWT that, with the appropriate infrastructure (roads, power, ports, etc.) could become economic, and eventually become producing mines. In addition, lack of infrastructure increases the cost of exploration programs in the NWT. As evidenced by the Ekati and Diavik diamond mines, mine development in the NWT faces substantial costs in respect of infrastructure development and transportation costs.

This means that, for deposits in the NWT to be considered economic, they must typically be either richer (higher grade) or larger than deposits that might be considered economic elsewhere. This increases the exploration risk in the territory.

MARKETS AND SALES

The sale of products mined in the NWT is based solely on world commodity markets. World economic conditions and the amounts of those commodities produced in other countries affect final prices, which can fluctuate widely. Commodity prices are a risk factor which must be taken into consideration with the other risk factors, and potential benefits, of developing mineral projects in the NWT, or anywhere else in the world.



Diavik Camp - Source: DIAVIK

REGULATION AND TAXATION

It is critical to the future of the mineral industry in the NWT that the territory be seen, by the global mineral industry, as a jurisdiction that is open to mineral exploration and project development. The cost of regulatory and permitting processes in the NWT can be substantial and currently influence mineral investment in the territory as the exploration risk is perceived by some companies as higher than elsewhere in Canada.

Currently, the mineral industry perceives the political climate in the north to be hostile toward mineral development, according to the most recent Fraser Institute Report. The survey indicates that the majority of mining companies in Canada consider uncertainties relating to land claims and protected areas as major deterrents to investment in the NWT.

The mineral industry is also concerned with the increased time required for permitting and approval of mineral projects. It is critical for the mineral industry to have decisions about exploration and development made as expeditiously as possible due to the following:

- The cost of capital - the opportunity cost of capital being tied up in one project;
- No return on investment in exploration until a mine is brought into production;
- The fleeting interest of investors, and
- The cyclical nature of metal prices.

Land-use policies and regulatory initiatives that effectively preclude industrial activity are adversely affecting the land base that the mineral industry has available to explore.

Maintaining a large land base for exploration maximizes the chance for exploration success, although the land eventually required for mineral production is very small. Decisions to protect lands are often made without any information about mineral potential. Even where mineral resource assessments are carried out (e.g., in making decisions about national park boundaries), these

appraisals are only pertinent within prevailing market conditions and the level of geoscience technology and expertise that existed at the time the assessment was carried out. For example, if a Mineral and Energy Resource Assessment (MERA) had been carried out for the Lac de Gras area in the late 1980's, it may well have concluded that the area had low mineral potential.

Land access policies that permit multiple uses of the land in order to maximize options and opportunities for NWT communities and regions in the future should be pursued. This will assist in creating an attractive business climate. The process must involve northern communities, thus ensuring that they become more involved and more responsible. The GNWT, with the support of DIAND, is leading and implementing a Protected Areas Strategy (PAS) for the NWT. The mineral industry is concerned with the impact of the Strategy on its ability to explore in the NWT. It is important that the application of the NWT PAS is clear to the minerals industry in terms of exploration and mine development. Mineral resource potential should be one of the criteria used to identify and select Protected Areas. Expropriation of mineral rights should only be considered as a last resort. If expropriation is required, it is essential that adequate and full compensation be provided to stakeholders.

The mineral industry is concerned with the investment climate in the NWT. It is concerned with the political stability (division, devolution) and unsettled land claims. A poor investment climate discourages industry activity. The industry requires positive indications that investment in the NWT is welcome and will be protected in the future. Despite a changing political structure in the NWT, mineral exploration and mining companies are assured services here that are often not adequate in other parts of the world. These include legal stability, a sound banking system, an eager service sector and an excellent education and health system for workers and their families.

CONCLUSION

Unlike other sectors of the economy, little or no government incentives or financial support is required for most mining operations. However, the industry does require consistency in the application of regulations, stability in land access and tenure processes, a modern geological database, and a positive investment climate. Successful exploration projects must be allowed to develop into producing mines, especially since existing mines will close at some point in the future. This will not only provide the substantial economic benefit of more producing mines, but also encourage additional exploration, thereby helping to promote the sustainability of the mineral sector. The following aspects of the NWT mining industry are positive factors and will result in future opportunities for residents of the NWT:

- Excellent geological potential;
- Commitment to job creation, both direct and indirect in both large and small communities;
- The industry can offer a wide range of employment types (unskilled to highly skilled and technologically advanced) to those people wanting to seek training and enter the mineral industry;
- Generation of wealth (exports, revenues, income, etc.);
- Commitment to support northern businesses and services which support the mineral industry;
- Occupation of a small area of land for limited time and
- Requirement of little government financial support or investment.

While there is every reason to be optimistic about the prospects for mineral exploration and development, there are a number of constraints that currently limit the full realization of our potential:

- Poorly developed resource/geoscience database;
- Complex regulatory environment;
- Lack of infrastructure;
- Uncertainty of land access and mineral tenure;
- Public perception of the industry's environmental performance; and
- Low education and skill levels in the NWT workforce.