Mining the past

Rural Alaska communities/economies can learn from Canada’s century of mining trials and tribulations

Introduction: As part of Mining Extension’s community based education project, Lee Elder, Cooperative Extension Service research professional/natural resource economist, in May 2005 began an economic analysis of precious mineral mines in Canada. You are about to read the results of that research. Be aware, Canada offers examples from which to learn, but that country’s land ownership laws and its relationship to indigenous people varies greatly from Alaska. So read this report not as a road map but as a planning guide to create the road map. – Bob Gorman, UAF Cooperative Extension Service resource development agent/professor

By LEE ELDER

Mining involves more than simply extracting minerals and metals from the earth. This operation is often the first industry in a remote region and it can profoundly impact local communities in jobs, migrant workers, land, water, air and noise, loss of wildlife habitat, increased tax revenue, strain on existing infrastructure and diversifying economies. Indeed, literature and film have more than mythologized the industry as part of the American Dream. Yet little information survives on the day-to-day struggles between the company, the residents and the government.

With that thought in mind, this case study will explore the well-documented history of mining in several Canadian communities with climates, aboriginal populations and natural resources similar to Alaska communities about to undergo mining development. Focusing on the effects of mining on rural economies – particularly the local job market – this information will then help Alaskans make educated choices about their future. The mining regions examined include:

- Yellowknife in the Northwest Territories
- Newfoundland and Labrador Province
- Northern Saskatchewan

Background

Provincial and federally operated mines have thrived over the last century but, until recently, small towns and communities seldom shared that largesse. In the meantime, officials and residents have learned that mining activities depend on a number of variable factors that include 1) the size, duration and degree of diversity of the mine operation, 2) the size and range of economic diversity in the community before mining developed and 3) the remoteness of the mine (Ritter, 2001).
To their credit, provincial and federally owned mining companies have adopted, adjusted or discarded policies and agreements to remedy the many different social, financial and environmental issues that have arisen. But some well-intentioned attempts failed.

The company mining town, Uranium City, for example, introduced transient workers and their non-traditional lifestyles, alcoholism and prostitution. The town and nearby mine also created environmental damages that only recently are being addressed. Also, in the early years, mining companies could abandon sites once the ore was extracted. Now mining companies must put money aside for decommission prior to mine development (Government of Saskatchewan, 2007).

Another environmental effect involved sulfur emissions from smelters in Sudbury, Ontario, that killed much of the surrounding vegetation in the first 50 to 60 years of operation. Fortunately, by 1997 a major reforestation project has restored 3,200 hectares (Ritter, 2001).

To compound these issues, mining companies hired few if any locals during these early years. Later, the companies, federal and provincial governments and residents began to resolve many of these concerns.

At the federal level, for example, the Whitehorse Mining Initiative of 1994 defined the objectives of mineral policy in Canada (Ritter, 2001). The main objectives involved:

- Integrate sustainable development into the minerals and metals industry
- Ensure Canada can compete in global minerals and metals industry market
- Develop international partnerships with other countries, stakeholders, corporations and organizations to advance sustainable development of minerals and metals
- Establish Canada as a global leader in the safe use of minerals and metals related products
- Involve aboriginals in minerals- and metals-related activities
- Develop and apply science and technology to enhance the industry’s competitiveness and environmental stewardship

Mining companies have also adopted a fly-in, fly-out, long-distance commuting for employees. This approach allowed workers to live in their community of choice and decreased the chances
to develop an unsustainable town that would more than likely become a ghost town after the mine closed. Such advances, along with guaranteed jobs, have bolstered aboriginal communities in three specific areas:

- Semi-permanent/temporary communities don’t attract southern Canadians.
- Aboriginal communities remain strong since young males don’t move to new mine sites
- Down time allows pursuit of traditional activities. (McMahon and Remy, 2001)

Perhaps the greatest single mining development has been the evolution of discussion between communities, mining companies and government (McMahon and Remy, 2001). Until the 1990s, aboriginals had little input about mining development on or near their land. Since then, aboriginal communities have negotiated such programs as job training to ensure positive impacts to the local economy (McMahon and Remy, 2001).

These days, aboriginals frequently base their decisions on net benefits, participation in the process and respect for the environment. The more experienced companies realize that indigenous people want development, wrote Dr. Billy Diamond, grand chief of the Cree.

“We welcome the economic benefits, training and technological transfer that are associated with large resource projects. But we do insist on one criteria . . . First and foremost, all aspects of the partnership must be co-authored and co-managed by all the partners” (McMahon and Remy, 2001).

**Yellowknife, Northwest Territories, Canada**

Yellowknife sits 250 miles south of the Arctic Circle and accommodates nearly 20,000 residents in the Northwest Territories. Prospectors founded the town in 1935 after discovering gold in the area. It became the capital of the Northwest Territories.

Source: InfoMine, 2008
Territories in 1967.

The Con Mine, developed by Comico, poured its first gold brick in 1938, and ceased operations in 2003. Similarly, the Giant Mine started production in 1948 and closed in 2005. To make matters worse, in 1999, the Canadian government divided the Northwest Territories, and Yellowknife lost several key government jobs to the new Nunavut territory. Fortunately, diamond mining kept the region solvent (Nexus Group, 2006).

**Background**

In 1991, diamonds were discovered 200 miles northeast of Yellowknife. This enterprise involves three entities: BHP Billiton Diamonds Inc., Diavik Diamond Mines and De Beers Canada.

BHP Billiton opened Ekati Mine in 1998 and employs 640 people with an additional 400 contractors on site. In the same area, the Diavik Diamond Mine started in 2003 and anticipates 700 jobs over the next 16-22 years. Ekati Mine has set hiring targets at 62 percent northern and 31 percent aboriginal, while Diavik has committed to hiring 66 percent northerners and 40 percent aboriginals.

In 2008, DeBeers plans to start the Snap Lake project 150 miles northeast of Yellowknife and offer 550 jobs for 22 years. De Beers, with Mountain Providence, is also developing a fourth mine, Gahcho Kue or Kennady Lake, for a late 2010 or early 2011 start up (Thurston, 2003).

Between 1996 and 2007, Diavik, BHP Billiton and De Beers negotiated Impact and Benefit Agreements (IBAs) with seven Native organizations (IBA Research Network). These IBAs between mining companies, government officials and Native organizations involve such mining issues as jobs and training for aboriginals, profit-sharing, rates of pay, and maintaining environmental regulations.

### Demographics and Employment

Mineral exports from the Northwest Territories have increased from $42.2 million in 1999 to $2.15 billion in 2004. During that same time, foreign capital expenditures ranged from 33 percent to 56 percent of the Northwest Territories Gross Domestic Product, while the country’s gross private and public capital averaged 17 percent GDP. The major players are headquartered in Australia, London and South Africa (Nexus Group, 2006).
The mine’s main point of hire is Yellowknife, while also hiring from small communities such as Lutsel k’e, Gameti, Wha Ti, Wekweti, Kugluktuk, Hay River, Fort Resolution, Fort Smith, Deline, Inuvik, Norman Wells, Fort Simpson and Cambridge Bay. So far, Yellowknife has skirted economic collapse from lost government jobs and mine closures, but the region still relies heavily on extracted resources and needs to plan for sustainability beyond the 20-year life expectancy of the diamond mines.

To its credit, Yellowknife has proactively begun redeveloping its economy and promoting a quality-of-life infrastructure. A City General Plan, for example, sets a vision to 2015. And the Northwest Territories and Canadian governments have invested in the territorial hospital, Aurora College, many schools, the Legislative Assembly, the court house, correctional facilities and the Yellowknife Airport. Other investments include knowledge-based fields and the geo-thermal energy from the abandoned Con Mine (Nexus Group, 2007).

<table>
<thead>
<tr>
<th>Table 2: Diamond Industry Employment in Northwest Territories, 2006</th>
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<tr>
<td>BHP Billiton*</td>
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<tr>
<td>BHP Billiton Contractors*</td>
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<td>Diavik**</td>
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<tr>
<td>De Beers***</td>
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<tr>
<td>De Beers Contractors***</td>
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<tr>
<td>Total Employment</td>
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Totals may be slightly off due to rounding
*BHP Billiton, 2006
**Diavik Fact Book, 2007
***De Beers Canada, 2006
Voisey’s Bay, Newfoundland and Labrador

Toronto-based Vale Inco operates one of the world’s largest nickel mines in Voisey’s Bay. Prospectors discovered the deposit in 1993 about 20 miles southwest of Nain on a peninsula bordered to the north by Anaktalak Bay and Voisey’s Bay to the south. Open pit mining started in August 2005; processing followed in September (InfoMine, 2007).

Background

From the beginning, complications challenged the project in northern Labrador. First, both the Labrador Inuit Association and the Utshimasssi Innu claimed the land. The Innu Nation had filed first with Canadian officials in November 1977, but the provincial and federal government didn’t acknowledge the claim until 1990. In the meantime, officials had accepted the Labrador Inuit Association Statement of Claim in 1980.

Second, in July 2002, the Labrador Inuit Association, Newfoundland and Labrador province and Canadian officials negotiated the Voisey’s Bay Interim Measures Agreement which guaranteed Inuit rights and benefits in any land development.

Third, two years later, government officials enacted the Labrador Inuit Lands Agreement. Many provisions from this agreement apply to the Voisey’s Bay area and, once the mine closes, the land could return to Labrador Inuit ownership as long the Inuit respect any interim arrangements with the Innu Nation.

Fourth, the Interim Measures Agreement and the Impact and Benefits Agreement (both enacted in 2002) specified that the mine developer would first train and hire members of the Innu Nation and the Labrador Inuit Association before considering anyone else from the province. Of the mine’s 400 employees, 53 percent are aboriginal. Subject to successful underground exploration,
further expansion would begin by 2018 and add 400 more jobs (Vale Inco, 2008).

Fifth, legislation by provincial officials threw up another roadblock: All minerals extracted in the province must be refined in the province (Ritter, 2001). After arguing against this stipulation, Vale Inco eventually struck a deal in 2002 to build a $530 million plant in the province using either a hydromet process or conventional smelter, with the Canadian government kicking in $100 million partly to finance training for local aboriginals (Mining and Communities, 2003). Until that plant comes online in 2011, the nickel is processed into a concentrate which is barged to Quebec City and then shipped by rail to Sudbury and Thompson (Canadian Content, 2005).

The Voisey's Bay Mine will include three components:

- The open pit mine and concentrator in Voisey's Bay
- A hydrometallurgical demonstration plant in Argentia, Newfoundland
- A commercial nickel processing plant in Long Harbour, Newfoundland

In 2005, Vale Inco opened a $100-million test plant in Argentia, with 130 employees, to determine the economic and technical feasibility of hydromet technology, which is more energy efficient than traditional smelting methods, to extract nickel from Voisey's Bay concentrate (Infomine, 2007). Inco will determine which smelting process it will use at the Long Harbour facility by the end of 2008. Argentia, which will close in June of 2008, will reopen as a training facility a year before the Long Harbour start up.

Fortunately, most employees are guaranteed a job at the new plant, which is 20 miles away (Vale Inco, 2008). This project will create up to 1,800 jobs during the construction phase and 400 permanent jobs once the processing facility opens (CBS News, 2006).

The most recent challenge occurred in 2006 when Voisey’s Bay miners walked off the job, citing a $5 difference in pay when compared to Inco employees in Sudbury. After an eight-week strike, union and mining officials agreed to a 15.5 percent wage increase and a return-to-work bonus of $6,000 (CBS News, 2006).
Demographics and Employment

As Table 3 reveals, unemployment in the province was exceedingly high. Per capita income in the Labrador North region was also much lower and nearly a quarter of all families were single-parent (Newfoundland and Labrador, 2005).

Between 2000 and 2006, however, per capita income had steadily increased by 46 percent, compared to 25 percent in other areas of the province, with a notable reduction in government support payments.

According to Bob Carter, Voisey’s Bay public affairs manager, the Long Harbour plant will draw mainly from the Placentia labor force, since most Argentia employees live within 50 miles of Placentia. Six other communities on the Labrador coast will also contribute as well as Labrador City, Happy Valley, Deer Lake and St. John’s (per comm. Bob Carter).

### Table 3: Comparison of Social and Economic Conditions, Labrador North, Labrador Other, Argentia and Newfoundland and Labrador, 2006 unless noted.

<table>
<thead>
<tr>
<th></th>
<th>Labrador North</th>
<th>Labrador Other</th>
<th>Argentia Area</th>
<th>Newfoundland and Labrador</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population change (2001 to 2006)</td>
<td>-8.4%</td>
<td>-5.1%</td>
<td>7.8%</td>
<td>-1.5%</td>
</tr>
<tr>
<td>Percent of lone parent families</td>
<td>24.2%</td>
<td>14.5%</td>
<td>11.6%</td>
<td>15.5%</td>
</tr>
<tr>
<td>Average household size</td>
<td>3.4</td>
<td>2.8</td>
<td>2.4</td>
<td>2.5</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>31.5%</td>
<td>17.5%</td>
<td>25.0%</td>
<td>18.6%</td>
</tr>
<tr>
<td>Per capita income (2005)*</td>
<td>$15,500</td>
<td>$27,430</td>
<td>$19,080</td>
<td>$21,590</td>
</tr>
</tbody>
</table>

Source: Statistics Canada, 2006. Labrador North reflects Division 11 and Labrador Other reflects Division 10. Argentia Area data reflects the combination of Division 1, Subdivisions A, B, C, X and Y.

*Source: Newfoundland and Labrador: Community Accounts, 2005. Labrador North is representiative of Economic Zone 1. Labrador Other and Argentia Area data are determined by combination of Economic Zones 2, 3, 4, 5 and Local Areas Isthmus of Avalon and Placentia-St. Brides Area, respectively.

**Figure 2: Voisey’s Bay Income Support Payments**

- Labrador North
- Labrador Other
- Argentia Area

![Figure 2: Voisey’s Bay Income Support Payments](chart.png)

Between 2001 and 2006, income support payments in Labrador North remained relatively constant, with a slight increase in 2003. Labrador Other saw a steady increase in support payments, peaking in 2005. Argentia Area had the highest support payments in 2002, followed by a sharp decline in 2003.
Northern Saskatchewan, Uranium Mining

Lakes and forests speckle the prairies of Northern Saskatchewan. Nearly 87 percent of the 40,000 residents are First Nation Indians and Métis. Through most of the 20th century, exploring, developing and processing uranium ore deposits on 320,000 square kilometers supplemented an otherwise stagnant economy. The Crown owned most of the land and all of the mineral rights.

Despite its potential economic benefits, uranium development was never popular. During the early phases in and following World War II, for instance, the federal government had classified the resource as “strategic military importance.” Plus, the ore’s toxic nature fueled further concerns about miners’ health and damage to the land and other natural resources. But years of heated debate eventually led to public regulation, enlightened attitudes by companies – public and private – and more benefits for local communities.

And as newer mines started producing higher grades of ore, open pit and underground mining techniques and radioactive protection required technologically sophisticated procedures and regulations. That meant protecting the workers and the environment and planning for the future, which in turn called for training to meet higher skill levels required of the work force.

Background

Uranium ore development dates to the 1930s discoveries in a large, desolate region of the province. In the early stages, the federal and provincial governments both mined uranium and regulated the industry through Crown corporations. But officials mainly regulated workers’ health and safety issues from the national capital in Ottawa and the provincial capital in Regina with little regard for social and economic benefits or effects to the community beyond the life of the mines.

After several years of public inquiry, the governments next focused on three key issues: the environmental safety of the industry, the levels of social, economic and community benefits and the effects on Indian and Métis communities. By the early 1990s, a three-part framework evolved

| Table 4: Vale Inco Voisey Bay Project Employment Summary for July-September 2007 |
|----------------------------------|----------------|-----------|----------|------|
|                                 | Labrador       | Newfoundland | Other  | Total |
| Corporate                       |               | 25         |         | 25    |
| Exploration                     | 31            | 9          |         | 40    |
| Mine & concentrator (Voisey’s Bay) | 496          | 12         |         | 508   |
| Commercial plant (Long Harbour) | 108           | 152        |         | 260   |
| Hydromet R&D (Argentia)         | 229           | 13         |         | 242   |
| Total                           | 527           | 383        | 165     | 1,075 |

Source: Voisey’s Bay Nickel Company, 2007
of government, industry and communities. While the government still regulated the process, private industry began venturing into production. The new framework increased:

- consulting with northern communities
- communities regulating environmental concerns
- developing social, economic, community and regional benefits
- community participation in the industry and its regulation.

Ensuing benefits to the region and local communities included:

- training for more mining jobs
- growth of community and native-owned businesses
- long-term community planning
- environmental protection

The long and varied history of uranium mining began with the first large scale mine, Eldorado, which operated from 1953 to 1982. The federal company, Eldorado Mining and Refining Ltd. which in 1988 became the privately owned Cameco Corporation, monopolized prospecting, mining and processing of uranium. For its first 15 years of operation, most of the 575 employees lived in company camps at the mine site (Parsons and Barsi, 2001).

For the most part, the company preferred “out-of-region” hiring. As Figure 3 reveals, the mine employed only two local residents in 1974. Two years later, nine candidates entered a company sponsored training program for Athabasca Basin Indians; seven were still employed at the year’s end. To improve retention, Eldorado in 1979 introduced a commuting program for residents of Black Lake, Stony Rapids and Fond du Lac. Between August and December, the company hired 32 commuters and 14 remained on payroll at year’s end (Parsons and Barsi, 2001).

By 1980, Native employment had jumped to 10 percent, but the mine closed two years later with little cooperation or discussion between workers, the community and government agencies. (McMahon and Remy, 2001).

In the late 1960s, discoveries at Cluff Lake and Rabbit Lake kicked off a second wave of uranium mines. In 1974, the Saskatchewan Mining and Development Corporation

![Figure 3: 1974 Eldorado Mine Employment](image)
(SMDC) was created as a provincial crown corporation and was the result of the Provincial
governments desire to increase community benefits resulting from mining development (Parsons
and Barsi, 2001).

In 1974, to increase mining jobs and incomes for residents, SMDC and Uranerz Exploration
developed the Key Lake Mining Corporation and began open pit production in 1983.

Meanwhile, Amok Ltd. submitted an environmental assessment to the provincial Department of
Environment to develop the uranium mine at Cluff Lake. Because the unsavory conditions at
Eldorado had created significant opposition to uranium mining, the Lieutenant Governor in
Council convened a public inquiry to study the implications involved to expand uranium
extraction.

The Bayda Commission released its findings in 1978 and dramatically increased benefits to local
communities affected by uranium mining (Canadian Nuclear Safety Commission, 2003).
Recommendations included:

- Encourage open discussions between governments, companies and residents
- Include social, economic and cultural as well as environmental effects
- Regional uranium revenue sharing (McMahon and Remy, 2001)

The commission also laid the foundations for future uranium mining. As a result, between 1981
and 1988 nearly 26 percent of the workforce was local (Parsons and Barsi, 2001).

By the early 1990s, numerous mining companies had submitted development proposals to the
provincial and federal government. To address this increase, provincial and federal
officials developed the Joint Federal-Provincial Panel on Uranium Mining Developments in Northern Saskatchewan.
For the next seven years, this panel examined mining effects on Northern Saskatchewan
environment, communities and people.

Northern communities convened to identify concerns and issues. In some cases the government
covered travel expenses so local people, communities and aboriginals could fully participate in
the process. Again, this three-part planning process involved governments, companies and
communities working to increase local, native and community benefits (Parsons and Barsi,
2001).
In 1993, the first Multi-Party Training Plan (MTTP) was signed by the Saskatchewan Department of Education, Training and Development, the Canadian Human Resources Development Department, the Prince Albert Grand Council of Status Indians and the northern mining industry comprised of Cameco Corporation, Cogema Resources Inc. and the Cigar Lake Mining Corporation (Parsons and Barsi, 2001). This cooperative training-to-employment agreement distributed $10.5 million for training over five-years to the mining partners. The third Multi-Party Training Plan was signed in 2003 and, between 1998 and 2003, mining companies contributed half of the $13 million to educate and train regional residents (Athabasca Working Group, 2004).

The same year, Cameco formed the Athabasca Working Group (AWG) which led to an Impact Management Agreement in 2001. This IMA between Cameco and AVEVA mining companies and Black Lake Dene First Nation, Fond du Lac Dene First Nation, Northern settlement of Wollaston Lake, Northern settlement of Uranium City, Northern Settlement of Camsell Portage and the Northern Hamlet of Stony Rapids covered three main areas:

- Environment protection and compensation: It outlined the action and claim settlement process in the event of mine emissions.
- Employment, training and business development: It recognized seven communities as being in the primary impact area and that contractors from the primary impact area would receive special consideration.
- Benefit sharing: Summer student programs, post secondary scholarships, education award, educational retreats from children and apprenticeship programs to just name a few (Athabasca Working Group, 2004).

The major uranium mining companies are Cameco Corporation and AREVA (formally known as COGMEA), and recent and retired operations include:

- Cigar Lake – the world’s second largest high-grade uranium mine will open in 2010.
- Cluff Lake – After 22 years of production, the land and the mine are being returned to their natural state.
In annual meetings, Cameco and AREVA representatives still update communities about regional mining activities and answer questions from community members. To some extent, mining companies have been catalysts for community development in other sectors, including forestry, tourism, health care and education. Today, mining companies are involved in nearly all aspects of community and regional development, including education, health care, basic infrastructure and economic development. Public attitudes have shifted from opposition and distrust towards cautious and, at times, strong support.

<table>
<thead>
<tr>
<th>Table 6: Uranium Industry Employment in Saskatchewan, 2007</th>
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<tbody>
<tr>
<td>Direct employment</td>
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<tr>
<td>Industry contractors</td>
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<tr>
<td>Total</td>
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<tr>
<td>Employment at mine sites</td>
</tr>
<tr>
<td>Northern Saskatchewan Residents</td>
</tr>
<tr>
<td>Aboriginal mine site employment</td>
</tr>
<tr>
<td>Head office employment</td>
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</table>

Source: Saskatchewan Mining Association, 2007
Conclusion

Alaskans could learn well from Canada’s trials and tribulations. First and foremost, mining companies, residents and government entities need to openly discuss and agree to policies that benefit all parties.

Second, despite the environmental damage in some instances, most companies can safely manage environmental guidelines and, in many instances, reverse earlier damage.

Third, rather than undermining local economies and social structures, mining can contribute to and help diversify development, especially in more populated communities. Large mines in remote areas, on the other hand, can seriously disrupt communities without prior agreements.

To avoid unnecessary disruptions, mining companies should continue flying their workers to the site from nearby communities. Shifts may comprise four days on, followed by three days off (4/3) or other arrangements, often depending on the length of travel. This practice is especially appealing in such remote Alaska locations as the Red Dog Mine and the North Slope and will likely increase in future.

Fourth, the history of uranium mining and its “ghost towns” reveals the advantage of training and hiring locally, the benefits of which ripple to other local industry and services.

None of this progress occurs without an open dialogue between the company, a well-informed public and the government on such policies as:

Environmental stewardship

Mining companies – not local, regional or national communities – should finance the noxious solid tailings or liquid wastes from mine or milling operations that must be stored and neutralized forever. For example, a company could set aside profits, over the life of the mine, into a Fund or Foundation designed to manage the wastes in perpetuity. The interest accrued would cover the cost to maintain the tailings sites and ponds. If these costs are lower than expected, funds could be returned to the mine enterprise. This action is a powerful incentive to manage the wastes carefully over the life...
of the mine.

The mine enterprise first presents the project’s environmental and socioeconomic consequences based on its technical, geological and organizational expertise. Next, community leaders and regional, federal and Native Alaskan officials convene to comment, criticize and elaborate on this report. The mine enterprise then responds to these comments and criticisms. Finally, state or regional officials produce a detailed set of recommendations that must be accepted or the process starts over.

Local communities, Native Alaskans and the mine enterprise together carefully monitor and manage the environmental program to ensure its success.

**Economic diversification**

Prior to opening a mine, the company and relevant local communities and/or Native Alaskans must construct a mutually acceptable Socioeconomic Agreement or an Impact and Benefit Agreement with provisions for:

- job quotas or targets
- training programs appropriate for local people
- targets for buying local goods and services
- support for local business development
- support for women’s employment and training
- a supportive work environment for distinctive local cultures

Economic diversification is essential to keep benefits within the community and the state. But this process is easier written than done unless public policies include:

- support the culture through relevant businesses and groups, publications and communications
- encourage local buying and spending
- develop training programs for all mining technology levels
- teach local leaders about positive and negative impacts of mining
- construct a fair across-the-board profit-sharing schedule
Hire and train local

Native Alaskans increasingly live in potential mineral extraction areas. In many cases, these people have occupied the lands for thousands of years. To succeed, these projects must integrate residents into the process from start to finish. This means that the original project proposals must incorporate the particular job requirements, environmental concerns and knowledge of local culture as well as effect on economic activities into the planning process.

In the end, with cooperation, dedication, commitment and environmental stewardship, rural communities – in Canada or Alaska – can learn from the past and reap the social and economic benefits from future mining activities.

References


IBA Research Network. List of Known IBAs. www.impactandbenefit.com


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