Capacity Building in Northern Canada – One Person at a Time

Marie Christine ROBIDOUX, Canada

Key words: Capacity building, Northern Canada, Aboriginal, resource industry.

SUMMARY

Northern Canada is mainly populated by aboriginal people. They have depended for thousand of years on their knowledge of the land and a special relationship with their environment to survive and thrive as a people. Aggressive development of natural resources has brought many specialized jobs to the north, jobs which have traditionally been filled by "southerners".

From the development of Canada's first diamond mine to the proposed Mackenzie Gas Pipeline, industry has expanded its understanding of northern aboriginal people and has developed programs to assist with skills upgrading and training, all designed to prepare northern aboriginal people for the job market specific to the north. Innovative partnerships and creative thinking have opened up opportunities for aboriginal people and industry.

Three case studies will highlight companies engaged in capacity building through specific projects in Northern Canada. For these companies, capacity building makes good business sense. They understand the need to be part of the community and are interested in developing long term relationships which will be rewarding for all the parties concerned.

Case studies:
Aboriginal Engineering Ltd. and the construction surveys of Diavik Diamond Mines.
All West Surveys Ltd. and comprehensive land claims survey programs.
Nogha Geomatics Ltd. and GIS for Traditional Knowledge Studies for the Mackenzie Gas Project.

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1. BACKGROUND

Against a backdrop of ongoing aboriginal land claims negotiations and settlements, northern Canada's natural resources have gained international exposure in the mining and oil & gas industries through diamond, gold and natural gas discoveries.

Aboriginal land claims settlements such as Western Arctic (Inuvialuit) Final Agreement signed in 1984, Gwich'in Land Claim Settlement signed in 1992, Nunavut Land Claims Agreement signed in 1993, Sahtu Dene and Metis Land Claim Settlement signed in 1993, Dogrib (Tlicho) Land Claim Agreement initialled by negotiators in September 2002 and to be voted on in the first quarter of 2003, have been ongoing in Northern Canada for decades. Currently the people of the Deh Cho have signed the Deh Cho First Nations Framework Agreement with the federal and territorial government, an interim step towards a Deh Cho Final Agreement.

Natural resources development in Northern Canada has been gaining strength and momentum over the last decade. This has been principally fuelled by the discovery of diamonds in the Lac de Gras area of the Northwest Territories in 1985 when geologist Chuck Fipke discovered diamond indicator minerals, which led to Canada's first diamond mine – Ekati Diamond Mine, owned by BHP Billinton. In 1994/95 another geologist, Ms. Eira Thomas, was the leader of the field exploration team that discovered the Diavik Diamonds Project in 1994 and 1995. Diavik Diamond Mines has begun diamond recovery in January of this year (2003).

The Diavik project created real opportunities for aboriginal businesses and individuals as it developed on the heels of the Ekati Diamond Mine at Lac De Gras in the Northwest Territories, and was able to make use of the lessons learned through this initial mine development.

Diamond exploration has boomed throughout Northern Canada in the past decade with reports of significant finds occurring on a regular basis. All areas of the eastern Northwest Territories and Nunavut with any diamond potential have been staked and lands are under claims and leases.

Nunavut has seen a surge in gold exploration and projects. Two in particular are entering feasibility study stage: the Hope Bay Gold Project near Cambridge Bay and the Meadowbank Gold Project just north of Baker Lake.

In the western Northwest Territories oil and gas rules. There has been significant gas discoveries in the Mackenzie Delta (Taglu, Parsons Lake and Niglintgak) but there is no infrastructure in place to take the gas to markets. The Mackenzie Gas Project is focusing on these huge proven gas reserves (around 9 tcf) and the pipeline requirement to get the gas to markets. The project - whose proponents are Imperial Oil Resources, Conoco Canada, Shell Canada and Exxon Mobil Canada (collectively the Producers Group) and the Aboriginal Pipeline Group (formed by the Northwest Territories First Nations) - is currently at the conceptual stage with a regulatory application anticipated by year end. The project's intent is to build a pipeline from the Beaufort Sea down the Mackenzie Valley along the eastern side of the Mackenzie River to markets in southern Canada and in the United States. The portion of this proposed pipeline from the Makenzie Delta to the Northwest Territories/Alberta boundary would cover approximately 1600 km.

2. CAPACITY REQUIREMENTS

Renewed natural resources exploration and development in northern Canada has meant that requirements for trained and skilled people has grown tremendously. The need for capacity building in northern Canada has never been so intense and the willingness of government and industry has never been so keen. From government and industry alike, capacity building is the only answer to their manpower needs. All developers in northern Canada must develop Impact Benefit Agreements with the communities and individuals impacted by the proposed development. An important part of such Agreements focuses on capacity building, education, training, and skills transfer. In most cases industry and individual companies are being very proactive and finding creative ways to implement programs emphasizing capacity building directed at a target group in specific industries.

The following case studies will highlight 3 companies engaged in capacity building through specific projects in Northern Canada. For these companies, capacity building makes good business sense. They understand the need to be part of the community and are interested in developing long term relationships which will be rewarding for everyone.

2.1 Case Studies

2.1.1 Aboriginal Engineering Ltd.

Aboriginal Engineering Ltd. (AEL) is a wholly aboriginal owned company headquartered in Yellowknife Northwest Territories. The company has been active in the resource and transportation industries since 1996 and its main objective is to provide employment and training for northern aboriginal people in those industries specifically.

As AEL's goal hinges on meaningful training, it was crucial to its strategfy that solid training programs were developed and implemented and that achievable goals and targets for success be documented.

During the initial phase of the Diavik Diamond Mines Inc. mine development, near the producing Ekati Diamond Mine owned by BHP Billiton, AEL developed sub-contracting

relationships in two key areas: engineering and construction. It became the survey contrator for the prime engineering company during the mine construction and the quality control contractor for one of the construction company. These relationships were developed prior to any bidding process with the goal of fulfilling the bids requirements for aboriginal content. An important part of these relationships focused on training and the partners were more than eager to assist AEL in recognition of its contribution to their bid. AEL was aware that its employees did not have the necessary safety and technical training to be working at the mine construction site and it built into its sub-contracting relationships specific training programs aimed at qualifying its employees.

AEL was very particular about standing on its own and developing its business without government aid. All of its contracts were won through the open competitive bidding process and at no time did it seek nor receive training grants.

The engineering contractor supported a survey training package while the construction contractor took care of the quality control training for AEL's employees. Engineers and an instructor from the Northern Alberta Institute of Technology provided onsite supervision for the employees and ongoing training as the project progressed. The completion of certain phases of the training as well as performance onsite provided advancement opportunities and pay increases for aboriginal trainees.

From the very beginning, with the first employee starting as a "rodman" on the mine construction site, the training program was aimed at providing the aboriginal employees with the skills required to carry out any construction surveys and meet the stringent safety standards. GPS technology as well as state of the art Total Stations are the tools of the trade onsite. Basic understanding of surveys and survey methods were introduced mainly through hands-on work andon-the-job training. Training included the necessary calculations and quality control methods to ensure that the accuracy requirements were achieved and that the methods employed provided the required redundancy.

Training was also provided in computerized earthworks design software. This portion of the training was very important especially at the beginnig of the minesite development when earthworks for the processing plant, accommodation quarters, maintenance plant, containment dikes, etc. were being designed and built.

From the initial construction survey at the minesite to the mine commissioning, AEL had on staff 4 aboriginal survey technicians at the party chief level and 8 intermediate survey technicians. At the height of construction activity at the minesite, AEL had 40 employees working fulltime on the project, 95% of which were aboriginal individuals from northern communities.

AEL has most recently provided personnel for oil and gas legal survey crews. Highway surveys is also an area where AEL has been active in support of road construction and realignment in the Northwest Territories, thus expanding its employees experience across many industries.

AEL has been very successful and employee retention has been high. Aboriginals in general are accustomed to the outdoors and know the land. This makes them ideal as survey crew members. AEL has proven that focused training coupled with responsible advancement strategies make up winning formulas. Its employees commit to the company and are loyal, reliable role models for the youth of their communities.

2.1.2 All West Surveys Ltd.

In 1994 the Government of Canada awarded its first contracts to survey Inuit Owned Lands parcels in accordance to the Nunavut Land Claim Agreement between Canada and the Inuit of Nunavut. In 1995 All West Surveys Ltd. - an employee owned geomatics company based in Alberta, Canada – won its first such contract to survey XXX Inuit Owned Lands parcels in the Kivalliq region. All West won a contract every year thereafter until the survey program was completed. It has taken the company all over Nunavut and it has carried out these large projects in all three regions of Nunavut: Kitikmeot, Kivalliq and Qiqiktani. In the latter part of the 1990's, All West carried out similar projects for the Sahtu Dene and Metis Comprehensive Land Claim survey program in the Northwest Territories on the shores of Great Bear Lake.

The survey projects covered areas the size of Belgium or Switzerland or even larger and were helicopter supported. Because the projects were above the Arctic Circle, it was often possible to have shifts working 24 hours a day during the full daylight season. GPS technology was used extensively for all portions of the projects. Static and kinematic GPS methods were used with direct ties to the Canadian Active Control System for integration in the Canadian Spatial Reference System which provides the basic foundation of georeferencing in Canada (McGregor-Sauvé and Scott, 1998).

An important component of all northern Canada comprehensive land claim survey programs has been its requirement for all survey contractors to hire and train local aboriginal people. This requirement meant that every crew had at least one and often two local survey assitants who most likely did not have any prior survey experience.

The hiring requirement was at times difficult to fulfill: the projects were carried out in a fairly short period of time (3 to 4 weeks) using two shifts over a 24-hour period. These conflicted with the traditional lifestyle of the local people when a natural priority would have been given to fishing, hunting, gathering berries, etc. The training also was a major hurdle for short time frame projects where logistics and weather often were the most important and expensive items.

Upon mobilization to the project site, a training session would be set up through the employment officer in the community. There were always 2 to 3 times as many people as needed attending and this proved to be a winning strategy from both sides. The training session was anywhere from 2 to 5 days depending on how much lead time there was, how late the helicopter was in getting to the worksite, and the weather. Having additional people attend the training session provided a unique built-in back-up of survey assistants available in the community as well as providing training information for prospective aboriginal trainees.

This often proved invaluable when one assistant could not work for health or family reasons as someone else could be called upon with minimum lost time for the project. Opening the training session to the community in general provided the added benefit of transferring GPS and map reading skills to members of the local Hunter and Trapper Organization.

Training provided prior to the project consisted of basic survey methods and the use of all the tools for the project. This included GPS technology – static, kinematic and real time. A portion of the training was devoted to the particular requirements of the project such as the setting of survey monuments and ancillary monumentation; topographic pick-up of natural boundaries for 200m around the monument; positive identification of the features describing the corner; etc.

On-the-job training was provided as the survey progressed and as the survey assistants became more familiar with the tools and methodologies used. The land surveyor in charge of the project was then able to increase the duties and responsibilities of the assistants.

This approach was very successful. Many survey assistants were able to find employment on similar projects in subsequent years either with All West Surveys or other contractors. Some have carried on surveying and are employed by exploration, mining and environmental companies.

Surveying in northern Canada is generally a summer activity lasting between 6 weeks in the far north to 3 to 4 months in the southern parts of the Territories. Local aboriginal individuals are the perfect addition to a survey crew: they know the land; they are skilled at locating features and at orienting themselves; they are aware of weather patterns and adept at reading the weather; they love being out on their land and they desire skilled work.

2.1.3 Nogha Geomatics Ltd.

Nogha Geomatics Ltd. is a new company owned by Nogha Enterprises Ltd., the economic arm of Liidli Ku'e First Nation, and All West Surveys Ltd. The company has been offering a full range of geomatics services and products in the Northwest Territories since early 2002 and is located in Fort Simpson, Northwest Territories.

The Liidlii Ku'e First Nation is a proactive Dene Band focused on active participation and controlled development of its lands. Over the last few years the potential of a gas pipeline carrying gas from the Mackenzie Delta to southern markets through Liidlii Ku'e First Nation's lands has been gaining momentum. Nogha Geomatics Ltd. is the result of the First Nation's desire to access economic opportunities due to development occurring within its traditional territory.

The Mackenzie Gas Project is currently in the project definition phase and a number of activities are taking place throughout the Mackenzie Valley. Through Nogha Geomatics the First Nation has been successful in securing a number of projects related directly and indirectly to the Mackenzie gas pipeline development. One of these has resulted in a direct training opportunity for a band member as a GIS technician.

The environmental review process for any project in northern Canada includes a requirement for traditional knowledge information, as well as modern science, to be incorporated in the environmental impact assessment of the project.

Traditional Knowledge has been defined as the accumulated knowledge and understanding of the human place in relation to the universe. This encompasses spiritual relationships, relationships with the natural environment and the use of natural resources, relationships between people, and is reflected in language, social organization, values, institutions and laws. It is also defined as an ancient, communal, holistic and spiritual knowledge that encompasses every aspect of human existence.

Traditional Knowledge is generally considered to be owned collectively, that is to belong to an Aboriginal community rather than to one or more specific individuals who act as custodians and ensure it is passed on from one generation to the next.

The Mackenzie Gas Project, in preparation for a regulatory filing, needs to carry out Traditional Knowledge studies along the proposed pipeline corridor. As a portion of the proposed pipeline will go through the Liidlii Ku'e First Nation traditional lands, the Mackenzie Gas Project and Liidlii Ku'e First Nation developed a cooperative approach to the Traditional Knowledge study which would see all the required work being carried out by local individuals and companies.

Because of the size of the whole project, Mackenzie Gas Project has specific requirements for all aspects of the projects but even more so for data collection, management and delivery. All information is to be entered in a GIS using ArcGIS and the data provided in that specific format to the Mackenzie Gas Project.

This has created a significant opportunity for Liidlii Ku'e First Nation to develop a GIS containing all the available traditional knowledge within its traditional territory, get training for a GIS technician and put the technician to work immediately on a meaningful project.

Once the trainee was selected, formal training from ESRI in ArcGIS was secured. The required computer hardware and software was acquired and set up in Liidlii Ku'e First Nation' office in Fort Simpson. A formal work plan was developed for the project, which is expected to last until October 2003. A review of the existing sources of information will be carried out and a gap analysis performed before new information is gathered. The data gathering process will involve a significant number of interviews with Elders, which will require translation from South Slavey, the local aboriginal language, into English. As well technical terms will need to be translated from English to South Slavey and this may include new terminology.

All technical requirements for input into the GIS (layers, conventions, hierarchy, symbols, etc.) will be provided by the Mackenzie Gas Project. A GIS specialist will assist the GIS technician trainee in all facets of the project and provide ongoing supervision. A rigorous set of procedures is being developed for the quality control of the data and processes.

It is expected that the GIS technician trainee would continue working in this capacity for Liidlii Ku'e First Nation once the project is completed. The Traditional Knowledge information will still need to be maintained and constantly updated. An increase in industry's request for information related to Traditional Knowledge is likely as the First Nation opens up its land to industry for oil and gas and mineral exploration. And certainly if the pipeline construction goes ahead in the next few years, exploration will increase and so will the requirements for Traditional Knowledge information.

Nogha Geomatics continues to aggressively pursue contract opportunities on projects associated with the Mackenzie Gas Project such as providing land surveying services for geotechnical work, borrow pits investigation, river crossings determination, etc.

Nogha Geomatics' goal is to become a successful geomatics business providing meaningful employment for the people of Fort Simpson and members of the Liidlii Ku'e First Nation. Capacity building is one step towards achieving this goal.

3. CONCLUSION

Natural resources development in Northern Canada is set to accelerate in the coming years. Depletion of traditional oil and gas basins and important mineral discoveries in the north are fueling the frontier exploration. Although Northern Canada is sparsely populated, even by Canadian standards, northern Canadians have a strong desire to participate fully in the Canadian economy. The modern and traditional lifestyles blend that is the norm in Northern Canada provides a strong commitment to the environment while encouraging sustainable economic development.

The barriers faced by industry are numerous: remoteness, harsh climate, lack of infrastructure, stringent regulatory regimes and minimal availability of skilled labour. Companies willing to work in Northern Canada have always been at the forefront of technological innovations to respond to the many challenges that any development in Northern Canada faces.

Industry's current challenge is accessing skilled labour. Industry recognizes that to do business in Northern Canada and be successful, local people must be involved. Economic opportunities and jobs must flow to the people who live there. Capacity building creates this win-win environment.

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BIOGRAPHICAL NOTES

Marie Christine Robidoux completed a law degree at Universite Laval (Quebec) in 1977 and was sworn in as a member of the Chambers of Notaries for the Province of Quebec in 1978. After practicing law for close to 4 years, she moved to Alberta where she started her second career in surveying. She completed a Surveying Technology Diploma (Honours) at the Northern Alberta Institute of Technology in Edmonton in 1987, and started surveying as open-pit mine surveyor in a coal mine before getting involved in cadastral surveys and becoming employed with the Alberta office of Legal Surveys Division - Department of Natural Resources Canada in 1990.

Marie Christine received her commission as a Canada Lands Surveyor in 1993. After working in Alberta on Treaty Land Entitlement aboriginal claims, she moved to the Northwest Territories in 1994 to manage the Nunavut Land Claim survey program for the Government of Canada.

In October 2000 Marie Christine left the government for employment with All West Surveys Ltd. in Calgary, Alberta. After 10 years in the public sector, she felt the need to change the focus of her career and joined the private sector. Marie Christine is responsible for business development in Northern Canada and internationally with a focus on land tenure and land administration, cadastral surveys, GIS applications and the specific geomatics requirements of the resource industry.

In the fall of 2002 Marie Christine completed a Master of Laws degree where her thesis focused on copyright issues and GIS.

CONTACTS

Ms. Marie Christine Robidoux, LL.B., C.L.S., LL.M.
All West Surveys Ltd. and Nogha Geomatics Ltd.
720, 703 – 6th Ave. S.W.
Calgary, Alberta T2P 0T9
CANADA
Tel. + 403 234 7599
Fax + 403 261 4712
Email: marie.robidoux@allwest.ca or marie.robidoux@shaw.ca
Web site: www.allwest-geomatics.ca