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Aboriginal Participation in Environmental Monitoring and Management in the Canadian Mining Sector- A Scan for Current Best Practices

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Forward

This report is based on work conducted by the undersigned for Coral Rapids Power Ltd., a representative of Taykwa Tagmou Nation. This abridged version of the final report from that work has been produced and published with the express permission of Taykwa Tagamou Nation's Band Council, the Client for that work. We acknowledge and thank Taykwa Tagamou Nation for their permission to share this report, especially Chief Linda Job, Peter Archibald, Bruce Archibald, Roger Archibald, Derek Archibald, and Tina Gagnon. We also acknowledge and thank Merv McLeod and Sue Hartwig of Coral Rapids Power Ltd./McLeod Wood Associates, and Detour Gold who provided funding to TTN/Coral Rapids to have this research completed.

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Please note that this research was based on a desktop exercise using mostly secondary information sources, and users of this report should be aware of its limitations considering that direct validation of such information was not conducted.

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Executive Summary

Background and Methods

The authors undertook research on Aboriginal participation in environmental monitoring and management (EM) at mine sites in northern Canada. The purpose of the research was to:

- Gather and document a range of case studies of Aboriginal participation in the monitoring and environmental management of mines in northern Canada, using a desktop review approach (i.e. no primary research).
- Explore the key similarities across the cases of the ways that Aboriginal peoples were able to participate in these matters, and highlight any unique approaches that were pursued.
- Identify a current set of 'best practices'.

A review of sixteen natural resource projects that involved the participation of Aboriginal peoples in environmental management and monitoring was carried out to identify common themes and elements of success, as well as innovative approaches. There were fourteen mining projects selected as case studies, as well as one large-scale quarry project and a forest management project. Most of the case studies are distributed across Canada, with one project in the United States (Alaska) (see Figure 1).

Given the focus on best practice, the projects we chose to review are considered positive examples worth learning from, and for the most part took place in northern, remote environments. All cases reviewed had a common feature of being natural resource development or mine remediation projects in which Aboriginal peoples were engaged in the environmental monitoring or management aspect. The following criteria were used to identify positive or "successful" cases:

- **Meaningful participation-** Aboriginal participation needed to go beyond the scope of statutory or even enhanced consultation efforts during the environmental permitting and approvals process, and involve participation by Aboriginal peoples at the community level through the construction, operations, closure, and/or post-closure phases of projects.
- **Protective of the environment-** Participation efforts made needed to relate at least in part to protection of the environment and Aboriginal traditional livelihoods and territories as opposed to, for example, employment or training measures.
- **Long-term community benefits-** The outcomes of participation should include long-term community benefits such as increased knowledge, greater influence over community futures, enhancements to traditional territories, new skills and opportunities, etc.

The International Association of Public Participation (IAP2) has developed a tool to rate the extent of public participation in a given project or activity called the Spectrum of Public Participation (see Figure 2). We used the Spectrum to evaluate the case studies in terms of the degree and nature of Aboriginal participation. The point of using the Spectrum was to have an accepted basis for comparing "participation" across the cases, and also to present a framework to define where various options fit on the continuum of best practice.

Summary of Findings

Common themes and unique examples of Aboriginal participation in mine EM emerged from a review of the selected case studies. These "elements of success" can be grouped into three categories related to making Aboriginal participation work in mine EM- 1) working relationships, 2) involvement in environmental management, and 3) involvement in environmental monitoring. Elements of success included:

Working Relationships

- **Trust-building-** early engagement and relationship building to establish trust between community and industry or government proponent
- **Ongoing community dialogue-** sharing information and maintaining an open line of communication with the community throughout the life of the mine project
- **Partnerships-** working together and with others to create shared value and meet shared goals related to mine EM
- **Formal agreements-** formalizing strong working relationships through environmental management agreements, Impact Benefit Agreements (IBAs), or other types of formal agreement.
- **Environmental governance-** Aboriginal communities and other stakeholders are engaged in providing advice or sharing information in an ongoing way through an EM board or committee
- **Collaborative governance-** a board or committee with 50% or greater representative Aboriginal community membership is provided with a significant advisory or decision-making role in mine EM
- **Membership on company or joint venture Board of Directors-** Aboriginal community representatives are provided with significant decision-making power in mine EM through membership in a Board of Directors

Involvement in Environmental Management

- **Permit review-** Aboriginal communities are provided with the opportunity to review and comment on environmental permits, licenses, and authorizations related to the mine project.
- **EM plan-** Mining companies develop and disclose an EM plan for the mine project to Aboriginal communities, and consult with them in the process of plan development.
- **Responsive EM program-** Mining companies develop and disclose an EM program which is responsive to the Aboriginal concerns which have been gathered through dialogue/consultation in the course of EM planning.
- **TEK integration-** Aboriginal Traditional Ecological Knowledge (TEK) is incorporated into the design of EM plans, programs, and decisions for the mine project.
- **Collaborative EM design-** Aboriginal community representatives are directly involved in all key steps of the design of EM plans and programs for the mine project.
- **Veto power-** Aboriginal community representatives are provided with veto power over specific aspects of mine operations if certain environmental conditions or impacts occur (e.g. disruption of Caribou migration)

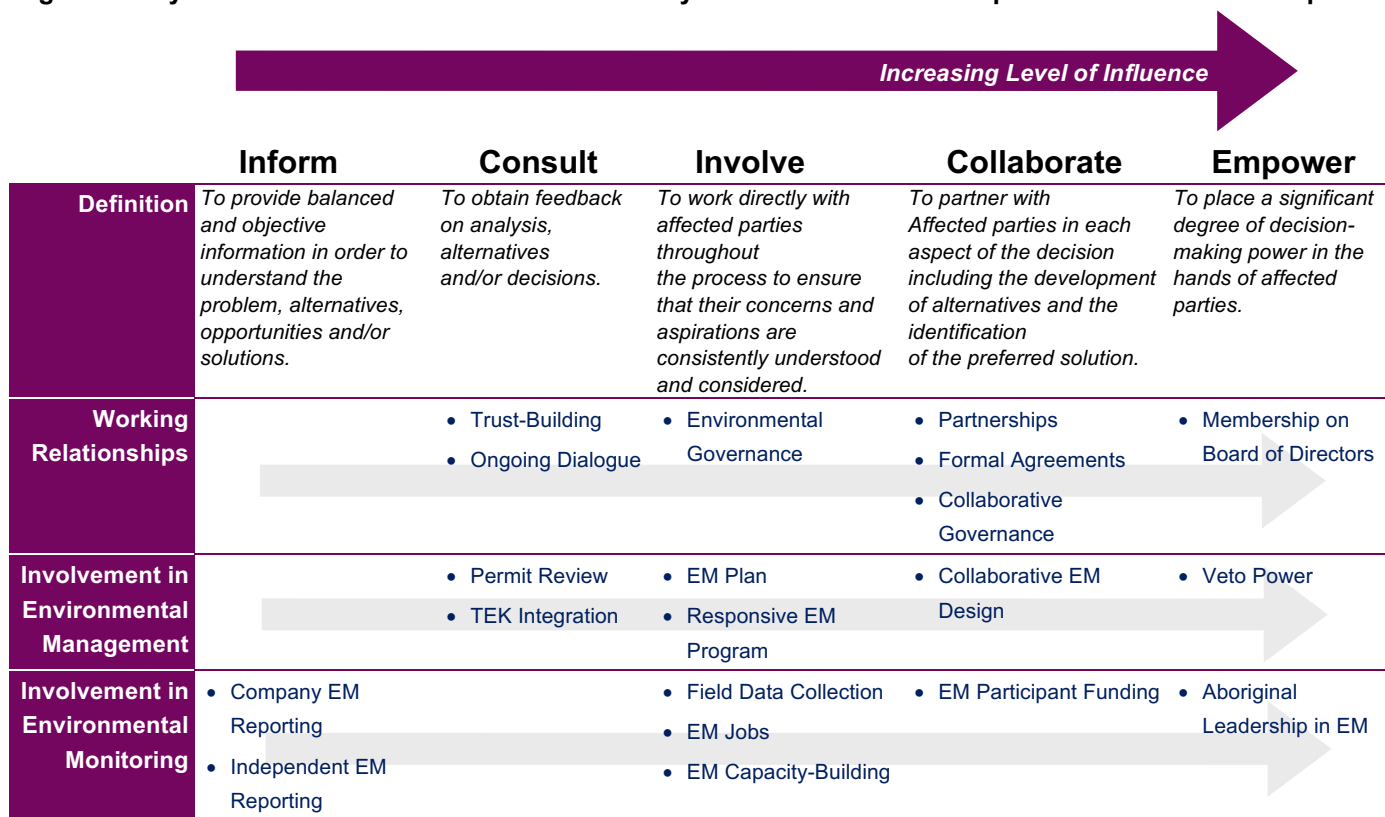
Involvement in Environmental Monitoring

- **Company EM reporting-** Mining companies report regularly to Aboriginal communities about the results of its environmental monitoring activities.
- **Independent EM reporting-** An independent consultant or organization evaluates and reports on the results of the mining company's and/or its own independent environmental monitoring activities
- **Field data collection-** Aboriginal community members participate directly in field data collection for environmental monitoring.
- **EM jobs-** Aboriginal community members are provided with employment by the mining company in environmental monitoring of the mine project
- **EM capacity building-** Aboriginal community members are provided with training, skills development, and work experience opportunities in environmental monitoring.
- **EM participant funding-** Aboriginal community independent (i.e. not as an employee of the mining company) participation in environmental monitoring of the mine project is funded by the mining company and/or the Crown
- **Aboriginal leadership in EM-** An Aboriginal community or organization leads and delivers all aspects of a specific component of environmental monitoring of the mine project.

Table 2 provides a summary of where these elements of success were found across the case studies. Each element of success is explored in more detail in sections 3.3.1 to 3.3.18.

Many of the elements of success described in section 3.3 were common across more than one of the case studies, indicating an area of best practice. The IAP2's Spectrum of Public Participation, as well as the consulting team's experience and expertise, were used to further screen and evaluate the merits of the elements of success. We have located these elements of success on the IAP2 Spectrum in Figure 3 to provide an easy way to evaluate how they translate into a degree of influence. This diagram presents a "menu" of different possibilities that an Aboriginal community, proponent, or Crown agency could pursue to increase Aboriginal participation in environmental matters related to mining projects.

Figure 3: Key factors of success from EM* case study research on the IAP2 Spectrum of Public Participation



*Note: EM=environmental monitoring and management

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1. Introduction

1.1 Context

Increasingly, Canadian Aboriginal communities are seeking greater involvement and influence on natural resource development projects in their traditional territories and treaty lands- as a community economic development opportunity, as an expression of their legal rights and traditional laws, to protect the integrity of traditional livelihoods, and to fulfill a traditional role and responsibility as stewards of the land. To date, the majority of such influence has been exerted through, or in relation to, government's regulatory permitting and approvals process for natural resource development. It is most often in relation to the timing of Environmental Assessment (EA) processes that impact and benefit sharing and other forms of community agreements are established. However, there is a growing body of case examples of formal and informal arrangements and working relationships where Aboriginal communities are able to be involved in and influence mining projects in an ongoing way through environmental monitoring and environmental management. By examining a set of these case examples, it has been our intention to identify an emerging set of best practices as an information resource for industry proponents, Aboriginal communities, and governments.

1.2 Overview of Research

We undertook research on Aboriginal participation in environmental monitoring and management (EM) at mine sites in northern Canada. The purpose of the research was to:

- Gather and document a range of case studies of Aboriginal participation in the monitoring and environmental management of mines in northern Canada, using a desktop review approach (i.e. no primary research).
- Explore the key similarities across the cases of the ways that Aboriginal peoples were able to participate in these matters, and highlight any unique approaches that were used.
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1.3 Environmental Monitoring and Management (EM)- Definitions

Environmental management includes planning, decision-making, and actions to predict and address the impacts of human activities on the environment. Environmental legislation, policy, guidelines and programs can all be considered forms of environmental management. For a typical mine project, environmental management refers to what will be done to reduce the mine's impact on the environment during construction, operations, closure, and post-closure phases. Examples include:

- Planning (environmental assessments, closure planning, environmental management plans)
- Permitting (government regulatory permits and approvals)
- Operational systems and emission controls (standard operating procedures, materials handling and transport, equipment, process monitoring, etc.)
- Site controls (erosion control, access management, etc.)
- Communications and consultation
- Environmental monitoring and reporting (see below)
- Environmental policies (purchasing, procurement, employee standards, adherence to voluntary industry environmental standards etc.)
- Training and professional development for staff and contractors

Environmental monitoring is the set of techniques, protocols, and measurements used to understand the quality of the environment in an ongoing way. It is carried out for projects in which there is a risk of harmful impact on the

natural environment. It usually involves setting a baseline or using standards for an unimpaired environment and then monitoring for change against this standard. The results of environmental monitoring are used to inform and guide environmental management.

Baseline Monitoring involves measurement of certain characteristics of the existing state of the environment to assist in the prediction, assessment and monitoring of environmental effects after a mining or mine remediation project begin.

Environmental Effects Monitoring (EEM) is the measurement of the characteristics of certain environmental components to test whether a project is having an effect on the environment. EEM is undertaken by a project proponent primarily to determine the effects of a project, but also to increase the understanding of cause-effect relationships between the project and environmental change.

Compliance Monitoring involves measurements to verify whether a project's releases to the environment meet the conditions established by government regulatory permits, licenses, and authorizations. For example, water quality testing of tailings water discharges may be carried out to determine whether the discharges meet the standards of a Certificate of Approval issued by the Ontario Ministry of the Environment. Compliance monitoring may also be done to ensure that commitments made in an EA are being fulfilled.

2. Research Context

2.1 Method

A review of sixteen natural resource projects that involved the participation of Aboriginal peoples in environmental management and monitoring was carried out to identify common themes and elements of success, as well as innovative approaches. There were fourteen mining projects selected as case studies, as well as one large-scale quarry project and a forest management project. Most of the case studies are distributed across Canada, with one project in the United States (Alaska) (see Figure 1).

Given the focus on best practice, the projects we chose to review are considered positive examples worth learning from, and for the most part took place in northern, remote environments. All cases reviewed had a common feature of being natural resource (mostly mine) development or mine remediation projects in which Aboriginal peoples were engaged in the environmental monitoring or management aspect.

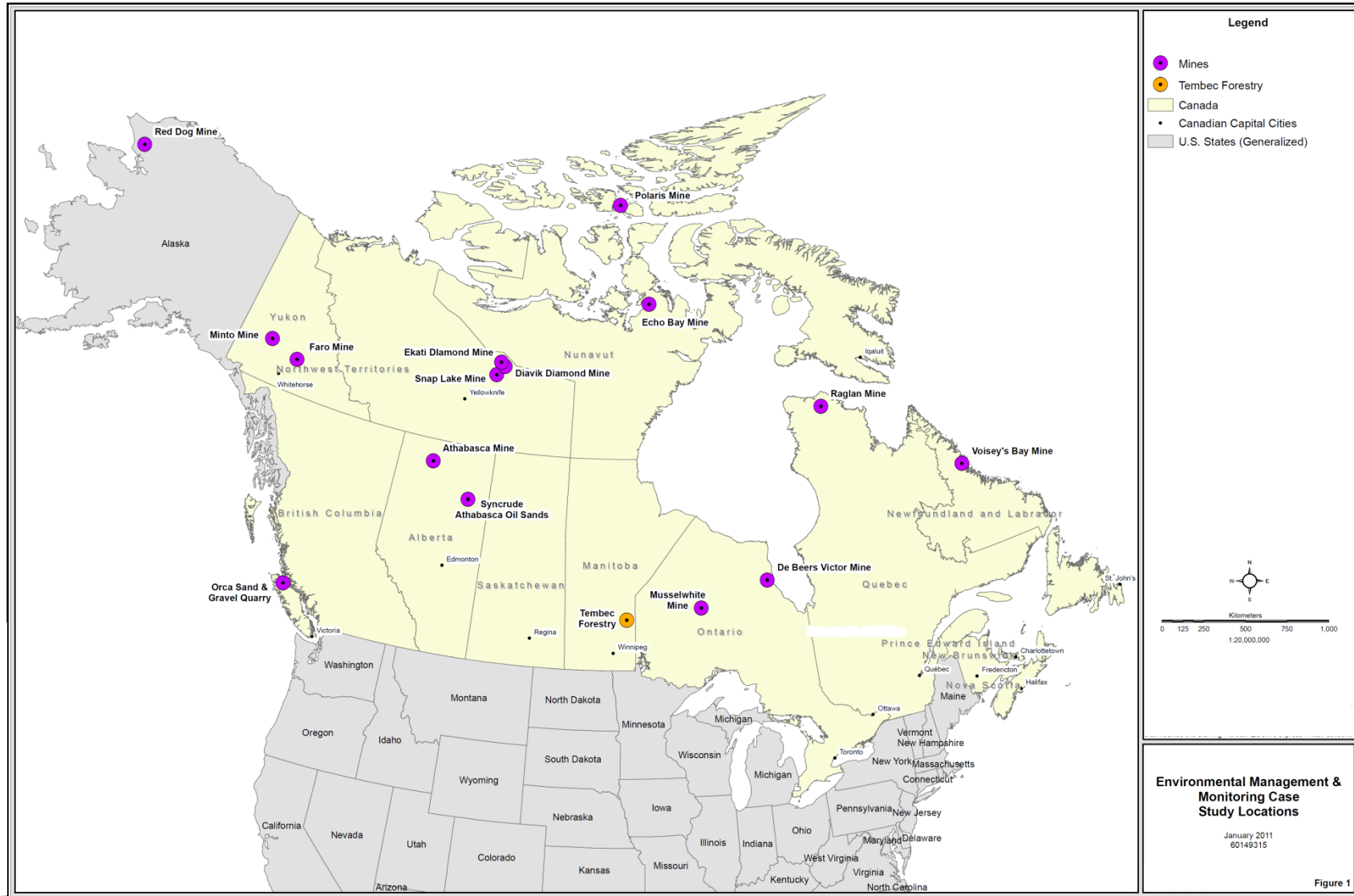
A one-page case study report format was developed to help ensure consistent information was gathered about each mine project, to provide a useful summary, and to allow comparison across cases. Copies of agreements between mining companies and Aboriginal communities for environmental management and monitoring activities could not be reviewed directly as part of this research because they are confidential documents. Second-hand literature and documents about the agreements were used as references instead. The case study information was gathered through a review of articles and documents found mainly on the Internet.

2.2 The Case Study Projects

Figure 1 shows the geographic distribution of the sixteen case studies. Table 1 provides background information on the case examples including project name, location, company, resource, process used to mine or harvest the resource and project size.

A brief description of the environmental management and monitoring carried out for each project follows. More detailed one-page case studies are available in Appendix A.

Figure 1. Environmental Management and Monitoring Case Study Locations



| | | | | | | | | | | |
|--|---|---|---|--|---|---|---|---|--|-----------------------------------|
| Location | Athabasca Basin, Saskatchewan | 90 km West of Attawapiskat, James Bay Lowlands, Northern Ontario (52°49' N and 83° 53' W) | 300 km northeast of Yellowknife, Northwest Territories (64°30' N and 110° 20' W) | 202 km southeast of Kugluktuk, Nunavut | 350 km north of Yellowknife, Lac De Gras, Northwest Territories (64°44' N and 110° 36' W) | 15 km north of the Town of Faro, almost 200 km northeast of Whitehorse, Yukon. (see http://faromine.ca/mine/location.html) | 240 km north of Whitehorse, Yukon | 150 km north of Pickle Lake, Kenora District, Ontario (52°37' N and 90° 20' W) | 4 km west of Port McNeil, Vancouver Island, British Columbia | Little Cornwallis Island, Nunavut |
| Mining Company | Cameco Corp, Cogema Resources Inc and Cigar Lake Mining Corp. | De Beers | Diavik Diamond Mines Inc | Echo Bay Mines Ltd. | BHP Diamonds Inc | Government | Minto Explorations Ltd / Capstone Mining Corp. | Placer Dome and Kinross Gold Corporation | Orca Sand and Gravel Ltd., Polaris Minerals Corp., 'Namgis First Nations | Cominco |
| Aboriginal Communities Involved | The Hatchet Lake, Black Lake, Fond du Lac Bands, The Northern Hamlet of Wollaston Lake and The Northern Settlements of Stony Rapids, Uranium City and Camsell Portage | Attawapiskat First Nation, Taykwa Tagamou Nation, Moose Cree First Nation, Kaschechewan First Nation and Fort Albany First Nation | The Dogrib (T'Licho) First Nation, the Yellowknife's Dene First Nation, the Kitikmeot Inuit Association, the North Slave Métis Alliance, and the Lutsel K'e Dene First Nation | Kitikmeot Inuit Association | The Dogrib Treaty 11 Council, the Akaitcho Treaty 8 Council, North Slave Metis Alliance and Kitikmeot Inuit Association | Selkirk First Nation and Ross River Dena Council | Minto Explorations Ltd. and Capstone Mining Corp. | Cat Lake First Nation, Kingfisher Lake First Nation, North Caribou Lake First Nation, Shibogama First Nations Council, Windigo First Nations and Wunnumin Lake First Nation | Namgis First Nation | Resolute Bay and Grise Ford |
| Resource Mined | Uranium | Diamond | Diamond | Gold | Diamond | Lead/Zinc | Copper/Gold | Gold | Aggregate | Lead/Zinc |
| Process | Mining and milling of ore | Open-pit truck-and-shovel | Open-pit and underground mines | Exploration Underground | Open-pit mine truck-and-shovel | Closure of open-pit mine | Open-pit | Open-pit and underground mine | Open-pit mine, processing | Decommissioned underground mine |
| Mine Size (sq. km) | Unknown | 50 square kilometers | 10 square kilometers | 2,000 square kilometers | 3884.16 square kilometers | 1.06 square kilometers | Unknown | 175.5 square kilometers | 2.4 square kilometers | Unknown |

2.2.1 Athabasca Uranium Mines, Saskatchewan

The Athabasca Impact Management Agreement was created to prevent emissions and compensate residents who endured losses due to emissions from uranium mining activities. The Environmental Protection and Compensation component of the agreement details the steps a company responsible for an emission must follow, and outlines the types of losses covered by the agreement. The agreement sets out a claims settlement process. The Claim Settlement Board is a three person board, comprised of a representative of the company, a representative of the affected community, and a mutually acceptable independent third party, who chairs the board.

The Athabasca Working Group was initiated in 2000, and created a process for managing the concerns identified by Aboriginal and other northern communities, and sharing the benefits resulting from development of the mining industry in the region. The working group also provides a forum for communicating and discussing issues and for building long-term trust. One outcome was stakeholders coming together with area uranium mine operators to design and implement a community-based environmental monitoring program. Water, air, plants, fish and animal tissues such as caribou and moose are sampled in and around the communities with the help of local hunters and other residents. Communities are also responsible for appointing representatives and local people who through the course of normal hunting activity will obtain samples of caribou, lynx and moose. The samples are sent to the Saskatchewan Research Council laboratory.

2.2.2 De Beers Victor Mine, Northern Ontario

De Beers' Impact Benefit Agreement (IBA) with the Attawapiskat First Nation includes commitments from De Beers regarding environmental management. A locally-based Environmental Management Committee (EMC) has been established as part of the IBA. The EMC operates under guidelines that use adaptive management and precautionary principles to undertake continual improvement to the environmental management process. The EMC incorporates community views and Traditional Ecological Knowledge (TEK), where appropriate. Management plans such as emergency response, caribou monitoring, fish, water and TEK management plans, have been reviewed and put into place by the EMC. A Revegetation Program has also been established, to use local species and work with Laurentian University on methods for mine reclamation, erosion prevention and channel stabilization.

Environmental monitoring initiatives at the De Beers Victor mine include independent water testing and an environmental testing lab at the mine site. There are on-site "Mine Monitors" who report to the First Nation community using traditional ecological knowledge. There was concern expressed by some members of the Attawapiskat First Nation over possible mercury pollution of potable water supply. During the Environmental Assessment, it was determined that there are pre-existing, naturally occurring, high mercury contaminant levels in the local river water. A monitoring program was put in place and a research program established to better understand the issue and the contribution of the Victor mine project to mercury levels.

Post-closure there will be two years of additional environmental monitoring with the community.

2.2.3 Diavik Diamond Mine, Northwest Territories

In March 2000, Diavik signed an Environmental Agreement with local Aboriginal groups and the federal and territorial governments, which formalizes the company's environmental protection commitments. Diavik is responsible for managing activities to protect the environment, training all Diavik's employees, anticipating and avoiding environmental problems, ensuring regulatory compliance and due diligence, and ensuring consistency with the business's corporate environmental policy.

Under the Socio-Economic Monitoring Agreement between Diavik Diamond Mines Inc and the Government of the Northwest Territories, Diavik funds an Environmental Monitoring Advisory Board that provides advice and oversees environmental issues. The majority of the Board members are appointed by Aboriginal communities.

One of the initiatives under the monitoring program includes using advisory signs on haul roads to protect migrating caribou. To protect water quality, Diavik constructed an extensive water collection system to protect surrounding lake waters, so that run-off water is collected, processed and treated before being released to the environment. Diavik also has the Aquatic Effects Monitoring Program, where lake water is sampled and analyzed at regular intervals and at set locations. As part of the ore bodies are under Lac de Gras, Diavik Diamond Mine recreated new fish habitat so there will be no net loss of fish habitat.

Diavik also runs a Community Traditional Knowledge Camp every summer for the neighbouring Aboriginal communities. Elders, adults and youth participate in workshops that blend traditional knowledge with science. They study fish palatability, water quality monitoring and caribou monitoring.

2.2.4 Echo Bay Mine, Nunavut

The Echo Bay IBA includes provisions for Inuit communities involved to minimize any adverse environmental or social impacts from the mine. All environmental conditions contained in the operating licenses and permits must be complied with. Compensation for impacts of the project on wildlife or wildlife harvesting was determined pursuant to Article 6 of the Nunavut Land Claims Agreement.

There is little information available about the nature of First Nations and Inuit involvement in environmental monitoring.

2.2.5 Ekati Diamond Mine, Northwest Territories

The BHP Diamonds Inc. Environmental Agreement establishes the Independent Environmental Monitoring Agency, funded by BHP Billiton. This agency has the responsibility and authority to oversee (but not implement) BHP and government environmental monitoring and management activities. The majority of its members represent local communities and First Nations; there is no direct representation of BHP or the federal or territorial governments.

The mandate of the Environmental Agency is broad and includes:

- Serve as a public watchdog of the regulatory process and the implementation of the Agreement
- Compile and analyze environmental quality data, report and make recommendations concerning BHP's environmental and cumulative effects monitoring programs; Government compliance monitoring reports; Environmental plans and programs; Corporate annual reports and environmental impact reports; Federal and Territorial monitoring activities and management programs; and the integration of traditional knowledge and expertise into environmental plans and programs.
- Participate as an intervenor in dispute resolution and legal processes respecting environmental matters
- Maintain a public repository of environmental data, studies and reports
- Provide programs for effective dissemination of information to the Aboriginal Peoples and general public.
- Provide an effective means to bring concerns of Aboriginal Peoples and the public to BHP and governments

At BHP Diamonds Inc, environmental technicians monitor airborne dust and emissions through the Air Quality Monitoring Program. They also monitor fish populations, microscopic water-borne animals and plants, stream flows and water samples through the Aquatic Effects Monitoring Program. Through the Wildlife Effects Monitoring Program, animals living on lands and in waters within the lease area are monitored. There have been studies aimed at integrating traditional knowledge with the mine's environmental management practices.

2.2.6 Faro Mine, Yukon

The Faro Mine Closure Office (FMC) was created in 2003 to develop a closure and remediation plan for the Faro Mine complex. In 2004, the Canadian and Yukon governments entered into a joint agreement with Ross River Dena Council and Selkirk First Nation to work together on development of a closure and remediation plan. In 2009, the Yukon government handed responsibility for the Faro mine site over to Denison Environmental Services while the closure and remediation plan goes through the Yukon Environmental and Socio-Economic Assessment Act process.

The environmental monitoring program examines water quality, flow, fisheries, stream and flood plain sediment, and benthos. The Faro Mine Complex has a Care and Maintenance department. They measure and monitor water quality at over 300 locations and collect over 1000 water samples annually in, and around, the Faro mine. The samples are tested by an independent lab for 50 different substances. In March 2010, Denison Environmental Services provided training to Keyeh Nejehe Golder Corporate (a partnership with Liard First Nation) on water monitoring. Trainees were taught how to collect samples, and how to filter and preserve bulk samples at new on-site labs.

2.2.7 Minto Mine, Yukon

In September 2009, the Selkirk Renewable Resources Committee sent a letter to Mines Minister, Archie Lang to close the Minto mine, until the mine implements a wastewater system that meets or exceeds the standards set out in the original license. The letter threatened to pursue a court injunction against the mine. The Selkirk Renewable Resources Committee is calling for run-off to be diverted away from operations and sent to a water treatment plant that should be built (the current water treatment plant does not always work and is only capable of processing one-tenth of the water discharge).

There is little information available about the nature of First Nations involvement in environmental monitoring.

2.2.8 Musselwhite Mine, Northwestern Ontario

Placer Dome and Kinross Gold Corporation, the First Nation communities, employees, contractors and government worked together to construct the Musselwhite mine safely, in an environmentally sensitive manner, in harmony with surrounding communities. The partners are said to be committed to a long-term partnership. Placer Dome and Kinross Gold Corporation are publicly committed to environmental protection for all activities at the mine site.

The Musselwhite Agreement is a guide for participants on how the mine would be built and operated. The agreement became the basis for resolving issues and misunderstandings. An example of dispute resolution was around the discovery of a tar-like substance in the river draining from the property, which led to concern that an oil spill had gone unreported. A commitment to operate a joint monitoring program with Placer Dome, Kinross Gold Corporations and the First Nations personnel restored faith in the program and trust in the relationship when it was discovered that the unknown substance was mosquito larva.

Besides the existence of a joint monitoring program with Placer Dome, Kinross Gold Corporations and First Nations personnel, there is very little detail on the program.

2.2.9 ORCA Sand and Gravel, British Columbia

The ORCA quarry is jointly owned by Polaris and the Namgis First Nation. The Namgis First Nation is conducting a monitoring program to assess the effects of the operation on nearby abalone and salmon spawning habitat. Namgis

negotiated the option of slowing or stopping production during critical ecosystem periods if effects were detected. Extensive abalone restoration and conservation of *t'lakstan*, a popular edible seaweed), harlequin ducks, and salmon were all undertaken by the Namgis First Nation with financial and personnel assistance from Polaris. All concerns about perceived and project related changes in the monitored ecosystems are brought to the attention of the Orca Sand and Gravel Board of Directors, which includes a Namgis First Nation member.

The project uses the "Global Reporting Initiative" (GRI) to ensure that transparent and comparable details about the economic, environmental and social performance of the project are publicly available. The GRI is a widely used sustainability reporting framework.

2.2.10 Polaris Mine Closure, Nunavut

A detailed closure plan for the Polaris Mine was developed based on environmental site assessment work done in 1999 and 2000. After extensive regulatory and public consultations, Nunavut and federal authorities gave all approvals. In September 2002, building demolition began, while remediation of metals and hydrocarbon-contaminated sites began in April 2003. By September 2004, the majority of the remaining equipment and materials were removed. A small camp, several sea containers of supplies and some heavy equipment remain on site for touch-up work and to support ongoing monitoring programs.

Water quality monitoring in Garrow Lake, where the tailings were deposited, will continue until 2011. There was little information found about Aboriginal involvement in the environmental monitoring.

2.2.11 Raglan Mine, Northern Quebec

The Raglan Committee meets several times each year to discuss environmental concerns and to report on the progress of the Raglan Agreement- an IBA which includes profit-sharing measures and trust fund payments over an 18-year period and also guarantees preferential hiring and contracting to local, qualified Inuit employees and businesses. After extensive baseline studies, the Raglan project was designed to minimize water effluent, water consumption, and air emissions while containing acid mine rock and providing for the progressive reclamation of tailings. In collaboration with the two neighbouring Inuit communities, Raglan conducted an Arctic char monitoring program by integrating the community's traditional knowledge into a Joint Scientific Fishing Program.

2.2.12 Red Dog Mine, Alaska

Environmental protection is a major priority for Teck Cominco and the Northwest Alaska Native Association (NANA) at the Red Dog mine. In addition to a comprehensive Cominco Environmental Policy, the Red Dog Mine Operating Policy contains a strong environmental protection clause.

The Red Dog Subsistence Committee is comprised of elders from the villages of Kivalina and Noatak, and meets quarterly, or as needed. The purpose of the Subsistence Committee is to ensure that all exploration, development and mining activity at the mine site is consistent with sound stewardship principles and will not harm or threaten the subsistence needs and the physical, cultural, social and economic needs of the indigenous people of the NAN region. The Red Dog Subsistence Committee reviews many reports from extensive environmental monitoring required by Cominco and by the government permits. The quality of water, air and earth is continually tested. Any possible effects on the two nearby villages are openly discussed. Activity on the 83 kilometre haul road from the mine site is monitored and reviewed for potential effects on subsistence hunting. The Subsistence Committee has authority to close down the haul road if they legitimately feel the impact is detrimental to subsistence hunting and harvesting.

2.2.13 Snap Lake Mine, Northwest Territories

The main purpose of the Snap Lake Environmental Monitoring Agency is to act as a public watch dog to ensure environmental regulatory compliance by De Beers Mining Canada. The responsibilities of the agency are to:

- Review and comment on the design of monitoring and management plans and the results of these actions;
- Monitor and encourage the integration of traditional knowledge of the nearby Aboriginal peoples into the mine's environmental plans;
- Act as an intervenor in regulatory processes directly related to environmental matters involving the Snap Lake Project and its cumulative effects;
- Bring concerns of the Aboriginal people and the general public to De Beers Canada Mining Inc and government;
- Keep Aboriginal peoples and the public informed about Agency activities and findings; and
- Write an Annual Report with recommendations that require the response of De Beers Canada Mining Inc and/or government.

2.2.14 Syncrude Canada Ltd., Alberta

The development of the oil sands industry has had a major impact on the natural environment. Syncrude developed a system for stabilizing the surface of the fine tailings ponds that enables revegetation to begin, and 3,000 hectares of the older waste piles have been returned to pasture and forest. Syncrude also successfully introduced a herd of native wood bison to its reclamation areas, managed in conjunction with a local First Nations community.

The Mikisew Cree First Nation and the Centre for Indigenous Environmental Resources are developing a monitoring program of the water, land, plants and animals that rely on both scientific and Indigenous Knowledge monitoring methods. They are training local people to become Environmental Guardians, who will collect and store information in a monitoring database. Over time, the Environmental Guardians will be able to analyze data between years to see if the ecosystem features they are monitoring fluctuate.

2.2.15 Tembec Inc., Eastern Manitoba

Tembec is a large wood products company. It was included in this report as it has an environmental management and monitoring program in place, that was established partly through the leadership of a local First Nation community.

The Black River First Nation Chief and Council established a formal Environmental Department, originally staffed with outside research scientists, with the goal of building capacity over time by working with youth. The Department liaises with community members and Elders to understand community concerns regarding the environment, and then they develop projects to address those concerns.

The Environmental Monitoring Program has two components: the Regional Water Quality Network and a long-term monitoring program to examine the effects of climate change on the boreal forest of eastern Manitoba.

The Regional Water Quality Network was designed and implemented to address Elders concerns about water quality. They monitor water quality in more than 20 rivers and streams to understand regional patterns and factors that affect water quality. Tembec Inc is training community youth on the use of GIS and provides free access to all their GIS database layers. Black River First Nations uses the GIS and water quality information to develop watershed management tools for Tembec, which incorporates water quality objectives into forest management planning.

The long-term monitoring program to examine the effects of climate change on the boreal forest of eastern Manitoba was established with Manitoba Model Forest and Tembec Inc. Since the project initiated in 2004, they have established long-term monitoring plots in forests of different ages, different origin and different type. The EMAN Coordinating Office was established as a project partner in 2005. Black River First Nation is responsible for all plot establishment and data collection. High school students participate in field data collection. Data collection includes species composition of the herb, shrub and tree layers, aging trees, estimating tree height, assessing tree health, measuring soil pH, moisture and temperature, monitoring air temperature and relative humidity, and assessing small mammal species composition and abundance through live trapping.

2.2.16 Voisey's Bay Mine, Labrador, Newfoundland

Through a Department of Fisheries and Oceans Program in 1992, the Innu began working as Environmental Guardians in the areas of fisheries, forestry, wildlife, mining, and environmental research. The Environmental Guardians are involved in the co-management of forestry resources in ensuring environmental compliance at Voisey's Bay.

In 2001, the Gorsebrook Research Institute, Environment Canada and the Innu Nation began developing the Innu Environmental Guardians Training Program, with the objective to establish a comprehensive environmental training program. The training program involves participation in active Innu Nation co-management activities, environmental monitoring projects and environmental research partnerships currently underway, including the Voisey's Bay Project.

The training program is to provide additional resources to the Guardians and enhance the capacity of the Innu Nation to manage Innu lands and resources, design and implement environmental management and research to take full advantage of Voisey's Bay IBA, conduct effective environmental compliance monitoring under the Voisey's Bay IBA, network with organizations in Environmental Monitoring and co-management partnerships, ensure appropriate use and protection of Innu knowledge and cultural heritage, provide technical and logistic support to collaborative environmental monitoring projects, ensure consistent environmental reporting back to the Innu people, and develop environmental education materials for use in the Innu communities.

The Voisey's Bay mine operates with a focus on air, water and land, including wildlife and fish. Sampling is performed by Vale Inc. to measure for impacts and management programs are in place to ensure that potential impacts are minimized. The Environmental Guardians are involved in fisheries monitoring and enforcement, in environmental research and in monitoring and assessing environmental impacts through research partnerships with government and university-based researchers.

3. Elements of Successful Aboriginal Participation in Mine Environmental Management and Monitoring

3.1 Determining Success

While developing an initial collection of case studies for analysis, the following criteria were used to identify positive or "successful" cases:

- **Meaningful participation-** Aboriginal participation needed to go beyond the scope of statutory or even enhanced consultation efforts during the environmental permitting and approvals process, and involve participation by Aboriginal peoples at the community level through the construction, operations, closure, and/or post-closure phases of projects.

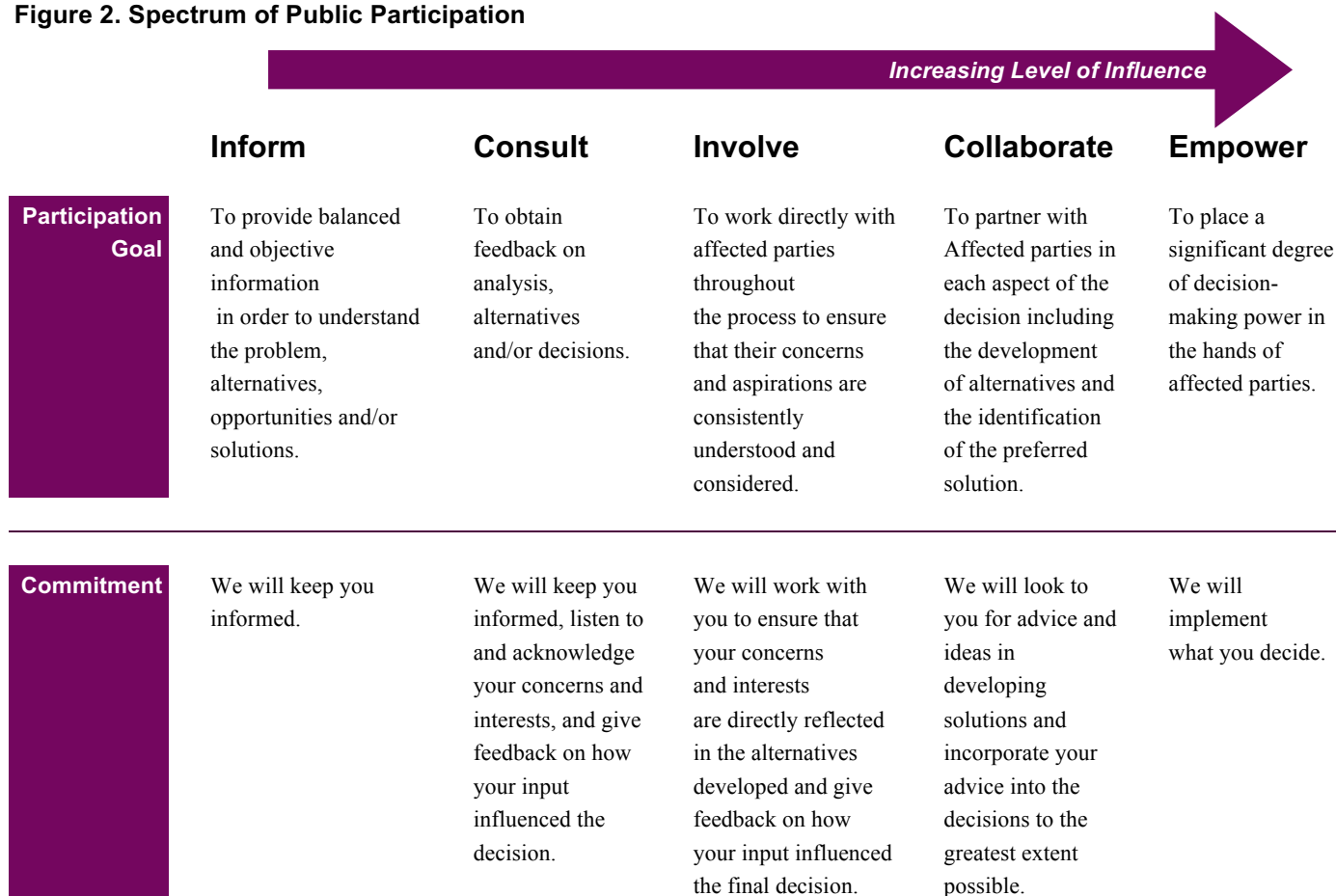
- **Protective of the environment-** Participation efforts made needed to relate at least in part to protection of the environment and Aboriginal traditional livelihoods and territories as opposed to, for example, employment or training measures.
- **Long-term community benefits-** The outcomes of participation should include long-term community benefits such as increased knowledge, greater influence over community futures, enhancements to traditional territories, new skills and opportunities, or other benefits.

3.2 Evaluating Success – The Spectrum of Public Participation

The International Association of Public Participation (IAP2) is an international association of members who seek to promote and improve the practice of public participation in relation to individuals, governments, companies, institutions, and other entities that affect the public interest. IAP2 has developed a tool to rate the extent of public participation in a given project or activity called the Spectrum of Public Participation (see Figure 2). We used the Spectrum to evaluate the case studies in terms of the degree and nature of Aboriginal participation. The point of using the Spectrum was to have an accepted basis for comparing “participation” across the cases, and also to present a framework to define where various options fit on the continuum of best practice.

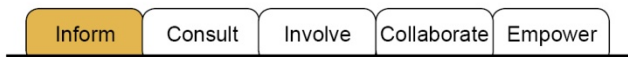
Each step on the Spectrum is explained in more detail below.

Figure 2. Spectrum of Public Participation



Source: International Association of Public Participation (IAP2), 2007.

3.2.1 Inform

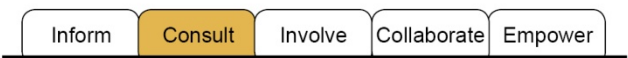


Inform people in order to provide balanced and objective information in order to understand the problem, alternatives, opportunities and/or solutions.

Examples of Informing

- Proponent or government-led Community information sessions during an Environmental Assessment process
- Company or government staff reporting back to community on environmental monitoring results
- Independent consultant reporting back to community on environmental monitoring results
- Ongoing corporate communications about environmental management activities

3.2.2 Consult



Consult with people in order to obtain feedback on analysis, alternatives, and/or decisions

Examples of Consultation

- Statutory comment periods for Environmental Assessment Terms of Reference and reports
- Targeted consultation events- surveys, focus groups, workshops, community meetings inviting/documenting comments
- Opportunities to comment on government environmental permits and approvals before they are issued

3.2.3 Involve

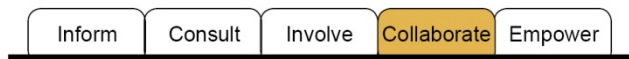


Involve people in order to work directly with affected parties throughout the process to ensure that their concerns and aspirations are consistently understood and considered

Examples of Involvement

- Providing funding or other forms of assistance for communities to conduct their own cultural impact and traditional knowledge studies, and incorporating this information into plans and reports
- Providing basic training to community members in environmental planning and management
- Hiring of Community Liaison staff from Aboriginal communities
- Aboriginal community participation in baseline field data collection
- Employment of Aboriginal people in environmental monitoring roles

3.2.4 Collaborate

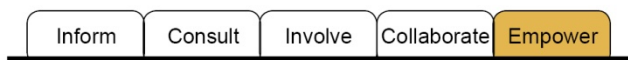


Collaborate and partner with affected parties in each aspect of the decision, including the development of alternatives and the identification of the preferred solution

Examples of Collaboration

- Formal agreements such as Impact Benefit Agreements and Environmental Management and Monitoring Plans
- Aboriginal participation in the design of environmental management and monitoring programs
- Aboriginal leadership role and independence in the delivery of environmental management and monitoring programs
- Accepting decision-making advice and guidance from Environmental Committees, Advisory Boards or Departments with at least 50% Aboriginal community representation.

3.2.5 Empower



Empower people by placing a meaningful degree of decision-making power in the hands of affected parties.

Examples of Empowerment

- Significant membership on Board of Directors or company ownership shares
- Veto power by Aboriginal communities in certain decisions that relate to environmental matters (e.g. road access or water takings during environmentally sensitive periods)
- Shared decision-making with Environmental Committees, Boards or Departments with at least 50% Aboriginal community representation.

3.3 Elements of Success

Common themes and unique examples of Aboriginal participation in mine EM emerged from a review of the selected case studies. These “elements of success” can be grouped into three categories related to making Aboriginal participation work in mine EM- 1) working relationships, 2) involvement in environmental management, and 3) involvement in environmental monitoring. Elements of success included:

Working Relationships

- **Trust-building**- early engagement and relationship building to establish trust
- **Ongoing community dialogue**- sharing information and maintaining an open line of communication with the community throughout the life of the mine project
- **Partnerships**- working together and with others to create shared value and meet shared goals related to mine EM
- **Formal agreements**- formalizing strong working relationships through environmental management agreements, IBAs, or other forms of agreement.
- **Environmental governance**- Aboriginal communities and other stakeholders are engaged in providing advice or sharing information in an ongoing way through an EM board or committee

- **Collaborative governance-** a board or committee with 50% or greater Aboriginal community membership is provided with a significant advisory or decision-making role in mine EM
- **Membership on company or joint venture Board of Directors-** Aboriginal community representatives are provided with significant decision-making power in mine EM through membership in a Board of Directors

Involvement in Environmental Management

- **Permit review-** Aboriginal communities are provided with the opportunity to review and comment on environmental permits, licenses, and authorizations related to the mine project.
- **EM plan-** mining companies develop and disclose an EM plan for the mine project to Aboriginal communities, and consult with them in the process of plan development.
- **Responsive EM program-** Mining companies develop and disclose an EM program which is responsive to Aboriginal concerns which have been gathered through dialogue/consultation in the course of EM planning.
- **TEK integration-** Aboriginal Traditional Ecological Knowledge (TEK) is incorporated into the design of EM plans, programs, and decisions for the mine project.
- **Collaborative EM design-** Aboriginal community representatives are directly involved in every step of the design of EM plans and programs for the mine project.
- **Veto power-** Aboriginal community representatives are provided with veto power over specific aspects of mine operations if certain environmental conditions or impacts occur (e.g. disruption of Caribou migration)

Involvement in Environmental Monitoring

- **Company EM reporting-** Mining companies report regularly to Aboriginal communities about the results of its environmental monitoring activities.
- **Independent EM reporting-** An independent consultant or organization evaluates and reports on the results of the mining company's and/or its own independent environmental monitoring activities
- **Field data collection-** Aboriginal community members participate directly in field data collection for environmental monitoring.
- **EM jobs-** Aboriginal community members are provided with employment by the mining company in environmental monitoring of the mine project
- **EM capacity building-** Aboriginal community members are provided with training, skills development, and work experience opportunities in environmental monitoring.
- **EM participant funding-** Aboriginal community independent (i.e. not as an employee of the mining company) participation in environmental monitoring of the mine project is funded by the mining company and/or the Crown
- **Aboriginal leadership in EM-** An Aboriginal community or organization leads and delivers all aspects of a specific component of environmental monitoring of the mine project.

Table 2 provides a summary of where these elements of success were found across the case studies. Each element of success is explored in more detail in sections 3.3.1 to 3.3.18.

Table 2. Summary of Elements of Success for Aboriginal Participation in Mine EM*

| Project Name | Athabasca Uranium Mines | De Beers Victor Mine | Diavik Diamond Mine | Echo Bay Mine | Ekati Diamond Mine | Faro Mine | Minto Mine | Musselwhite Mine | Orca Sand & Gravel | Polaris Mine | Raglan Mine | Red Dog Mine | Snap Lake Mine | Syncrude Oil Sands | Tembec | Voisey's Bay Mine | |
|---|--|---|--|--|--|---|--|---|---|---|---|---|--|--|--|--|---|
| WORKING RELATIONSHIPS | | | | | | | | | | | | | | | | | |
| Trust-building | | X | | X | | | | X | X | | | | | | X | | |
| Ongoing community dialogue | | X | X | X | | | | | | X | X | X | | | | X | |
| Partnerships | X | X | X | | | X | X | X | | | | X | X | X | X | X | |
| Formal Agreements | X | X | X | X | X | | X | X | X | | X | X | X | X | | X | |
| Environmental Governance | X | X | X | | X | | X | X | X | | X | X | X | | X | X | |
| Collaborative Governance | | | X | | X | | | | | | X | | X | | | | |
| Membership on Board of Directors | | | | | | | | | X | | | | | | | | |
| INVOLVEMENT IN ENVIRONMENTAL MANAGEMENT | | | | | | | | | | | | | | | | | |
| Permit Review | | X | | | X | | X | | | | | X | X | | | | |
| EM Plan | X | X | X | | X | X | | X | X | X | X | X | X | X | X | x | |
| Responsive EM Program | | X | X | | | X | | X | X | | | X | | | X | | |
| TEK Integration | | X | X | | X | | | | | | X | | X | X | | x | |
| Collaborative EM Design | X | X | | | | X | | | X | | | | | X | X | | |
| Veto Power | | | | | | | | | X | | | X | | | | | |
| INVOLVEMENT IN ENVIRONMENTAL MONITORING | | | | | | | | | | | | | | | | | |
| Company EM Reporting | | X | | | X | | | | | | | | | | | | x |
| Independent EM Reporting | X | X | | | | X | | | | X | | | | | | | |
| Field Data Collection | X | | X | | | X | | X | X | X | | | | X | x | x | |
| EM Jobs | | | | | | | | X | | X | | | | X | | | |
| EM Capacity Building | | | X | | | X | | | | X | | | | X | x | x | |
| EM Participant Funding | | | X | | | | | | X | | | | | | | | |
| Aboriginal Leadership in EM | | X | X | | X | | | | X | | X | X | | X | x | x | |
| Environmental Monitoring Program Component Highlights: | Air, water, sediment, fish, animals (caribou, lynx, moose) | Water quality testing, Revegetation Program, permit review, use of local traditional knowledge to identify changing caribou herd patterns | Caribou protection, water quality protection, aquatic effects monitoring program | Reclamation efforts *Little information available about First Nations and Inuit involvement in Environmental Monitoring | Analyze environmental reports and data | Monitor water quality, flow, fisheries, stream and flood plain sediment and benthos | Review permits, public watchdog on environmental actions | Committed to environmental protection at mine site, the Agreement is the basis for resolving issues | Monitor abalone and salmon spawning habitat and can negotiate production schedule based on findings; integrate traditional knowledge into environmental plans | Remediation of metals and hydrocarbon contaminated sites, disposal of materials, water quality monitoring | Minimize water effluent, water consumption and air emissions, while containing acid mine rock and progressively reclaiming tailings. Arctic char monitoring program | Test water, air and earth quality. Monitor affect of haul road on subsistence hunting. Close the road during caribou migration season | Review monitoring and management plans, integrate traditional knowledge into environmental plans | Monitor the water, land, plants and animals. Rely on both scientific and Indigenous Knowledge monitoring methods | Regional Water Quality Network, long-term monitoring program to examine effects of climate change on boreal forest | Air, water and land, including wildlife and fish | |

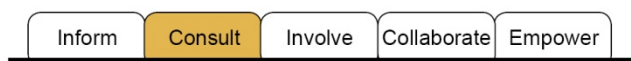
* A blank space does not necessarily mean that the project does not have that component in place, only that the information was not available through the research sources used.

3.3.1 Trust-Building

Trust and relationship building can be as simple as having early, frequent and ongoing dialogue between the mining company and the elders and other community members. This can help establish trust between the stakeholders, and bring participants up to a reasonable level of knowledge and comfort to proceed with a more participatory process. Some especially positive examples of relationship building from the case studies include:

- De Beers Victor Diamond Mine– put significant effort into building relationships that would foster trust with the community. This effort included over 100 community meetings.
- Orca Sand and Gravel – Polaris met consistently with the First Nation for three years before launching its project, to ask permission to explore on the First Nation’s territory and to identify and protect traditional values.

In most of the case study examples studied, the companies went in to the community early on to dialogue about the project plans and understand community interests. In order for meaningful relationships to be built, there also needs to be a two-way sharing of information and interests. For this reason, relationship building has been categorized as falling in to the ‘consult’ category.



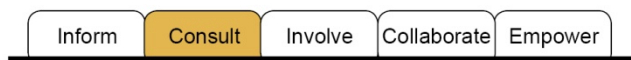
When relationship-building leads to understanding and acknowledging a community’s interest in stewardship of the land, and how it can be accommodated as part of the mining project, it becomes a fundamental best practice for Aboriginal participation in environmental management and monitoring – it can set the stage for all other activities.

3.3.2 Ongoing Dialogue

Some of the companies in the case studies reviewed sought early input from the broad Aboriginal community potentially impacted by their operations, while others maintain a general ongoing dialogue with the Aboriginal community. For example:

- De Beers – The Environmental Management Committee incorporates general community views where appropriate.
- Diavik Diamond Mine - knowledge shared through community consultation was instrumental in setting up Diavik’s reclamation program, which cleans up locations as mining proceeds.
- Polaris Mine – Polaris prepared the detailed closure plan for the mine and sought participation and input from the Nunavut community, specifically Resolute Bay and Grise Fiord, on the plan.

Dialogue with elders and other Aboriginal community members would be at the ‘consult’ level on the IAP2 spectrum. It includes informing the community, but also listening to their feedback.



A combination of both early and ongoing dialogue with the community would be a best practice for environmental management and monitoring in order to build relationships of trust and maintain a good understanding of the community members’ concerns. Communications and consultation are an ongoing process, and a key component of Aboriginal community participation in environmental management.

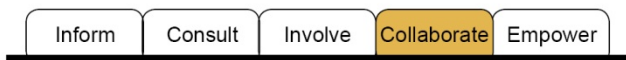
3.3.3 Partnerships

The majority of the cases reviewed included the creation of formal or informal partnerships between the company and the Aboriginal community to undertake environmental monitoring or management activities. Several also included the development of additional external partnerships with universities, non-profits, government, and other potentially interested groups (a multi-stakeholder partnership). To be considered a component of success in our analysis, these partnerships needed to be either with Aboriginal communities or to further their interests.

Some examples of partnerships from the case studies include:

- De Beers Victor Diamond Mine– formed a partnership with Laurentian University for a Revegetation Program, which is developing methods for mine reclamation, erosion prevention and channel stabilization, using local species.
- Raglan Mine- In collaboration with the two neighbouring Inuit communities, Raglan conducted an Arctic char monitoring program by integrating the community’s traditional knowledge into a Joint Scientific Fishing Program.
- Minto – The Yukon government facilitated the relationship between the mining company and the Selkirk First Nation, including providing the First Nation with participant funding.
- Tembec - The success of Black River First Nation’s environmental projects was attributed to building partnerships with a diversity of organizations, including Tembec, Manitoba Conservation, Manitoba Water Stewardship, Indian and Northern Affairs Canada, Department of Fisheries and Oceans, Ecological Monitoring and Assessment Network, Environment Canada and Non-Government Organizations (Manitoba Model Forest).

Partnership examples from the case studies we examined fell on different parts of the IAP2 spectrum depending on the quality of the partnership; the formality and substance of the partnership were determining factors for positioning on the IAP2 spectrum. In their most meaningful form, partnerships fall in the ‘collaborate’ category. Partnerships that included a written agreement (e.g. Memorandum of Understanding, or MOU) tended to lead to higher degrees of participation, as the terms of the partnership are developed and agreed to by all parties.



Partnerships, particularly those that are formalized, further the interests of Aboriginal communities, are directly with Aboriginal communities (at least as one partner) and involve a diverse group of stakeholders, are considered a best practice in our analysis.

3.3.4 Formal Agreements

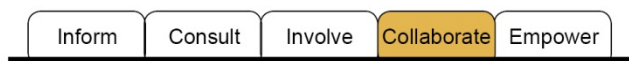
All but three of the projects reviewed had developed some sort of formal agreement between the company and one or more Aboriginal communities. In most cases, the negotiation of these agreements was the basis for establishing

the environmental management and monitoring program. Such programs were developed both through Impact Benefit Agreements (IBAs) and through separate (formal) environmental management agreements.

Some examples of formal agreements from the case studies include:

- Athabasca Uranium Mines - The Athabasca Impact Management Agreement was created to prevent emissions and compensate residents who have endured losses due to emissions from mining activities. The agreement also provides provisions for employment, training and business development opportunities, and benefit sharing. The Environmental Protection and Compensation component of the agreement details the steps a company responsible for an emission must follow, and outlines the types of losses covered by the agreement. The agreement sets out a claims settlement process.
- De Beers Victor Diamond Mine – The IBA with Attawapiskat details how the project impacts will be mitigated and includes commitments from De Beers regarding environmental management. A locally-based Environmental Management Committee (EMC) has been established between De Beers Canada and the Attawapiskat First Nations as part of the IBA.
- Musselwhite Mine - The Musselwhite Agreement contains provisions for the preservation of the environment and cultural heritage in the vicinity of the mine site, local employment and business development opportunities, and the sharing of economic and other benefits from the mine. The Musselwhite Agreement was developed as a guide for participants on how the mine would be built and operated. It also included formal provisions for resolving issues and misunderstandings in regard to environmental management.

The development of a formal agreement between a company and an Aboriginal community is typically a negotiated consensus-building and participatory decision-making process. The formal agreement should be developed in partnership and speak to the interests of both parties. For this reason, formal agreements have been categorized at the ‘collaborate’ level of the IAP2 spectrum.



The signing of formal agreements that include significant provisions for environmental protection is considered a best practice for Aboriginal participation in environmental monitoring and management. Such agreements should ideally include:

- Aboriginal involvement in environmental monitoring, including employment, training and capacity building provisions.
- An independent role to undertake such monitoring and share the monitoring information with the community and with Crown agencies.
- A transparent, timely, and open line of communication between the mining company, Crown agencies, and the community about all environmental permitting, spills and emergencies impacting the environment, environmental policy decision-making, and ongoing environmental monitoring results from the company and Crown agencies.
- A forum and terms of reference for regular involvement of the community in discussions and decision-making about environmental management of the mine- ideally also involving Crown agencies.
- Formal mechanisms for resolving disputes over environmental matters, and protocols for consulting the wider Aboriginal community on environmental management where appropriate.

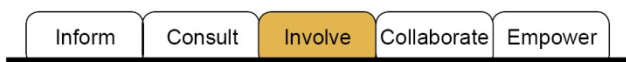
While these provisions need not all be included in an IBA (see 3.4.4 below), best practice would suggest that clear links should be made between the IBA and any additional agreements on environmental monitoring and management.

3.3.5 Environmental Governance

The majority of the case study projects involved establishing an environmental committee, advisory board or department. Some oversee the implementation of agreements or programs; others provide advice on environmental management. While the responsibilities of these bodies differ, their basic goal is to oversee the environmental management and monitoring program and decisions around that. Examples include:

- De Beers Victor Diamond Mine- A locally-based Environmental Management Committee (EMC) was established between De Beers Canada and the Attawapiskat First Nations as part of the IBA. The EMC undertakes continual improvement to the environmental management process. Management plans such as emergency response, caribou monitoring, fish, water, and TEK management plans, as well as a revegetation program, have been put into place with the help of the EMC.
- Diavik Diamond Mine - The First Nation communities are formally involved in monitoring and in advisory capacity through the Environmental Monitoring Advisory Board. Communities are also involved through the Diavik Communities Advisory Board and various program implementation committees.
- Raglan Mine - The Raglan Committee is responsible for overseeing implementation of the Raglan Agreement IBA. The Committee meets several times each year to discuss environmental concerns and to report on the progress of the Agreement.
- Tembec - The Black River First Nation Chief and Council established a formal Environmental Department. The Department liaises with community members and Elders to understand community concerns regarding the environment, and develop projects to address those concerns.
- Voisey’s Bay - An Environmental Management Board (EMB) was created to execute the Environmental Management Agreement with the purpose of providing “effective, responsible, comprehensive and co-ordinated environmental management” and advice to government. A Technical Environmental Review Committee was created to provide advice to the EMB.

These environmental committees, advisory boards or departments fall at ‘involve’ level on the IAP2 spectrum, providing the companies implement the decisions made by committees or take the advice of advisory boards into consideration in a meaningful way.



It is clear that boards or committees of the type discussed here can have many different roles and levels of influence in planning and decision-making, including sharing and distributing information, oversight, advising on plans and decisions, or making plans and decisions. There are also many options for membership from Aboriginal communities only to the full range of different interests including the company or government agency leading the development project. A clear Terms of Reference for the board or committee is an essential document to clearly lay out purpose, roles, responsibilities, membership, meeting frequency, and decision-making format, and be formally agreed to by Aboriginal communities as part of early stages. Aboriginal representatives of such boards or committees need to have a legitimate endorsement by their community to represent their interests. Whether playing

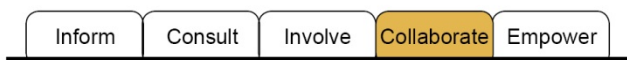
an advisory, oversight, or decision-making role, Aboriginal community input needs to be meaningfully taken into account and used. There also need to be effective conflict resolution processes built into the Terms of Reference to ensure fairness and constructive resolution of problems. These conditions need to be met in order to consider this practice a “best practice”.

3.3.6 Collaborative Governance

The degree of Aboriginal representation on boards or committees is obviously a major factor in the degree of influence Aboriginal community interests and input will have. From the information reviewed for this study, it appears that less than half of the environmental committees, advisory boards or departments have at least 50% Aboriginal representation. Some of those that do include:

- Diavik Diamond Mine - The majority of the Environmental Monitoring Advisory Board members are appointed by and from Aboriginal communities.
- Ekati Diamonds – The majority of the Environmental Monitoring Agency members represent local communities and First Nations; there is no direct representation of BHP or the federal or territorial governments who are signatories to the BHP Diamonds Inc. Environmental Agreement.
- Raglan Mine - The Raglan Committee has 50% Inuit representation, with Inuit representatives from Salluit, Kangiqsujuaq, and Makivik Corporation.
- Snap Lake Mine - The Snap Lake Environmental Agency is comprised of eight representatives from four impacted Aboriginal groups.

More than 50% Aboriginal representation on an environmental committee, advisory board or department has been categorized at the ‘collaborate’ level on the IAP2 spectrum, as it implies that the Aboriginal representatives would be involved in each aspect of the decision of the group. The extent to which this participation is meaningful obviously depends on the degree to which the project developer (company or government agency) implemented or responded to the input provided by Aboriginal representatives.



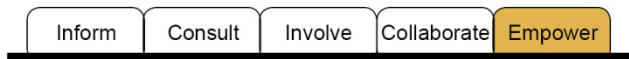
If there is a higher level of participation of Aboriginal people on a committee, advisory board or department, the Aboriginal community-at-large is more likely to trust the actions and decisions made by that group. It is also more likely that the actions and decisions of the group will represent the overall interests of the community.

3.3.7 Membership on Board of Directors

Membership on company Boards of Directors provides a key decision-making opportunity in setting operational directions, developing and implementing environmental policies and plans, resolving disputes, allocating resources, and other strategic matters. It also, however, entails certain legal liabilities which may make this option less attractive, and may not justify the added influence in a particular area of business operations (environmental management).

Only one case study in our research included membership in a Board of Directors- the Orca Sand and Gravel case study. In this case, the Aboriginal community (Namgis First Nation) has a 12% financial stake in the company, has a member on the Board of Directors. The Board hears all matters related to the effects or potential effects of the project’s operations on local salmon and abalone harvesting and the ecosystem which supports it, and the Namgis

have the ability through their Board position to order an alteration or cessation of mine operations if there are impacts or potential impacts they feel are a threat to harvesting.



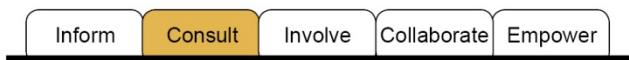
Due to the direct ability to influence operational decisions and policies, this element of success falls under “empower” in the Spectrum of Public Participation. As discussed there are significant benefits and liabilities to undertaking this role, and a legal opinion should be sought if such a position were to be made available to an Aboriginal community.

3.3.8 Permit Review

Aboriginal communities play the role of a public “watchdog” for some of the mining companies. A public watchdog oversees the practices of the company and reports on any variations from the agreement. Similarly, some Aboriginal communities also act as reviewers of permits for the mining companies. Examples from our research include:

- De Beers Victor Diamond Mine- Attawapiskat and their consultants can review all permit requests before they are submitted to the government.
- Ekati Diamond Mine - the Independent Environmental Monitoring Agency is made up of local community and First Nation representatives. Part of its mandate is to serve as a public watchdog of the regulatory process and the implementation of the Environmental Agreement.
- Minto Mine – Selkirk First Nation’s Renewable Resources Council oversees actions of the Minto mine and brings the Yukon Territory’s attention to violations of their operating license.
- Red Dog Mine – The Red Dog Subsistence Committee reviews reports from extensive environmental monitoring of Tec Cominco’s mine to ensure that all exploration, development and mining activity at the site is consistent with sound stewardship principles and will not harm or threaten the subsistence needs and the physical, cultural, social and economic needs of the Indigenous people of the region.
- Snap Lake Mine - The Snap Lake Environmental Monitoring Agency was established as part of the environmental agreement between De Beers Mining Canada, the federal and territorial government, and the Aboriginal communities. The main purpose of the Snap Lake Environmental Monitoring Agency is to act as a public watchdog.

As the role of a public watchdog / reviewer is to provide comment on the actions of the company, it would fall at the ‘consult’ level on the IAP2 spectrum of public participation.



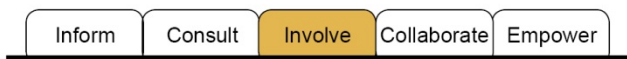
The extent to which the public watchdog/reviewer role is considered a best practice depends on the extent to which it is able to influence environmental management decisions. If there are opportunities to provide input, but input is consistently ignored or does not lead to any meaningful change, or if there is no process in place to report back on how input was taken into consideration, participating in this way will likely have little benefit for an Aboriginal community.

3.3.9 EM Plan

In addition to a general formal agreement (e.g. IBA) between the company and the Aboriginal community, some of the projects developed specific plans for environmental management and monitoring. These plans provide the detailed blueprint for how environmental monitoring and management will be carried out, and can be revisited periodically to ensure they continue to be relevant. Not surprisingly, environmental management and monitoring programs seem to be more comprehensive in the cases where there is a dedicated plan. A planning process itself provides an additional forum for proactive Aboriginal community (and Crown agency) input on environmental management. Existing processes such as closure planning may also provide a good vehicle for an iterative (periodically revisited) planning process.

Some examples of case studies that had dedicated environmental management and monitoring plans include:

- Ekati Diamond Mine - A legally binding Environmental Agreement, which contained an Implementation Protocol, was signed by the Aboriginal organizations, BHP Diamonds, and the federal and territorial governments. This protocol provided the basis to establish a Monitoring Agency to monitor the environmental management of the mine. A year later, an IBA was signed. The two agreements together helped strengthen the relationships between the company and the Aboriginal communities.
- Voisey's Bay Mine – In addition to an IBA, the Voisey's Bay Environmental Management Agreement (EMA) is an agreement between the Federal Department of Fisheries and Oceans and Natural Resources, the Labrador Inuit Association and the Innu Nation. An Environmental Management Board (EMB), comprised of each of these representatives, was created to execute the agreement.



The development of a specific environmental management and monitoring plan can take the best practice of signing a formal agreement to the next level. It can help to ensure the effectiveness of an environmental management and monitoring program, and to ensure that all parties deliver on commitments in a meaningful way. Crown agencies can be an important third party in the planning process.

3.3.10 Responsive EM Program

Many of the environmental management and monitoring activities that are being carried out across the case study projects were first put into place because of concerns expressed by Aboriginal communities. For example:

- De Beers Victor Diamond Mine– Attawapiskat First Nation expressed concerns over possible mercury contamination of their potable water supply by the Victor Diamond mine. During the Environmental Assessment, it was determined that there is a pre-existing, naturally occurring, high mercury content in the local river water. A monitoring and research program was put into place to better understand the issue.
- Faro Mine – The Selkirk First Nation initiated the mine closure monitoring program as they wanted to understand the downstream effects of the Faro Mine on local receiving waters.
- Tembec Forestry - The Regional Water Quality Network, one of two main components of the environmental monitoring program for the Black River forest, was designed and implemented to address Elders' concerns about water quality impacts of forestry.

Listening to community concerns, taking them seriously, and working with the communities to implement solutions would fall in to the ‘involve’ category of the IAP2 spectrum. In the examples given above it is clear that community input directly influenced decisions around environmental management and monitoring.



When combined with other efforts, such initiatives can be considered a best practice that can make for an effective and Aboriginal community-supported environmental management and monitoring program. When a company is responsive to a community’s concerns in this way, it helps to build and maintain long-term trusting relationships and keep the environmental management and monitoring program flexible and responsive.

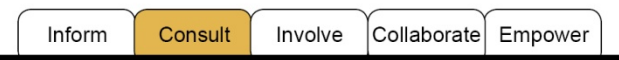
3.3.11 TEK Integration

Aboriginal Traditional Knowledge reflects many thousands of years of living and surviving on the land, and the existence of Aboriginal communities today is clear evidence of the value of Traditional Knowledge (TK, also called Traditional Ecological Knowledge or TEK). Some project proponents have recognized the importance and value of integrating TK with scientific knowledge as part of its environmental management and monitoring program.

Examples of the use of TK in environmental management and monitoring include:

- De Beers Victor Diamond Mine– The Environmental Management Committee incorporates TEK where appropriate. A TEK management plan has been reviewed and put into place by the Committee. There are on-site “Mine Monitors” who report to the First Nation community using TEK.
- Diavik Diamond Mine - Diavik runs a Community Traditional Knowledge Camp every summer for the neighbouring Aboriginal communities. Elders, adults and youth participate in workshops that blend traditional knowledge with science. They study fish palatability, water quality monitoring and caribou monitoring.
- Raglan Mine – The Arctic char monitoring program integrated TK into a Joint Scientific Fishing Program. Traditional Inuit Knowledge of the environment was also a factor in environmental impact assessments prior to mine operation.
- Snap Lake Mine - The Snap Lake Environmental Agency includes TK and conventional science in assessment of mining activities and environmental reports. There is a TK panel that consists of elders who have hunted, trapped and lived in the area of the mine site, and a science panel of experts.

Use of TK in environmental management and monitoring is considered to be on the ‘consult’ level of the IAP2 spectrum. The most common approach includes documenting TK and providing feedback about how it was used in decision-making.



While TK is not as high on the IAP2 spectrum, it’s incorporation in an environmental management and monitoring program compliments the scientific data and can provide more complete data on which to base decisions. For example, Xstrata decided to shorten the shipping season and avoid ice breaking pre-operation of the Raglan mine, based on local knowledge of Arctic char and marine mammal migration patterns. In the Victor Diamond Mine EA process, TK identified the existence of limestone karst geology around the proposed mine site and its potential

effects on mine dewatering. Scientific study confirmed its existence, and led to design changes to the mine which saved De Beers significant costs in mine development and operation.

3.3.12 Collaborative EM Design

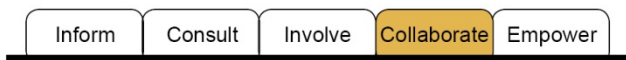
A step up from a program which is response to community concerns, is one which has direct involvement of the community (or community representatives) in key stages of the design of the monitoring program. Based on our study, it appears that fewer than half of the case study projects engaged Aboriginal people to this extent. Nevertheless, there are many ways that such participation could take place including, amongst others:

- Workshops to translate community concerns into indicators for monitoring programs
- Use of Traditional Knowledge to set thresholds or limits of acceptable change for environmental management
- Funding of Aboriginal communities to retain third-party expertise to provide input on their behalf into monitoring program design, or to mentor community members who are involved in program design
- Engagement of Aboriginal environmental organizations or staff to provide input and/or to provide awareness building or education sessions for community members involved in program design
- Incorporation of Traditional Knowledge-based monitoring methods into the program

Some examples of those projects that did involve Aboriginal peoples in the design of monitoring programs include:

- Athabasca Mine – The environmental monitoring program was developed by the Athabasca Working Group, which is made up of people from three First Nation communities, as well as members of two nearby towns in addition to company representatives. The Working Group brought the stakeholders together to design and implement a community-based environmental monitoring program. Water, air, plants, fish and animal tissues such as caribou and moose are sampled in and around the communities with the help of local hunters and other residents.
- ORCA Sand and Gravel - The Namgis First Nation was directly involved in the design of the project during its earliest conceptual planning stages. Collaboration between Polaris and Namgis during the three years of planning led to the integration of community values in the development plan and the establishment of a monitoring program for abalone and salmon.
- Syncrude Canada Ltd. - The Mikisew Cree First Nation and the Centre for Indigenous Environmental Resources are developing a monitoring program for water, land, plants and animals that rely on both scientific and Traditional Knowledge-based monitoring methods. They are training local people to become Environmental Guardians, who will collect, analyze and store information.

Aboriginal participation directly in the design of an environmental management and monitoring program would be considered at the 'collaborate' level on the IAP2 spectrum.



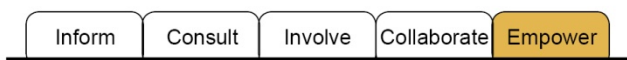
It is more likely that potentially impacted Aboriginal communities will view the results of an environmental management and monitoring program as legitimate if they were involved in the design of the program.

3.3.13 Veto Power

Veto power is defined as the ability to make a binding decision on some aspect of mine operations if certain conditions occur which threaten the environment and/or Aboriginal livelihood interests.

In our research, Aboriginal communities had limited veto powers in two cases which related directly to their livelihood interests:

- Orca Sand and Gravel- The Namgis First Nation conducts a monitoring program to assess the effects of the mine operations on nearby abalone and salmon spawning habitat. Namgis negotiated the option of slowing or stopping production during critical ecosystem periods for these species if effects were detected.
- Red Dog Mine- The Subsistence Committee for the mine is comprised of Aboriginal elders from the Kivalina and Noatak villages. The purpose of the Committee is to ensure that all exploration, development and mining activity at the mine site is consistent with sound stewardship principles and will not harm or threaten the subsistence needs and the physical, cultural, social and economic needs of the indigenous people of the NAN region. During the caribou migration season, the Subsistence Committee have authority to close down the mine haul road if they legitimately feel its impact will be detrimental to their subsistence harvesting of caribou.



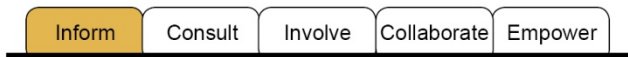
Given the direct authority such a veto power provides in influencing mine operations to protect Aboriginal interests, it is located on the “empower” category of the IAP2 Spectrum. In our analysis, veto powers remain a relatively rare opportunity for Aboriginal communities in mine EM.

3.3.14 Company EM Reporting

In a few of the case studies, “Mine Monitors” or technicians are employed to conduct environmental monitoring activities and report back to the community. It is assumed that these monitors / technicians are non-Aboriginal employees of the companies. The case study examples include:

- De Beers Victor Diamond Mine – On-site “Mine Monitors” report to the First Nation community about environmental monitoring at the Victor mine. There is an on-site environmental testing lab.
- Ekati Diamond Mine - At BHP Diamonds Inc, environmental technicians monitor airborne dust and emissions, fish populations, microscopic water-borne animals and plants, stream flows and water samples, and animals living on lands and in waters.
- Faro Mine - The Faro Mine Complex has a Care and Maintenance department. They measure and monitor water quality at over 300 locations and collect over 1000 water samples annually in and around the Faro mine. The samples are tested by an independent lab for 50 different substances. The Department provides summaries of its results on a regular basis to Aboriginal communities.

In these scenarios, the companies are conducting the research and informing the communities about the results of environmental monitoring, rather than engaging them in the monitoring directly. This would be categorized at the ‘inform’ level on the IAP2 spectrum.



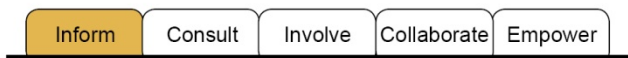
It is important for environmental monitoring to be carried out by an appropriately skilled person. It is also a best practice to provide Aboriginal communities with the results of environmental monitoring activities in a timely and transparent way. However, in some cases, the results are likely to be considered more credible if Aboriginal people are involved in the environmental monitoring and/or if an objective independent environmental monitor was involved in the data collection and analysis.

3.3.15 Independent EM Reporting

Some of the mining companies employ an independent third party to carry out environmental monitoring. Examples include:

- Athabasca Mine - Samples of caribou, lynx and moose gathered by local people through the course of normal hunting activity are sent to the Saskatchewan Resource Council laboratory for analysis.
- De Beers Victor Diamond Mine– While De Beers does some of its environmental monitoring on site, independent water testing is also carried out.
- Faro Mine - The Faro Mine Complex Care and Maintenance Department measure and monitor water quality at over 300 locations and collect over 1000 water samples annually in, and around, the Faro mine. The samples are tested by an independent lab for 50 different substances.
- Polaris Mine Closure – External contractors were responsible for providing technical expertise in supervising environmental remediation. The Nunavut Water Board assigned a coordinator to keep residents informed of the activities on site.

On the spectrum of public participation, independent environmental monitoring could be considered 'inform' if the results are communicated back to the community.



An independent environmental monitor can add expertise and credibility to the program. This practice can be enhanced if Aboriginal community members are trained and able to work with the independent environmental monitor to analyze results, as described below.

3.3.16 Field Data Collection

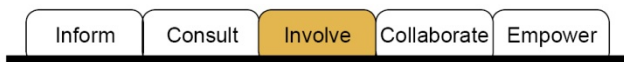
From the information gathered for this study, it appears that about half of the companies involve Aboriginal people in environmental monitoring field data collection.

Some examples of Aboriginal community participation in field data collection include:

- Athabasca Uranium Mines - Water, air, plants, fish and animal tissues such as caribou and moose are sampled in and around the communities with the help of local hunters and other residents.
- Diavik Diamond Mine – Aboriginal elders from local communities help Diavik monitor caribou within the region.

- Faro Mine – With technical assistance from Denison Environmental Services (an independent consultant) and the Yukon government, Selkirk First Nation field crews gather data for environmental monitoring.
- ORCA Sand and Gravel - The Namgis First Nation is conducting a monitoring program to assess the effects of the operation on nearby abalone and salmon spawning habitat. Extensive abalone restoration and conservation of *t'lakstan* (a popular edible seaweed), harlequin ducks, and salmon were all undertaken by the Namgis FN with financial and personnel assistance from Polaris.
- Polaris Mine Closure - Local residents of the adjacent Inuit community were hired and trained to assist with the environmental site assessment and to assist in guiding and assessing the effectiveness of the reclamation work in 2003. Post-closure, local residents have assisted with the environmental monitoring of the site.

Aboriginal community participation in field data collection would be classified at the 'involve' level on the IAP2 spectrum, as project proponents are working directly with Aboriginal people to carry out this activity.



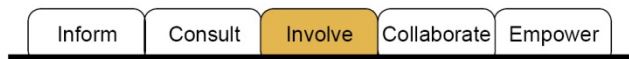
Involving Aboriginal people in the field data collection is a best practice for a number of reasons. The results are more likely to be viewed as legitimate, as the people who collected and/or analyzed the data were from the community. It is also more likely for there to be an increased understanding among Aboriginal people about what environmental monitoring is and what the results mean if they are involved in the activity directly. Experience and skill-building are other potential benefits. It is not clear whether Aboriginal people are always employed to carry out such work, but financial gain would be another benefit in cases where they are.

3.3.17 EM Jobs

Based on the information that was available, it appears that Aboriginal people are only employed to carry out environmental management and monitoring in a small number of the case studies reviewed. Those examples include:

- Musselwhite Mine – First Nation communities supported Placer Dome and Kinross Gold Corporation in mine development by providing labour and goods and services. First Nation personnel have also been engaged in environmental monitoring duties.
- Polaris Mine Closure - Qikiqtaaluk Corporation, an Inuit-owned firm, was retained as a subcontractor to provide equipment operators, mechanics and general labourers. Local residents were also hired and trained to assist with the environmental site assessment and to assist in guiding and assessing the effectiveness of the reclamation work in 2003. Post-closure, local residents have assisted with the environmental monitoring of the site. They have been retained by other mining companies as equipment operators and mechanics, and to monitor and guide environmental activities.
- Syncrude Canada Ltd. – Aboriginal businesses provide Syncrude with a broad range of goods and services, including environmental monitoring and reclamation. From 1992 to 2006, Syncrude spent \$1 billion in contracts with Aboriginal companies.

Aboriginal employment would be classified at the 'involve' level on the IAP2 spectrum.



Employing Aboriginal people in environmental management and monitoring is a better practice than simply involving them in volunteer roles, as it provides people with work experience, employability skills, and economic benefits. It can also make people feel that their contribution is more valued when they are properly compensated for their efforts.

A few of the companies (e.g. De Beers Victor Diamond Mine and Polaris ORCA Sand and Gravel) have agreed to employ Aboriginal people at the project site as part of their Formal Agreement. However, it was not clear whether there are any people employed specifically in environmental management and monitoring activities. Teck Cominco agreed that 100% of hourly wage jobs at the Red Dog Mine would be filled by Northwest Alaska Native Association members within 12 years of mine opening, however the company claims that this continues to be a challenge on the basis of a shortage of skilled labour for the positions required. Appropriate training and capacity-building for environmental positions is required, and would be key practice supporting employment in these roles.

3.3.18 EM Capacity-Building

Environmental management and monitoring activities require certain skills. For example, environmental management can require decision-making skills, communication skills, technical skills, committee experience, skills on how to run a meeting, policy development skills, and planning skills, among others. Other technical skills are required to ensure that data collected as part of an environmental monitoring program is scientifically defensible. Depending on the type of environmental monitoring, there can also be specific scientific, industrial and technical skills that are needed.

Capacity-building in the form of skills development, training, mentoring, and job experience, is carried out in some of the case study projects. Some examples include:

- Faro Mine - Selkirk First Nation is said to be increasing its training, capacity-building and local understanding of the site. In March 2010, Denison Environmental Services provided training to Keyeh Nejehe Golder Corporate (a partnership with Liard First Nation) on water monitoring. Trainees were taught how to collect samples, and how to filter and preserve bulk samples at new on-site lab.
- Polaris Mine Closure - Local residents were trained to assist with environmental site assessment and to assist in guiding and assessing the effectiveness of the reclamation work in 2003.
- Tembec Inc. - Black River First Nation, whose traditional territory is located in the heart of Tembec's forestry operations in Eastern Manitoba, approached Tembec to set up educational programs to teach forestry related courses. This has been a highlight of the Tembec / Black River First Nation partnership, and led to a number of awards to the First Nation for environmental stewardship. The Black River First Nation played a leadership role in developing community capacity to participate in environmental monitoring initiatives, and to design and lead them. Chief and Council established a formal Environmental Department, originally staffed with outside research scientists, with the goal of building capacity over time by working with youth.
- Voisey's Bay - The Innu Environmental Guardians Training Program involves participation in active Innu Nation co-management activities, environmental monitoring projects and environmental research partnerships currently underway, including the Voisey's Bay Project. The Training Program enhances the capacity of the Innu Nation to manage Innu lands and resources, design and implement

environmental management and research to take full advantage of Voisey’s Bay IBA, conduct effective environmental compliance monitoring under the Voisey’s Bay IBA, network with organizations in Environmental Monitoring and co-management partnerships, ensure appropriate use and protection of Innu knowledge and cultural heritage, provide technical and logistic support to collaborative environmental monitoring projects, ensure consistent environmental reporting back to the Innu people, and develop environmental education materials for use in the Innu communities.

These capacity-building training programs would be considered at the ‘involve’ level of the IAP2 spectrum of public participation, as building capacity helps increase the ability to participate effectively in current and future environmental efforts.



Capacity-building is an important best practice for project proponents. Lack of knowledge, skills, or experience can be major barriers for participation in environmental programs, or having a meaningful influence on environmental decisions. Capacity building helps to create a level playing field for those who are asked to participate in such efforts.

3.3.19 EM Participant Funding

It was unclear from reviewing many of the case studies whether funding was provided to Aboriginal communities for their involvement in environmental management and monitoring activities beyond employment opportunities- such as for committee or advisory board participation. Those which did talk about providing funding included:

- Diavik Diamond Mine – Diavik funds the Environmental Monitoring Advisory Board that provides advice and oversees environmental issues.
- ORCA Sand and Gravel – The Namgis First Nation is carrying out a monitoring, restoration and conservation program of *t’lakstan* (a popular edible seaweed), harlequin ducks, and salmon with financial assistance from Polaris.

Similar to capacity building, financial compensation and participant funding help to increase the community or individual’s ability to participate effectively in current and future environmental efforts.



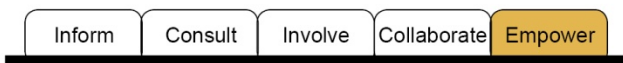
Though many of the case studies did not specify that funding was provided, it could be assumed that some funding would have to be provided to the Aboriginal communities to support their involvement in environmental management and monitoring activities. Some of the companies provide funding to the communities under IBAs or other agreements, which could potentially be used for this purpose, though it was not stated in the documents reviewed. However, it was noted in the Raglan Mine case study that the Raglan Committee lacks a dedicated budget. Providing appropriate funding to facilitate Aboriginal involvement in environmental management and monitoring is a key factor of success.

3.3.20 Aboriginal Leadership in EM

In some of the case studies reviewed it was clear that the Aboriginal partners had a strong leadership role in developing and carrying out the environmental management and monitoring programs. Some examples include:

- ORCA Sand and Gravel - The ORCA Quarry is jointly owned by Polaris Minerals Corporation (88%) and the Namgis First Nation (12%). All concerns about perceived and project related changes in the monitored ecosystems are brought to the attention of the Orca Sand and Gravel Board of Directors, which includes a Namgis First Nation member. The Namgis First Nation is conducting a monitoring program to assess the effects of the operation on nearby abalone and salmon spawning habitat.
- Diavik Diamond Mine- Aboriginal elders from local communities are charged with monitoring caribou within the region, and report back to the environmental monitoring advisory board created under the Environmental Agreement. The board includes representatives from the five neighbouring Aboriginal groups, government agencies, and Diavik Diamonds Mines Inc.
- Tembec - Black River First Nation is responsible for all plot establishment and data collection in a long-term monitoring program to examine the effects of climate change on the boreal forest of eastern Manitoba. High school students participate in field data collection. Data collection includes species composition of the herb, shrub and tree layers, aging trees, estimating tree height, assessing tree health, measuring soil pH, moisture and temperature, monitoring air temperature and relative humidity, and assessing small mammal species composition and abundance through live trapping.

Aboriginal leadership in an environmental management and monitoring program could be considered at the ‘empower’ level on the IAP2 spectrum of public participation. Most of the relevant case study examples relate to a company inviting an Aboriginal community to take a leadership role in the program. However, the leadership role of many of the communities in our research was relatively small. The Black River First Nation’s involvement with Tembec seems to be the best example of a program with significant Aboriginal leadership and influence.



As noted in the Tembec Forestry example, support of community leadership can help strengthen the entire community’s involvement in the program, by providing a champion, a vision and dedicating resources to the program. Leadership of the program can also bring significant benefits to the community through funding, training, employment, knowledge, and through knowledge and data- influence.

3.4 Evaluating the Elements of Success

Many of the elements of success described in section 3.3 were common across more than one of the case studies, indicating an area of best practice. The IAP2’s Spectrum of Public Participation, as well as the consulting team’s experience and expertise, were used to further screen and evaluate the merits of the elements of success. We have located these elements of success on the IAP2 Spectrum in Figure 3 to provide an easy way to evaluate how they translate into a degree of influence. This diagram presents a “menu” of different possibilities that an Aboriginal community, proponent, or Crown agency could pursue to increase Aboriginal participation in environmental matters related to mining projects.

Figure 3: Key factors of success from EM* case study research on the IAP2 Spectrum of Public Participation

| | Inform | Consult | Involve | Collaborate | Empower |
|--|---|--|---|---|--|
| Definition | To provide balanced and objective information in order to understand the problem, alternatives, opportunities and/or solutions. | To obtain feedback on analysis, alternatives and/or decisions. | To work directly with affected parties throughout the process to ensure that their concerns and aspirations are consistently understood and considered. | To partner with affected parties in each aspect of the decision including the development of alternatives and the identification of the preferred solution. | To place a significant degree of decision-making power in the hands of affected parties. |
| Working Relationships | | <ul style="list-style-type: none"> Trust-Building Ongoing Dialogue | <ul style="list-style-type: none"> Environmental Governance | <ul style="list-style-type: none"> Partnerships Formal Agreements Collaborative Governance | <ul style="list-style-type: none"> Membership on Board of Directors |
| Involvement in Environmental Management | | <ul style="list-style-type: none"> Permit Review TEK Integration | <ul style="list-style-type: none"> EM Plan Responsive EM Program | <ul style="list-style-type: none"> Collaborative EM Design | <ul style="list-style-type: none"> Veto Power |
| Involvement in Environmental Monitoring | <ul style="list-style-type: none"> Company EM Reporting Independent EM Reporting | | <ul style="list-style-type: none"> Field Data Collection EM Jobs EM Capacity-Building | <ul style="list-style-type: none"> EM Participant Funding | <ul style="list-style-type: none"> Aboriginal Leadership in EM |

*Note: EM=environmental monitoring and management

4. Conclusions

Based on our findings, it would appear that there are several key elements which represent the evolving area of “best practice” in meaningfully involving Aboriginal communities in environmental monitoring and management of mines, and which we put forward as recommendations:

1. **Develop a formal Environmental Management Agreement-** Recommend a three party agreement between the Aboriginal community, the Proponent, and the Crown which should address the elements listed below. Other parties to the agreement might include the other Aboriginal communities with an interest in the project.
2. **An Environmental Management Committee (EMC) should be developed which includes representatives of key Aboriginal communities-** The advisory body may report to both the Crown agencies and the proponent with its recommendations, and should be tasked with permit review, and have input to the development of environmental management plans for mine construction/operations, design of environmental monitoring programs, regular review of environmental monitoring results, closure plan updates, and notifications and responses for spills and emergencies as applicable. A communications and consultation protocol between the parties should be established early on for information sharing and engagement to support the Committee’s role.
3. **The Aboriginal community (via the EMC, if developed) should have an opportunity to review and comment on all permits, licences and authorizations** being submitted to Crown agencies prior to submission, and be provided with the funding to retain its own independent expertise for such reviews.

Furthermore, the community may wish to submit any reviews it undertakes to the Crown regulatory authorities during or after discussions of its findings with the Proponent.

4. **The Aboriginal community (via the EMC, if developed) should be engaged in providing feedback on the design of an environmental management plan and environmental monitoring programs** for the mine construction and operations, and continue to be engaged in all efforts to update the closure plan for the mine.
5. **The Aboriginal community (via the EMC if developed) should be funded to undertake its own periodic independent evaluations of monitoring programs** and results, with full disclosure of such information by the Proponent.
6. **The Aboriginal community, in partnership with other communities as applicable, should be funded and provided other assistance (training, expertise, technical support) to lead environmental monitoring programs** related to their traditional livelihood interests.
7. **The Aboriginal community, in partnership with other communities as applicable, should be engaged in mine remediation and reclamation work** where it would be of benefit to their traditional livelihood interests. Such engagement should include training and skills development, employment, and exclusive contract opportunities, as applicable.
8. **A formal dispute resolution process** should be incorporated into the Environmental Management Agreement to address any shortcomings or disagreements on the part of any party to the Agreement, to ensure a fair process and. and constructive resolution of problems for the continued viability of the Agreement.

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Appendix A

Case Study Reports

ATHABASCA URANIUM MINES

Location: Athabasca Region, Saskatchewan

Description of Project:

Mining activity in the Athabasca Region of Saskatchewan has included mining and milling of uranium ore at Rabbit Lake by Cameco, the Cigar Lake Project by Cigar Lake Mining Corporation, Cogema's mining and milling of uranium ore at the McLean Lake Project and the development of the Midwest Project.

Process and players of Environmental Management & Monitoring Program:

The companies involved in the Athabasca Impact Management Agreement are Cameco Corporation, Cogema Resources Inc., and Cigar Lake Mining Corporation. The community stakeholders are the Hatchet Lake Denesuline First Nation, Black Lake Denesuline First Nation, Fond du Lac Denesuline First Nation, the Northern Hamlet of Wollaston Lake and the Northern Settlements of Stony Rapids, Uranium City and Camsell Portage. The agreement is administered by the Athabasca Working Group, which is composed of representatives of the communities and the companies.

Information about negotiation process (establishing program):

The aforementioned companies identified the stakeholder communities as the primary impact communities for the projects. The agreement-in-principle was signed May 30, 1994. The Athabasca Impact Management Agreement was developed in 1999 as a result of the continuing and proposed activities. It includes provisions for environmental management and monitoring. The environmental monitoring program was developed by the Athabasca Working Group in 2000.

Environmental Management Program:

The Athabasca Impact Management Agreement was created to prevent emissions and compensate residents who have endured losses due to emissions from mining activities. The agreement also provides provisions for employment, training and business development opportunities, and benefit sharing.

The Environmental Protection and Compensation component of the agreement details the steps a company responsible for an emission must follow, and outlines the types of losses covered by the agreement. The agreement sets out a claims settlement process. The Claim Settlement Board is a three person board, comprised of a representative of the company, a representative of the affected community, and a mutually acceptable independent third party, who chairs the board.

Environmental Monitoring Program:

The Athabasca Working Group was initiated in 2000, and brought stakeholders together to design and implement a community-based environmental monitoring program. Water, air, plants, fish and animal tissues such as caribou and moose are sampled in and around the communities with the help of local hunters and other residents. Communities are also responsible for appointing representatives and local people who through the course of normal hunting activity will obtain samples of caribou, lynx and moose. The samples are sent to the Saskatchewan Research Council laboratory. Since 2000, the chemical analysis of the samples has indicated no effects from uranium mining. The elements in the water, plants, fish and animals that were analyzed were well below government guidelines for consumption by people.

The communities are allowed to participate in the development of decommissioning and reclamation plans for any new mine sites in the Region.

Nature of First Nation role:

The agreement formalizes the dispute resolution process for affected First Nation communities, and a member of the community sits on the Claim Settlement Board. First Nation communities also take part in environmental monitoring.

DE BEERS VICTOR MINE

Location: James Bay Lowlands, Northern Ontario

Description of Project:

The De Beers Victor mine is Ontario's first diamond mine which became operational in 2008. The traditional territory of Attawapiskat First Nation extends along the river tributaries past the Victor mine site.

Process and players of Environmental Management & Monitoring Program:

De Beers has spent \$167 million with Aboriginal businesses and joint venture partnerships. They have an Impact Benefit Agreement (IBA) with Attawapiskat First Nation (signed November 2005), a working relationship with Taykwa Tagamou Nation (as of May 2005), an IBA with Moose Cree First Nation (signed September 2007) and an IBA with Kashechewan and Fort Albany First Nation (signed February 2009).

Information about negotiation process (establishing program):

Traditional harvesters from Attawapiskat First Nation regularly hunt caribou, goose, and fish along the Attawapiskat River, while tending trap lines throughout the region. There were many local concerns about the potential socio-cultural impacts of mining. While the proposed development of a mine could bring economic benefits, there were concerns regarding environmental protection and cultural preservation. However, the Chief and Council of Attawapiskat made the decision to continue working with De Beers in the hopes of signing an IBA. At De Beers' invitation, Attawapiskat sought to ensure that any environmental impacts of the mine would be effectively mitigated. De Beers began a campaign to build relationships and foster trust with the community, which included over 100 community meetings. De Beers provided funds for the communities to contract external advisors to provide third-party insight to local and regional issues and interests.

Environmental Management Program:

The IBA with Attawapiskat details how the project impacts will be mitigated and includes commitments from De Beers regarding environmental management. A local based Environmental Management Committee (EMC) has been established between De Beers Canada and the Attawapiskat First Nations as part of the IBA. The EMC operates under guidelines that use adaptive management and precautionary principles to undertake continual improvement to the environmental management process. The EMC incorporates community views and Traditional Ecological Knowledge (TEK), where appropriate. Management plans such as emergency response, caribou monitoring, fish, water and TEK management plans, have been reviewed and put into place by the EMC. A Revegetation Program has also been established, to use local species and work with Laurentian University on methods for mine reclamation, erosion prevention and channel stabilization.

The Closure Plan for the mine includes a \$41.9 million bond. There is a three year plan to close the mine, remove materials, contour the landscape and revegetate where needed.

Environmental Monitoring Program:

Environmental monitoring initiatives at the De Beers Victor mine include independent water testing and an environmental testing lab at the mine site. There are on-site "Mine Monitors" who report to the First Nation community using traditional ecological knowledge.

There was concern expressed by some members of the Attawapiskat First Nation over possible mercury pollution of potable water supply. During the Environmental Assessment, it was determined that there is pre-existing, naturally occurring, high mercury content in the local river water. A monitoring program was put in place and a research program established to better understand the issue.

Post-closure there will be two years of additional environmental monitoring with the community.

Nature of First Nation role:

The Victor environmental team includes about 50% full-time members from local First Nation communities. Attawapiskat and their consultants can review all permit requests before they are submitted to the government, ensuring that no permits are sought without consultation and approval from the community. One challenge to the First Nations involvement in environmental management and monitoring is educating and retaining local workers for

DE BEERS VICTOR MINE

positions that require industrial certifications and advanced training. Despite these challenges, the Attawapiskat First Nation is reportedly pleased with the implementation of the environmental protection section of the IBA. In particular, the locally-based Environmental Monitoring Committee (EMC) has managed to draw on local traditional knowledge and expertise to identify changing patterns of nearby caribou herd movement, likely in response to the mine.

DIAVIK DIAMOND MINE

Location: 300 km northeast of Yellowknife, Northwest Territories

Description of Project:

The Diavik Diamond Mine is mining three diamond-bearing ore bodies called kimberlite pipes, under the waters of Lac de Gras, over a 16 to 22 year period. Construction of the mine began in January 2001 and extraction started in January 2003. The Diavik Diamond Mine operates in an untouched and ecologically sensitive environment. The surrounding tundra is home to bears, wolverine and caribou.

Process and players of Environmental Management & Monitoring Program:

Diavik Diamond Mines Inc. manages and operates the Diavik Diamond Mine. There are five local Aboriginal groups including the Dogrib First Nation, the Yellowknives Dene First Nation, the Kitikmeot Inuit Association, the North Slave Métis Alliance, and the Lutsel K'e Dene First Nation, which have an interest in the mine site.

Information about negotiation process (establishing program):

Before the mine was built, five local Aboriginal groups entered into Participation Agreements with Diavik. Most of the agreements included the formation of formalized implementation committees to externally verify Diavik's performance and provide recommendations for improvement.

Environmental Management Program:

In March 2000, Diavik signed an Environmental Agreement with local Aboriginal groups and the federal and territorial governments, which formalizes the company's environmental protection commitments. Diavik is responsible for managing activities to protect the environment, training all Diavik's employees, anticipating and avoiding environmental problems, ensuring regulatory compliance and due diligence, and ensuring consistency with the business's corporate environmental policy.

Environmental Monitoring Program:

Under the Socio-Economic Monitoring Agreement between Diavik Diamond Mines Inc and the Government of the Northwest Territories, Diavik funds an Environmental Monitoring Advisory Board that provides advice and oversees environmental issues. The majority of the Board members are appointed by Aboriginal communities.

One of the initiatives under the monitoring program includes using advisory signs on haul roads to protect migrating caribou. To protect water quality, Diavik constructed an extensive water collection system to protect surrounding lake waters, so that run-off water is collected, processed and treated before being released to the environment. Diavik also has the Aquatic Effects Monitoring Program, where lake water is sampled and analyzed at regular intervals and at set locations. As part of the ore bodies are under Lac de Gras, Diavik Diamond Mine recreated new fish habitat so there will be no net loss of fish habitat.

Diavik also runs a Community Traditional Knowledge Camp every summer for the neighbouring Aboriginal communities. Elders, adults and youth participate in workshops that blend traditional knowledge with science. They study fish palatability, water quality monitoring and caribou monitoring.

Nature of First Nation role:

The First Nation Communities are formally involved in monitoring and in 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 Diamonds Mines Inc. Communities are also involved through the Diavik Communities Advisory Board under the socio-economic monitoring agreement and in implementation committees under Participation Agreements.

Local Aboriginal knowledge is used for a variety of environmental initiatives. For example, Aboriginal elders from local communities help Diavik monitor caribou within the region. Also, the importance of water quality emphasized by the Dene and Inuit communities led to the implementation of a more sophisticated water collection system. In addition, knowledge shared through community consultation was instrumental in setting up Diavik's progressive reclamation program, which cleans up locations as the mining proceeds. Examples of such reclamation efforts

DIAVIK DIAMOND MINE

include contouring country rock piles to create smooth hills that allow caribou safe access and creation of new fish habitat.

ECHO BAY MINE

Location: Kitikmeot Region, Nunavut

Description of Project:

Echo Bay Mines Ltd. proposed a mining development known as the Ulu project to explore the potential for gold deposits. The Ulu project is a proposed underground gold mine with 1.5 million tonnes of reserves at 0.374 troy ounces of gold per tonne. The previous Lupin gold mine, which opened in 1982, was no longer extracting sufficient gold to be cost effective by 1996. Development of Ulu as a satellite deposit began in 1996. The Ulu project would extend Lupin's life by six to seven years.

Process and players of Environmental Management & Monitoring Program:

The Echo Bay IBA was developed between Echo Bay Mines Ltd. and the Kitikmeot Inuit Association in 1997-1998, but the project was put on hold by Echo Bay Mines due to falling prices in precious metals. The prefeasibility study was later initiated in 2005 by the owners, Wolfden Resources Inc.

Information about negotiation process (establishing program):

The previous Lupin gold mine had not required an Impact Benefit Agreement (IBA) as it was outside of Kitikmeot Inuit land and began production before the Nunavut Land Claim Agreement. Ulu required an IBA because it was located on Inuit-owned land.

Echo Bay Mines had a good working relationship with the Kitikmeot Inuit Association. In addition, Echo Bay spoke and consulted with smaller communities.

The key components of the agreement are environmental, contracting and subcontracting, training and education, employment, social, cultural and community support, archaeological, outpost/seasonal camps, access to facilities and roads, research and development, abandonment and reclamation, and dispute resolution.

Environmental Management Program:

The Echo Bay IBA includes provisions for Inuit communities involved to minimize any adverse environmental or social impacts from the mine. All environmental conditions contained in the operating licenses and permits must be complied with. Compensation for impacts of the project on wildlife or wildlife harvesting was determined pursuant to Article 6 of the Nunavut Land Claims Agreement.

Echo Bay is responsible for carrying out abandonment and reclamation efforts for the project throughout the life of the project consistent with the terms and conditions of any permits and leases.

Environmental Monitoring Program:

There is little information available about the nature of First Nations and Inuit involvement in environmental monitoring.

Nature of First Nation role:

There is little information available about the nature of First Nations and Inuit role in environmental management and monitoring.

EKATI DIAMOND MINE

Location: Lac De Gras, Northwest Territories (350 km north of Yellowknife)

Description of Project:

BHP Diamonds, Inc. holds mineral claims, land use permits, and other licenses and permits for the lands located in the Lac De Gras area and operates a mine on these lands. This claim is located within a geographical area that has been used and occupied by the Inuit and other Aboriginal peoples.

Process and players of Environmental Management & Monitoring Program:

The stakeholders are BHP Diamonds Inc., the Dogrib (T'Licho) Treaty 11 Council, the Akaitcho Treaty 8 Council, the North Slave Métis Alliance and the Kitikmeot Inuit Association. BHP committed to mitigating negative impacts on the environment, wildlife, and harvesting rights of the Inuit that arise as a result of the project.

The BHP Diamond Impact and Benefit Agreement (IBA) was developed to represent the mutual interests of all parties involved in the project. The IBA provides a framework to ensure that training, employment and business opportunities are made available to the Inuit and that any potential adverse environmental and social impacts of the project are minimized.

Information about negotiation process (establishing program):

The BHP Independent Environmental Monitoring Agency is a non-governmental organization set up in 1996 as part of the Environmental Assessment process to monitor and minimize environmental impacts of the BHP Billiton Ekati Diamond Mine. In January 1997, a legally binding Environmental Agreement was signed. It contained an Implementation Protocol signed by the Aboriginal organizations, Ekati Diamond Mine, and the federal and territorial governments. This protocol provided the basis to establish the Monitoring Agency, an impartial, independent and knowledgeable third party to monitor the environmental management of the mine, and to meet the needs of Aboriginal peoples (whose traditional lands would be affected by the diamond mine). The BHP Diamonds Project IBA, signed in December 1998, provides an effective ongoing working relationship between stakeholders.

Environmental Management Program:

The BHP Diamonds Inc. Environmental Agreement establishes the Independent Environmental Monitoring Agency, funded by BHP Billiton. This agency has the responsibility and authority to oversee (but not implement) BHP and government environmental monitoring and management activities. The majority of its members represent local communities and First Nations; there is no direct representation of BHP or the federal or territorial governments who are signatories to the agreement.

The mandate of the Environmental Agency is broad and includes:

- Serve as a public watchdog of the regulatory process and the implementation of the Agreement
- Compile and analyze environmental quality data, report and make recommendations concerning BHP's environmental and cumulative effects monitoring programs; Government compliance monitoring reports; Environmental plans and programs; Corporate annual reports and environmental impact reports; Federal and Territorial monitoring activities and management programs; and the integration of traditional knowledge and expertise into environmental plans and programs.
- Participate as an intervenor in dispute resolution and legal processes respecting environmental matters
- Maintain a public repository of environmental data, studies and reports
- Provide programs for effective dissemination of information to the Aboriginal Peoples and general public.
- Provide an effective means to bring concerns of Aboriginal Peoples and the public to BHP and governments

Environmental Monitoring Program:

At BHP Diamonds Inc, environmental technicians monitor airborne dust and emissions through the Air Quality Monitoring Program. They also monitor fish populations, microscopic water-borne animals and plants, stream flows and water samples through the Aquatic Effects Monitoring Program. Through the Wildlife Effects Monitoring Program, animals living on lands and in waters within the lease area are monitored. There have been studies aimed at integrating traditional knowledge with the mine's environmental management practices.

EKATI DIAMOND MINE

Nature of First Nation role:

The Environmental Agency is mostly comprised of local communities and First Nations.

FARO MINE

Location: Yukon Territory

Description of Project:

The Faro Mine was a lead and zinc mine that was operational from 1969 to 1998. It is located in the Traditional Territory of the Ross River Dena Council and upstream from the community of Pelly Crossing (home to Selkirk First Nation).

Process and players of Environmental Management & Monitoring Program:

Selkirk First Nation initiated the mine closure program in 2001 as they wanted to understand the downstream effects of the Faro Mine on local receiving waters. The program was expanded in 2004 to include additional monitoring on Anvil and Blind Creeks, and Pelly River. The monitoring program continued in 2005 and 2006. The program was modified in 2007 to include Ross River Dena Council.

Information about negotiation process (establishing program):

The Faro Mine Closure plan sought community input from Selkirk First Nation and Ross River Dena Council, and the Town of Faro. Some community challenges experienced by Ross River Dena Council included time constraints, complexity of the project, lack of continuity and varying levels of knowledge. Some community challenges experienced by Selkirk First Nation included lack of public attendance at meetings, lack of capacity/training, scheduling difficulties, ensuring people of the water quality, and lack of participation due to project complexity (may not be fully understood)

Environmental Management Program:

The Faro Mine Closure Office (FMC) was created in 2003 to develop a closure and remediation plan for the Faro Mine complex. In 2004, the Canadian and Yukon governments entered into a joint agreement with Ross River Dena Council and Selkirk First Nation to work together on development of a closure and remediation plan. In 2009, the Yukon government handed responsibility for the Faro mine site over to Denison Environmental Services while the closure and remediation plan goes through the Yukon Environmental and Socio-Economic Assessment Act process.

Environmental Monitoring Program:

The environmental monitoring program examines water quality, flow, fisheries, stream and flood plain sediment, and benthos. The Faro Mine Complex has a Care and Maintenance department. They measure and monitor water quality at over 300 locations and collect over 1000 water samples annually in, and around, the Faro mine. The samples are tested by an independent lab for 50 different substances. In March 2010, Denison Environmental Services provided training to Keyeh Nejehe Golder Corporate (a partnership with Liard First Nation) on water monitoring. Trainees were taught how to collect samples, and how to filter and preserve bulk samples at new on-site lab.

Nature of First Nation role:

Selkirk First Nations is increasing their training, capacity building and local understanding of the site. With technical assistance from Denison Environmental Services and the Yukon government, Selkirk First Nation field crews gather data for environmental monitoring. The Faro Project Management Team is based in Whitehorse, but has community-based First Nations offices in Ross River (Kaska) and Pelly Crossing (Selkirk), and the Town of Faro.

MINTO MINE

Location: Yukon (240 km north of Whitehorse)

Description of Project:

The Minto mine is a high-grade, open-pit, copper-gold mine that began commercial production in 2007. Significant exploration potential exists on the Minto property and aggressive exploration programs conducted by Capstone Mining have met with considerable success. An updated pre-feasibility study is currently underway (as of January 2011) for the additional exploration expeditions.

Process and players of Environmental Management & Monitoring Program:

Minto Explorations Ltd., a subsidiary of Capstone Mining Corp., began commercial production at the Minto mine only two years after acquiring the property. The Yukon government administers the mineral rights, while Selkirk First Nation holds the mineral rights.

Information about negotiation process (establishing program):

The Minto mine is proceeding with full participation from the Selkirk First Nation. The mine and the Selkirk First Nation have negotiated a 0.5% net smelter royalty on mine production, and have entered into a Cooperation Agreement that covers environmental issues.

The Yukon government played an important role in guiding the Minto mine through the permitting process. While holding Minto to strict environmental standards, Yukon has worked with the mine proponents to facilitate an efficient review process. This is consistent with Yukon's commitment to develop a positive and robust investment climate as a result of the settlement of land claims and devolution, and a solid partnership between Yukon and First Nations governments. The Government of Yukon helped the company work quickly through the permitting process and assisted the Selkirk First Nation with funding for implementing the Cooperation Agreement between Minto Exploration Ltd. and the Selkirk First Nation. The Co-operation Agreement ensures local employment and contracting opportunities for First Nation businesses, as well as training on construction, mining, processing plant jobs, and it also covers environmental issues.

A Memorandum of Understanding (MOU) was signed between the Yukon government and the Selkirk First Nation in February 2006, to ensure that the Minto mine development provides opportunities and benefits for Selkirk First Nation. Some of the aspects covered in the MOU include regional development impacts and opportunities and the use of land in Minto and Pelly Crossing.

Environmental Management Program:

In September 2009, the Selkirk Renewable Resources Committee sent a letter to Mines Minister, Archie Lang to close the Minto mine, until the mine implements a wastewater system that meets or exceeds the standards set out in the original license. The letter threatened to pursue a court injunction against the mine, as from July to October, Capstone Mining Corporation dumped more than 1 million cubic meters of untreated water into the Yukon River. Environment Canada also expressed concerns about the discharges. However, Minto received special permitting to dump the wastewater under an emergency provision of its license. The mine blames outdated water studies and an unusually heavy spring melt for the discharges. The Selkirk Renewable Resources Committee is calling for run-off to be diverted away from operations and sent to a water treatment plant that should be built (the current water treatment plant does not always work and is only capable of processing one-tenth of the water discharge).

Environmental Monitoring Program:

There is little information available about the nature of First Nations involvement in environmental monitoring.

Nature of First Nation role:

Selkirk First Nation is a stakeholder with which the Minto Mine consults on items such as the life-of-mine plan. Capstone has to make a formal application for the required permit amendments, to increase production, and will have to work closely with the Yukon government, Selkirk First Nation and other stakeholders. Selkirk's Renewable Resources Council focuses on the actions of the Minto mine and brings attention to violations of their operating license. Its Chair is quoted as worrying that several years of Environmental Assessments and careful planning have done little to prevent Minto from polluting, as the territory does not enforce its own rules.

MUSSELWHITE MINE

Location: Northwestern Ontario

Description of Project:

The Musselwhite mine is located on traditional First Nation land. Construction of the mine occurred in 1996 and 1997. Commercial gold production commenced in 1997.

Process and players of Environmental Management & Monitoring Program:

The Musselwhite mine is a joint venture owned by Placer Dome (68%) and Kinross Gold Corporation (32%). Placer Dome is the operator. The local First Nations are Cat Lake First Nation, Kingfisher Lake First Nation, North Caribou Lake First Nation, Shibogama First Nations Council, Windigo First Nations and Wunnumin Lake First Nation.

Information about negotiation process (establishing program):

The Cat Lake First Nation, Kingfisher Lake First Nation, North Caribou Lake First Nation, Shibogama First Nations Council, Windigo First Nations and Wunnumin Lake First Nation signed the first Musselwhite Agreement in 1992 with Placer Dome and Kinross Gold Corporation.

The Musselwhite Agreement contains provisions on the preservation of the environment and heritage of the mine area, local employment and business development opportunities, and ensuring that communities received economic and other benefits from the mine.

Environmental Management Program:

Placer Dome and Kinross Gold Corporation, the First Nation communities, employees, contractors and government worked together to construct the mine safely, in an environmentally sensitive manner, in harmony with surrounding communities, on budget, and on schedule.

The partners are said to be committed to a long-term partnership. Placer Dome and Kinross Gold Corporation are publicly committed to making Musselwhite a safe and profitable mine while respecting the environment and social progress, and without compromising communities, wellness or security. They are committed to environmental protection for all activities at the mine site.

The Musselwhite Agreement is a guide for participants on how the mine would be built and operated. The Agreement is the basis for resolving issues and misunderstandings. An example of dispute resolution was around the discovery of a tar-like substance in the river draining from the property, which led to concern that an oil spill had gone unreported. A commitment to operate a joint monitoring program with Placer Dome, Kinross Gold Corporations and the First Nations personnel restored faith in the program and trust in the relationship when it was discovered that the unknown substance was mosquito larva.

Environmental Monitoring Program:

Besides the existence of a joint monitoring program with Placer Dome, Kinross Gold Corporations and First Nations personnel, there is very little detail on the program.

Nature of First Nation role:

First Nation communities supported Placer Dome and Kinross Gold Corporation in mine development by providing labour, goods and services, and support for mine development during the formal permitting process. First Nation personnel have engaged in environmental monitoring.

ORCA SAND AND GRAVEL

Location: Located near Port McNeill, British Columbia, on Vancouver Island's northern coast.

Description of Project:

The ORCA Quarry is jointly owned by Polaris Minerals Corporation (88%) and the Namgis First Nation (12%). The ORCA project consists of a gravel mine, processing plant and marine ship-loading terminal. The Orca Quarry started commercial production in 2007 and is expected to become Canada's largest sand and gravel quarry by the time it reaches full production, over the course of a 25-plus year operating life. The quarry has a number of long-term sales agreements to provide sand and gravel – up to 6.6 million tonnes per year - to major concrete producers in residential, commercial, and infrastructure construction on the U.S. west coast, Hawaii and coastal British Columbia (BC).

Process and players of Environmental Management & Monitoring Program:

Polaris provided Namgis First Nation with funding for an ongoing monitoring program to assess potential changes in salmon spawning and abalone habitat in project adjacent creeks and reefs.

Information about negotiation process (establishing program):

As part of the B.C. treaty process, the Namgis First Nation established an eleven member natural resource and economic development and planning team before they were approached by Polaris. This helped prepare Namgis to become a contributor to the Environmental Assessment (EA) process for the project, which began in 2004. Before the project design stage, three years before the start of the official EA process, Polaris asked Namgis First Nation for permission to explore on their territories and drafted an exploration and access agreement. This involved the identification and protection of values such as traditional use areas. Namgis was involved in the EA process through the drafting of the terms of reference, hiring of consultants and proposing mitigation. The Namgis First Nation requested additional studies be carried out, which were included in the terms of reference.

Community consultation was a major component of the EA. Polaris involved the Namgis in identifying the site for the development. Concerns about fish, open pit mining, impacts to the river and groundwater, were addressed by mitigation measures and studies put in place by Polaris in partnership with Namgis.

Environmental Management Program:

All concerns about perceived and project related changes in the monitored ecosystems are brought to the attention of the Orca Sand and Gravel Board of Directors, which includes a Namgis First Nation member.

The project uses the "Global Reporting Initiative" (GRI) in order to ensure that transparent and comparable details about the economic, environmental and social performance of the project are publicly available. The GRI is a widely used sustainability reporting framework.

Environmental Monitoring Program:

The Namgis First Nation is conducting a monitoring program to assess the effects of the operation on nearby abalone and salmon spawning habitat. Namgis negotiated the option of slowing or stopping production during critical ecosystem periods if effects were detected. Extensive abalone restoration and conservation of *t'lakstan*, a popular edible seaweed), harlequin ducks, and salmon were all undertaken by the Namgis First Nation with financial and personnel assistance from Polaris.

Nature of First Nation role:

The Namgis First Nation is a 12% partner in the Orca Sand and Gravel Enterprise. The Namgis First Nation was directly involved in the design of the project during its earliest conceptual planning stages. Collaboration between Polaris and Namgis during the three years of planning led to the integration of community values in the development plan. Namgis and their chosen consultants were directly involved in drafting the terms of reference for the EA, and chose the scope and method of their participation throughout the EA process. Namgis First Nation and Polaris have negotiated an Impact Benefit Agreement, ensuring that 50% of all positions in the quarry are offered to First Nation employees following a comprehensive training program co-funded by Polaris and the Namgis First Nation.

POLARIS MINE CLOSURE

Location: Little Cornwallis Island, Nunavut

Description of Project:

The Polaris mine was an underground zinc-lead mine that stopped production in September 2002, after 21 years of operation, due to depletion of the ore body. In September 2004, a \$53 million decommissioning and reclamation program was completed.

Process and players of Environmental Management & Monitoring Program:

Polaris mine prepared the detailed closure plan for the mine and sought participation and input from the Nunavut community, specifically Resolute Bay and Grise Fiord. SNC-Lavalin was the general contractor for demolition of the structures and AECOM (formerly Gartner Lee Limited) provided technical expertise in securing closure approvals and supervising the environmental remediation of the site.

Information about negotiation process (establishing program):

Input was sought by Polaris from the Resolute Bay and Grise Fiord communities on drafts of the closure plans. The input on historical and future land use by the local residents was used to develop site-specific soil quality remediation objectives for the site. Local residents were invited to visit the site. The Nunavut Water Board also assigned a coordinator who travelled between the mine site and the community to keep residents informed of the activities on site.

Environmental Management Program:

A detailed closure plan was developed based on environmental site assessment work done in 1999 and 2000. After extensive regulatory and public consultations, Nunavut and federal authorities gave all approvals.

In September 2002, building demolition began, while remediation of metals and hydrocarbon-contaminated sites began in April 2003. Materials from the demolition were placed in a surface rock quarry and capped. By September 2004, the majority of the remaining equipment and materials were removed. A small camp, several sea containers of supplies and some heavy equipment remain on site for touch-up work and to support ongoing monitoring programs.

Environmental Monitoring Program:

Water quality monitoring in Garrow Lake, where the tailings were deposited, will continue until 2011.

Nature of First Nation role:

The work tenders included a northern content component, thereby assuring that some of the economic benefits for the contracts went to northern residents. Qikiqtaaluk Corporation, an Inuit-owned firm, was retained as a subcontractor to provide equipment operators, mechanics and general labourers. Local residents were also hired and trained to assist with the environmental site assessment and to assist in guiding and assessing the effectiveness of the reclamation work in 2003.

Post-closure, local residents have assisted with the environmental monitoring of the site. They have been retained by other mining companies as equipment operators and mechanics, and to monitor and guide environmental activities.

RAGLAN MINE

Location: Ungava Peninsula, northern Quebec

Description of Project:

The Raglan mine sits upon one of the world's finest sulphide nickel deposits. The mine began production in 1997 after more than 40 years of exploration, negotiation, and development. The nickel and copper-producing facility operates three underground mines and one open-pit mine. The current mine life is estimated at more than 30 years.

Process and players of Environmental Management & Monitoring Program:

Xstrata PLC acquired ownership of Falconbridge Limited in August 2006 and operates the Raglan mine. In 1995, the Raglan Agreement was signed between the mine operator, the Qaqqalik Landholding Corporation of Salluit, the Salluit community, the Nunaturlik Landholding Corporation of Kangiqsujuaq, the Kangiqsujuaq community, and Makivik Corporation (created in 1978 – the recognized non-profit Inuit Party to the Agreement), which oversees the political, social, and economic development of Nunavik. The Inuit communities have representation on the Mines Board of Directors through the Makivik Corporation. The Raglan Committee, responsible for overseeing implementation of the Agreement, has six members – one from each of the neighbouring communities and Makivik, and three from Falconbridge. The Committee, however, lacks a dedicated budget.

Information about negotiation process (establishing program):

When Falconbridge first acquired the assets of the mining companies exploring the Raglan property in the 1960s the Inuit had little or no say in the project. In 1975 a series of agreements, including Socio-Economic Participation Agreements (SEPA), were signed to formalize the roles and relationships of the company with Aboriginal communities. The Raglan Agreement includes profit-sharing measures and trust fund payments over an 18-year period and also guarantees preferential hiring and contracting to local, qualified Inuit employees and businesses. The profit-sharing arrangement has resulted in Raglan delivering over \$65.4 million to the communities. The money is placed in a trust, which distributes 25% to the Makavik Corporation, 30% to Kangiqsujuaq and 45% to the Salluit community. This was the first IBA signed between a mining company and Aboriginal people, without a co-signature from government.

Environmental Management Program:

The Raglan Committee meets several times each year to discuss environmental concerns and to report on the progress of the agreement.

After extensive baseline studies, the Raglan project was designed to minimize water effluent, water consumption, and air emissions while containing acid mine rock and providing for the progressive reclamation of tailings. In order to protect the fragile sub-Arctic permafrost, the workers' residence stands 40 feet above the ground on steel pile foundations.

Environmental Monitoring Program:

In collaboration with the two neighbouring Inuit communities, Raglan conducted an Arctic char monitoring program by integrating the community's traditional knowledge into a Joint Scientific Fishing Program.

Nature of First Nation role:

The Raglan Committee has 50% Inuit representation, with Inuit representatives from Salluit, Kangiqsujuaq, and Makivik Corporation. The Arctic char monitoring program integrated traditional knowledge into a Joint Scientific Fishing Program by collaborating with the Inuit communities. Traditional Inuit knowledge of the environment was also a factor in environmental impact assessments prior to mine operation, with local knowledge of Arctic chars and of marine mammal migration patterns (e.g., for seals) resulting in Raglan's decision to shorten the shipping season and avoid ice breaking from March to June in Deception Bay.

RED DOG MINE

Location: 140 km north of the Arctic Circle, Alaska

Description of Project:

The Red Dog Mine opened in 1989 and is the world's largest producer of zinc concentrate. The development's lifespan is projected at 45 to 50 years. The 94.4 million metric tonne ore body is a rich and highly concentrated deposit of 17% zinc, 5% lead, and 2.4 oz/ton of silver. The mine is located within the settlement lands of the Northwest Alaska Native Association.

Process and players of Environmental Management & Monitoring Program:

The program was a cooperative development by Teck Cominco, the Northwest Alaska Native Association (NANA) and the State of Alaska.

Information about negotiation process (establishing program):

In 1982, NANA entered an agreement with Teck Cominco Ltd, giving Cominco rights to build and operate Red Dog and to market its metal production, in exchange for escalating royalties to NANA and commitment that within 12 years of mine opening, 100% of hourly wage jobs at the mine would be filled by NANA members. Cominco's commitment to have NANA members filling all Red Dog hourly wage jobs within 12 years continues to be a major challenge, considering that no one in the community had mining experience prior to 1982. A Red Dog Subsistence Committee was established in accordance with the 1982 NANA/Cominco Operating Agreement.

Environmental Management Program:

Environmental protection is a major priority for Red Dog, Cominco and NANA. In addition to a comprehensive Cominco Environmental Policy, the Red Dog Mine Operating Policy contains a strong environmental protection clause:

“To comply with all existing local, state and federal laws and regulations. To provide additional environmental protection measures, where warranted, that are technically feasible and economically viable. To encourage, support and conduct necessary research to establish high standards of performance and to improve methods for environmental control. To keep employees, agency personnel, and the general public fully informed concerning the environmental aspects of company operations. In all emergency situations protect in order of priority: personnel, environment, property and production.”

The Red Dog Subsistence Committee is comprised of elders from the villages of Kivalina and Noatak, and meets quarterly, or as needed. The purpose of the Subsistence Committee is to ensure that all exploration, development and mining activity at the mine site is consistent with sound stewardship principles and will not harm or threaten the subsistence needs and the physical, cultural, social and economic needs of the indigenous people of the NAN region. During the caribou migration season, the Subsistence Committee can close the road.

Environmental Monitoring Program:

The Red Dog Subsistence Committee reviews many reports from extensive environmental monitoring required by Cominco and by the government permits. The quality of water, air and earth is continually tested. Any possible effects on the two nearby villages are openly discussed. Activity on the 83 kilometre haul road from the mine site is monitored and reviewed for potential effects on subsistence hunting.

Nature of First Nation role:

The Subsistence Committee is comprised of elders from the Kivalina and Noatak villages. The local people who live in the area have authority to close down the haul road if they legitimately feel the impact is detrimental to their subsistence.

SNAP LAKE MINE

Location: 220 km northeast of Yellowknife

Description of Project:

The Snap Lake ore body is a 2.5 metre thick dyke that dips under the northwest shore of Snap Lake. It was discovered in 1997 by Winspear Resources and purchased by De Beers Canada in 2000. The permits to build and operate the mine were received in May 2004. The mine commenced commercial diamond production in January 2008. By December 31, 2009, \$1.4 billion had been spent on construction and mine operation.

Process and players of Environmental Management & Monitoring Program:

Stakeholders include De Beers Mining Canada, the Government of Canada, the Government of the Northwest Territories, the Tlicho Government, Lutsel K'e Dene First Nation, Yellowknives Dene First Nation and the North Slave Métis Alliance.

Information about negotiation process (establishing program):

De Beers is committed to sustainable development in local communities and signed four Impact Benefit Agreements (IBA) for the Snap Lake Mine with the Yellowknives Dene First Nation (November 2005), the Tlicho Government (March 2006), the North Slave Métis Alliance (August 2006) and the Lutsel K'e and Kache Dene First Nation (April 2007). The Snap Lake Environmental Monitoring Agency was established as part of the environmental agreement between De Beers Mining Canada, the federal and territorial government, and the Aboriginal communities.

Environmental Management Program:

The main purpose of the Snap Lake Environmental Monitoring Agency is to act as a public watch dog to ensure environmental regulatory compliance by De Beers Mining Canada.

The responsibilities of the agency are to:

- Review and comment on the design of monitoring and management plans and the results of these actions;
- Monitor and encourage the integration of traditional knowledge of the nearby Aboriginal peoples into the mine's environmental plans;
- Act as an intervenor in regulatory processes directly related to environmental matters involving the Snap Lake Project and its cumulative effects;
- Bring concerns of the Aboriginal people and the general public to De Beers Canada Mining Inc and government;
- Keep Aboriginal peoples and the public informed about Agency activities and findings; and
- Write an Annual Report with recommendations that require the response of De Beers Canada Mining Inc and/or government.

Environmental Monitoring Program:

There is little information available about the nature of Aboriginal involvement in environmental monitoring.

Nature of First Nation role:

The Snap Lake Environmental Agency is comprised of eight representatives from the four Aboriginal groups. The Board includes Aboriginal traditional knowledge and conventional science in assessment of mining activities and environmental reports submitted by De Beers and government inspectors. There is a traditional knowledge panel that consists of Elders who have hunted, trapped and lived in the area of the mine site, and a science panel of experts.

SYNCRUDE CANADA LTD

Location: Athabasca region, Alberta

Description of Project:

Syncrude is an oil and gas company mining the Athabasca oil sands. They hold leases covering 258,000 hectares of land. Nearly 95 million barrels of Syncrude oil was shipped in 2006. Syncrude operates three mines, the Base Mine, the North Mine and the Aurora Mine.

Process and players of Environmental Management & Monitoring Program:

Syncrude Canada (and other energy sector companies), formed an agreement with the Athabasca Chipewyan, Chipewyan Prairie, Fort McKay, Fort McMurray and Mikisew Cree First Nations and the Athabasca Tribal Council. Syncrude is a strong proponent of Aboriginal business development, and achieved Gold Level accreditation for the third time with the Canadian Council for Aboriginal Business and its Progressive Aboriginal Relations program. Aboriginal businesses provide Syncrude with a broad range of goods and services, including environmental monitoring. From 1992 to 2006, Syncrude spent \$1 billion with Aboriginal companies.

Information about negotiation process (establishing program):

In 2003, industries operating in the Athabasca region signed an agreement with the Athabasca Tribal Council to provide over \$4 million in funding to the five First Nations (the Athabasca Chipewyan, Chipewyan Prairie, Fort McKay, Fort McMurray and Mikisew Cree First Nations). The industries that signed the agreement include Alberta-Pacific Forest Industries Inc, Albian Sands Energy Inc, ATCO Group of Companies, Canadian Natural Resources Limited, Conoco Philips Resources Corp., Deer Creek Energy Ltd., Enbridge Inc., EnCana Resources, ExxonMobil Canada Ltd., Japan Canada Oil Sands Limited, Nexen Petroleum Canada, OPTI Canada Inc., Petro-Canada, Suncor Energy Inc and Syncrude Canada Ltd.

Syncrude Canada was fined \$3 million under the federal Migratory Birds Convention Act for the deaths of 1606 migratory waterfowl found in the Aurora Settling Basin or tailings pond in 2008.

Environmental Management Program:

The development of the oil sands industry has had a major impact on the natural environment. Syncrude developed a system for stabilizing the surface of the fine tailings ponds that enables revegetation to begin, and 3,000 hectares of the older waste piles have been returned to pasture and forest. Syncrude also successfully introduced a herd of native wood bison to its reclamation areas, managed in conjunction with a local First Nations community.

Environmental Monitoring Program:

The Mikisew Cree First Nation and the Centre for Indigenous Environmental Resources are developing a monitoring program of the water, land, plants and animals that rely on both scientific and Indigenous Knowledge monitoring methods. They are training local people to become Environmental Guardians, who will collect and store information in a monitoring database. Over time, the Environmental Guardians will be able to analyze data between years to see if the ecosystem features they are monitoring fluctuate.

Nature of First Nation role:

Syncrude has partnered with Athabasca, Chipewyan and Mikisew Cree First Nations elders in a study to collect and record the location and uses of traditional medicinal plants in areas proposed for oil sands development to aid in the re-establishment of these plants when the land is reclaimed.

Fort McKay Environment LP was formed to meet a growing demand for environmental responsibility in the oil sands industry. They provide reclamation, ranching and environmental monitoring services to Syncrude on an ongoing basis. The Fort McKay Group of Companies is an influential Aboriginal enterprise comprised of seven limited partnerships servicing the world leaders of the oil sands industry.

TEMBEC INC

Location: Along shores of Lake Winnipeg, Eastern Manitoba

Description of Project:

Tembec is a Canadian forest products company, principally involved in the production of wood products, market pulp and papers. They have sales of over CND\$4 billion. The traditional territory of Black River First Nation is located in the heart of Tembec's forestry operations in Eastern Manitoba.

Process and players of Environmental Management & Monitoring Program:

Black River First Nation formed a partnership with the forestry industry (Tembec Inc), Manitoba Conservation, Manitoba Water Stewardship, Indian and Northern Affairs Canada, Department of Fisheries and Oceans, Ecological Monitoring and Assessment Network, Environment Canada and Non-Government Organizations (Manitoba Model Forest).

Information about negotiation process (establishing program):

The success of Black River First Nation's environmental projects can be attributed to:

- Vision at community level and support from leadership (Chief and Council)
- Building capacity within the community by bringing in external expertise initially and by mentoring and training community youth
- Building partnerships with a diversity of organizations

Environmental Management Program:

The Black River First Nation Chief and Council established a formal Environmental Department, originally staffed with outside research scientists, with the goal of building capacity over time by working with youth. The Department liaises with community members and Elders to understand community concerns regarding the environment, and then they develop projects to address those concerns.

Environmental Monitoring Program:

The Environmental Monitoring Program has two components: the Regional Water Quality Network and a long-term monitoring program to examine the effects of climate change on the boreal forest of eastern Manitoba.

The Regional Water Quality Network was designed and implemented to address Elders concerns about water quality. They monitor water quality in more than 20 rivers and streams to understand regional patterns of water quality and factors that affect water quality (such as soil and forest types in watersheds, and disturbance history including agriculture, forestry, wildfire and beaver). Tembec Inc is training community youth on the use of GIS and provides free access to all their GIS database layers. Black River First Nations uses the GIS and water quality information to develop watershed management tools for Tembec, which incorporates water quality objectives into forest management planning.

The long-term monitoring program to examine the effects of climate change on the boreal forest of eastern Manitoba was established with Manitoba Model Forest and Tembec Inc. Since the project initiated in 2004, they have established long-term monitoring plots in forests of different ages (young, intermediate and old), different origin (fire origin and logged) and different type (upland jack pine, lowland black spruce). The EMAN Coordinating Office was established as a project partner in 2005. Black River First Nation is responsible for all plot establishment and data collection. High school students participate in field data collection. Data collection includes species composition of the herb, shrub and tree layers, aging trees, estimating tree height, assessing tree health, measuring soil pH, moisture and temperature, monitoring air temperature and relative humidity, and assessing small mammal species composition and abundance through live trapping.

Nature of First Nation role: The Black River First Nation played a leadership role in developing community capacity to participate in environmental monitoring initiatives, and to design and lead them. Black River First Nation approached Tembec to set up educational programs to teach forestry related courses. Tembec then became involved in local sustainable harvesting training initiatives. Black River First Nation worked with Tembec Inc. to establish the Black River Saw Mill and Lumber Products. Black River First Nation has been awarded the Manitoba

TEMBEC INC

Hydro Spirit of the Earth Award, and a national Forest Stewardship Award by Wildlife Habitat Canada for their environmental projects.

VOISEY'S BAY MINE

Location: 350 km north of Happy Valley-Goose Bay, Labrador, Newfoundland.

Description of Project:

Vale Inco Ltd. acquired the rights to this nickel-copper-cobalt deposit in 1996. Construction of the mine completed in 2005, production began in 2006, and construction of the processing plant began in April 2009, proposed to be concluded in February 2013.

Process and players of Environmental Management & Monitoring Program:

Vale Inco Ltd. manages an Environmental Monitoring Program of mine operations. The two Aboriginal communities involved are the Innu Nation and the Nunatsiavut Government. The Gorsebrook Research Institute and Environment Canada (Ecosystems Division, Atlantic Canada) work with the Innu Nation on an Innu Environmental Guardians Training Program.

Information about negotiation process (establishing program):

As Voisey's Bay mine is located in an area subject to land claims by Innu Nation and the Nunatsiavut Government, Vale Inco has negotiated separate Impact Benefit Agreements (IBA) with these two groups. The IBAs include environmental protection (including special concerns about wildlife), education, training and employment, business opportunities and Aboriginal access to the project site.

Environmental Management Program:

Signed in 2002, the Voisey's Bay Environmental Management Agreement (EMA) is an agreement between the Federal Department of Fisheries and Oceans and Natural Resources, the Labrador Inuit Association and the Innu Nation. An Environmental Management Board (EMB), comprised of each of these representatives, was created to execute the agreement with the purpose of providing "effective, responsible, comprehensive and co-ordinated environmental management" of the Voisey's Bay project. A Technical Environmental Review Committee was created to provide advice to the EMB. The EMB's role is to provide advice to government on any environmental matters for the Voisey's Bay project.

Through a Department of Fisheries and Oceans Program in 1992, the Innu began working as Environmental Guardians in the areas of fisheries, forestry, wildlife, mining, and environmental research. The Environmental Guardians are involved in the co-management of forestry resources in ensuring environmental compliance at Voisey's Bay. In 2001, the Gorsebrook Research Institute, Environment Canada and the Innu Nation began developing the Innu Environmental Guardians Training Program, with the objective to establish a comprehensive environmental training program. The training program involves participation in active Innu Nation co-management activities, environmental monitoring projects and environmental research partnerships currently underway, including the Voisey's Bay Project. The Training Program is to provide additional resources to the Guardians and enhance the capacity of the Innu Nation to manage Innu lands and resources, design and implement environmental management and research to take full advantage of Voisey's Bay IBA, conduct effective environmental compliance monitoring under the Voisey's Bay IBA, network with organizations in Environmental Monitoring and co-management partnerships, ensure appropriate use and protection of Innu knowledge and cultural heritage, provide technical and logistic support to collaborative environmental monitoring projects, ensure consistent environmental reporting back to the Innu people, and develop environmental education materials for use in the Innu communities.

Environmental Monitoring Program:

The Voisey's Bay mine and concentrator in Labrador and the processing plant at Long Harbour underwent comprehensive environmental assessments. The Voisey's Bay mine operates with a focus on air, water and land, including wildlife and fish. Sampling is performed by Vale Inco to measure for impacts and management programs are in place to ensure that potential impacts are minimized.

The Environmental Guardians are involved in fisheries monitoring and enforcement, in environmental research and in monitoring and assessing environmental impacts through research partnerships with government and university-based researchers.

Nature of First Nation role:

VOISEY'S BAY MINE

With the Voisey's Bay IBA, the Innu Environmental Guardians assumed a larger role in environmental management. The IBA provides for Innu Nation and Nunatsiavut Government participation in cooperative environmental monitoring, management and planning of the project.