WEST KITIKMEOT / SLAVE STUDY SOCIETY

Re: Community Based Monitoring

STUDY DIRECTOR RELEASE FORM

The above publication is the result of a project conducted under the West Kitikmeot / Slave Study. I have reviewed the report and advise that it has fulfilled the requirements of the approved proposal and can be subjected to independent expert review and be considered for release to the public.

Study Director — Date: June 1/97

INDEPENDENT EXPERT REVIEW FORM

I have reviewed this publication for scientific content and scientific practices and find the report is acceptable given the specific purposes of this project and subject to the field conditions encountered.

Reviewer — Date: Oct. 9/97

INDEPENDENT EXPERT REVIEW FORM

I have reviewed this publication for scientific content and scientific practices and find the report is acceptable given the specific purposes of this project and subject to the field conditions encountered.

Reviewer — Date: Aug 8/97

INDEPENDENT EXPERT REVIEW FORM

I have reviewed this publication for scientific content and scientific practices and find the report is acceptable given the specific purposes of this project and subject to the field conditions encountered.

Reviewer — Date: 11 Aug/97

BOARD RELEASE FORM

The Study Board is satisfied that this final report has been reviewed for scientific content and approves it for release to the public.

Chair
West Kitikmeot/Slave Study Society — Date: Oct. 28/97

Community Based Monitoring in the Slave Geological Province

Submitted:
May 1, 1997

Brenda Parlee / Lutsel K’e First Nation

Briefing to Chief Felix Lockhart

Community Based Monitoring

February 6, 1997

Government and industry people in the Northwest Territories are talking a lot about monitoring now that the BHP Diamond Mine has been approved. Mostly people are talking about impacts to the water, land and caribou. But it is very important to remember that *people*, especially community people, are also going to be affected by these mining developments in our region.

In 1996, a pilot project for community based monitoring began in our community of Lutsel K'e. Community Based Monitoring is a community controlled way to develop indicators and monitor changes in the community associated with mineral development. By doing *our own monitoring* according to *our own indicators*, we will be able to gather a lot of information about how mining is affecting our people.

During this project, we learned many things. First of all, monitoring and indicators are not very useful concepts for our people. They do not come from our Chipewyan language. We have developed our own interpretations of these concepts.

Monitoring: Yunedhe t'asi sel æi
Indicators: T'asi æedô æajá

The two researchers that did the study spoke to 100 people to find out how people in Lutsel K'e watch, listen learn and understand about changes in the well-being of the community. The most important thing that we learned during this study was that the well-being of the community is strongly connected to our need for self-government, our journey of healing and our desire to preserve the way of life and traditions of our ancestors.

Over the next four years, well be collecting information from our own people about changes in our journey ot self-government , healing and cultural preservation.

Some of the information we well be collecting about self-government includes;

- The ability of the leadership to take action to address problems in the community
- the number of job opportunities in the community
- the agreements that give us greater or lesser control over the land
- the amount of money and resources that are being spent on youth

Regarding healing, we are planning to collect information on:

- the rates of disease such as cancer among our people
- reported incidents of poor mental / emotional health
- the kind of food we are eating such as the number of caribou
- parenting skills of people in the community

- how are youth are doing in school such as the rates of attendance / graduation and;
- the ability of social services, such as drug and alcohol programs to meet the needs of the community

We will also look at cultural and spiritual changes by collecting information on:

- the way people use and value the land
- the number of traditional activities such as camping, spiritual gatherings
- opportunities to learn the Chipewyan language in the home and in the community
- changes in harvesting practices and in the use of animals
- the relationship between youth and elders including how much quality time they are spending together

Collecting this information will help in Lutsel K'e and other communities in the region to understand how small communities are affected by mining development.

Executive Summary

Community based monitoring is a community controlled way to develop indicators and monitor changes in community health. In 1996, a pilot project for community based monitoring began in Lutsel K'e, a small Dene community located on the east arm of Great Slave Lake.

The major focus of the community based monitoring project was on *process*, as much as it was on product. Process was emphasized so that at the end of the pilot project, the indicators and the approach to monitoring that was developed would reflect the knowledge, ideas and interests of the community of Lutsel K'e.

The project involved the training of a local researcher, coordination with the local Band Council and committees, and meaningful participation of the community through homevisits and local workshops. Overall the process was very successful particularly in the areas of community participation. The recognizable success of the homevisits speaks to the value of the results of the entire project.

We started the process by examining ideas like community health, monitoring, and indicators from a Lutsel k'e / Chipewyan perspective. Based on input from the community, *community health* was defined according to three journeys of change; -self-government, healing and cultural preservation. An interpretation of indicators (*the things that change)* and monitoring were also developed . (*watching, listening, learning and understanding about changes in the community*)

Indicators were developed through homevisits during Phase Two of the project. They reflect the three journeys of change (*self government, healing, cultural preservation)* that were defined earlier as community health. The indicators have both quantitative and qualitative elements and appear to be rooted in Traditional Knowledge, Western Science as well as in the more general knowledge base of the community.

A process for monitoring was developed in Phase Three based on a variety of input and criteria that developed during the course of the project. Based on final input from a workshop held in October 1996 , it was decided that the monitoring process would follow a four step process including knowledge gathering, analysis and communication, workshops as well as focused and meaningful communication with the community.

Based on the success of the pilot project in Lutsel K'e it is hoped that other communities in the Slave Geological Province will become involved in developing their own indicators and similar approaches to community based monitoring.

(Figure 1) ***Summary of Results***

What is Monitoring?	Monitoring - from the community perspective **Watching, Listening, Learning and Understanding About Changes in our Community**
What is Community Health?	A Process (Journey) Increasing **Respect, Knowledge (Understanding) and Action** towards **Self-Government, Healing Cultural Preservation**
What to Monitor?	Indicators of Community Health **Signs of Change in the Journey of Self-Government, Healing and Cultural Preservation**
How to Monitor?	System of Knowledge Gathering, Comparative Analysis, Discussion, Recommendations for Action **Participation, Communication in Knowledge Building leading to Recommendations for Action**

In honour and memory of
Rufus Rabesca
and
Mary-Louise Catholique

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Description

The aim of this project was to develop a *Community Based Monitoring* system in the Slave Geological Province. This is a community controlled way to develop indicators and to monitor community health..

Objectives

The project was accomplished in 3 phases.

Phase One - What is monitoring?

- discuss with the community their ideas / vision of monitoring
- find out the main concerns ideas, questions about why it is important
- collect information on aspects of community health including socio-economic and cultural as well as environmental concerns
- coordinate with other studies going on in the community to share information
- develop Chipewyan terminology for the concepts of community health indicators and monitoring
- develop literacy skills among the Lutsel K'e Health Committee

Phase Two - What does Lutsel K e want to Monitor?

- Use ideas from Phase One to develop an approach to community based monitoring
- Create a series of indicators from the ideas
- Consult the community to make appropriate changes to the indicators

Phase Three - How to Monitor?

- Start preliminary data gathering to see how the system works
- Consult the community to make changes
- Based on what is learned, develop tools for long term community based monitoring in Lutsel K'e and to communicate the ideas and information to other communities in the Slave Geological Province.

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Methodology

The strong focus on "community" in this study grew out of Lutsel K'e's own experience with research and researchers as well my own knowledge of participatory action research methods..

Lutsel K'e has had a number of experiences with researchers and research projects in the past and as a result they have very clear ideas about what kind of research is most beneficial for the community. The basic principle behind their ideas is community involvement and by community involvement they mean:

- training and employment of a community member(s)
- strong communication and working relationship between the researcher and the Band leadership / committees
- communication with and meaningful involvement of the broader Band membership

There was also a strong interest in the community towards immediate results or action of some kind. Many people are frustrated by a trend they see in the social and political system which is lots of talk and no action. As a result we came to recognize the need for an action oriented approach to research with a strong emphasis on community involvement.

This action oriented approach is formally called *Action Research.*. This form of research recognizes that it is not enough for a researcher to study community health and make reports available to the people. How the information is gathered, how it is used and by who are equally or in some cases more important in the project. In other words, the process has equal value to the product. Although similar to participatory action research and rapid rural appraisal, Action Research emphasizes *meaningful participation* rather than full scale participation of the community. This concept of participation reflects the difficulties of limited time and resources facing many small Aboriginal communities like Lutsel K'e. Not everyone has the time to participate in every phase of the planning, implementing and analyzing the research.

The equivalent of *meaningful participation* in Lutsel K'e is simply *respect*. The need to respect of people as well as the land, the wildlife and water, is one of the most common values held by people in Lutsel K'e and one which they value in research as well as in government and industry's approach to development.

Activities for the Year

1. Training of the Community Researcher

The training of the community researcher has been on-going since the outset of the project.. Angie Lantz was hired in July of 1996 and has made valuable contributions to each phase of the project. In an evaluation of the training process, Angie pointed out that her initial goal was to learn more about research and research methods. According to Angie, she was able to accomplish this goal through:

- discussions with the project director
- reading material on research methodologies
- doing interviews and analysis
- learning about the big picture of research by attending workshops / conferences

Other training that was involved in the project included planning and organizing workshops, summarizing information, reporting to committees and developing communication / conflict resolution skills.

Utilizing her good Chipewyan language skills, Angie focused much of her time, during Phase 2, with the elders in the community. As a result she has developed a keen understanding of the relationship between community based monitoring and Traditional Knowledge. Here are some of her comments on the subject of monitoring and Traditional Knowledge.

> In the days before any of the communities were established, people relied on the daily weather, migrations of the different animals, symptoms of the health and well-being of a particular individual. This was the way that changes were recorded. If similar changes happened, then that information was recorded in the minds of the person witnessing the change and then passed on to other individuals….. This system proved to be very useful since there was no other way to record the changes… To this day we continue to use some of the traditional knowledge when out on the land and in the community.
>
> It is important that anyone who researches traditional knowledge or seeks information on changes in the community, understands how traditional knowledge has been developed over many generations. People need to recognize this and respect it. (Angie Lantz, 1997)

2. On-going Coordination
(Band Council / Lands and Environment / Social Development Committees)

On-going communication and coordination with the community was one of the key objectives of our project. Monthly project reports were given to Band Council and both the Lands and Environment and Social Development Committees. The Research Trainee also did short weekly reports to the Band Council. Where possible and welcomed both the project director and the research trainee attended council and committee meetings.

Communication and coordination with other community groups was important not only to avoid duplication of time and resources but also to establish a firm basis of community participation. Both the Social Development Committee and the Lands and Environment committee provided ongoing support, input and direction to the community based monitoring project.

3. Language Training - Chipewyan Literacy on Community Health

During the months of June, July and August, the Lutsel K'e Dene Band offered Chipewyan literacy courses. These classes were held daily or twice weekly by Alizette Abel. Alizette was able to work with me during her classes to interpret concepts like community health and monitoring. Her work was very important during Phase One of the Project.

4. Gathering Input from the Community on Monitoring and Indicators

School Visits - June

Visiting the school gave me a lot of ideas on what the kids felt was important about community health. Most of their concerns were very immediate and were primarily to do with the lack of recreational activities ("things to do") in the community. There were also concerns about specific places on the land where they spend time with their families and about the animals, water and environmental pollution, as well as litter (garbage left around) in the community.

Monitoring Workshop - Elders

The workshop was held just a few days after the Environmental Assessment Panel on the BHP Diamond Mine released its recommendations to the Minister of the Environment. Many of the Panel recommendations talked about monitoring. After discussing the idea with Chief Felix Lockhart, we decided it would be a good idea to gather input about the recommendations at the same time we were gathering ideas about monitoring. The workshop was attended mostly by elders. In discussing the recommendations, they criticized the government and BHP for not listening to them during the hearings.

In terms of monitoring, the elders emphasized the importance of adequate resources, training and control at the community level. They also talked

about gathering Traditional Knowledge and other knowledge in the community and felt that this would be a good way of dealing with corporations who also had a lot of information.

Wildbread Bay - Discussion with Youth

In July of 1996, 10 youth and two elders from Lutsel K'e accompanied two scientists from Fort Smith to WildBread Bay located on the East of Great Slave Lake, northeast of Lutsel K'e. The youth were involved in a training and research program to determine the effects of forest fires on the ecosystem. We made a trip out to Wildbread Bay to visit the youth and discuss with them some of their ideas about research and monitoring. We were overwhlemed by their response and interest and learned a great deal about their concerns about training, research, the environment and health. The students were so interested in the project that they asked if we could meet again to discuss possible training opportunities in research. We held another meeting and since that time I have been looking for possible training opportunities for them.

Mapping Exercise - Mapping the Concerns of Children in the Community

During the month of July, we met with the younger school children in the community to find out some of their concerns about the community. As was the case during the June interviews at the Lutsel K'e Elementary School, the concerns of the children were very immediate, many of them related to their recreational areas in the community as well as specific family gathering places on the land. The first day of the mapping exercise was spent walking through the community while the children pointed out their favorite places and brought up some of their concerns. The second day of the mapping exercise, we met with the children at the school with paper and paints and we drew all of these places and ideas on large roll paper. This map was displayed in Band Council Chambers for several months and is now hanging in the Project office..

Home Visits (105)

Home Visits were a critical means of gathering input on community health. Before we actually began visitation, a consent form was developed to ensure those people participating in our study that their information was confidential. The homevisits were conducted through an open-ended style of interviewing. This meant that after we introduced ourselves and presented some brief information about the study we asked the participants some very general questions such as:How do you feel the community is doing? What are some things you like and dislike about the community?

We avoided asking them very specific questions about particular aspects of health. Once people realized we were interested in *their* ideas and concerns they responded willingly and openly. The success of the homevisit approach to gathering information was made clear by the length

of the interviews. Although we planned only to spend ½ hour -1 hour with each person, often the interview would last over 2 hours. The recording of information was also openly accepted. Many people would take a lengthy pause between sentences or ideas to make sure we had time to write it all down on paper.

The most willing response came from youth and elders, although there were also many adults who were keen to participate in the interview process..

Joint Workshop between the Lands and Environment / Social Development Committees

On August 26, 1997, a Joint Workshop between the Lands and Environment Committee and the Social Development Committee was held in the Council Chambers. During that meeting we presented a report on the work that had been done in July and early August including a preliminary set of indicators gathered during Home Visits. The committees approved the preliminary set of indicators as well as gave us some guidance on the next phase of the project Based on their input we concentrated on gathering input on community health from the elders.

Workshop - How to Monitor?

A Workshop was held during the month of October to present the community with the results of our research and to gather in put on how to use the information. Ellen Bielawski - Assistant Treaty Entitlement Negotiator for Lutsel K'e also attended the workshop to present some information on the Impact Benefit Agreement that was being negotiated with BHP. Those who attended the workshop offered good comments about the results of our study, and were most interested in how the work was to carry on. The process of monitoring was explained in detail and based on input gathered during the workshop was modified to include greater communication with the community and the leadership.

Analysis

Analysis of the information gathered during homevisits took place between the months of September and November. The notes taken during each homevisit were coded according to the indicators (See Appendix B) and then summarized for easy reference. These summaries were then used to development a baseline statement on health in Lutsel K'e. Additional work was done to analyze the sensitivity of the indicators to impacts associated with large scale development.

Results

The results of this pilot project on monitoring reveal a vision of monitoring, and of community health that is distinct to Lutsel K'e.

Phase One - What is Monitoring?

Phase One was a critical period in the project's development. Before any real research on indicators was done, we had to establish a good basis for communication and that meant examining with the community, some of the concepts which were fundamental to the project

Words like monitoring, indicators and community health do not translate directly into the Chipewyan language nor are they commonly used English expressions in Lutsel K'e. A variety of input was gathered to determine alternative ideas that:

- could be easily interpreted
- were focused on the theme of community health
- were consistent with the community based objectives of the project

Based on input from the community, the following concepts in Chipewyan and their English equivalents were developed.

(Figure 2). ***Summary of Results from Phase One***

	Chipewyan	*English equivalent*
Monitoring	**Net î horédhâ honeltÿn, benerédí, dhi bek orejâ t asi ædønúdhier jâ æîlá háyorilâ náts edé sí.**	Watching, listening, learning and understanding about changes in the community
	Dÿne ch aniæé yunîzî dô tthi yunedhé há yorîla yé ghâ dáûyâ	Being wise about the Dene way of life past, present and future
Indicators	**T asi ædõ núdhier**	The things that are changing
	T asi dÿne da nádhier	Visions
Community Health		Self-government, healing, cultural preservation
	Æåá horîla nezõ hóææ	United community
	Dÿne ch ánîæé	Dene way of life

Phase Two - What to Monitor?

In this second phase of the project, input from the community was gathered through 100 homevisits (open-ended interviews) and small groups discussions in order to identify key themes around community health and a set of indicators. The goal of the homevisits was to collect a relatively unbiased collection of ideas or themes about community health. Community members were encouraged to discuss their ideas and concerns about *community health*. The interviewers were instructed not to prompt the interviewees into talking about particular subjects.

Once the homevisits were completed, the researchers did a initial review of data to interpret key themes and sub themes. (Figure 3) These themes and sub-themes were confirmed during a Lands and Environment Committee meeting (Date). Poster displays of themes were made for the Band Office to facilitate discussion around the project and generate further ideas.

The data was then coded by the researchers according to the sub themes in order to facilitate analysis for indicators. For example anything in the data related to leadership was coded A. Anything related to economic issues was labeled C. As the analysis continued the coding evolved. Some categories were collapsed into others and eventually more specific codes were developed A1, A2, A3 as shown in Appendix B. There was no cross-referencing analysis done between the coded categories to determine relationships between community concerns. This type of analysis may be useful in future however, will require further coding and analysis.

Indicator Analysis

The coding system was developed to facilitate the researchers finding commonly mentioned indicators in the interview data. (See Appendix B) The research trainee was involved in the coding of the data, however, was not able to participate in the analysis of indicators. Each coded category (ie. A1, M2 etc.) was reviewed by the project director with the question in mind "what are signs of change?" Indicators were limited to 3 per category. Given the expanse of data that was collected in the interviews, finding 3 indicators per coded category was not difficult.

Indicators came in the form of what people saw, heard or felt in the context of the issues they were discussing. For example in the context of good leadership, many people talked about leaders from the past who used to communicate well by doing a lot of homevisits. Homevisits as a sign of good leadership was mentioned frequently by people in the community. In the context of togetherness in the community, gossip was often mentioned as a sign of bad family, working and social relationships. Because of what people saw, heard, or felt as a result of gossip in the community, they determined it was a negative sign of community togetherness.. Numerous people focused on a decrease in gossip as a indicator of community togetherness.

An indicator was selected during analysis if it was referred to by more than 10 people during homevisits or in other words, had a 10% weighting. The majority of indicators fell around the 35-60 % weighting while some of the more significant indicators fell into the 80-90% weight area. Approx. 60 *quantitative and qualitative indicators* were developed during homevisits. Not all of these indicators will be used in the monitoring process however, from this interview data analysis, the community will have a wide range of indicators from which to begin preliminary monitoring.

Those indicators are found in the following section. For each coded category, there is both a quantitative indicator (numerically related) and a qualitative (descriptive) indicator. In order that the knowledge gained through the collection of information is made useful to the community, a category *recommendation for action* was added. This is consistent with some of the principles that were originally set out by the community as well as Action Research methodology of the pilot project.

The indicators were reviewed during the October workshop in Lutsel K'e. Further verification and review of this indicators, including a selection of the most appropriate indicators for monitoring, will take place in September, 1997.

Leadership

The effectiveness of the Leadership is moving the community toward greater self-government

Awareness about issues which affect the community

Quantitative	***1***	The number of (a) local , (b) regional / national meetings attended by (i) Chief and (ii) Council and (iii) representatives
Qualitative	***2***	How aware is the leadership about issues which affect the community?
Recommendation		How could the leadership become more aware / knowledgeable?

Capacity to Take Action

Quantitative		Number of (a) Band Council Resolutions, (b) decisions for action made by (i) Band Council, (ii)Band Management.
Qualitative	***4***	How effective is the leadership in taking action to address the concerns, needs and interests of the community?
Recommendation		How could the leadership take more effective action?

Communication

Quantitative	***5***	The number of (i) pubic meetings and (ii) homevisits completed during the study period.
Qualitative	***6***	How well is the leadership communicating with the community?
Recommendation		How could the leadership communicate better with the community?

Togetherness

The capacity of the community to respect eachother and work together.

Communication and Respect

Quantitative	***7***	The level of gossip in the community rated on a scale of high / medium or low?
Qualitative	***8***	How well are people in the community respecting and communicating with eachother?
Recommendation		What would help people to better communicate and respect eachother?

Volunteerism

Quantitative	***9***	The number of volunteers at public events.
Qualitative	***10***	How effective are the efforts of volunteers in bringing the community closer together?
Recommendation		What could be done to promote more volunteers in the community?

Knowledge

Quantitative	***11***	The number of questions asked at public meetings.
Qualitative	***12***	How well aware are people about issues which affect the community?
Recommendation		How could people become more knowledgeable about issues which affect the community?

Economic Development

Improvements in the kind of economic development recognized as important by the community.

Desired Job Opportunities

Quantitative	***13***	The number (i) jobs and (ii) number of desired job opportunities in the community.
Qualitative	***14***	How is current employment affecting the community?
Recommendation		How could the community improve on the number of desired job opportunities?

Level of Control over Developments which affect the Community

Quantitative	***15***	The Number of agreements which give the Band control over developments which may affect the (i) community or the (ii) environment.
Qualitative	***16***	How effective are the agreements between the Band and developers in giving the community control over developments in the region.
Recommendation		How can agreements with developers become more effective.

The Effects of Development on the Environment

Quantitative	***17***	The number of reported incidents of development impacting on the environment.
Qualitative	***18***	How are developments in the region affecting the environment?
Recommendation		How can development in the region have less impact on the environment?

Youth

The role of youth in the community

Support of the Community for Youth and Youth Activities

Quantitative	***19***	Amount of money and resources devoted to youth activities in the community
Qualitative	***20***	How well is the community doing in supporting youth and youth activities?
Recommendation		How could the community better support youth and youth activities?

Knowledge and Capacity of Youth - Education

Quantitative	***21***	(i) Level of attendance and (ii) graduation of youth (ii) from high school or other education programs.
Qualitative	***22***	How well are youth doing in education?
Recommendation		What could be done to improve the level of education of youth in the community?

Involvement of Youth in the Community

Quantitative	***23***	The (i) number of youth and (ii) level of participation in public (a) meetings and (b) community activities.
Qualitative	***24***	How involved are youth in the community?
Recommendation		What could be done to increase the involvement

What the Community Looks Like?

The quality of infrastructure, the well-being of the local environment and the effectiveness of local services?

Health and Safety of Recreational Areas

Quantitative	***25***	The number of (recreational) areas requiring clean up according to children in the community. (See attached map)
Qualitative	***26***	How healthy and safe are recreational areas in the community?
Recommendation		How could the community improve the health and safety of recreational areas in the community?

Health of the Local Environment

Quantitative	***27***	The number of areas requiring clean -up
Qualitative	***28***	How healthy is the local environment?
Recommendation		How could the community improve the health of the local environment?

The quality and effectiveness of local services.

Quantitative	***29***	The number of reported concerns regarding Band Services
Qualitative	***30***	How well is the Band doing in serving the community?
Recommendation		How could the Band improve its services?

Healing the Individual

The overall mental, physical, emotional and spiritual well-being of individuals in the community

The Physical Health of Individuals

Quantitative	***31***	The number of people in the community who have had (ii) cancer, (ii) Tuberculosis, (iii) and other serious diseases.
Qualitative	***32***	How physically well are individuals in the community?
Recommendation		How could the community improve its physical health?

Individual Wellness

Quantitative	***33***	The number of recorded incidents of (i) depression, (ii) anxiety (iii) injury, (iv) other associated symptoms of abuse
Qualitative	***34***	How well are individuals doing in the community?
Recommendation		How could the overall wellness of individuals be improved?

Nutrition

Quantitative	***35***	The number (i) caribou, (ii) moose, other (iii) wildlife consumed during the study period.
Qualitative	***36***	How well nourished are people in the community?
Recommendation		How could nutrition be improved?

Family

The overall wellness and capacity of the family to meet the needs of children.

Health Awareness		
Quantitative	***37***	The number of (i) families and (ii) expecting women participating in healthcare programs.
Qualitative	***38***	How aware are people in the community about issues which affect their family and their children.
Recommendation		How could health awareness in the community be improved?

Active Parenting		
Quantitative	***39***	The number of parents attending (i) school activities, (ii) youth events.
Qualitative	***40***	How well are parents doing in actively supporting their children?
Recommendation		How could the overall wellness of individuals be improved?

Amount of Time Families Spend Together		
Quantitative	***41***	er of family activities (social / recreational) offered in the community.
Qualitative	***42***	How much time to families spend together?
Recommendation		How could the amount of recreational or social time people spend together be increased or improved?

Children

The overall wellness and capacity of children to achieve their goals.

Overall health of Children

Quantitative	***43***	The number of children demonstrating positive (sharing, laughing, respecting each other) behavior in a set time period.
Qualitative	***44***	How well are children doing in the community?
Recommendation		How could the overall wellness of children be improved?

Capacity of Children

Quantitative	***45***	*
Qualitative	***46***	What are the strengths and weaknesses of children in the community?
Recommendation		What can the community do to improve the capacity of children?

Positive Development of Children

Quantitative	***47***	The number of children able to identify short and long term goals. The number of children able to meet short and long term goals.
Qualitative	***48***	How well are children doing in meeting their own goals?
Recommendation		What can the community do to increase the capacity of children to meet their own goals?

Healing Services

The success and effectiveness of current healing programs in meeting the needs of the community.

Success Rate of Treatment Programs

Quantitative	***49***	The success rate of participants attending treatment programs
Qualitative	***50***	How successful are treatment programs?
Recommendation		How could be done to improve the success of treatment programs?

Capacity of Healing Services to Meet Community Needs

Quantitative	***51***	The number of (i) answered and (ii) unanswered requests made to Drug and Alcohol Workers.
Qualitative	***52***	How successful are healing services in meeting community needs?
Recommendation		What could be done to improve the success of healing services?

Respect for Different Approaches to Healing

Quantitative	***53***	The level of diversity in available healing programs
Qualitative	***54***	How much respect is given to different approaches to healing
Recommendation		How could be done to increase the respect for different approaches to healing?

Land

Use of and Respect Given to the Land

Traditional Land Use and Appreciation

Quantitative	***55***	The number of people (i) trapping or involved in (ii) subsistence land use.
Qualitative	***56***	How are people involved in traditional land use.
Recommendation		What could be done to increase the number of people involved in traditional land use activities?

Respect

Quantitative	***57***	The kind of respect shown to the land during land use. (e.g. Paying the land.)
Qualitative	***58***	How much respect do people give to the land during land use.
Recommendation		What could the community do to increase the level of respect shown during land use?

Cultural Activities

Quantitative	***59***	The number of organized cultural activities on the land.
Qualitative	***60***	What kind of activities are happening which help to preserve culture.
Recommendation		How could the community increase the number of cultural activities on the land?

Language

Use and Development of Chipewyan Language Skills in the Community

Speaking Chipewyan

Quantitative	***61***	The number of families using Chipewyan as a first language.
Qualitative	***62***	How many people are speaking Chipewyan at home?
Recommendation		How could be to encourage more families to speak Chipewyan.

Opportunities for Language Learning

Quantitative	***63***	Number of opportunities for learning Chipewyan.
Qualitative	***64***	What are the opportunities for learning Chipewyan in the community?
Recommendation		How could be done to improve on the number of opportunities for language learning in the community?

Formal Use of Chipewyan

Quantitative	***65***	The number of public meetings, workshops or public events where Chipewyan in formally used.
Qualitative	***66***	How much is Chipewyan being used during formal events?
Recommendation		How could be done to increase the level of Chipewyan used during formal events?

Cultural Education

The level of cultural education that is available in the community.

Traditional Land Activities for Educating Youth

Quantitative	***67***	The number of traditional land use activities involving opportunities for educating youth.
Qualitative	***68***	What kinds of traditional land use activities currently involve opportunities for educating youth.
Recommendation		What could be done to increase the number of land use activities involving opportunities for educating youth?

Success of Cultural Programs

Quantitative	***69***	Level of success of cultural programs
Qualitative	***70***	How successful are the cultural programs currently being offered?
Recommendation		What could be done to improve the success of cultural programs?

Maintaining a Strong Relationship between Youth and Elders

Quantitative	***71***	Amount of culturally meaningful time youth spend with elders
Qualitative	***72***	How much culturally meaningful time do elders spend with youth
Recommendation		What could be done to increase the amount of time youth spend with elders?

Traditional Knowledge

The level of traditional knowledge that exists and is being shared in the community.

Knowledge about Harvesting

Quantitative	***73***	Number of people who know how to make fires, trap, hunt, set nets, survive in the cold, tan hides, make dry meat, sew moccasins.
Qualitative	***74***	How much do people know about traditional harvesting methods.
Recommendation		How could be done to increase knowledge about traditional harvesting?

Knowledge of Traditional Values

Quantitative	***75***	Number of people who understand respect for the land, water, wildlife as important to the Dene way of life.
Qualitative	***76***	How much do people respect the land, water, wildlife?
Recommendation		What could be done to increase knowledge about the importance of the land, water and wildlife to the Dene way of life?

Opportunities for Knowledge Sharing

Quantitative	***77***	The number of opportunities for knowledge sharing
Qualitative	***78***	How many opportunities are there for knowledge sharing?
Recommendation		What could be done to increase the number of opportunities for knowledge sharing?

Phase Three - How to Monitor?

In the third phase of the community based monitoring project we developed a process for monitoring using the previously developed indicators to measure changes in Lutsel k'e. The first step was to develop criteria that would give definition to the process of monitoring.

Developing Guidelines for the Monitoring Process

The community project objectives and methodology provided some very general guidelines, and aims for the monitoring process, specifically that it include:

- training and employment of community member(s)
- strong communication and working relationships between the researcher and the Band leadership
- strong communication and meanigful involvement of the broader Band membership

The concept of monitoring was defined during phase 1 as *looking into and improving the future* as well as the idea of *watching, listening, learning and understanding about changes in the community*. These ideas were also considered in the development of a monitoring process.

More specific criteria was gathered during workshops and meetings with the Lands and Environment / Social Development Committees.

- Maintain good communication with the community
- Find financial / technical resources for carrying out the monitoring process.
- Coordination with the Leadership
- Information is the property of Lutsel K'e Dene First Nation
- Monitoring is an information gathering process, not a political process.
- Recommendations for action to go to Band Council
  Also taken into consideration were the skills and interests of the community trainee. We took into discussed her personal strengths as some of the skills developed during the community based monitoring training process. These included:
- gathering data through interviews
- analyzing / summarizing data
- organizing information
- planning / organizing workshops and public meetings
- public speaking
- report writing

Based on these criteria we developed a preliminary process of monitoring: This process was later modified during a workshop / public meeting held in October, 1996

Guide to Community Based Monitoring

A 1996 Pilot Project
Funded by
The Canadian Arctic Resources Committee
West Kitikmeot Slave Study Society

Brenda Parlee /Lutsel K'e First Nation

Establishing a Community Based Monitoring Program

There are many different types of monitoring practiced in the north, compliance, effects, experimental monitoring and program monitoring and evaluation etc. Simply understood, monitoring is the systematic collection of data around key indicators. (Bankes/ Thompson) It is about gathering and analyzing information with the aim of understanding changes in a system. It is a tool for understanding development and its effects.

This guide looks at the potential for community involvement in monitoring in the Slave Geological Province. The guide is based on a 1996 pilot project which took place in Lutsel K'e It outlines a process for developing indicators as well as a model for *community based monitoring* that would enable communities to gain knowledge about how development activities are affecting communities.

Bankes, Nigel and Andrew Thompson. Monitoring for Impact Assessment and Management. Vancouver: Westwater Research Centre, University of British Columbia, 1980.

Community Based Monitoring in Lutsel K'e

Monitoring among government agencies and industry is common practice however, formal arrangements for monitoring at the community level are rare particularly arrangements for monitoring community health.

Monitoring began in Lutsel K'e as a result of concerns raised during the Environmental Assessment Hearings about potential socio-economic effects in the community. The goal of the project was to establish a community controlled way to develop indicators and monitor changes in the community health. In April of 1996, funding was sought from the Canadian Arctic Resources Committee and the West Kitikmeot Slave Study Society and the project began 3 months later

The community based monitoring project in Lutsel K'e was primarily focused on community health however, health was defined fairly broadly by the community. Unlike the way health is defined by docters, people in Lutsel K'e recognize that health is affected by many different political, social, cultural, economic and environmental influences. All these things were considered in the monitoring project.

Certain principles for research and program development that were set out by the community gave the project a strong community development focus. These principles included,
training local people in research skills, communicating and sharing knowledge with the local leadership and facilitating the participation of the broader community.

Overall the pilot project was considered by the researchers and advisory committee to be successful and the community is now involved in a second pahse of the project focused on collecting Traditional Knowledge on community health from local elders. Once this Traditional Knowledge is collected, the local researcher will focus on collecting community information according to the pilot project indicators from other members of the community. All of this information will be analyzed to create a picture of community health for the past and the present.
These pictures will assist Lutsel K'e and other communities in the Slave Geological Province in determining how community health in the region is changing with mineral development.

What's Involved in Community Based Monitoring

Community Researcher

One of the major elements of a monitoring program is a community person to monitor, or to coordinate the gathering of data, analysis and reporting. This person would take direction from an advisory committee on why, how and what to monitor. They would also be responsible for summarizing information gathered for analysis or discussion by the advisory committee. The community researcher plays a lead role in the community based monitoring process.

Advisory Committee

An Advisory Committee should be established to direct efforts to gather, analyze and report on changes. Depending on what you are monitoring, who is sitting on your the advisory committee will be different. A monitoring effort dealing with environmental issues may consider including the local Lands and Environment or Renewable Resources officer. No matter who is involved, the committee must be committed to the focus of the project and be interested in participating. Establishing a clear role for the community researcher and the committee at the beginning of the project will ensure good communication and effective decision making.

Indicators and Monitoring

Indicators are signs or symbols of change either in a social or environmental system. In the Slave Geological Province, they can help show how a mining development is affecting communities. Indicators and a process of monitoring developed at the community level which reflect the concerns, needs and skills of community can be extremely effective tools in increasing the capacity of communities in the planning and management of development in their region.

Community Participation

Community participation is the backbone of community based monitoring practices. Without the assistance of local people, data gathering and analysis is likely to be limited. By involving youth, elders, adults, local groups and resource people, collecting information will not only be easier but is likely to be more valuable from the community's perspective. The more people who are able contribute to the monitoring effort the more successful it is likely to be.

Consistent Data Gathering

Consistent data gathering is extremely important in monitoring. How you collect the information, when, where and from whom all must be recorded in a way that you and others can understand. Whether you use a tape recorder, a video camera, a computer data base or a pen and paper, consistency is important.

Meaningful Communication and Reporting

How you analyze and present the results of your monitoring efforts is an important aspect of community involvement. Newsletters, displays, community workshops, or formal reports are all ways of communicating your data. Be creative in how you communicate the information and ensure that it is meaningful to people in the community.

Why Monitor?

Before you begin to monitor, you must determine for just what kind of monitoring program you want to establish..

There are various kinds of monitoring programs already established in the Slave Geological Province such as compliance monitoring and government programs for effects monitoring. It might be useful to look at these existing programs first in order to determine what kinds of issues are already being assessed and what your role in monitoring might be. Answering the following questions that were used to develop a monitoring program in Lutsel K'e may also help you in defining your own monitoring program.

a) What is monitoring Why monitor? -
b) What are you going to monitor? ----
c) How are you going to monitor? ----
d) How are you going to communicate the information you have gathered? ----

If it is difficult to answer these questions at the start, try some basic brainstorming with other people. Write down all the individuals, committees and local agencies who you think might be involved. Make an appointment to visit them individually or invite them to a meeting to discuss the possibilities of monitoring. The more people involved from the outset, the more likely it is that your monitoring project will succeed.

What is Monitoring?

Language

In Lutsel K'e one of the most useful ways of answering the question of what is monitoring was to explore the various translations and interpretations of the word in the Chipewyan language.
When the project first began, a public workshop was held with local elders to introduce the project and get their opinions and ideas about monitoring. The meeting evolved quickly into a discussion of issues around monitoring. A second meeting was required to follow-up on the discussion and to focus specifically with the concept and its translation.

This public meeting was followed by a number of brainstorming sessions between local literacy instructors, translators and the researchers. This proved extremely useful for the researchers because it gave us the opportunity to learn more Chipewyan terminology and brainstorm about the concept. Various meetings were also held with local committees to get their ideas. More ideas were gathered there to answer the question - What is monitoring.

From the ideas gathered during the public workshop, the brainstorming sessions and the local committee meetings the following interpretations of monitoring developed:

MONITORING

Net î horédhâ honeltÿn benerédí dhi bek orejâ t así Ædønúdhier jâ ?îáá háyorñla náts edé sí.
(Watching, listening, learning and understanding about changes in the community.

Yunedhe t asi selæ
(Looking into and improving the future.)

Dÿne ch'a nie unizî chu dô chu eåe æle
(The Dene way of life in the past compared to today)

As the project unfolded, the concept *watching, listening, learning and understanding about changes in the Dene way of life*, was adopted because it appeared to most accurately describe the reality of the project and as a concept was most meaningful because of its concrete terminology. Other terminology was also developed around the concepts indicators **(T así ?edõ núdhier)** and community health **(Dÿne ch'anie)** or the Dene way of life.

Examining the concept of monitoring with your community is an important first step in developing a monitoring process.

What to Monitor?

Developing a Focus

Before setting out to develop indicators, there are several important criteria which should be considered. If you have already gone through the process of answering the question *Why Monitor?* you can use those answers as a guide through this phase. Use the following questions to double-check that you have developed a good rationale for your project.

> What is the key question or goal of your monitoring project?
> Can you explain in one sentence why it is important to monitor?
> What is the area of *scope* of your project? (For example: local watershed, healing workshop.)

If you haven't already done so, it is important to share your answers to these questions with other people in the community and get feedback on your ideas. A presentation to Band Council, a local committee or youth group meeting is one way to do that. Sharing your ideas with others is a important way of including more people in the process and is also likely to give you more ideas on why it is important to monitor?

The next step in the process is to examine your goal in more detail and think about the issues and questions which are associated with that theme. For example if you focus is to determine the effects of a mining development on youth at the local school, what are some of your concerns regarding youth. What are your concerns about mining development Make your lists in two columns (see below) and then draw lines between what you see as *(A) concerns about mining development* and *(B) concerns around youth.* This will give you an idea about the relationship between the effects of mining and youth in the community.

In Lutsel K'e, youth was one of only fifteen issues of community health that were considered. Each of these was connected or analyzed according to five potential stresses associated with mineral development in the region.

Stresses Associated with Mineral Development

a) rapid increases in individual and family income
b) changes in wealth and distribution of wealth within the community
c) physical and mental stresses associated with employment
d) broad regional changes in education and cultural opportunities / communication
e) increased pressure on the regional environment

Depending on where you live, the stresses associated with mining development may be different. For example for communities who are connected to Yellowknife by road and somewhat less isolated than Lutsel K'e, there may be additional stresses associated with Yellowknife being the major point of hire.

Gathering Ideas

Our experience suggests that most people prefer to point out their ideas or concerns through stories during homevisits rather than during workshops or public meetings.

If you feel homevisits are not a good way of collecting information in your community, you could identify issues or concerns through workshops or during local committee meetings.

If you have difficulty in a workshop setting, do a number of homevisits and then return to a workshop with the results of your visits. This may be enough to get the ball rolling.

Depending on the participants in the workshop you may end up with more issues than you could possibly consider monitoring. If that is the case, return to your original goal (Phase 1) and prioritize the issues according to their relevance to the question. For example if you are seeking to determine the effects of a health and social service transfer on the feelings of well being in the community, research regarding the number of migrating ducks is not likely to be too relevant.

Indicators

Indicators are the symbols or signs of change. Indicators help us to understand what is going on within a watershed, among a species of animals or in the health of the community in relatively easily compared to the time and energy it would require to document every possible change within a system. As scientists are now recognizing and what Aboriginal people have known for thousands of years, is that the world we live in is extremely complex. We will never be able to know everything there is to know about the land, the water and the wildlife, nor can we predict with any consistent accuracy changes that are about to occur. Our best option is to build societies, institutions which are flexible enough to recognize this complexity and are able to learn and adapt to nature rather than try to control it.

Some indicators are quantitative or involve numbers, such as *the number of meetings,* or *the number of questions asked during public meetings.* Other indicators are qualitative or are descriptive of a situation such as *the importance of a spiritual gathering site, the strength of relations between youth and elders* or *the cultural significance of an activity.* Both indicators can be useful for documenting change at the community level.

But before you develop your indicators, here are a few criteria or ideas about what makes an indicator useful.

Selection Criteria for Indicators used in Community Based Monitoring

Is it relevant to the **scale** of your project?

For example: an indicator *Rates of Unemployment in North America will* not give you a lot of relevant information if your project is dealing specifically with local economic issues.

Do you want your indicator to **predict** change or **react** to change?

For example: *incidents of chronic depression and anxiety* at the health centre may show people's response to a particular issue in the past such as missionary schools etc. It may also show changes in the effectiveness of current healing programs offered in the community. It could also be used to predict potential incidents of mental breakdown or suicide. In another way it could be used to indicate the level of need in the community for mental counseling services. Be very clear about what you need your indicator to describe. In that way you will be able to select indicators that are most appropriate for your needs.

Where does the indicator come from?

Indicators, like stories, have the capacity to reflect the community and the culture in which they are developed. Depending on your ***system of knowledge*** you are likely to begin with a different view on how lakes change in the winter, how women are affected by marriage, or how the traditional harvesting of caribou is affected by the introduction of wage labour into the community. As a result the indicators that you use to describe these changes will also be different.

In Lutsel K'e we recognized a number of different systems of knowledge in the indicators that were developed. Firstly, were indicators derived from the Western model of science. For example one major issue in Lutsel K'e is the behavior of children. For some people changes the severity of behavior problems in children is based on the number of children assessed by a clinical psychologist as having Fetal Alcohol Syndrome. For other people whose knowledge based was less centred in conventional Western Science, and more focused in their own experiences (such as healing), the severity of behavior problems in children is indicated by the level of sobriety among parents. For other people, particularly elders whose knowledge base is commonly described as traditional knowledge, poor behavior among children is the result of lack of disciplined parenting skills. None of these indicators is more accurate than another however, depending on the focus of your monitoring efforts and the interest of the community, one may be more appropriate than another. In Lutsel K'e, the emphasis was on indicators that were based in the everyday knowledge of community members as well as indicators based in Traditional Knowledge. Only a few of the indicators developed were assessed by the researchers as having a strong basis in conventional Western science.

There are a number of other criteria that can be used to assess the indicators such as

How easily will you be able to collect information about this indicator?
How costly will it be to gathering data and to maintain that data?
How many indicators will you require to accurately reflect change

Perhaps the most useful criteria for assessing the usefulness of an indicator that you are developing and using at the community level is:

What indicators does the community feel are most appropriate for measuring change?

Developing Indicators

As previously mentionned, the approach to gathering community input for indicators will really depend on your community as well as your commitment to facilitating participation.

One very simple way for community members to develop indicators is to reflect on their own experience, there own perspective on what issues are important to you (e.g. the health of a nearby lake) and how you as a community member, recognize that change as it occurs. Using the example of the nearby lake, finding out what people see, hear or experience that leads them to think the health of the lake is changing will provide you will some likely indicators. Maybe it is the number of ducks you see and hear returning to the lake in the spring. Maybe it is the number of reported oil and gasoline spills you hear about in the summer. You might also have access to water sampling equipment or the reports of people who do water sampling regularly. These three things that you see, hear, are reported or you learn about through reading are indicators of the health of the lake.

- number of ducks returning to the lake
- number of reported oil and gasoline spills in the lake
- results of water sampling tests

The next stage is to find out what a change in each of these indicators means or *indicates.*. For example, you could probably say that an increase in the number of ducks is a positive change, but an increase in the number of gasoline spills in the lake is a negative change. The meaning of other changes might be complex.

Depending on your concerns around water quality, you might want to develop other indicators with the help of organizations like the Centre of Indigenous People and the Environment. (CINE) The effects of an abandoned uranium mine on local ecosystem may require more technical expertise than you feel is available in the community. Regardless of whether you decide to include other organizations, according to CINE however, your day to day efforts at the community level are extremely valuable in detecting changes before they become major crises.

Developing Indicators which Reflect the Knowledge of the Community

If you trying to select a range of indicators which reflect community's knowledge, an open-ended process of interviews may help you.

During homevisits, encourage people to talk about whatever aspect of community health, a specific lake, or species of animal they think is important. By encouraging people to talk about what they know about your subject or focus, you are likely to gather many more indicators than through directly asking them *how they recognize change.*

In Lutsel K'e data from 100 interviews was first reviewed to select key themes and sub themes. Once theses themes were selected, a process of coding was done of all data. For example everything related to leadership and communication was coded A1. Everything regarding families

and language was labeled K1. M2 was used for everything related to traditional knowledge on harvesting.

Once this coding was done, we selected the specific indicators according to the way people saw, heard, understood or recognized change. For example, the number of youth graduating from highschool was one way people recognized change (improvement or lack of improvement) in education. The number of jobs held by community people in the different areas (i.e. store, Band or the mine) was an important way people saw change (improvement, lack of improvement) in economic development and employment. A similar process of analysis (theme development, coding and indicator selection) can assist you in finding indicators in the data you have collected.

Monitoring

Most formal monitoring programs have three primary elements: data gathering around key indicators, analysis and reporting. Each program will have its own set of indicators, its own method for data gathering, analysis and reporting depending on the overall goal and principles of program. In Lutsel K'e, the overall goal and principles were strongly focused on community control and participation. The strength of these principles provided us with a useful framework on which to design and build a process of monitoring.

Data Gathering

Good data gathering is consistent, organized and collected according to the direction or rules of conduct established by your Advisory Committee or local leadership. This is particularly important when collecting data that relates to sensitive issues of social health. In all cases the rights of the person relaying information must be respected. Trust between you as a data collector and members of the community who are providing information is essential if your monitoring project is to survive over the long haul. Some important issues to consider in data collection.

What kind of timing is required?

Is what you are monitoring affected by the seasons or depend on a seasonal activity such as caribou migration or snow-mobiling? In monitoring community health issues seasons may also play a role. For example some people in Lutsel K'e explain changes in people's mental well-being, by the season or according to changes in the seasons. This is something you will have to consider. Even with indicators such as the number of volunteers at public events may be affected by the seasons, therefore being consistent in when you monitor is very important.

How are you going to include the community in the data gathering?

In order to facilitate broad participation of the community in the monitoring process, data gathering or the collecting of information will be accomplished through homevisits. The homevisit approach in the 1996 pilot project was a very successful means of collecting information as well as useful in encouraging participation from community members who would not normally speak out during workshops or public meetings.

Depending on the focus on your study, workshops may be a more effective means of involving people. If you decide on homevisits, it is recommended however, that you do not focus too heavily on questionnaires that leave little room for people to comment freely and openly. Most people do not enjoy "yes", "no" type of questions such as "Are you employed? Where are you employed? Do you like your job? Especially in doing interviews with elders, these type of direct questions may be seen as offensive.

Even if you require very short yes or no answers or information like 10 feet, 25 yrs, 50 caribou try not to be too blunt. Depending on your community it shows a lack of respect to ask very direct questions. Instead take the time to visit with each person and find out how they are and what they've been doing.

Sample Interview:

Have you been out to Such-in-such lake lately?

Yes, me and Freddy were out there yesterday. I nearly ran out of gas on the way there though, the water was kind of rough.

It was pretty windy here in town too. Were you guys camped out there?

Yes, but we came back early. We went out there to go moose hunting but it got too windy.

That's too bad. Hey, I working on a project about the health of Such-in-such Lake.

We are trying to find out how many ducks are out there. Did you guys see....

Ducks.. yeah.. there were quite a few out there.... There were a lot when we first got out there. It was pretty calm. Then I didn't see any when it started to get rough.

How many ducks do think were out there?

Oh probably about 40 or so. Freddy tried to shoot some. You should ask him about the ducks too. He'd probably know. He is over at the store if you want to see him.

You are likely to get a much more positive response and probably more useful information if you take the time to talk to people.

What age group are you gathering information from?

Youth, adults and elders are likely to have distinct perspectives on issues in the community. If you are doing homevisits, attempt to get equal input from all groups If you are gathering data from a workshop or public meeting. Keep a record of who attended the workshop and consider their age in reporting.

Are you interviewing mostly men or mostly women?

In Lutsel K'e there tended to be a difference in the input that was gathered from men and women on issues of community health. On average men tended to be more concerned about issues of the leadership, economic development and unemployment whereas women tended to be more concerned with issues of education, child behavior, and individual mental, spiritual, emotional and physical wellness. Issues that were of equal importance to both men and women included sobriety, the health of the land, water and caribou as well as the preservation of Dene culture. This may be something to considered when you are collecting information.

Who are the people you are interviewing?

It is also useful to think about who you are interviewing or who is attending your workshop? Are you interviewing only people who speak your language? Were they born in the community? Did they grow up in the community? Do the people who attend your meetings tend to be more educated than others.

This is particularly important if you are researching socio-economic issues. Many existing efforts at monitoring rely on information from "frontline" workers or people in positions such as Band Management, nursing station, teachers staff etc. This is not to say that the information gathered from frontline workers is inaccurate or is not extremely valuable. The issue is whether you are meaningfully involving people in the community. Frontline workers in the Slave Geological Province tend to be non-Aboriginal people who have lived in the community for less than three years.

Tools you needs to record Information

What kind of **equipment** are you going to use to record information? Do you know how to use your equipment? The kind of technology you require will depend on whether you will be recording quantitative information such as numbers or whether you require more description information or qualitative information. For example: Initially recording the number of ducks returning to a local lake may only require a well ruled book and a pen. Later on you might want to consider purchasing a computer database that could help you interpret your information, however, don't feel compelled to jump into too much technology right away. The experiences of other community based projects shows that computers are useful tools but can also be obstacles (as well as heavy paper weights) to achieving your goals if you aren't properly trained. Try to simplify the process however, don't compromise organization and consistency which as mentioned earlier are the corner stones of good data gathering.

Sample Data Sheet

The week of May 10 - 17, 1999

Name	Approx. #No of Ducks	Species	Time of Year
John Micheals	50	Small	May 10, 1997
Lizzy Enrnest	70	Small	May 14, 1997
Frank Miller	25	Small	May 16, 1997
Larry Coats	0	Small	May 17, 1997
David Simpson	2	Small	May 17, 1997
Judy Gorman	0	Small	May 17, 1997

Recording qualitative information however, may require additional equipment. Tape recorders, video cameras etc. are most useful if you have to record long descriptions of events or particular issues.

How you **store and access your data** is also important. As mentioned earlier technology is an issue however, **ownership** over information, **confidentiality** of those providing information as well as the short and long term **security** or your data is also important. It is highly recommended that you develop an agreement with the leadership in your community about how you are going to collect information, what it will be used for and who will have access to that information. Depending on your perspective the most ethical position regarding ownership of information is that it belongs to the community who are providing you with data. Guaranteeing community ownership of information is one of the most important aspects of community based monitoring

Analysis

The goal of analysis is to make the information you have gathered meaningful and useful to the community. The first step in doing that is to put the data in a format that people can understand. This may involve summarizing comments that were made during homevisits or putting numerical (numbers) data you have collected into chart form. The more simply you present your information, the easier it will be to analyze.

The next step is to meet with your advisory committee to gather their ideas about the information you have collected. You may want to draft a set of information sheets following the format below to simply your discussions with the committee.

Sample Summary Sheet

<u>Presentation</u> - Indicator #1 - Volunteers in the Community

Summary of Comments

1.
2.
3.
4.
5.

Quantitative Information - Numbers of Volunteers at Public Meetings
Month - March 1999

Meeting	Vol. Required	Vol. Attended	%Success
Meeting #1 - Council	10	2 volunteers	20%
Meeting #2 - Recreation	5	4 volunteers	90%
Meeting #3 - Council	10	4 volunteers	40%
Meeting #4 - Social Dev.	5	2 volunteers	40%
Meeting #5 - Radio Society	8	10 volunteers	120%

Advisory Committee Recommendations

1.
2.
3.

For each indicator that you are using, you should have a summary of comments from your advisory committee. These comments may be in the form of recommendations for action, recommendations for further study or just general comments about the information you have gathered. Try and record the committees recommendations clearly and simply. Keep in mind you will have a set of recommendations for each indicator.

Reporting

Reporting should be based on the analysis and recommendations of your advisory committee. Rather than try and include all information about your indicators in one report, think about focusing on one or two issues per report. For example, if you are doing newsletters or displays, focusing on one theme, such as youth, will be more interesting and easier for people to understand.

You can include pictures, short explanations and quotes from people which focus on youth or one specific issue regarding youth.

Reporting to committees, holding public meetings or workshops are also a useful way of reporting. Keep these things in mind however, in reporting:

- Who is your audience
- What is the key (specific) issue you want to deal with in your report
- What is the best way of presenting the information
  (Newsletters, Displays, Formal Reports, Public Meetings)
- Have you taken pictures to include in your reports?

Try and get feedback from people about your report before it is presented. Gather together ideas and make notes for yourself so you can improve as you go along. You may try different approaches to reporting depending on the issue that you are dealing with.

Discussion of Results

Indicators

Indicators are signs or ways of recognizing change in the community. In Chipewyan, this translates simply as *the things that change* in the community.

Types of Indicators

There are many different types of indicators which can used to measure change. Many indicators used to measure environmental change for example are quantitative, or involve collecting objective measurements or tracking numerical data. Quantitative indicators can also be used to measure socio-economic change. Examples of quantitative indicators include tracking the number of caribou consumed in the community or the number of youth who are attending public meetings. Quantitative indicators are useful for taking very precise measurements however, are narrow in focus and not particularly sensitive to unanticipated changes.

Other indicators are qualitative which means they involve narration, anecdotal information to indicate or describe change. An example of a qualitative indicator could be - the importance of a spiritual gathering site to community youth. These kind of indicators are very sensitive to a variety of changes because they involve the collection of descriptive information..
Using qualitative indicators to measure change does not always result in precise or consistent data, however, this does not mean they are less accurate.

In the community based monitoring project we recognized that a useful and holistic understanding of change in the community required the use of both quantitative and qualitative indicators. Through homevisits we were able to gather a broad range of qualitative and quantitative indicators, which refer to changes in the journeys of *self-government*, *healing* and *cultural preservation*.

Some indicators were based in *Traditional Knowledge* of the elders. They described to us signs of family wellness, good parenting skills, positive child behavior. They also talked about cultural issues like good communication between youth and elders, and values of respect for the land and for eachother. Other indicators were based in *Western science* such as those found to describe the process of healing. There were also indicators which we labeled *as community based indicators*, because they were based more generally in the everyday experiences of the community.

Other indicators developed appeared to be *integrated indicators* or indicators which reflect change in the health of the community as well as the biophysical environment. The indicators listed under the theme of cultural preservation are the most integrated of all indicators collected in Lutsel K'e. As other research has shown, (Wolfe, Usher) this integrated perspective is common amongst Aboriginal people and is becoming increasingly popular among environmentalists and policy makers. Concepts like sustainability, the ecosystem approach, holistic all begin with an understanding that human health and the health of the environment are absolutely connected.

Indicator Sensitivity

The rationale behind developing a community based monitoring process in the Slave Geological Province was to keep track of changes in the community that were associated with mineral development. Based on this rationale, indicators would have to be sensitive to socio-economic impacts of mineral development.

In many ways, mineral development and its relationship to communities is very similar to other non-renewable resource developments such as oil and gas exploration, pipeline projects and hydroelectric projects. (Smith, 1993 / Thompson and Bankes, 1984 / Stewart, 1986) Because of this similarity, they are often lumped together as "large scale development projects" for the purpose of analysis.

The majority of the literature around large scale development and socio-economic effects in the north is from the 1970s when oil and gas exploration and the Alaska and Mackenzie Valley Pipelines were proposed. The literature from the early to mid-1980s is limited to work done around the Norman Wells Pipeline Project. Literature from mid-1980s and early 1990s is sparse however, more documentation has been done in recent years with the exploration boom in the Slave Geological Province.

In the literature on the Canadian north and at a global level, the convention is to see large scale development as the cause of many undesirable changes in communities. (Auly, 1993 / Barker, 1978 / Davies, 1985 / Gedicks, 1993)
The emphasis on negative effects in the literature does not necessarily suggest that there are no benefits. Benefits, which often comes in the form of income or compensation, training packages etc., tend to be more clearly defined and are consistently promoted by industry and government. Negative impacts on the other hand, are less clearly defined, or understood and therefore are more often the focus of social science research.

Social Change and Effects

Socio-economic effects whether positive or negative are essentially changes in the community. Social systems or communities are in a constant state of change. Although many community elders would like to see "the Dene way of life" preserved they are aware that to a certain degree change in their way of life is inevitable. The issue of course, is to what degree change will occur and under what conditions. Is the community changing of its own will, or is change the result of external pressures or stresses?

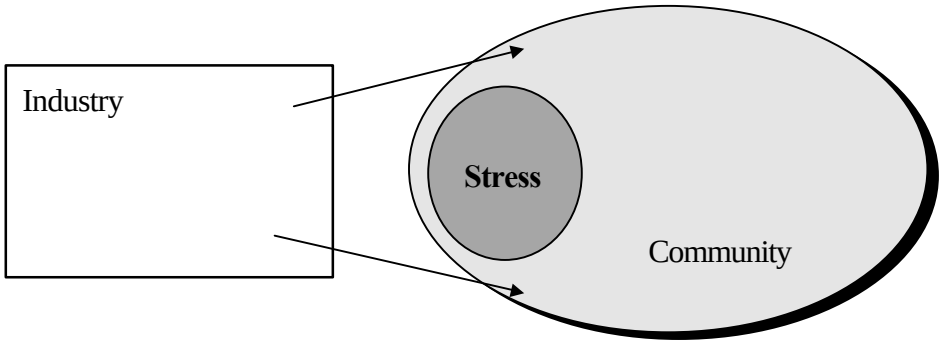
Another way of understanding impacts is look at the concept of "stress" and its relationship to changes to community health. Unlike many elements of the bio-physical environment, people are able to adapt to certain changes in their environment and consciously determine whether these changes and their adaptation to them is negative of positive. But people do have a limited capacity for adaptation as the scope and magnitude of stress increases. Eventually, whether physical, mental, emotional and spiritual, in the context of a single individual, a family or the whole community, stress serves to decrease the capacity of the (individual) or community to manage itself or, as Berkes (1981) describes, to self-organize. This can lead to numerous negative changes or trends.

From this, we can gather that people *are able* to adapt to changes from mineral development however, only to a certain extent. For the purpose of this analysis, stress, is considered the major linkage between development and its potential effects on community health.

At literature review was done to determine the stresses, or in other words, how mineral development may lead to negative effects in communities in the Slave Geological Province. Although many of the following effects tend to negative, the following discussion is only meant to reflect concerns documented in the literature, and does not necessary dictate the current or potential benefits of mining in the Slave Geological Province. The following discussion might serve instead as a guide for communities, government and industry seeking to avoid the negative effects which have conventionally been associated with mineral development.

Stresses from the Literature Review

According to submissions made by Aboriginal groups to the Environmental Assessment Panel on the BHP Diamond Mine, one of the major stresses mineral development has communities in the Slave Geological province is related to the lack of recognition by government and industry of Aboriginal rights to traditional land. The fact that mineral exploration and development has taken precedence over the settlement of Aboriginal claims and treaty negotiations in the Slave Geological Province may be seen as a major effect which underlies all other impacts.



Threats to the Land, Water and Wildlife

One major stress from mineral development relates to the wellbeing of the land and the wildlife. As Gramling / Freudenburg 1992 and Bielawski, 1994, Usher, 1992, Benedickson, 1978 suggest peoples' whose identities are closely related to the well-being of the land experience a great deal of stress and anxiety if that land is damaged or threatened. This was pinpointed as a potential effect during the Mackenzie Valley Pipeline Inquiry (1977). Such stress is related to the perception, held by many Aboriginal people, that the land has inherent value in and of itself and reflects the deep affinity they have for and with its well-being.

Threats to the land, water and wildlife may also impact on the traditional economy which is the backbone of many Aboriginal communities. This may include changes in patterns of harvesting, land use, values and respect shown to the land, as well as in other areas of culture. Negative changes to the traditional economy as a result of large scale development have been commonly documented, in the literature. (Usher, 1992 / Bielawski, 1992) Other research done related to the Norman Wells Pipeline Project suggest that that development had a minimal effect on the consumption of traditional food. (Bone, 1985) Many social scientists agree however, that although changes to the traditional economy may appear minimal in the short

term, over the long term, the cumulative effects of increasing large scale development are likely to be signficant.

Employment

Increased employment outside the community is another major way development can impact (lead to stress) in the communities. The absence of small to moderate number of people in the community may over the long term lead to a disintegration in interdependence or sharing among individuals and families in the community. Symptoms of such disintegration might include changes to family and child wellness such as increased child neglect, as a result of changed roles of extended families and lack of adequate daycare facilities. It may also lead to changes in traditional skills, activities in the community, peoples' use of language.

Broad Changes in Culture and Training

As documented by Abele (1989), Bowles (1986) and NWTSW (1995), the cultural norms, values and expectations associated with industrial development are significantly different than those present among communities. According to Francis Abele, there has been a tendency for industry to ignore the traditional lifestyle skills and knowledge of Aboriginal people. In some programs they are "treated as if they know nothing at all." (Abele, 1989) This systemic under-evaluation of Aboriginal people, coupled with stringent requirements to adapt to the norms and expectations of a non-Aboriginal people has been one cause of low representation of Aboriginal people in this area of employment. Within this context there are many issues of community health which should be considered including changes in cultural identity, self-esteem, emotional, and physical health.

Income to Individuals and Families

Other ways mineral development might impact (lead to stress) in communities relates to rapid changes in individual and family income. This issue has often been identified in the literature, most recently in submissions made to the Federal Panel on the BHP Diamond Mine development. (BHP, 1995 / NWT CSW, 1995 / Abele, 1996 / GNWT, 1996 Wismer, 1996) but also as early as the 1970s (Bowles, 1979 / Dixon, 1978)

The literature suggests that rapid changes in income have many potential spin-off effects, including increases in substance abuse, family violence, as well as negative effects on the well-being and capacity of children.

According to the literature the disruption to families associated with rapid changes in income is made more problematic due to the lack of adequate banking facilities in communities and a perceived lack of money management skills among wage labourers. (NWTCSW, 1995/ Bowles, 1979)

Changes in the Wealth of Communities

The increase in cash transfers, such as compensation monies and impact and benefit agreement dollars to communities is another way in which mineral development might impact (lead to stress) in communities. There are documented benefits of increased income at the community level such as those in the Fort Good Hope region (Hancock, 1992) and the Inuvialuit regions (Evalik, April 12, 1996)

Breakdown in interdependence among families, and its contribution to changes in social, cultural and spiritual patterns of interaction is one other area of concern. Changes in political structures might also result as economic power, brought on by the wage economy, surpasses traditional institutions of leadership (Edmonson, 1996) In some incidences, this may be a positive change for communities, however, over the long term, the structural dependency that results from the communities' centre of power lying outside of the communities' (and governments') control may be detrimental. (Rees, pg. 65)

The structural problems of a highly dependent northern economy have been well documented
The conventional belief, that the benefits of large scale development will boost other parts of the economy, is largely unfounded. In fact, there has tended to be very little real 'trickle down' from large scale development in the north or at a global level. The ideas of trickle down was first discounted by such authors as Andre Gunder Frank and Wallerstein in the late sixties and early seventies and in the northern context by numerous others. Abele (1989), Benedickson (1978) Rees, (1988) Stager, (1974), Watkins, (1977).

Limited 'trickle down' is partially attributable to structural problems within the non-renewable resources development, a reflection of inequities in the modern political economy. (Black, 1993, Rees, 1986). Such structural problems coupled with limited skills at the community level for mobilizing resources to diversify the local economy has over the long term led to greater under-development than during periods prior to development. The phrase *development of underdevelopment* as coined by Ander Gunder Frank, describes the pattern left by large scale industry, in many regions of the globe including northern Canada.

Based on a review of the above literature, it is suggested that mineral development in the Slave Geological Province may lead to effects in community health in the following ways.

Stresses of Large Scale Development in the Slave Geological Province

A) changes in individual and family income
B) changes in wealth within community
C) changes employment outside the community
D) broad regional changes in education and cultural opportunities / communication transportation linkages
E) threat / pressures on the environment

This list is not to be considered comprehensive. It is meant only as a guide for understanding how development in Slave Geological Province may affect communities. For the purposes of this report it will serve as a preliminary basis of analysis for determining which of the indicators developed during the Community Based Monitoring pilot project would be sensitive to the effects of large scale development in the region
The following charts provide each of the indicators and how they are sensitive to these stresses of development.

A. Changes in Individual / Family Income

#	Indicator	Indicator Relationship to Changes in Individual and Family Income
13	The number of jobs (by sector) and desired job opportunities in the community	Recording the number of jobs held in the community (by secotr) may indicate how changes in individual and family income reflects on employment.
19	The amount of money and resources devoted to youth activities in the community	Keeping track of how much money is spent on youth activities in the community may indicate how increased income to individuals and families is being spent / not being spent.
33	The number of recorded incidents of depression, anxiety, injury or other associated symptoms of abuse.	Keeping track of *the number* of people reporting symptoms of abuse may indicate how changes in income are affecting individuals and families.
35	The number of caribou, moose and other wildlife consumed during a certain period.	Recording changes in the level of traditional food being consumed in the community may indicate how changes in income is affecting subsistence harvesting.
39	The number of parents attending school activities and youth events.	Looking at the number of parents involved in children and youth activities may indicate how changes in income is affecting active parenting
41	The number of family activities offered in the community	Recording the number of families activities in the community may indicate how changes in income is affecting the amount of time families spend together
46	What are the strengths and weaknesses of children in the community.	Looking at this issue, may portray how changes in income is affecting the capacity of children in the community.
47	The number of children able to identify short and long term goals.	Looking at the ability of children able to identify short and long term goals and ability to meet those goals may reflect how changes in income is affecting the 'development' of children / youth in the community.
57	The kind / level of respect shown for the land during land use.	Looking at the kind or level of respect shown for the land during land use may reflect how changes income is affecting how people in the community use and value the land.
59	The number of organized cultural activities on the land.	Keeping track of the number of cultural activities on the land may indicate how changes in income is affecting use and value the land.
67	The number of traditional land use activities involving opportunities for educating youth.	This indicator may reflect how changes in income is affecting the level of cultural education in the community.
71	The amount of culturally meaningful time youth spend with elders.	The amount of time youth spend with elders may indicate how changes in income are affecting cultural education in the community.
75	The number of people who value the land, water and wildlife as integral to Dene way of life - How is repect for the land, water and wildlife integral to the Dene way of life.	This indicator may reflect how changes in income is affecting Traditional Dene values.

B. Changes in Wealth within the Community

#	Indicator	Relationship of Indicator to Changes in Wealth in the Community
7	The level of gossip community in the community.	Looking at the level of gossip in the community may tell us how changes in wealth in the community is affecting communication and respect among people.
9	The number of volunteers at public events.	Keeping track of the number of volunteers at public events may indicate how changes in wealth within the community is affecting the level of volunteerism - the capacity of the community to respect eachother and work together.
13	The number of jobs and job opportunities in the community.	This indicator may show how changes in wealth in the community is affecting levels of desired employment and economic development.
19	Keeping track of the amount of money and resources devoted to youth activities in the community.	Recording changes in the amount of money directed towards youth activities may reflect how changes in the wealth of the community is affecting community support for youth.
23	The number of youth participating in public meetings and community activities.	This indicator may reflect how changes in the wealth of the community is affecting the level of participation of youth in the community.
29	The number of reported concerns regarding Band Services.	Keeping track of these reports may assist in our understanding of how changes in the wealth of the community is affecting the quality and effectiveness of local services.
33	The number of recorded incidents of depression, anxiety, injury or other associated symptoms of abuse.	This indicator may show how changes in wealth in the community is affecting individual wellness.
41	The number of family activities offered in the community.	Keeping track of the number of family activities offered may reflect how changes in the wealth of communities is affecting the amount of (quality) time families spend together.
55	The number of people trapping or involved in subsistence land use.	Keeping track of the number of people involved trapping and subsistence land use may indicate how changes in income are affecting the community's use of the land.
61	The number of families using Chipewyan as a first language.	This indicator may reflect how changes in income is affecting the use and development of the Chipewyan language in the community.
67	The number of traditional land use activities involving opportunities for educating youth.	Keeping track of changes in this indicator may reflect how changes in income are affecting cultural education in the community.
69	The level of success of cultural programs.	This indicator may show how changes in income affect cultural programs.
75	The number of people who see respect for the land, water and wildlife as integral to the Dene way of life.	Keeping track of changes in this area may indicate how changes in income affects the preservation of traditional Dene values.

C. Employment Levels outside the Community

#	Indicator	Relationship of Indicator to Employment Levels outside the Community
9	The number of volunteers at public events.	Tracking the number of volunteers at public events may show a lot about how changes in levels of employment outside the community is affecting the level of volunteerism in the community.
11	The number of questions being asked at public meetings	Tracking the number of questions being asked at public meetings may reflect how changes in levels of employment outside the community is affecting people's awareness of issues which affect the community.
13	The number of jobs and number of desired jobs in the community.	Keeping track of the number of jobs and desired job opportunities may reflect how changes in levels of employment outside the community is affecting the levels of employment within the community.
23	The number of youth and level of participation in public meetings and community activities.	Keeping track of the number of youth and level of participation in public meetings and activities may reflect how changes in the level of employment outside the community is affecting the involvement of youth in the community.
31	The number of people in the community who have (had) cancern, tuberculosis and other serious diseases.	Looking at this indicator may reflect how changes in the level of employment in the community is affecting the physical health of people in the community.
33	The number of recorded incidents of depression, anxiety, injury and other associated symptoms of abuse.	Looking at this indicator may illustrate how changes in the level of employment outside the community is affecting the overall wellness of individuals in the community.
35	The number of caribou, moose and other wildlife consumed during the study period.	Keeping track of changes in this area may reflect how changes in the level of employment outside the community is affecting the amount of traditional food that is being consumed in the community.
39	The number of parents attending school activities and youth events	Recording changes in this area may reflect how changes in the level of employment outside the community is affecting the level of support parents give to their children.
41	The number of family activities offered in the community.	Keeping track of this indicator may reflect how changes in the level of employment outside the community is affecting the amount of time families spend together.
43	The number of children demonstrating positive behaviour in a set time period	Looking at changes in this area may reflect how changes in the level of employment outside the community is affecting the health of children
45	The strengths and weaknesses of children in the community;.	Looking at changes in this area may indicate how changes in the level of employment outside the community is affecting the capacity of children.

47	The number of children able to identify / meet short and long term goals	Keeping track of this kind of information may reflect how changes in the level of employment outside the community is affecting the capacity of children to meet their goals.
51	The number of answered / unanswered requests made to Drug and Alcohol workers.	Recording this kind of information may indicate how changes in the level of employment outside the community reflects on the capacity of healing services to meet community needs.
53	The level of diversity of available healing programs.	Keeping track of changes in the diversity of healing programs, may reflect how changes in the level of employment outside the community is reflects on the diversity in healing programs available.
55	The number of people trapping or involved in subsistence land use.	Keeping track of the number of people trapping or involved in subsistence land use may indicate how changes in the level of employment outside the community is affecting how people use the land.
57	The kind of respect shown to the land during land use.	Looking at the kind of respect shown to the land during land use may reflect how changes in the level of employment outside the community is affecting the community's respect for the land.
59	The number of organized cultural activities on the land.	Keeping track of changes to this indicator may reflect how changes in the level of employment outside the community is affecting cultural land use.
61	The number of families using Chipewyan as a first language	Looking at changes in this area may indicate how changes in the level of employment outside the community is affecting the use and development of the Chipewyan language.
67	The number of traditional land use activities involving opportunities for educating youth	Keeping track of traditional land use activities involving opportunities for educating youth may reflect how changes in the level of employment outside the community is affecting cultural education in the community.
71	Amount of culturally meaningful time youth spend with elders	Tracking change in this area may reflect how changes in the level of employment outside the community is affecting the relationship between youth and elders.
73	Number of people who know how to make fires, trap, hunt, and set nets, survive in the cold, tan hides, make dry meat and sew moccasins.	Changes in this indicator may reflect how changes in the level of employment outside the community is affecting the level of traditional knowledge in the community.
75	The number of people who understand respect for the land, water, wildlife is important to the Dene way of life.	Tracking change according to this indicator may reflect how changes in the level of employment outside the community is affecting the level of traditional knowledge that exists in the community.
77	The number of opportunities for knowledge sharing.	Changes in this area may reflect how changes in the level of employment outside the community is affecting the level of traditional knowledge being shared in the community.

D. Changes in Education and Training Opportunities

#	Indicator	Relationship of Indicator to Changes in Education and Training Opps.
1	The number of local, regional and national meetings being attended by Chief and Council and representatives.	Watching changes in this area may reflect how changes in the kind of educational and training opportunities in the community is affecting the leadership's awareness of issues which affect the community.
11	The number of questions being asked at public meetings.	Tracking these kind of changes may reflect how changes in the kind of educational and training opportunities in the community is affecting the people's level of awareness about issues which affect the community
13	The number of jobs and desired job opportunities in the community.	Tracking changes in the number of jobs and job opportunities in the community may reflect how changes in the kind of educational and training opportunities in the community is affecting employment.
21	The level of attendance and graduation of youth from high school or other education programs.	Looking at changes in this area may reflect how changes in the kind of educational and training opportunities in the community is affecting the education of youth - their knowledge and capacity.
37	The number of families and expecting women participating in healthcare programs.	Tracking changes in this area may reflect how changes in the kind of educational and training opportunities in the community is affecting health awareness in the community.
47	The number of children able to identify short and long term goals.	Tracking changes in the area may reflect how changes in the kind of educational and training opportunities in the community is affecting the 'development' of children in the community.
49	The success rate of participants attending treatment programs	Tracking changes in this area may reflect how changes in the kind of educational and training opportunities in the community is affecting the effectiveness of healing programs.
55	The number of people trapping or involved in subsistence land use.	Tracking changes in the number of people trapping or involved in subsistence land use may reflect how changes in the kind of educational and training opportunities in the community is affecting traditional land use.
57	The kind of respect shown to the land during land use.	Looking at changes in this area may reflect how changes in the kind of educational and training opportunities in the community is affecting the level of respect shown to the land.
59	The number of organized cultural activities on the land.	Tracking changes in the number of organized cultural activites on the land may reflect on the use of the land.

61	The number of families using Chipewyan as a first language.	Tracking changes in this area may reflect how changes in the kind of educational and training opportunities in the community is affecting the use of the Chipewyan language in the community.
63	Number of opportunities for learning Chipewyan	Keeping track of changes in this area may reflect how changes in the kind of educational and training opportunities in the community is affecting the use and development of the Chipewyan language in the community/
67	The number traditional land use activities involving opportunities for educating youth.	Keeping track of the number of traditional land use activities involving opportunities for youth may reflect how changes in the kind of educational and training opportunities in the community is affecting cultural education in the community.
71	Amount of culturally meaningful time youth spend with elders.	Keeping track of changes in this area may reflect how changes in the kind of educational and training opportunities in the community is affecting the relationship between youth and elders.
73	The number of people who know how to make fires, rap, hunt, set nets, survive in the cold, tan hides, make dry meat, sew moccasins.	Looking at changes according to this indicatormay reflect how changes in the kind of educational and training opportunities in the community is affecting the level of traditional knowledge and skills in the community.
75	The number of people who understand respect for the land, water, wildlife, is important to the Dene way of life.	Tracking changes in this area may reflect how changes in the kind of educational and training opportunities in the community is affecting the traditional Dene values.

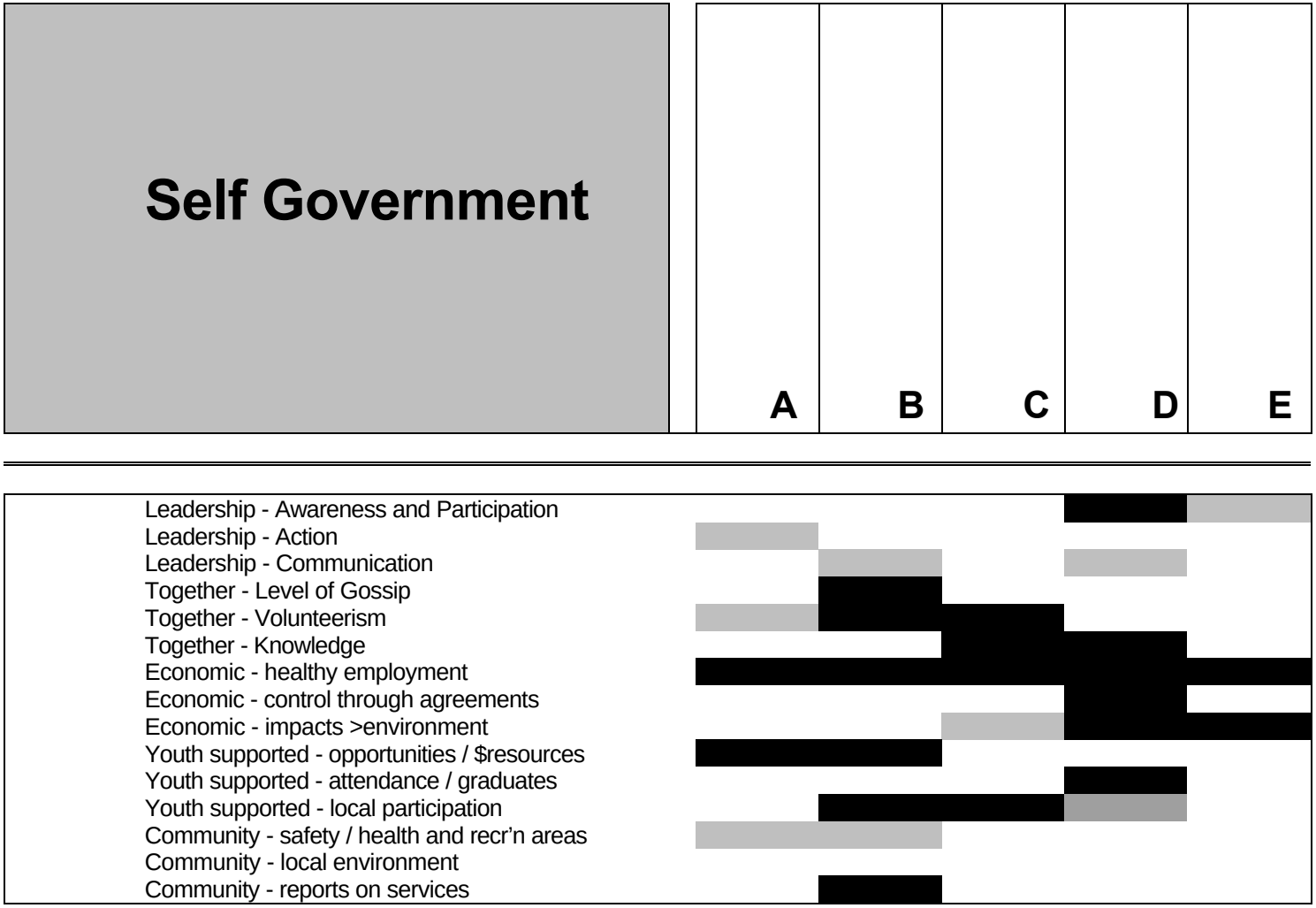
E. Changes in the Health of the Environment

#	Indicator	Relationship of Indicator to Changes in the Health of the Environment
13	The number of jobs and number of job desired opportunities in the community.	Keeping track of change in this area may reflect how changes in the health of the environment is affecting employment in the community.
17	The number of reported incidents of development impacting on the environment.	Keeping track of changes in this area may reflect how changes in the health of the environment is affecting the same.
33	The number of recorded incidents of depression, anxiety, injury and associated symptoms of abuse.	Looking at changes in this area may reflect how changes in the health of the environment is affecting individual wellness.
35	The number of caribou, moose, other wildlife consumed during the study period.	Recording changes in this area may reflect how changes in the health of the environment is affecting nutrition in the community.
51	The number of answered and unanswered requests made to Drug and Alcohol Workers.	Keeping track of changes in the number of answered and unanswered requests made to drug and alcohol workers may indicate how changes in the health of the environment reflects on the capacity of healing services.
55	The number of people trapping or involved in subsistence land use.	Keeping track of changes in this area may reflect how changes in the health of the environment is affecting traditional land use.
57	The kind of respect shown to the land during land use.	Looking at changes in this area may reflect how changes in the health of the environment is affecting the respect people in the community have for land.
59	The number of organized cultural activities on the land.	Tracking changes in this area may reflect how changes in the health of the environment is affecting cultural activities.
67	The number of traditional land use activities involving opportunities for educating youth.	Tracking changes in this area may reflect how changes in the health of the environment is affecting cultural education for youth.
69	The level of success of cultural programs.	Tracking changes in this area may reflect on how changes in the health of the environment is affecting the success of cultural programs
71	The amount of culturally meaningful time youth spend with elders.	Tracking changes in this area may reflect how changes in the health of the environment is affecting is affecting the relationship between youth and elders and subsequently the level of cultural education that is available .
73	The number of people who know how to make fires, trap, hunt, set nets, survive in the cold, tan hides, make dry meat, sew moccasins.	Keeping tracking of changes according to this indicator may reflect how changes in the health of the environment is affecting traditional knowledge and skills in the community.
75	The number of people who understand respect for the land, water, wildlife is important to the Dene way of life.	Keeping track of changes in this area may reflect how changes in the health of the environment is affecting traditional values in the community.
77	The number of opportunities for knowledge sharing.	Keeping track of changes in this area may reflect how changes in the health of the environment is affecting traditional knowledge sharing in the community.

The following charts illustrate the relationships of indicators to stresses that were tabled in the above section. Those indicators that would be directly sensitive to a particular influence were shaded black. Those indicators that would be indirectly sensitive were shaded gray.

As shown in the table, more than half of the indicators developed in Lutsel K'e would be sensitive to changes associated with development. Although further discussion and analysis is required to ensure the set of stress factors is comprehensive, one can anticipate that community based indicators are indeed useful tools in monitoring and in the broader field of impact assessment.

Sensitivity of Community Based Indicators to Stress Factors of Development



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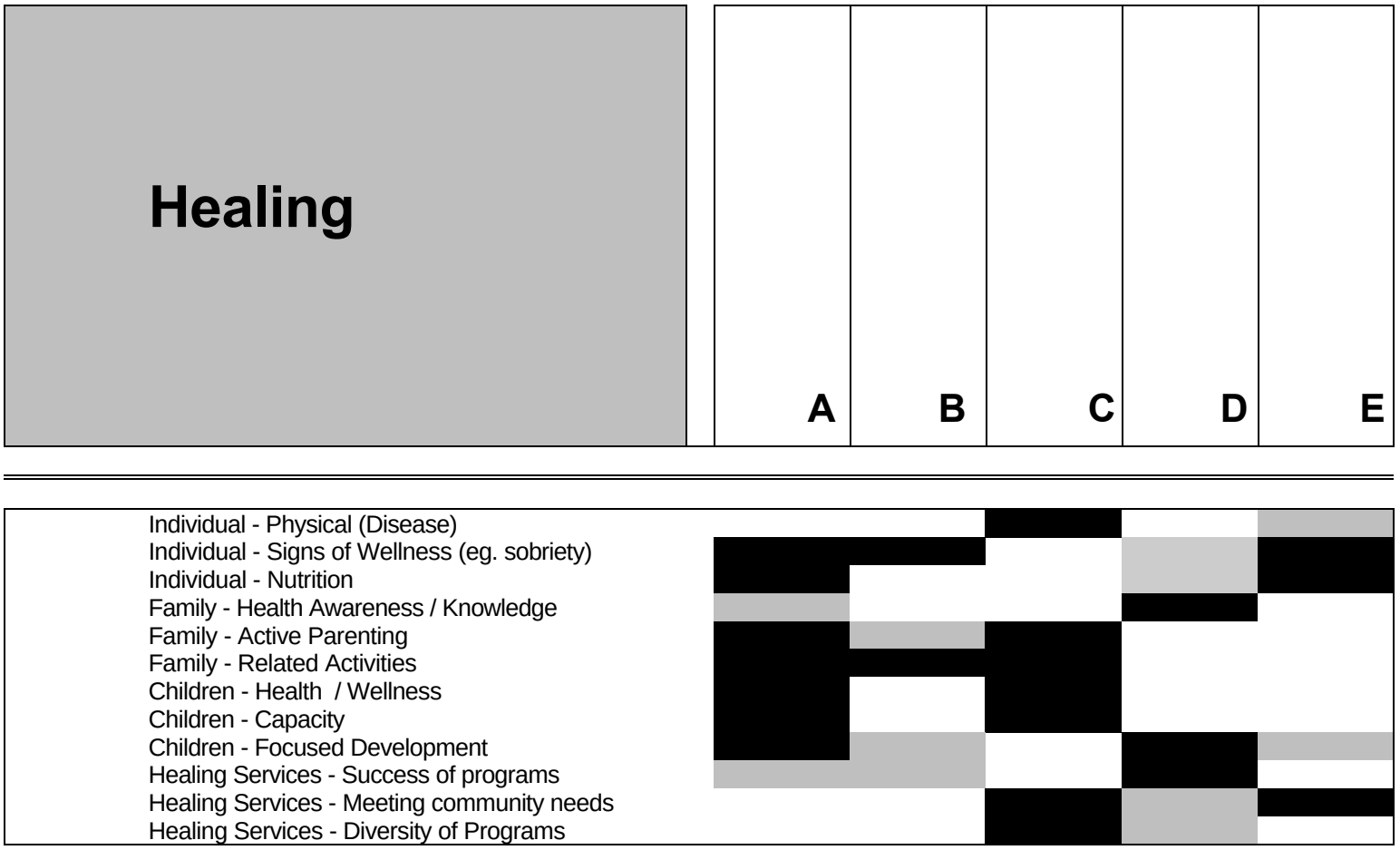
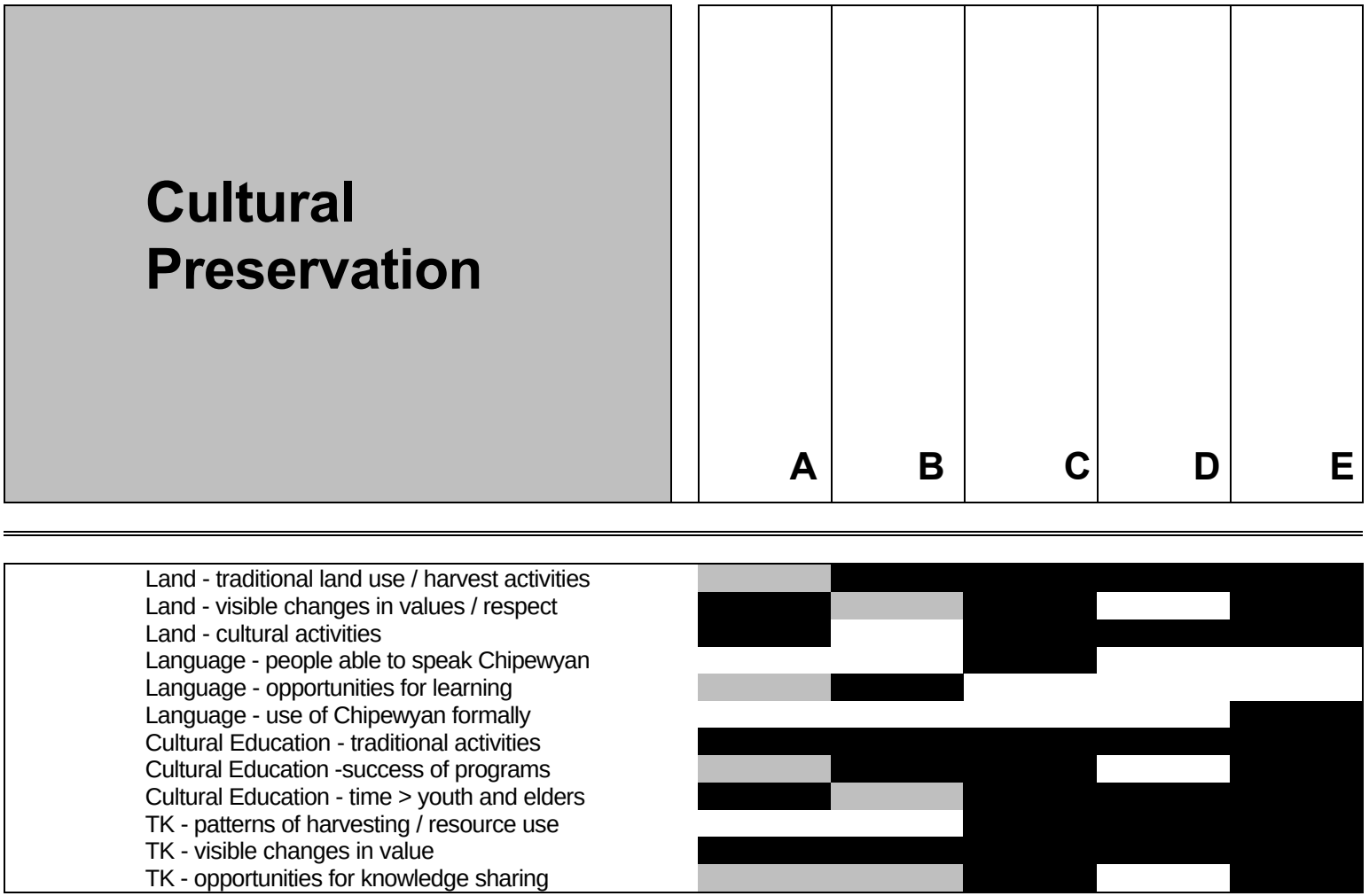


Sensitivity of Community Based Indicators to Stress Factors of Development



Advantages of Community Based Monitoring

Benefits to Community Health

Raising awareness and discussing health issues is an essential first step to finding appropriate solutions to on-going problems and preventing further problems from developing. Community Based Monitoring is one way to build that awareness and a forum for discussion. Through homevisits, workshops and focused communication such as newsletters and photo displays, people in the community will have an opportunity to gather and share information about health. This process of community based monitoring will thus in the long run assist in developing a healthier community.

Tools / Knowledge

Another aspect of community based monitoring which is a distinct advantage to people in the community is the focus on training and skill building. Training of local people in the areas of research and analysis, interviewing skills, organizing and interpreting information, communication and computer operation was done during the first phase of the project (June 1996-1997) Over the 4 year life of the project however, training will continue as the Community Researcher becomes involved in on-going Band Staff training programs. Some of those programs include, developing leadership and communication skills, advanced Chipewyan language learning and advanced literacy programs.

Consistent within Long-term Vision of Community Empowerment and Aboriginal Self Government

Community Based Monitoring enables communities to develop both the skills and knowledge to participate meaningfully in the assessment of large scale development projects. This focus on community capacity building is consistent with the both the Federal and Territorial Governments' agenda in the Northwest Territories. Their vision of decentralized community empowerment would see people at the local level managing programs and services such as monitoring that have traditionally been held by central agencies. Community based Monitoring might also be seen as consistent with the goal of Aboriginal self-government. Although there are varying definitions, in general self-government would enable Dene people greater participation (control) in processes like assessment and monitoring.

Cost Effectiveness

Another important benefit of community based monitoring is the cost-effectiveness of its approach. As described by (Gombay, 1993) this is particularly true for environmental monitoring however, similar arguments can be made for community health monitoring.

Most of the impediments to monitoring in the past have been concerns about the cost of involving expert researchers and analysts to statistically map changes in the community or the ecosystem. As this research has shown, people at the community level have significant and useful information about health which is valuable in assessing large scale development projects.

If one were to weigh the sensitivity and level of detailed data about impacts which can be gathered at the community level and compare it to data collected through institutional approaches, the scale would quickly tip in favour of community based monitoring. There are other savings however. By involving existing groups at the community level and gathering knowledge on a volunteer basis, community based monitoring offers significant savings to those agencies required to fund monitoring programs.

Structural Sensitivity

Limited sensitivity to human scale changes has been the major weakness of most social impact assessment models and monitoring processes which aimed at evaluating large scale developments . Perhaps the most important advantage of community based monitoring in the context of the Slave Geological Province is its sensitivity to human scale changes associated with impacts from large scale development.

The relative small scale of community based monitoring approaches compared with that of larger more centralized institutions provides for a flexibility and dynamism, essential for any agency attempting to monitor change.

Use of Local Knowledge - Building Local Knowledge

Identifying changes associated with impacts, is the first step in the monitoring process. Use of local knowledge in this process gives community based monitoring a particular advantage over institutional models that might only have access to second hand statistical data from government departments.. Although there may be some inconsistencies in data due to the diversity of perspectives found in a community, as a whole local knowledge is extremely valuable because it reflects local experiences.

In any assessment process, the evaluation of impacts is as critical as identifying what impacts are occurring. Is a small increase in income with extra services better than a large increase in income with lesser services? Did building an youth arcade have a negative or positive impact on the community? These are questions that can only be answered at the community level? What one group recognizes as a benefit another might view as a detriment. Use of local knowledge in the evaluation process rather that experts or government agencies, will ensure a more appropriate and meaningful assessment of impacts and their positive and negative effects in the community.

Next Steps

The community based monitoring pilot project was successful in generating a set of indicators as well as a process of monitoring for communities in the Slave Geological Province to monitor changes in their communities health. Other work must be done however, if the community based monitoring in the Slave Geological Province is to be successful.

- A Traditional Knowledge Study on Community Health is currently underway in Lutsel K'e to gather background information from the past on aspects of community health that will be monitored in the future. This work will provide context for understanding future and potential changes in the community.

- Not all of the indicators generated are likely to be used in the monitoring process. Further work must be done to analyze the indicators that were generated in order to determine which set of indicators would be most useful and appropriate for monitoring. This analysis might include workshops in the community of Lutsel K'e with local committees and Band Council however, other communities and resource people from other parts of the region might be usefully involved in this analysis process.

- The monitoring process will begin in earnest in September, 1997. It will involve data gathering, analysis through discussion with a committee and focused communication. Once a phase of monitoring has been completed, (December 1997) an evaluation should take place to determine whether the process of monitoring is working appropriately and to consider what aspects need to be improved or modified.

- Monitoring is currently focused on aspects of community health. For the most part this includes human health issues. But as we know, human health is strongly connected to the health of the environment. More work could be done to include environmental issues in the community based monitoring process. This would create a more holistic focus for the project and indeed more appropriately reflect the community's perspective of health and how that health is likely to change with mineral development in the region.

- Community based monitoring is useful in generating knowledge about how large scale development in the Slave Geological Province is affecting communtiy health. In order for that knowledge to be useful, a link must be created between those monitoring and those making decisions at the community level, in government and in industry. Coordination in the community of Lutsel K'e is well developed and appears to be improving as more committee see the benefit of monitoring in the community. Better coordination with the GNWT - Department of Health and Social Services is required if monitoring community health is to be useful in planning and decision making. Other agencies such as The Independent monitoring Agency may be another avenue for

communities to bring knowledge gained through monitoring to bear on regional decision making processes. Future Impact Benefit Agreements, as well as direct communication and negotiation with mineral developer might also be useful in bringing knowledge gained through monitoring into the forum of planning and decision making.

- Another next step to consider is including other communities in the Slave Geological Province into community based monitoring processes as well. By communities working together, a better understanding of large scale development and its effects can be generated among community people.