

# Building relationships and capacity with First Nation communities affected by mine closure

**W. Slater** *Bill Slater Environmental Consulting, Canada*

**R. Moar** *Little Salmon Carmacks First Nation, Canada*

**J. Lemieux-Tremblay** *First Nation of Nacho Nyak Dun, Canada*

## Abstract

*Past mining projects in northern Canada have often adversely affected local First Nation communities and people. Promises of employment and economic benefits have sometimes not materialised. Environmental changes have affected people's subsistence and traditional activities. Lack of trust and ineffective communications led to perceptions about effects and associated changes in subsistence and traditional use patterns. Given past experiences, First Nation governments and citizens are often skeptical about whether mine closure and remediation projects will deliver positive results for their communities.*

*Mine closure and remediation at abandoned mines offers an opportunity to not only reclaim the environment, but also to rebuild relationships with local First Nations and provide long-term social and economic benefits. The Canadian Government is funding several mine closure projects in Yukon, Canada and is working with a number of First Nation governments as well as the Government of Yukon in planning for these projects.*

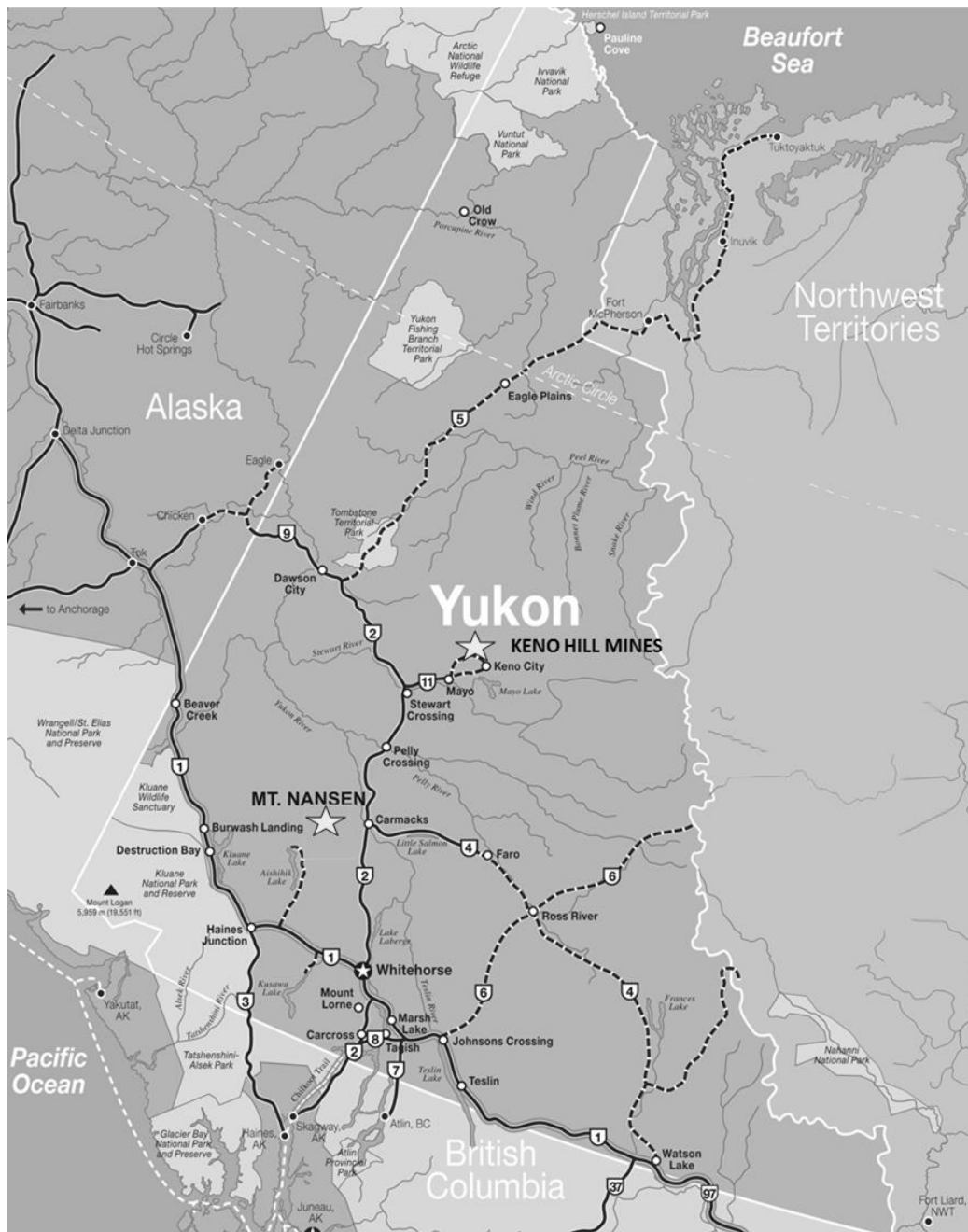
*This paper explores the administrative planning structures and processes established among Canada, Yukon and First Nation governments for two of these government-sponsored abandoned mine closure projects. All three levels of government hope that these processes will facilitate effective involvement and participation of First Nations in the planning phase of the mine closure. The First Nation of Nacho Nyak Dun based in Mayo, Yukon is involved in closure planning for the United Keno Hill Mines property. The Little Salmon Carmacks First Nation based in Carmacks, Yukon is involved in closure planning for the Mt. Nansen Mine. Governance structures for closure planning at these two mines are substantially different, but both First Nations have similar overall objectives for the closure projects. Both First Nations face capacity challenges that can limit their abilities to participate effectively. The paper discusses the strategies utilised by both First Nations and how they have performed. Both First Nations recognise that further work will be required to guide other phases of the closure continuum including implementation and post-closure.*

## 1 Introduction

Past mining projects in northern Canada have often adversely affected local First Nation communities and people. Changes to the local environment have affected subsistence and traditional activities. Promises of employment and economic benefits have often not materialised. Lack of trust and ineffective communications have increased the adverse outcomes of both real and perceived impacts of mining. Past projects have often been planned, constructed and operated with little engagement or participation of First Nations people or communities.

This paper explores the planning structures and processes established among Canada, Yukon and First Nation governments for two government-sponsored closure and remediation projects at abandoned mines in Yukon. In both cases, the closure and remediation projects are focused on addressing legacy issues at abandoned mine sites and the term “closure” throughout this paper refers to activities undertaken to address the legacies and prevent ongoing and long-term mine related effects. The processes established are intended to support effective involvement and participation of First Nations in the planning phase of the mine closure projects. The Little Salmon Carmacks First Nation (LSCFN) based in Carmacks, Yukon is involved in closure planning at the abandoned Mt. Nansen Mine. The First Nation of Nacho Nyak Dun (FNNND) based

in Mayo, Yukon is involved in closure planning at the United Keno Hill Mines property (formerly abandoned). Locations of these mine properties are shown on Figure 1.



**Figure 1 Mt. Nansen and Keno Hill Mine property locations (modified from Lorax, 2010)**

Given past experiences, governments and citizens in these First Nations have been sceptical about whether the mine closure projects will deliver positive results for their communities. However, all of the governments involved recognise that mine closure offers an opportunity to not only reclaim the environment, but also to rebuild relationships with local First Nations and provide long-term social and economic benefits. The LSCFN and the FNNND have similar overall objectives for the closure projects including: protecting and restoring the environment, protecting people’s health and safety, restoring traditional land uses and maximising positive social and economic opportunities. However, both First Nations also face substantial capacity challenges that can limit their abilities to participate effectively and advocate for outcomes that will achieve their objectives. The federal, territorial and First Nation governments have tried to collaboratively

establish structures and processes that will address the challenges faced by First Nation governments and deliver satisfactory mine closure outcomes and benefits.

## 2 Overviews of sites and closure issues

### 2.1 United Keno Hill Mines

The United Keno Hill Mines are located within the traditional territory of the First Nation of Nacho Nyak Dun approximately 350 km north of Whitehorse, Yukon and 45 km north of Mayo, Yukon. The area is an historic silver mining district and was a major silver producer between 1914 and 1989 (Access Mining Consultants, 1996). Operations at United Keno Hill Mines ceased in 1989 and in 2001, the federal government determined that the property had been abandoned. Eventually, the federal government sold the property to Alexco Resource Corporation (Alexco) but retained the financial responsibility for the existing closure liabilities (Elsa Reclamation and Development Company, 2009). Alexco and Canada have initiated a closure planning process that includes participation of Yukon and the FNNND. Meanwhile, in 2010 Alexco re-opened the Bellekeno Mine in the district.

The current closure planning process is intended to address almost 50 individual sites, with both open pit and underground openings, spread across an area of approximately 15,000 ha on three hills surrounding the village of Keno City – Galena Hill, Keno Hill and Sourdough Hill. Milling occurred at three locations known as Wernecke Camp, MacKeno and Elsa. There are tailings deposits at all three of these locations. The Elsa Tailings are the largest component and also the only tailings with any formal containment structures. In the early mining phases, tailings were deposited in uncontained areas adjacent to mills or directly into local streams and lakes.

The number and diversity of mines, components and facilities at the site presents a significant closure challenge. Metal leaching, especially zinc and cadmium, under neutral conditions is the most significant environmental impact and long-term risk. Water quality and aquatic ecosystems in local creeks are severely impaired by past mining activities and ongoing contaminant loading. Monitoring and investigations have identified underground mine water discharges as the largest source of contaminant loading, but other sources (e.g. tailings and waste rock) are also relevant. Permanent management of mine water discharges will be part of any closure plan.

### 2.2 Mt. Nansen Mine

The Mt. Nansen Mine was an underground and open pit gold and silver mine located 60 km west of Carmacks, Yukon. In the 1960–1970s a small amount of sulphide ore from the underground works was processed in a 270 tonne/day flotation mill, but the ore was refractory and recoveries were too low to be economic. In 1996 BYG Natural Resources set up a cyanide leaching circuit to process oxide ore from an open pit at 700 tonne/day. Unfortunately, high clay content and poor control of mill head grades again resulted in a struggling operation due to poor recovery (Yukon Geological Survey, 2008).

BYG Natural Resources failed to meet environmental requirements. Federal inspectors issued 16 formal directions under the Yukon Waters Act and in May 1999 BYG was convicted on three counts of violating its water license. The court imposed the maximum fine of C\$ 100,000 for each of the three counts and the presiding judge noted the company's complete lack of regard for the local environment:

*“The above examples demonstrate an attitude consistent with "raping and pillaging" the resources of the Yukon, with little consideration for the detailed conditions of the water licences granted to B.Y.G. They demonstrate a disregard of the legal requirements. There is little evidence of any diligence, let alone due diligence, in the circumstances of this case. Keeping in mind the dangerous and toxic materials involved - heavy metals such as copper and zinc and deadly chemicals such as arsenic and cyanide - the level of care or diligence reasonably expected from B.Y.G. greatly exceeded what the company provided.” (Lilles, 1999, in Veale, 2007)*

By the time the fines were imposed the mine had ceased operations and there were no funds to pay the fine. The circumstances were so severe that Judge Lilles also expressed the view that *“the legislation should be*

*amended to provide for piercing the corporate veil in order to permit the imposition of fines and imprisonment on senior officers and managers of the company” (Veale, 2007).*

BYG declared voluntary receivership in February 1999 and appointed its own receiver, but in July 1999 the receiver abandoned the property. Canada assumed responsibility for the site a month later (Assessment and Abandoned Mines Branch, 2010). Canada, as the regulator at the time, held some security for closure costs but it was minimal. Of the required reclamation security of C\$ 445,000 which Canada considered adequate for reclaiming the mine, only C\$ 220,000 was ever collected. Closure costs are now estimated to be over C\$ 20,000,000. As of 2002, Canada was spending over C\$ 1.5 million for interim care-and-maintenance at Mt. Nansen (Auditor General of Canada, 2002). Similar costs continued through 2006 (Veale, 2007) and presumably are continuing today.

Today, Yukon Government’s Assessment and Abandoned Mines Branch administers the care-and-maintenance activities through a contract with a local business. The property’s assets are held by Price Waterhouse Coopers Ltd. Yukon and Canada have determined that the amount of ore remaining to be mined is of insignificant value relative to the reclamation liability.

The main reclamation issues revolve around the usual problems of tailings, waste rock and open pit. The size of the pit is relatively small, but the pit pond has elevated concentrations of some contaminants including zinc and cadmium. Waste rock drainage also contains elevated concentrations of similar contaminants but there is currently little evidence of significant flows exiting the facilities, possibly due to freezing or perhaps the waste rock piles are not wetted out yet. The greatest concern is with the tailings facility, which is configured in the creek valley. The dam – constructed of Aeolian sand – and tailings are underlain by thawing permafrost. Tailings dam seepage rates have been much higher than originally predicted and emergency repairs in the form of a toe berm were undertaken during operation to address concerns about potentially imminent piping failure. Despite repairs, the dam remains vulnerable to earthquakes and fails to meet current design standards. For the past several years, Yukon Government has managed this geotechnical risk by maintaining low water levels in the pond, but this increases the geochemical risk associated with oxidation of the acid generating tailings. The geochemical and geotechnical risks associated with the dam create a dilemma for long-term closure methods.

### **3 Rationale for building better relationships with First Nations**

In the past, mines in Yukon were developed with little regard for potential effects on First Nation people and communities, often resulting in adverse effects that have gone unmitigated. Many First Nation people in Yukon continue to practice traditional and subsistence land-based activities, at the same time as participating in the wage economy. First Nation cultures, values and perspectives entail a deep-rooted link to the land and environment. As a result, ecological disruption caused by mining has and continues to bring about changes that First Nations consider profound, unacceptable and deeply injurious.

Promises of employment and economic benefits for First Nations have frequently gone unfulfilled, fostering a lack of trust in project proponents and the government regulators. Poor communications and lack of transparency about environmental conditions has further exacerbated the lack of trust in many cases. For Yukon mining projects, First Nations observe a pattern of over-predicting and under-delivering project performance in both environmental and socio-economic realms. The overall result is that the mining projects have affected the health, cultures and traditions of First Nation people and communities, including both real effects as well as effects arising from perceived risks. Both are important when planning and implementing closure projects, especially at abandoned mines.

Comprehensive evaluations of how the Mt. Nansen and United Keno Hill mines have affected the LSCFN and FNNND have not been undertaken. However, Martin J. Weinstein authored a 1992 report about the effects of the nearby Faro Mine, commissioned by the Ross River Dena Council: *“Just Like People Get Lost: A Retrospective Assessment of the Impacts of the Faro Mining Development on the Land Use of the Ross River Indian People”* which illustrates the outcomes that mining related disturbances and effects can have on local First Nation communities and people. In that case, Weinstein concluded that:

*“Families used to camping in this area returned to a scene of devastation on habitually used lands. The loss was (and still remains) heart-felt” (Weinstein, 1992)*

and

*“The environmental chaos from the excavation of the open-pit mine, the dumping of over-burden and the deposition of tailings on land steeped in family and cultural history has also resulted in deep emotions from a sense of dispossession.” (Weinstein, 1992)*

The words of Arthur John, a respected elder of Ross River, as quoted by Weinstein convey the depth of loss experienced from the mining project:

*“Now no one goes there. The mine tore up half the mountain now. People from that country try other areas, could not find anything as good. After that, just like people get lost, don’t know where to go. They tried back in there, up that way. Not as good as down there no more. So people don’t get good living like long time ago.” (Weinstein, 1992)*

FNNND and LSCFN elders and other community members continue to express similar sentiments about the effects of the United Keno Hill and Mt. Nansen mines. First Nation people’s relationships with the land and their past experiences with mine projects drive their expectations for mine closure projects.

Significant mining activities at United Keno Hill began several generations ago but FNNND elders continue to question the changes and effects that have occurred. Elders and other citizens have been meeting since 2008 to discuss their vision for clean up at United Keno Hill and the ecological and cultural values that once existed there. Traditional and subsistence uses that relied on the aquatic ecosystem (e.g. fishing, drinking water) have been completely eliminated from Christal and Flat Creeks. Elders still recall being able to use some of these areas and know stories from use by earlier generations. They want these ecosystems restored. Elders also recall when the region had plentiful wildlife that was a valuable food source. But now, the wildlife populations have diminished and people are concerned about the safety of consuming wildlife from the area. Areas that were once rich with ptarmigan, grouse and rabbits no longer offer such bounty. Some wildlife has disappeared from the area, for example sheep no longer use Galena Hill. People minimise their use of the area for collecting plants (food and medicines) because they are concerned about contamination. The community has lost a valuable area for teaching its youth about their culture.

At Mt. Nansen, dealing with the issues identified as part of the closure project came as a shock to the LSCFN due to events not unfolding as forecast in the community briefings during the mine planning stages. In particular, the mining company assured them that the site would be operated in an environmentally benign manner and be promptly reclaimed after closure, and the federal government assured them that it held adequate security to promptly clean up the site if the company failed to do so. However, the site remains in care-and-maintenance almost 12 years after operations ceased. More than five years passed after the operator abandoned the site before actions were taken to effectively engage LSCFN.

When operations ceased, the concentrations of arsenic, cyanide and other contaminants in the tailings pond were severe and posed a significant threat to local ecosystems and LSCFN’s traditional lands. The tailings remain high in arsenic and other contaminants. First Nation citizens are dismayed to report that caribou, moose and buffalo have been seen drinking from the puddles on the tailings, licking the ice surface and scratching and licking the dry tailings. Local people avoid consumption of fish caught downstream of the site.

This context of dissatisfaction and distrust formed the backdrop when the governments of Canada and Yukon assumed responsibility for several abandoned mines in Yukon including the Mt. Nansen and United Keno Hill mines. In the 2001 “*Yukon Northern Affairs Program Devolution Transfer Agreement*” negotiated between Canada and Yukon, Canada accepted responsibility for the closure costs and both Canada and Yukon agreed to cooperate with First Nations in addressing remediation of these mine sites (Government of Canada and Government of Yukon, 2001).

This established a new role for First Nations, providing for the first time an opportunity to be part of the decision-making team with respect to mining activities – albeit only for cleaning up the legacies of past activities. With this new role, First Nations’ hopes, expectations and vision could influence the closure planning, finally giving voice to First Nation people’s cultures, perspectives and values.

But, First Nation governments in Yukon are small and they face significant capacity challenges. These governments lack financial and human resources as well as technical expertise that would be needed to

genuinely participate as an equal partner in the closure planning processes. Canada, Yukon and First Nations recognised these capacity challenges as significant risks to achieving acceptable mine closure outcomes. To engender an effective role for First Nations and to fully realise the benefits of involving First Nations as part of the planning teams necessitated the establishment of new structures and approaches that would not only define the roles but also address the capacity issues.

## **4 Closure planning governance and relationships with First Nations**

As with all mine sites, the closure planning needs and approaches are different for the Mt. Nansen and United Keno Hill mines. The First Nation governments involved have different administrative and governance structures and requirements. Therefore, the mechanisms for cooperating in closure planning differ between the two sites although they are intended to achieve similar outcomes in terms of the role of the First Nations in the planning processes.

### **4.1 FNNND – United Keno Hill**

Mechanisms for involvement of the FNNND in closure planning for the United Keno Hill Mines were formalised in late 2007 and early 2008. However, closure related decisions made by Canada and Yukon prior to this provide important context for the mechanisms that were established. In 2005–2006, prior to any structured involvement of the FNNND, Canada and Yukon finalised an agreement with Alexco whereby Alexco would purchase the abandoned sites while Canada retained the financial liability for the existing disturbances. Through this mechanism, Alexco assumed responsibility for preparing and implementing a closure plan (at Canada's expense) and also acquired rights to explore for and develop mines in the district (Elsa Reclamation and Development Company, 2009). While subsequent processes have been more inclusive of the FNNND, the initial decisions have substantially influenced the intergovernmental structures and approaches for closure planning, and will continue to do so throughout all phases of planning and implementation. They may continue to influence the long-term benefits that can accrue for the FNNND because the opportunities for economic benefits may differ with private sector versus government delivery of the closure plan.

Since late 2007, the administering government for United Keno Hill Mine closure (initially Yukon and subsequently Canada) has provided the FNNND with funding to participate in closure planning and prepare for closure implementation. The funding enables the FNNND to establish and maintain a dedicated unit within its government with responsibility for the United Keno Hill Mines closure project. This unit, part of the Lands Department, has full-time staff with responsibility for overseeing the FNNND's participation in closure planning, keeping the community informed, seeking input from the community, and helping the government, community and citizens prepare for closure implementation.

Because it is the site owner, Alexco leads the closure planning process. The four main parties involved in the planning (Alexco, Canada, Yukon and the FNNND) have established informal working relationships through which the FNNND gains an opportunity to participate in some key aspects of closure planning including discussions about closure objectives, some aspects of work planning, characterisation of the receiving environment, characterisation of key closure issues, and identification and characterisation of closure options/alternatives. Alexco generally shares closure planning related documents and research results with the FNNND and provides opportunities for discussion about the information. Canada, Yukon and Alexco have assured the FNNND that it will be a key participant in the final characterisation of closure options and risks as well as the selection of recommended closure options. The informal arrangements have been successful in increasing the FNNND's role in the closure planning processes, but some challenges remain.

Aside from financial agreements, the intergovernmental arrangements remain ad-hoc and are subject to change and differences of interpretation. As a result, the FNNND has little certainty about its ongoing role in the closure planning and implementation processes. For example, during research about capacity building needs, the FNNND received opposing interpretations from Canada and Alexco about how the closure plan implementation would be delivered, raising significant challenges for the FNNND in planning for participation in the closure implementation.

Also, the four parties have not established any formal administrative structure at a senior level to guide the overall closure planning process or provide a forum for intergovernmental decision-making about the closure

project. There is no mechanism for resolving any differences of opinion about key closure planning steps and decisions. The void of formal collective senior oversight by all four parties leads to uncertainty about how to direct closure planning. This results in various bilateral decision-making activities, mostly between Alexco and Canada. The FNNND is often not party to these discussions and hears about results after decisions are made. In these instances, the FNNND has little or no input, though the outcomes may be important for the FNNND's role and objectives. In the absence of any formal understandings about roles and responsibilities, these decision-making approaches result in uncertainty and distrust about Canada's commitment to understanding and addressing the FNNND's objectives and concerns for closure of the United Keno Hill Mines.

With respect to intra-governmental processes and structures, the funding currently provided by Canada has allowed the FNNND to build its internal capacity for participating in the closure planning process. The FNNND has established a dedicated United Keno Hill closure planning unit within its Lands Department. With this arrangement, the unit is an integral part of the FNNND government structure, thus providing ongoing formal governance mechanisms and policies for appropriate interactions, communications, and decision-making among the bureaucracy, Chief and Council and General Assembly. This is particularly critical in a government structure where the General Assembly (i.e. the citizens) provides guidance and direction for the decisions and actions that will be taken by the government. With the internal structure established, the FNNND has an internal decision-making structure that will serve its long-term needs for making decisions and recommendations related to the United Keno Hill Mines closure project.

Over the past several years, the FNNND has utilised the funding from Canada to create and utilise a number of internal mechanisms to keep citizens apprised of the closure planning, seek input about closure planning and help prepare people for participating in closure implementation. These have included:

- One full-time staff member dedicated to the United Keno Hill Closure project.
- Part-time staff in mentoring and learning positions within the FNNND's United Keno Hill Mines closure unit.
- Establishment of an Elders Committee to seek input about closure planning.
- Coordination of community meetings for various closure planning related discussions.
- Engaging external technical expertise, as needed, to provide advice to the FNNND and to assist the FNNND in the closure planning. This has primarily been through the services of a consulting technical advisor.
- Training and professional development for FNNND staff.
- Coordination of site visits for various groups within the FNNND including staff, students, Chief and Council, trainees, etc.
- Planning for training and capacity building as well as implementation of training programs to help prepare FNNND citizens to participate in closure related activities.

Despite these efforts, the FNNND remains concerned about the capacity of its citizens to participate in the future mine closure activities and the associated ability of the community to realise any benefits that could arise from the closure project.

## **4.2 LSCFN – Mt. Nansen**

For many years, the mechanism for LSCFN involvement at Mt. Nansen was focused on occasional consultation meetings between the responsible government (initially Canada and subsequently Yukon) and LSCFN. These discussions relied on documents written at a level of technical expertise suitable for public relations but did not provide for detailed participation of LSCFN in the Conservation and Reclamation (C&R) planning process.

For approximately eight years Canada and Yukon continued care-and-maintenance activities but did not make substantive gains in characterising significant environmental issues or planning for long-term closure. LSCFN eventually began to raise concern about the main environmental issues at the various meetings with

Canada and Yukon and seek action. In 2007, Yukon's Assessment and Abandoned Mines Branch responded by providing funding for a liaison position within the LSCFN's Lands Department and for associated costs for technical advisors, community meetings and staff development. LSCFN hired a full-time coordinator who has responsibility for overseeing LSCFN's participation in closure planning, keeping the community informed, seeking input from the community, and helping the government, community and citizens prepare for closure implementation.

Internally, LSCFN established a Technical Advisory Committee (TAC) consisting of five LSCFN staff and a consultant. The TAC became LSCFN's primary mechanism for participating in Mt. Nansen closure planning and serves as an advisory body for the coordinator. Intergovernmental technical meetings generally include participation by the whole TAC. The TAC and the integration of the Mt. Nansen Closure Coordinator within the Lands Department ensure effective intra-governmental communication within LSCFN.

As an initial step, the TAC discussed the internal governance and decision-making structures for LSCFN and established clear processes for interactions between the Mt. Nansen Closure Planning team, the bureaucracy, Chief and Council and General Assembly. LSCFN concluded that final decisions about recommended closure options will require direction from the General Assembly. Such direction will guide LSCFN's Chief and Council in any subsequent intergovernmental discussions about proposed closure options.

As the intergovernmental process evolved LSCFN's TAC took the lead on technical evaluation of two options characterisation processes, the first prepared internally by Yukon Government and the second prepared at Yukon's request by an external consultant. For both of these characterisations, LSCFN engaged external consulting expertise and identified significant concerns and inadequacies. LSCFN identified the need for conceptual engineering from an independent engineering firm at a level suitable for submission to the Yukon environmental assessment process. In both cases, Yukon and Canada acknowledged the need for more detailed characterisation and design of closure options. During the review of these two characterisations, LSCFN expected detailed technical review by Canada and Yukon, but if such technical reviews were conducted, the results were not shared. In 2010, under the supervision of Assessment and Abandoned Mines Branch, Lorax began work on a new refinement of conceptual engineering for various options to reclaim the site. The LSCFN TAC continues to provide technical input along with reviewers from Canada, Yukon and an Independent Peer Review Panel appointed by and reporting to Canada. The new characterisations appear to deliver a more thorough and balanced analysis of the potential closure options that will, when finalised, be suitable for detailed options evaluation.

The TAC proposed facilitated risk analysis and multiple accounts analysis to support final decision-making about closure options. Yukon and Canada agreed with this approach and the current funding agreement with Yukon envisions LSCFN participation in the evaluation and selection of closure options. A process for evaluating the options has been developed among all three parties and will be conducted by technical participants from all three governments. However, no formal tripartite decision-making body has been created. Preserving its decision-making authority, Canada has stated that the final product of the analyses would be recommendations and suggestions suitable for a final decision that will be made by Canada.

The current multi-government working level processes provide for improved participation by LSCFN in the closure planning process. LSCFN has demonstrated its ability to marshal appropriate technical resources to respond to closure documentation, proposals and options. However, at some stages, LSCFN was frustrated because the closure planning process appeared to rely heavily on LSCFN's technical input; a responsibility that LSCFN felt should have been more heavily borne by Canada and Yukon. Currently, these issues are largely resolved, but in the absence of formal inter-governmental structures, there is remaining uncertainty about what forums are appropriate for addressing such issues in the future.

## 5 Conclusions

For the United Keno Hill Mines and Mt. Nansen mine closure projects, innovative intergovernmental arrangements have been at least partially successful for improving the participation of the FNNND and LSCFN in the C&R planning processes. Changes in two fundamental areas have facilitated the improved participation.



First, the intergovernmental relationships have begun to change, providing the First Nation governments with an evolving role that is more reflective of a partnership with Canada and Yukon in mine closure planning for abandoned mines. Specific requirements to engage First Nations in closure planning for abandoned mines are affirmed in the “*Yukon Northern Affairs Program Devolution Transfer Agreement*.” This more collaborative and cooperative inter-governmental approach is reflective of an overall increased role for First Nation governments established through comprehensive land claim and self-government agreements. Most mining projects occur in remote areas where the greatest effects from all phases of the project accrue to local people. In Yukon, these are usually First Nations and their citizens. Providing First Nations with a more active role in decision making about mine closure is not only the right thing to do, but is critical to building long-term community understanding and support for mine closure projects and addressing the objectives and expectations of First Nations. Building trusting relationships as partners in closure planning will be an important first step in successful mine closure implementation and it will require long-term commitments and dedication from all parties.

Second, Canada and Yukon have recognised some of the capacity challenges faced by the First Nation governments and have started to provide financial resources that enable these governments to increase their capacity for participation. The core financial and human capacity of both First Nation governments considered in this case study is already overtaxed by day-to-day government responsibilities that arise from their land claim and self-government agreements. As a result, the core government staff is simply unable to dedicate sufficient effort to large mine closure planning initiatives like those for the United Keno Hill and Mt. Nansen mines. Dedicated funding from Canada and Yukon facilitates recruitment of additional capacity within and by the First Nation governments to allow them to actively participate equally in closure planning. The dedicated funding also enables First Nations to plan for closure implementation by developing and improving capacity among First Nation citizens and businesses so they will be able to capitalise on mine closure opportunities.

The steps taken during mine closure planning at United Keno Hill and Mt. Nansen mines to effectively engage First Nations and provide opportunities for them to be active participants in closure planning are helping to rebuild relationships with local First Nations. Some social and economic benefits arise from the closure planning efforts, but the FNNND and LSCFN both hope that the closure implementation and long-term post-closure site management will bring real long-term social and economic benefits for the First Nations and their citizens. At the lowest level, these benefits would arise as employment opportunities for First Nation citizens and business opportunities for First Nation businesses including development corporations. Beyond that, the First Nations envision positive legacies of these closure projects including:

- Citizens and businesses refining skills, seeking education and building experience so they can take on leadership and management roles in the closure implementation or post-closure activities.
- Citizens and businesses acquiring skills and experience that can be applied in other projects.
- Citizens, especially youth, recognising the positive outcomes of closure projects (both environmental and social) and seeking education and expertise that will allow them to be part of such activities in the long-term.
- Ongoing roles for First Nation governments in controlling the management of these legacy sites.

Clearly efforts to effectively involve First Nations need to continue through mine closure implementation and post-closure phases, with ongoing mechanisms to maintain decision-making roles for First Nation governments while providing opportunities First Nation citizens and businesses. Building relationships and capacity with local First Nations will bring long-term social benefits for all mining projects, whether mine closure or mine development/operation and whether proponents are private-sector or government.

## 6 Recommendations

The case studies explored in this paper provide a number of lessons for industry, federal/territorial governments and First Nation governments. These lessons can be applied for mine closure projects regardless of whether government is the proponent. They can also be applied for mine development and operation projects.

#### Lessons for industry:

- Many First Nations have negative experiences with mining projects and mine closure. Mine closure, though often promised, has rarely been delivered as initially proposed and often not delivered at all. First Nations are skeptical about mining projects based on a history of over-predicting and under-delivering both environmental and socio-economic performance. First Nations expect and deserve honesty and realistic predictions about mine projects from start-up through to closure and remediation. In areas where mining has historically caused adverse effects on First Nations' cultures and lifestyles, any renewed development will be expected to work to higher standards.

#### Lessons for federal and territorial government:

- It is important to involve First Nations at the very beginning of closure planning, and in overall decisions that may affect the approach to closure planning and implementation. Significant decisions taken without participation by First Nations serve to build distrust in the participants and the decisions. This could have long-term implications on relationships.
- Supporting capacity building in First Nations is not enough on its own to bring about effective participation of First Nations in mine closure planning. Without also establishing new intergovernmental relationships where First Nations are partners in decision-making roles, there would be little incentive for First Nations to dedicate significant resources or efforts to mine closure planning because they would likely remain skeptical about the reality of promised outcomes.
- Intergovernmental relationships and structures are important at multiple levels and need to be in place early in the closure planning process. Informal working-level arrangements are suitable for technical discussions, but more formal senior level decision-making structures and relationships are also needed. These should be in place to guide the technical work but also to provide the necessary time for senior decision-makers to develop trusting relationships that will be needed to resolve significant closure planning issues like selection of closure options.
- Continued involvement of First Nations will be equally important during closure implementation. This needs to include a role for First Nation governments in the management and guidance of closure implementation, building on the decision-making/partnership role developed during the planning phase. It also needs to include mechanisms to realise promised social and economic benefits of mine closure projects by ensuring that First Nation citizens and businesses can capitalise on employment and business opportunities. To achieve both of these things, the federal and territorial governments need to recognise and work with the distinction between First Nation governments and their development corporations. The business interests of development corporations should not be seen as reasons to exclude First Nation governments from legitimate decision-making and management roles.
- Unfulfilled mine closure promises make it harder to permit new mines. First Nations expect a precautionary approach to make sure that new mines do not find themselves in closure distress or leave substantial negative legacies. Negative experiences with mining or mine closure in a First Nation community will require a lengthy process of rebuilding trust with industry and regulators before new mines can achieve "social licence" to operate.
- First Nations have an expectation that the federal and territorial governments will bring their own technical expertise to the closure planning process and have internal capacity to evaluate technical closure planning documents. They also expect transparency in the planning partnership, with all parties sharing their technical perspectives.

#### Lessons for First Nation governments:

- First Nation governments should seek active roles in mine closure planning for mines in their traditional territories because the long-term effects will accrue to the First Nation and its citizens.
- First Nations participating in mine closure planning (or mine development) need to have sufficient technical expertise of their own so they can engage on an equal level with other participants. It is not adequate to rely on the technical expertise of other governments because they sometimes do not

conduct the type of evaluation that First Nations need, or the outcomes are influenced by their different perspectives. If First Nations do not have the capacity in house to deal with complex technical issues and the processes of mine closure they should assemble a team of expert consultants.

- The requirements for participating actively in mine closure planning are above and beyond the resources that should be required from core First Nation government responsibilities. As a result, the mine closure proponent, whether government or private industry should pay for the costs associated with a First Nation's participation. First Nations should not tolerate funding agreements that constrain the actions of the First Nation government in any way especially actions in environmental assessment or regulatory processes.
- Most jurisdictions have established processes for mine reclamation projects. First Nations need to familiarise themselves with these and demand that they be followed.
- First Nation governments, like all governments, need to have effective structures in place for internal communication and decision-making about mine closure projects and also to provide for corporate continuity within their internal mine closure team.
- First Nations need to plan for maintaining a management role for their governments during closure implementation, building on the decision-making/partnership role developed during closure planning. They also need to optimise their ability to realise promised social and economic benefits of the mine closure project by ensuring that First Nation citizens and businesses can capitalise on employment and business opportunities. To achieve this, First Nations need to establish and maintain a clear distinction between First Nation governments and First Nation development corporations. Roles and responsibilities of each should be clearly defined with respect to proposed mine closure projects.

## Acknowledgements

The Authors acknowledge the Mine closure planning teams at Assessment and Abandoned Mines Branch (Government of Yukon), Indian and Northern Affairs Canada (Government of Canada) and Alexco Resource Corporation for their genuine efforts to work with the First Nation of Nacho Nyak Dun and the Little Salmon Carmacks First Nation. Also, the First Nation of Nacho Nyak Dun and the Little Salmon Carmacks First Nation for their support and input during the preparation of this paper.

## References

- Access Mining Consultants (1996) United Keno Hill Mines Ltd. Report No. UKH/96/01 Site Characterisation, pp. 2-1-2-3.
- Assessment and Abandoned Mines Branch (2010) Mt. Nansen Mine Timeline, viewed 28 April 2011, [http://www.emr.gov.yk.ca/aam/mn\\_timeline.html](http://www.emr.gov.yk.ca/aam/mn_timeline.html), August 2010.
- Auditor General of Canada (2002) Report of the Commissioner of the Environment and Sustainable Development to the House of Commons: Chapter 3, Abandoned Mines in the North, Ottawa, p. 11.
- Elsa Reclamation and Development Company and Access Consulting Group (2009) Options for Closure, Keno Hill Silver District, Historical Liabilities, pp. 2-8-2-11.
- Government of Canada and Government of Yukon (2001) Yukon Northern Affairs Program Devolution Transfer Agreement, Ottawa, p. 216.
- Lorax Environmental (2010) Mt. Nansen Options for Closure, Draft, Vancouver, pp. 1-4.
- Veale, R.S. (2007) Yukon and Canada v. BYG Natural Resources Inc. in The Supreme Court of the Yukon Territory, Whitehorse, p. 21.
- Weinstein, M.S. (1992) Just Like People Get Lost: A Retrospective Assessment of the Impacts of the Faro Mining Development on the Land Use of the Ross River Indian People, p. i, pp. 118-119.
- Yukon Geological Survey (2008) Yukon Mineral Property Update, Whitehorse, pp. 63-65.

