

MINE OPERATION

Overview

Acts and Regulations

Environmental and Social Impacts

Community Employment and
Other Economic Opportunities

Community Experiences





3.1 Overview

This section explains the purpose of mine operation, identifies the main activities and players, and outlines opportunities for Aboriginal communities to get involved during operations.

What Is Mine Operation?



Mine operation is the third phase of the mining cycle. It is the process of producing a mineral product for the benefit of society, **stakeholders** and **shareholders**. A mine is operating when earth and/or rock are being excavated from the ground and the processing plant is producing **saleable** product.



There are two types of mines: underground and open pit.

A mine operation has four main work areas: excavation areas, processing plant, **waste** storage, and supporting services. The excavation areas are where earth and rock containing the mineral are excavated. The processing plant separates the rock that contains saleable material (**ore**) from the surrounding rock that is not saleable (**waste rock**). Mineral processing is done in multiple stages (e.g., concentrator or mill, wash plant) and uses different processes

depending on what is being mined. Some mine operations do not have a processing facility on site so the mined material is sent somewhere else to be processed. Waste storage facilities include areas for both waste rock and the material rejected from a mill (called **tailings**). Supporting services to a mine operation may include repair shops, labs to test the quality of the mined material, change rooms, living quarters, warehouses, and offices.

Every mine operation has mining and processing target rates. One key element is to determine rates of mining and processing that will ensure that all costs can be covered from sales of the product. These rates are evaluated during the feasibility studies before a mine starts operating. The rates are calculated to provide the highest level of efficiency (need to match the capital investment, size of orebody, and life of the mine). Producing too much, too fast could increase costs and hurt profits; producing too little, too slowly could hurt the economics of the mine because of reduced sales. The mine and the process must be designed and built to achieve the right balance.

Time Frames

The operating life of a mine can be as short as several years or as long as several decades. It can also be seasonal or operations can be year-long and shipments can be seasonal (if access

is difficult). Overall revenues must be able to at least recover exploration and construction expenses. Factors that affect how long a mine will operate include:

- **Commodity** price (demand, competition, and prices for the product in the world market);
- Production costs and production rates;
- Quality (grade) and quantity of ore that is economic to mine in the deposit;
- Size and shape of the body of material to be mined;
- Best possible economic mining rates;
- Mining methods, equipment, and associated costs;
- Depth of mining required below surface;
- Ground conditions and ability to mine safely; and
- Location.

Generally, with higher metal prices, lower-grade rock becomes ore. However, when the price of metal is lower, only higher-grade rock is able to be used as ore. An orebody can grow or shrink as prices and costs change.

Costs

Mining uses labour, capital, energy and other inputs, all of which cost money. During mine operations, labour is usually the highest cost. Power, fuel and other consumables (heavy equipment, drill bits, tires, spare parts, etc.) are the next greatest expense.

The location of a mine has a major effect on both construction and operating costs. If the mine is located in a remote area, the mine operator may have to build a winter road to bring in supplies and take out ore or concentrate, and a diesel power plant to generate electricity. A major expense for remote mines is transportation costs to fly workers in and out of the mine. However, if the mine is located in a less remote area, it may be on an existing road system and close to power grids, or the government may agree to provide a road for access and power to help lower costs.

What Are the Mine Operation Activities?

Hiring

When a mine goes into operation, it needs to hire both permanent employees and contractors. Companies will advertise in local, regional and national papers, depending on





the jobs to be filled. Some companies may have agreements (e.g., IBAs) to work directly with Aboriginal groups to find and hire local candidates (for example, Voisey's Bay [Newfoundland and Labrador], the Diavik and Ekati diamond mines [Northwest Territories], Raglan [Quebec], Musselwhite [Ontario], and Eskay Creek [BC]).

If local communities do not have candidates with the required skills and professional qualifications, the company must look “outside” and the recruitment search is extended regionally, nationally, and sometimes internationally. Companies prefer to hire locally where people already live. The local candidates are already close to mining sites and know about the land, geography and climate.

Training

All new employees receive orientation training before starting on the job. This training helps employees

to understand the operation, but more importantly, to make sure they are safe on the job. Other training for new employees includes on-the-job training, cross-cultural training, trades



training, apprenticeships, and literacy and life skills training. Training can be delivered in classrooms, by computer-based programs, and by one-on-one instruction and mentoring.

Companies may partner with local communities, government and others to provide community-based training. Other companies may partner with local colleges and schools to provide technical training.

Commissioning

Commissioning involves testing to see whether a new facility, process or equipment performs as it was designed. All processing and mining equipment must be commissioned before going into full production.

Production

During production, waste rock must be mined away to recover the ore. Ore and waste both cost

money to excavate and process and so, to be efficient, mines try to mine as much ore and as little waste as possible.



Facts & Figures

To answer the needs of mining companies and mining workers, the Quebec government, together with various organizations, has developed a training program for underground mining. This program delivers training to Cree students in cooperation with the Cree School Board.

(Source: www.cfpvaldor.qc.ca)



When an operation starts up, a lot of waste must be excavated in order to reach the ore. In underground mines, this is called pre-production development. In open-pit mining, this is called pre-stripping. This early stage of mining can last from a few days to more than a year, depending on how much waste there is and how fast it can be removed.

Once enough waste has been removed, the mine is able to send ore to the processing plant, and the processing plant begins processing the ore. At this point, the mine is in “production.”

During production, waste still needs to be excavated in order to keep uncovering more ore. In underground mining, this is now called “development”; in open-pit mining, this is now called “stripping.” Development and/or stripping go hand-in-hand with production and are crucial to maintain production.

Full production generally means that the average mining and processing rates are meeting or exceeding the target rates developed during the feasibility study phase.

Improved market conditions may allow a mine to sell more product than planned and/or to sell it at a higher price than expected. When this happens, the mining company will try to increase production. Sometimes a mine operation can increase production for a

short time using its existing equipment and people, but the only way to achieve permanent increases is to expand the mine.

Mine Expansion

Some mines may experience an expansion phase. Mine expansion can include:

- Enlarging the existing mine;
- Opening up more mine areas;
- Buying more equipment and hiring more people;
- Expanding the processing plant to process more ore;
- Changing the processing plant to process faster; and
- Doing more exploration work to try to find more ore.

Who Are the Main Players in Mine Operation?



Junior Exploration Companies

As a project goes into production, the junior company usually sells all or most of its ownership to a senior mining company, although there are exceptions. The senior mining company becomes the sole or majority owner and uses its expertise to operate and manage the new mine.



Senior Mining Companies

Senior mining companies have the central role in the mining industry. They arrange financing, plan, develop, operate and manage mine operations. They also sell the product. Most senior mining companies have been in the mining business for decades and have several mine operations throughout the world. Mining generates a lot of money, but it also costs a lot of money to start and operate a mine. Senior mining companies, with their years of earnings and experience, are usually the only companies with the capacity to start and operate a mine.



Consulting Firms

Consulting firms provide special knowledge and capability to mine operations. A mine operation could require assistance in areas such as rock and soil mechanics, safety, engineering, occupational health and ergonomics, labour relations, environmental science, and others.



Equipment Suppliers and Manufacturers

Equipment suppliers have expert knowledge and experience for the machinery that they supply. They are usually certified journeyman mechanics or electricians, or will have engineering degrees, along with many years of work experience. During operations, equipment suppliers will help

assemble and commission equipment, provide training, advise on preventive maintenance, and provide ongoing technical support. In a large mine, they may set up shop to ensure that the equipment is properly maintained.



Construction Companies

Construction companies build the roads, dams, plants and shops, buildings, offices, pipelines, and various other facilities, including water and power distribution systems, that are all required before a mine operation can go into production.

Large construction companies handle the commissioning of all buildings and facilities before handing them over to the mining company. Smaller construction companies work under the direction of large construction companies and may perform smaller projects under the direction of the mining company once a mine is in production.



Governments

Inspectors from various government departments conduct regular inspections to make sure operators are complying with applicable environmental permits, licences or authorizations, including conditions and requirements specific to the project. They also collect royalties and taxes.



Service Providers

Some organizations are needed to provide special services that a mining company cannot or chooses not to perform. Examples include helicopter and airplane services, on-site explosives manufacturing, site security, catering and camp operations, environmental specialists, graphic design, and publication. These organizations are called service providers.



Financial Institutions

Institutions such as banks, investment companies, securities brokerages and stock exchanges focus on the financial needs of mining companies. A variety of institutions take part in providing loans, managing cash and investment holdings, obtaining investor funding, public listings, buying and selling shares, coordinating mergers and acquisitions, and posting bonds for closure liabilities.



Schools

Secondary schools feed into the colleges and universities, so teachers and counsellors are beginning to work more closely with the mining industry to be able to help students plan their careers.

Major universities and research institutes conduct important scientific and social research.

Funded by government and industry, researchers work with mine operations to gather information and to share findings. The results of research can be used by many mines to improve performance.



Universities educate graduates in the fields of geology, engineering, business, science, and communications, all fields that a mine operation needs. Community colleges prepare graduates in other essential fields such as surveying, trades, engineering technology, computers, and office administration.

Most of the jobs at a mine that are challenging and involve responsibility usually require at least Grade 12 education or equivalent. This is to ensure that the person can do the job safely and properly.



Industry Associations

Many mining companies participate in provincial/territorial and national associations to address common issues and provide a unified voice to the public and government. Most provinces/territories have a “Chamber of Mines” that represents the exploration and mining activity in the province/territory as a whole. Some provinces



and territories also have their own mining associations to help their provincial government shape policies that affect the industry. Industry associations also deliver benefits to their members, providing a forum for them to discuss matters of mutual interest and work collectively on research and the development of best practices. The Mining Association of Canada performs this role at a national level, dealing with federal policy makers.

Customers



The customer is ultimately the most important player in the industry. There are immediate customers and final customers. Immediate customers include smelters, refineries, steel mills and many types of manufacturing plants, and selling agencies that mining companies deal with. Final customers are the retail consumers of all of the everyday goods that contain materials that came out of the ground. Final customers drive the markets that influence the selling prices.

Customers are many and varied, depending on the mineral product being produced and sold. Base metals such as copper and zinc are used for a variety of everyday goods. Precious metals such as gold and silver are used for jewellery and electronic components. Coal and oil sand are used to provide fuel and energy. Industrial minerals such as talc and potash are used to

produce a variety of goods including fertilizer, cement, baby powder, cat litter, etc. Diamonds are used in jewellery, industrial cutting blades and drill bits.

How Can Aboriginal Communities Get Involved in Mine Operation?

Community involvement should occur throughout the mine cycle through employment, businesses and monitoring. The type and amount of community input and communication depend on many things, including if and what agreements are in place (e.g., IBAs, PAs).

Also, company representatives may visit communities to inform and provide updates on the operation. They may also publish project updates in newsletters and local newspapers. Companies may bring young people and elders to the site, host community visits, support family visits, meet with community employment officers, conduct community-based training, and meet with chiefs and council.

Companies may also visit local schools to encourage students to stay in school and attend career shows in schools to emphasize the types of jobs available and the education required. They may also visit communities to gain a better understanding of the lifestyles of their workers.

3.2 Acts and Regulations

This section identifies the conditions of leases, licences and permits. It also provides a listing of the major permits, licences and other instruments needed by one mine to operate. The actual licences and permits that a mine needs to operate depend on what jurisdiction the mine falls under.

Government passes acts and enables regulations to ensure mining occurs in a safe and environmentally friendly way. Companies must comply with the requirements of both federal and provincial/territorial acts and regulations.

What Are the Conditions of Leases?

Leases authorize mining companies to access land for mine development. They are issued by provinces and territories with the exception of Nunavut and the Northwest Territories, and on Indian Reserves where leases are issued by the federal government (Indian and Northern Affairs Canada [INAC]). They set the boundaries where certain infrastructure can be built or deposited (i.e., tailings or waste rock piles) and set requirements on how to operate environmentally in each lease. Each lease requires a mine closure and reclamation plan, a yearly lease fee, and large security deposits.

The life of the mining lease varies by province/territory. In the Northwest Territories and Nunavut, on Crown lands, INAC issues both surface and sub-surface leases. The sub-surface leases have a term of up to 21 years whereas the surface leases have a term of up to 30 years. Also, Aboriginal organizations may grant authorization for land access and mineral tenure for certain lands.

What Are the Conditions of Licences and Permits?

Government agencies issue licences, permits or authorizations and enforce the terms and conditions.

Generally, among the pieces of federal environmental legislation that most often apply to mine operation are the:

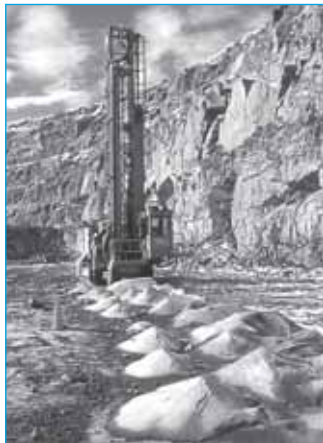
- *Canadian Environmental Protection Act (CEPA);*
- *Fisheries Act (FA);*
- *Explosives Act; and*
- *Navigable Water Protection Act.*

For example, in the case of operating metal mines, the Metal Mining Effluent Regulations apply. These are regulations under the *Fisheries Act*. There are also regulations administered by the Mines Inspector (WCB – Safety –

Facts & Figures

The diamond mines in the Northwest Territories use community-based consultation programs. They have Participation Agreements that are Aboriginal community based. The boards report to the communities and they publish annual reports. Update meetings are held annually in each of the participating communities.





monthly – Health Inspector), which are under provincial/territorial jurisdiction.

The following list shows some of the permits, licences and other instruments that may be required to operate a mine depending on its jurisdiction:

- Fisheries authorization permit: Issued by Fisheries and Oceans Canada to allow a company to alter fish habitat.
- Navigable waters permit: Issued by the Coast Guard to allow for the construction of any structure in a lake or river that is considered navigable.
- Explosives permit: Issued by Natural Resources Canada to allow the storage and mixing of explosives at the mine site. The permit sets required distances away from other buildings and from waterways.
- Water licence: These provincial/territorial licences set conditions for water use, waste disposal, and water discharge.
- Quarry permit: Provincial/territorial permit to operate at the site.
- Aggregate permit: Provincial/territorial permit on the extraction and use of aggregate.

- Transmission line permit: Provincial/territorial permit required when a new transmission line is built.
- Domestic sewage permit: Provincial/territorial permit for the treatment and disposal of domestic sewage at the mine site.



Other Instruments

Agreements such as Impact and Benefits Agreements (IBAs) with Aboriginal organizations are not conditions of regulatory approval in unsettled land claims areas. However, governments strongly suggest to mining companies to negotiate such agreements. IBAs may contain a wide variety of provisions, including a provision intended to protect the environment and monitor the environmental impacts of the mining project.

Regulatory approval may require impact monitoring agreements involving government agencies, First Nations and mining proponents. This agreement would serve to verify the accuracy of the environmental assessment and the effectiveness of mitigation measures. Often, Aboriginal communities actively participate in monitoring under these agreements.

3.3 Environmental and Social Impacts

This section identifies the potential environmental and social impacts a community may experience during mine operation. Ideas for monitoring, mitigation and community input are included.

What Are the Potential Environmental Impacts?

As in each of the mining phases, the intent during operations is to minimize the environmental impact to the water, land, air, wildlife and people as much as possible. Potential impacts are very well understood and can be mitigated effectively by using traditional knowledge and improved technologies.

Environmental impacts that may require mitigation measures, depending on where a development is located, may include:

Potential Impacts:

- Loss of archaeological and heritage sites;
- Impacts on traditional and non-traditional land use;
- Impacts on water flows and quality; and
- Impacts on fish and fisheries.

Mitigation:

- Protection of land and identification and protection of archaeological and heritage sites;
- No hunting/fishing zones and wildlife protection;
- Water quality monitoring and flow supplementation; and
- Protection of spawning and rearing areas and fish farming.

The following table outlines the type of impacts possible during mine operation and the mitigation measures.



Environmental Impacts		
Type	Condition	Mitigation
Land use	Land disturbance from mining activities – excavations in the mine, storage of waste rock	Minimize the mining footprint by using good planning and community input
	Tailings waste and tailings dams	Must be approved by government regulators Strict rules for locating, constructing and operating
Air quality	Dust from roads and mining Emissions from trucks and on-site power generation	Water roads to control dust Monitor emissions to determine effects on vegetation and air quality
Water quality	Dirt, rocks, or contaminated or unclean water enter streams or lakes	Establish a water management plan (which must be approved by the government) Train employees and contractors on the water management plan
Wildlife	Animals attracted to garbage and food waste	Use best practices for incineration of food waste and garbage Remove waste that cannot be incinerated A waste management plan and employee training will help minimize wildlife impacts
	Migratory patterns affected by presence of humans, noise from aircraft, noise from blasting	Observe animal behaviour and modify operations as required Avoid certain activities during migration

What Environmental Monitoring Is Required?

The purpose of monitoring is to measure and evaluate impacts compared to baseline conditions before the operation. Companies and governments continually monitor the mining operation to identify any changes. If changes are found, the company can respond to the changes to prevent any long-term damage. Some changes are noticed immediately through monitoring (water samples) and others take a longer time to determine trends and impacts (wildlife monitoring). The basis for knowing that changes have occurred is the baseline studies that were begun early in the advanced exploration stage.

During operations, the government and mining companies monitor:

- Waste water;
- Wildlife;
- Air quality;
- Water quality;

- Aquatic effects;
- Fisheries and fish habitat; and
- Reclamation research.

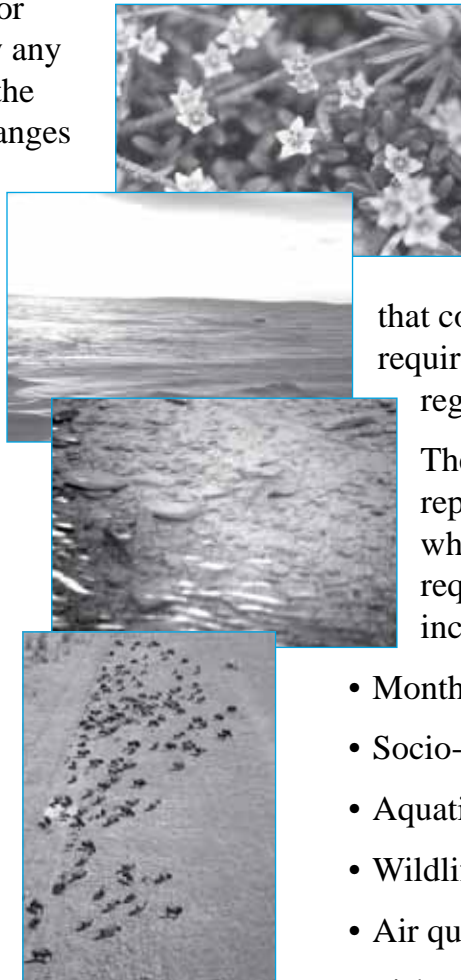
Aboriginal representatives from the affected communities may participate in or conduct these monitoring programs and studies.

Although rare, external monitoring agencies (independent) may be formed to act as a watchdog. They make sure

that companies meet their regulatory requirements, and they check that the regulators are doing their job.

The results of monitoring must be reported so that everyone will know what is happening. Typical reporting requirements for operating mines may include:

- Monthly water quantity and quality;
- Socio-economic reports;
- Aquatic effects;
- Wildlife effects;
- Air quality; and
- Fisheries and fish habitat.



Facts & Figures

The Raglan Committee is the formal forum between the Raglan mine in northern Quebec and the Inuit community. The Committee follows up on environmental matters and works to solve any potential problems.

(Source: www.noranda.com/our_business/nickel/operations/raglan.htm)





What Are the Potential Social Impacts?

Developments such as mining bring with them risks and opportunities for the communities and people who live nearby. By identifying these risks and opportunities, communities can work to reduce negative impacts while gaining maximum benefits from the development.

The table to the right identifies some of the potential social impacts and possible responses to these impacts.

Social Impacts			
	Type	Positive and Negative Effects	Community Response
Social	Shift work/rotational work	<ul style="list-style-type: none"> Less time to spend on traditional activities Workers and their families are separated for several days or weeks Adds wealth to a community 	<ul style="list-style-type: none"> Plan activities around work schedule Create support groups or programs to minimize the separation stress experienced by families Work with the changing dynamics of the community
Economic	Community partnerships and alliances developed	<ul style="list-style-type: none"> Increased business opportunities Employment Wealth generation Training opportunities 	<ul style="list-style-type: none"> Improve and enhance community infrastructure
	Increased employment	<ul style="list-style-type: none"> Increased training and skill development opportunities Creates positive role models Widens the gap between the employed and unemployed 	<ul style="list-style-type: none"> Use the positive working role models within the community
	Increased income	<ul style="list-style-type: none"> Widens the gap between the employed and unemployed A sudden influx of money may lead to increased alcohol and drug use 	<ul style="list-style-type: none"> Create addiction response program and support group Information campaign
	Wage economy	<ul style="list-style-type: none"> More money in the community Local community businesses can prosper Personal wealth increases and crime rates decrease 	<ul style="list-style-type: none"> Ensure that the work is distributed in all communities
Cultural	Strangers in the community	<ul style="list-style-type: none"> Increased population Increased funding for traditional activities Strains existing services Aggravate existing social problems Pursuit of income at the expense of traditional activities 	<ul style="list-style-type: none"> Offer cultural awareness training, delivered by members of the community, to make new people in the community understand the values and traditions of the community Support and maintain traditional activities



3.4 Community Employment and Other Economic Opportunities

This section identifies the employment and economic opportunities available to members of Aboriginal communities during mine operation. It provides information on types of jobs, wages, and training opportunities. It also lists specific actions a community can take to increase its economic opportunities and benefits.

What Are the Employment Opportunities?

The more recent mine operations across Canada have recognized the potential of Aboriginal communities as a source of employees.

Employment and training opportunities are usually the most significant benefit for a community during mine operations. As a mine goes into operation, the percentage of local workers employed increases significantly.

Careers in the mining industry are very diverse. Jobs vary from trades to high-tech and use valuable skills. Senior mining companies

employ hundreds and sometimes thousands of workers at each mine. The following are the types of jobs in a typical mining operation:

- Miners
- Heavy equipment operators
- Pipe fitters
- Environmental scientists
- Supervisors
- Accountants
- Administrators
- Laboratory technicians
- Public relations specialists
- Administrative assistants
- Drillers and blasters
- Mechanics
- Carpenters
- Geologists
- Safety experts
- Clerks
- Managers and executives
- Assayers
- Marketing personnel
- Truck drivers
- Electricians
- Welders
- Surveyors
- Engineers and technicians
- Trainers
- Computer technicians
- Security officers
- Human resource specialists
- Nurses
- Photographers

Recruitment

Companies will have standards for recruitment of employees. They will conduct interviews and make sure that potential employees pass pre-employment medical and security checks. Through the relationship established with the company, a community

Facts & Figures

Voisey's Bay Nickel Company exceeded Aboriginal employment targets for start-up (commissioning). Fifty percent of the start-up operations work force was Innu or Inuit.

(Source: Voisey's Bay Nickel Company, www.vbnc.com)





can help potential employees learn about the interview process.

Once employed, a new world of personal opportunity opens up. From basic training to skills enhancement, from career planning to apprenticeships, a wealth of opportunities will unfold for new employees. The training will provide long-term skills benefits to Aboriginal people and contribute to community sustainability.

Wages

Jobs in mining typically pay high wages, with average wages the highest of any industry in Canada. In 2003, the Canadian mining industry was the only industrial sector with average weekly wages above \$1000 per week. In remote northern mines, truck drivers can earn \$60 000 or more a year. As a person gains more skills and experience, his/her pay will increase. Actual wages depend on the type of mine,

its location, nature of the job, and supply and demand of workers. For example, Canada's coal mines offer the highest wages, followed by metal mining and nonferrous metal smelting and refining.

Facts & Figures

According to the 2001 Statistics Canada Census, Aboriginal employment in the mining industry accounted for 5.3% of the total mining labour force (excluding oil and gas), making mining the largest industrial employer of Aboriginal people in Canada. Since 1996, the mining sector has seen an increase of 21.1% in its Aboriginal work force.

"All the training I got is job-related. I didn't go to a special school or any courses for this job. We do have the option of taking an assayer training course and the company reimburses us."

Nora Shugakeesik, Musselwhite Mine

(Source: Mining Video "Our Community...Our Future," NRCan/MNDM)

Aboriginal people working in the minerals and metals sector have an average employment income twice that of the average for total Aboriginal people.

(Sources: Natural Resources Canada, Statistics Canada)

What On-the-Job Training Opportunities Exist?

There are many training opportunities for mine employees and contractors during operations. All new employees receive orientation training that usually includes an introduction to the company's vision and mission, safety practices, rules of behaviour, and information about site facilities and services.

Some positions require job-specific training. Training on equipment, procedures, and the importance to the overall process is provided when the employee starts the new job so the work will be done safely and





properly. The training is often one-on-one so that questions can be asked.



Mine operations recognize that there is value in employees learning the skills

of another job (cross-training). If someone is absent, another employee who has been trained could take over until the other employee returns or, if a position becomes vacant, an employee who has been trained would be qualified to apply for that position.

Mine operations usually have a number of positions for trade apprentices. Becoming a certified tradesperson requires an apprentice to work under a journeyman for a certain amount of time. Not only does an apprentice need to demonstrate the necessary skill, but the apprentice also needs to finish school and then pass exams.

The mining company may provide training that is designed to help employees and improve the company as a whole. This can include team-

building workshops, information sessions, additional technical training, leadership development, and basic literacy.

Mining companies often provide support when an employee finds a course outside of the company that can help job performance. This kind of personal development is usually expected to take place outside of work hours on the employee's own time. In some instances, the company may allow time off, with or without pay, if the course takes place during company time. However, financial support for course fees, books, and travel costs is usually available and includes either full or partial reimbursement after successfully completing the course. Anything from a one-hour seminar to a complete university degree by distance learning can be supported under these types of programs.

Mining companies sometimes create special initiatives for employees. Examples include: literacy programs, completion of secondary school general equivalency degrees (GED), pre-trades programs, community-based training, life-skills training, drug and alcohol awareness and rehabilitation, and management development programs.



What Are the Other Economic Opportunities?



Mine operation can help build capacity for the future in training, employment, business support, and scholarships. Communities can realize significant economic opportunities during mine operation. The main benefits come from increased employment, business opportunities, and community infrastructure.

Opportunities for Aboriginal businesses that have provided services at the exploration and development phases become more substantial and longer term during mine operation. During mine development, business opportunities tend to be for one to three years, while during operations, contracts may be for five or more years and may be renewable.

As during the mine development phases, communities should prepare to take part and continue asking these important questions:

- “What businesses are currently available?”
- “What businesses are required?”

- “What are the capabilities of the community?”
- “Are there good joint-venture partners available?”

While answering these questions, the community should also talk with the mining company to make sure the relevant and required decisions are made.

The community should review the provisions of its agreement with the mining company. For example, Impact and Benefits Agreements might be in place. These agreements are meant to be used and will stimulate business opportunities. They should

Facts & Figures

In 1993, Syncrude and the Fort McKay First Nation partnered to move a small herd of 30 wood bison onto a section of land reclaimed by Syncrude. Today, the Beaver Creek Wood Bison Ranch is home to an award-winning herd that averages about 250 head with a 99 percent calving rate.

Syncrude and Fort McKay now aim to establish the commercial viability of the project, which has been co-managed by Fort McKay for several years. The ranch could provide considerable economic opportunity to the First Nations community. (Source: Syncrude Canada Ltd., www.syncrude.ca)





also review the tendering provisions of the agreement (as mining companies sometimes break



tenders into smaller pieces, which provides more opportunities to Aboriginal communities) and discuss opportunities



with the mining company. Many opportunities will exist, whether using

wholly owned businesses, joint ventures or other facilities.

The following list identifies some of the possible business opportunities available to communities. It includes:

- Camp catering and housekeeping;
- Site services;
- Surveying;
- Ongoing construction services;
- Recycling services;

- Contract mining – both underground and open pit;
- Supply of goods – for example, safety equipment;
- Aircraft support – helicopters and fixed wing;
- Airport maintenance;
- Laboratory services;
- Environmental consulting;
- Trucking; and
- Road maintenance.

Communities should also check with local, provincial and federal government agencies for help and resources.

Facts & Figures

Communities can realize significant economic opportunities during every stage of the mine operation, including business opportunities, skills development, and training, as well as investments in local infrastructure.

At the Eskay Creek mine in British Columbia, a contract is in place with the Tahltan Nation Development Corporation for the life of the mine for construction services and \$1 million in funding for a Healing Centre project.

(Source: www.barrick.com)





Maximize Economic Opportunities

Communities can play an active role in increasing the type and amount of economic opportunities available to them by:

- Hiring a professional business manager to maximize their benefits from a project. These skills may be available in the community or a community may need to look outside to fill this need;
- Developing their own business and training capacity;
- Being creative and imaginative during the negotiation of any agreements;
- Beginning discussions about the development of partnerships with the mine developer as early as possible;
- Taking an inventory of the community's assets;
- Speaking to members from other communities; and
- Taking long-term perspectives (closure issues, training, strategic planning of resources).

Facts & Figures

Aboriginal companies and/or Aboriginal joint ventures are local suppliers of goods and services to the mining sector.

- More than \$750 million = Syncrude Canada Ltd. (1992-2005)
- \$604 million = Diavik Diamond Mine (construction phase) and \$85 million in 2004
- More than \$500 million = Voisey's Bay Nickel Mine (2005)
- \$124 million = Ekati Diamond Mine (up to end of 2003)
- \$72 million = Raglan Mine (to 2004)



3.5 Community Experiences: Diavik Diamond Mine

Diavik Diamond Mines Inc. manages and operates the Diavik Diamond Mine located 300 kilometres northeast of Yellowknife in the Northwest Territories. Diavik expects to mine over a 16- to 22-year period three diamond-bearing orebodies called kimberlite pipes, all located under the waters of Lac de Gras.

Community Summary

Before the mine was built, five local Aboriginal groups – the Dogrib First Nation, the Yellowknives Dene First Nation, the Kitikmeot Inuit Association, the North Slave Metis Alliance, and the Lutsel K'e Dene First Nation – entered into Participation Agreements with Diavik. The agreements solidify relationships and formalize Diavik's commitments to community capacity building, long-term independence, and economic sustainability. Most agreements have formalized implementation committees that function to externally verify Diavik's performance on socio-cultural and economic aspects, and to provide recommendations for improvement.

Community Involvement

Communities are formally involved in monitoring and in an advisory capacity through the environmental monitoring advisory board created under the Environmental Agreement. The board includes representatives from the five neighbouring Aboriginal groups, governments and Diavik Diamond Mines Inc. Communities are also involved through the Diavik Communities Advisory Board under the Socio-Economic Monitoring Agreement and

in implementation committees under its Participation Agreements.

Economic and Business Opportunities

Communities have realized many economic and business opportunities through their relationships with Diavik. In 2004, northern Aboriginal businesses and their joint ventures sold goods and services valued at some \$85 million in expenditures by Diavik. Examples of these opportunities include:

- Ekati Travco, a northern Aboriginal joint-venture company, built the addition to the accommodation complex.
- I&D Management, a 100% northern Aboriginal-owned company employing over 100 people, supplied the required staff and support workers to operate the three new haul trucks needed to meet increased production needs.
- Tli Cho Landtran Transport Ltd., a Dogrib company, trucked a high-tech robot with the kilns and ancillary equipment from Albuquerque, New Mexico, to Yellowknife. This robot is used to assist with diamond cleaning in the Product Splitting Facility's (PSF) technical cleaning area.
- Local communities also received contributions through donations, scholarships, sponsorships,





business venture development programs, and training. The five Dene, Metis, and Inuit groups that signed Participation Agreements also received direct payments from Diavik.

Employment Opportunities

Five Aboriginal groups ratified the Socio-Economic Monitoring Agreement signed with the Government of the Northwest Territories. This agreement formalizes Diavik's commitment to employ northern and Aboriginal residents. As a result, communities have enjoyed significant employment opportunities at Diavik. The following are illustrations of Aboriginal employment at Diavik during operations in 2004:

- 38 percent Aboriginal employment (273 Aboriginal northerners employed).
- Several northern Aboriginal people are employed in supervisory and management positions.
- Northern Aboriginal groups and educational institutions are partnering with Diavik to develop an Aboriginal Management Development program, as part of an Aboriginal Employment Strategy, to ensure the number of Aboriginal people in supervisory and management positions increases.
- Northern businesses supply Diavik with approximately 50 percent of its work force.

- Examples of northern contractors supporting Diavik mine operations include:
 - I&D Management Services, which supplies heavy equipment operators;
 - Ek'ati Services, which supplies catering and camp services;
 - Tli Cho Logistics, which supplies site services;
 - SecureCheck for security; and
 - Denesoline Western Explosives.

These Aboriginal-owned companies and joint ventures have worked closely with Diavik to identify and pursue potential future business opportunities. In addition, some Aboriginal and northern businesses have entered into several long-term operations labour contracts with Diavik.

For more information, contact Diavik Diamond Mines at www.diavik.ca.